UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT 1934**

For the fiscal year ended December 31, 2021

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File Number: 001-37806

TWILIO INC.

(Exact name of registrant as specified in its charter)

Delaware	**26-2574840**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

101 Spear Street, First Floor
San Francisco, California 94105
(Address of principal executive offices) (Zip Code)

(415) 390-2337
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Class A Common Stock, par value $0.001 per share	TWLO	New York Stock Exchange Long-Term Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act: Yes ☒ No o

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act: Yes ☐ No x

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No o

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes x No o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer", "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No x

The aggregate market value of stock held by non-affiliates as of June 30, 2021 (the last business day of the registrant's most recently completed second quarter) was $51.0 billion based upon $394.16 per share, the closing price on June 30, 2021 on the New York Stock Exchange. Determination of stock ownership by non-affiliates was made solely for the purpose of responding to this requirement and the registrant is not bound by this determination for any other purpose.

On February 15, 2022, 171,702,846 shares of the registrant's Class A common stock and 9,820,605 shares of registrant's Class B common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement for the 2022 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. Such Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2021.

TWILIO INC.
Annual Report on Form 10-K
For the Fiscal Year Ended December 31, 2021
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Special Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), which statements involve substantial risks and uncertainties. Forward-looking statements generally relate to future events or our future financial or operating performance. In some cases, you can identify forward-looking statements because they contain words such as "may," "can," "will," "would," "should," "expects," "plans," "anticipates," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "forecasts," "potential," or "continue" or the negative of these words or other similar terms or expressions that concern our expectations, strategy, plans or intentions. Forward-looking statements contained in this Annual Report on Form 10-K include, but are not limited to, statements about:

- the impact of the coronavirus disease of 2019 ("COVID-19") pandemic on the global economy, our customers, employees and business;
- our future financial performance, including our revenue, cost of revenue, gross margin and operating expenses, ability to generate positive cash flow and ability to achieve and sustain profitability;
- anticipated technology trends, such as the use of and demand for cloud communications;
- our ability to continue to build and maintain credibility with the global software developer community;
- our ability to attract and retain customers to use our products;
- the evolution of technology affecting our products and markets;
- our ability to introduce new products and enhance existing products;
- our ability to comply with modified or new industry standards, laws and regulations applying to our business, including the General Data Protection Regulation ("GDPR"), the Schrems II decision invalidating the EU-US Privacy Shield, the California Consumer Privacy Act of 2018 ("CCPA") and other privacy or cybersecurity regulations that may be implemented in the future, and Signature-based Handling of Asserted Information Using toKENs ("SHAKEN") and Secure Telephone Identity Revisited ("STIR") standards (together, "SHAKEN/STIR") and other robocalling prevention and anti-spam standards and increased costs associated with such compliance;
- potential harm caused by compromises in security, data and infrastructure, including cybersecurity protections, investments and resources and costs required to prevent, detect and remediate potential cybersecurity threats, incidents and breaches of ours or our customers' systems or information;
- our ability to optimize our network service provider coverage and connectivity;
- our ability to manage changes in network service provider fees that we pay in connection with the delivery of communications on our platform;
- our ability to work closely with email inbox service providers to maintain deliverability rates;
- our ability to pass on our savings associated with our platform optimization efforts to our customers;
- the impact and expected results from changes in our relationships with our larger customers;
- our ability to attract and retain enterprises and international organizations as customers for our products;
- our ability to form and expand partnerships with technology partners and consulting partners;
- our ability to successfully enter into new markets and manage our international expansion;
- the attraction and retention of qualified employees and key personnel;
- our ability to effectively manage our growth and future expenses and maintain our corporate culture;

- our ability to compete effectively in an intensely competitive market;
- the sufficiency of our cash and cash equivalents to meet our liquidity needs;
- our anticipated investments in sales and marketing, research and development and additional systems and processes to support our growth;
- our ability to maintain, protect and enhance our intellectual property;
- our ability to successfully defend litigation brought against us;
- our ability to service the interest on our 3.625% senior notes due 2029 ("2029 Notes"), our 3.875% notes due 2031 ("2031 Notes," and together with the 2029 Notes, the "Notes"), and repay such Notes;
- our customers' and other platform users' violation of our policies or other misuse of our platform;
- our expectations about the impact of climate change, natural disasters, public health epidemics and other natural catastrophic events and man-made problems such as data security breaches or terrorism; and
- our ability to successfully integrate and realize the benefits of our past or future strategic acquisitions or investments.

We caution you that the foregoing list may not contain all of the forward-looking statements made in this Annual Report on Form 10-K.

You should not rely upon forward-looking statements as predictions of future events. We have based the forward-looking statements contained in this Annual Report on Form 10-K primarily on our current expectations and projections about future events and trends that we believe may affect our business, financial condition, results of operations and prospects. The outcome of the events described in these forward-looking statements is subject to risks, uncertainties and other factors described in "Summary of Risk Factors and Uncertainties Associated with Our Business" below, in Part I, Item 1A, "Risk Factors," and elsewhere in this Annual Report on Form 10-K. Moreover, we operate in a very competitive and rapidly changing environment. New risks and uncertainties emerge from time to time and it is not possible for us to predict all risks and uncertainties that could have an impact on the forward-looking statements contained in this Annual Report on Form 10-K. We cannot assure you that the results, events and circumstances reflected in the forward-looking statements will be achieved or occur, and actual results, events or circumstances could differ materially from those described in the forward-looking statements.

The forward-looking statements made in this Annual Report on Form 10-K relate only to events as of the date on which the statements are made. We undertake no obligation to update any forward-looking statements made in this Annual Report on Form 10-K to reflect events or circumstances after the date of this Annual Report on Form 10-K or to reflect new information or the occurrence of unanticipated events, except as required by law. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make.

Summary of Risk Factors and Uncertainties Associated with Our Business

Our business is subject to numerous risks and uncertainties outside of our control. One, or a combination, of these risks and uncertainties could materially affect any of those matters as to which we have made forward-looking statements and cause our actual results or an actual event or occurrence to differ materially from those results or an event or occurrence described in a forward-looking statement. Some of the principal risks associated with our business include the following:

- *the impact of the global COVID-19 pandemic;*
- *new and unproven markets for our products and platform;*
- *our ability to effectively manage our rapid growth;*
- *fluctuations in our quarterly results and our ability to meet securities analysts' and investors' expectations;*
- *our ability to maintain and enhance our brand and increase market awareness of our company and products;*
- *limitations on the use and adoption of our solutions due to privacy laws, data collection and transfer restrictions and related domestic or foreign regulations;*

- *our ability to maintain and grow our relationships with existing customers and have them increase their usage of our platform;*
- *our ability to attract new customers in a cost-effective manner;*
- *our ability to develop enhancements to our products and introduce new products that achieve market acceptance;*
- *our ability to compete effectively in the markets in which we participate;*
- *our history of losses and uncertainty about our future profitability;*
- *our ability to increase adoption of our products by enterprises;*
- *our ability to expand our relationships with existing technology partner customers and add new technology partner customers;*
- *significant risks associated with expansion of our international operations;*
- *compliance with applicable laws and regulations;*
- *telecommunications-related regulations and future legislative or regulatory actions;*
- *our ability to obtain or retain geographical, mobile, regional, local or toll-free numbers and to effectively process requests to port such numbers in a timely manner due to industry regulations;*
- *our ability to adapt and respond effectively to rapidly changing technology, evolving industry standards, changing regulations, and changing customer needs, requirements or preferences;*
- *our ability to provide monthly uptime service level commitments of a minimum of 99.95% under our agreements with customers;*
- *any breaches of our networks or systems, or those of AWS or our service providers;*
- *defects or errors in our products;*
- *any loss or decline in revenue from our largest customers;*
- *litigation by third parties for alleged infringement of their proprietary rights;*
- *exposure to substantial liability for intellectual property infringement and other losses from indemnity provisions in various agreements;*
- *our ability to successfully utilize or to integrate acquired businesses and technologies successfully or to achieve the expected benefits of such acquisitions, partnerships and investments;*
- *the loss of our senior management and other key employees;*
- *our use of open source software;*
- *our reliance on SaaS technologies from third parties;*
- *potentially adverse tax consequences on our global operations and structure;*
- *fraudulent usage of or activity relating to our products;*
- *unfavorable conditions in our industry or the global economy;*
- *requirement of additional capital to support our business and its availability on acceptable terms, if at all;*
- *exposure to foreign currency exchange rate fluctuations;*
- *our ability to use our net operating losses and certain other tax attributes to offset future taxable income and taxes;*
- *our failure to maintain an effective system of disclosure controls and internal control over financial reporting;*
- *the risks of pandemics, earthquakes, fire, floods and other natural catastrophic events and of interruption by man-made problems such as power disruptions, computer viruses, data security breaches or terrorism;*
- *volatility of the trading price of our Class A common stock;*
- *potential decline in the market price of our Class A common stock due to substantial future sales of shares;*
- *requirement of a significant amount of cash to service our future debt; and*
- *our ability to raise the funds necessary for the repayment of the 2029 Notes and 2031 Notes for cash.*

PART I

Item 1. *Business*

Overview

Software developers are reinventing nearly every aspect of business today. Yet as developers, we repeatedly encountered an area where we could not innovate—communications. Because communication is a fundamental human activity and vital to building great businesses, we wanted to incorporate communications into our software applications, but the barriers to innovation were too high. Twilio was started to solve this problem in 2008.

Twilio spent over a decade building the leading cloud communication platform, but communications is just the beginning. Twilio's vision is to become the leading customer engagement platform, ultimately providing businesses with the holy grail—a single view of the customer journey and the ability to take action, delivering real-time, personalized communications. We believe the future of customer engagement will be written in software by the developers of the world—our customers.

Cloud platforms are a category of software that enable developers to build and manage applications without the complexity of creating and maintaining the underlying infrastructure. These platforms have arisen to enable a fast pace of innovation across a range of categories, such as computing and storage. We are the leader in the cloud communications platform category. We enable developers to build, scale and operate real-time customer engagement within software applications.

We offer a customer engagement platform with software designed to address specific use cases, like account security and contact centers, and a set of Application Programming Interfaces ("APIs") that handles the higher-level communication logic needed for nearly every type of customer engagement. These APIs are focused on the business challenges that a developer is looking to address, allowing our customers to more quickly and easily build better ways to engage with their customers throughout their journey. Our engagement platform also includes a set of APIs that enable developers to embed voice, messaging, video and email capabilities into their applications, and are designed to support almost all the fundamental ways humans communicate, unlocking innovators to address just about any communication market. The Super Network is our software layer that allows our customers' software to communicate with connected devices globally. It interconnects with communications networks and inbox service providers around the world and continually analyzes data to optimize the quality and cost of communications that flow through our platform. The Super Network also contains a set of APIs giving our customers access to more foundational components of our platform, like phone numbers and session initiation protocol (“SIP”) Trunking.

In February 2019 we acquired SendGrid, Inc. (“SendGrid”), the leading email API platform. Email is an important channel for businesses to communicate with their customers and incorporating SendGrid's products into our platform allows us to enable businesses to engage with their customers via email effectively and at scale.

In November 2020 we acquired Segment.io, Inc. (“Segment”), the market-leading customer data platform. Segment provides businesses a unified customer view to better understand their customers and engage more effectively, enabling us to drive personalization at scale. The acquisition expands and strengthens use cases across customer service, marketing, sales, product and analytics and accelerates Twilio’s journey to build the world’s leading customer engagement platform.

In July 2021 we acquired Zipwhip, Inc., (“Zipwhip”) a leading provider of toll-free messaging in the United States. Zipwhip’s customizable APIs enable organizations to text enable their existing toll-free phone numbers in minutes and seamlessly fit texting into their workflows.

We had over 256,000 Active Customer Accounts as of December 31, 2021, representing organizations big and small, old and young, across nearly every industry, with one thing in common: they are competing by using the power of software to build differentiated customer engagement experiences. With our customer engagement platform, our customers are disrupting existing industries and creating new ones. For example, our customers' software applications use our platform to notify a diner when a table is ready, provide enhanced application security through two-factor authentication to safely recognize a customer, connect potential buyers to real estate agents, and power large, omni-channel contact centers. The range of applications that developers build with the Twilio platform has proven to be nearly limitless.

Our goal is for Twilio to be in the toolkit of every software developer in the world, from small businesses to major enterprises. Because big ideas often start small, we encourage developers to experiment and iterate on our platform. We love when developers explore what they can do with Twilio, because one day they may have a business problem that they will use our products to solve.

As our customers succeed, we share in their success primarily through our usage-based revenue model. Our revenue grows as customers increase their usage of a product, extend their usage of a product to new applications or adopt a new product. We believe the most useful indicator of this increased activity from our existing customer accounts is our Dollar-Based Net Expansion Rate, which for historical periods through December 31, 2019, compares the revenue from a cohort of Active Customer Accounts, other than Variable Customer Accounts, in a period to the same period in the prior year. As previously announced in our Annual Report on Form 10-K filed with the SEC on March 2, 2020, commencing with the three-month period ended March 31, 2020, we calculate our Dollar-Based Net Expansion Rate by comparing total revenue from a cohort of Active Customer Accounts in a period to the same period in the prior year (the "New DBNE Definition"). When we calculate Dollar-Based Net Expansion Rate for periods longer than one quarter, we use the average of the applicable quarterly Dollar-Based Net Expansion Rates for each of the quarters in such period. Under the New DBNE Definition, our Dollar-Based Net Expansion Rate was 131% and 137% for the years ended December 31, 2021 and 2020, respectively. See Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Business Metrics—Dollar-Based Net Expansion Rate."

Our Platform Approach

Twilio's mission is to unlock the imagination of builders. Our plan is to be the leading customer engagement platform. We enable builders - the developers of the world - to build, scale and operate real-time communications within software applications, ultimately empowering every developer and company to improve their interactions with their customers. This enables businesses to create novel and creative new consumer experiences that delight their customers and differentiate their companies from their competitors.

Our platform approach enables developers to build this future. Using our software, developers are able to incorporate communications and customer data into applications that span a range of industries and functionalities. Our technology partner customers also embed our products in solutions they sell to other businesses.

Part of our core strategy is to provide a broad set of lower-level building blocks that can be used to build practically any digital experience. By doing this, we allow developers' creativity to flourish across the widest set of use cases—some of which have not even been invented yet.

What are some of the common customer problems we are solving?

- **Contact Center.** Twilio gives companies complete control and flexibility to rapidly deploy remote agents, digital channels, self-service and integrations for lower costs and higher productivity.
- **Alerts and Notifications.** From delivery notifications to critical emergency alerts, Twilio provides the building blocks to develop critical communications across messaging channels (short message service ("SMS"), multimedia message service ("MMS"), Short Codes, Toll-Free, WhatsApp, Facebook Messenger, and Google Business Messages), voice and email channels.
- **User Identity Verification.** Customers can use a globally optimized multi-channel user verification solution to combat fraud, reduce fake user sign-ups and authorize sensitive account actions.
- **Field services and contactless delivery.** Our customers can use Twilio Conversations to ensure privacy with masked communications, provide granular session control over user permissions, session duration and roles and keep private information private.
- **Marketing**. Email and SMS campaign support to target, nurture and develop new customer relationships.
- **Customer Loyalty.** Customers can send reminders about reward programs through email or messaging to drive repeat purchases through loyalty incentives.

- **Twilio For Good.** Twilio partners with nonprofit organizations through Twilio.org, our social impact division, to use the power of communications to help solve social challenges, such as an SMS hotline to fight human trafficking, an emergency volunteer dispatch system, appointment reminders for medical visits in developing nations and more.

Our Platform

Segment Customer Data Platform

Our acquisition of Segment added the leading customer data platform to Twilio's platform. While every business needs a complete view of their customers, data is typically siloed across many disparate systems. Segment's platform and APIs allow companies to collect, clean and control their customer data, providing a single view of customers across channels for more effective engagement. When combined with Twilio's communication channels, this insight enables businesses to delight their customers with personalized, timely and impactful communications on the right channel at the right time. The Segment platform includes:

- **Connections.** Collect event data from mobile apps, websites and servers with one API, then pull in contextual data from cloud-based apps like customer relationship management ("CRM"), payment systems and internal databases to build a unified picture of the customer.

- **Personas.** Use identity resolutions to take event data from across devices and channels, merge the data together, and create unified customer profiles to build and enrich audiences, and activate audiences across marketing tools with a single view of the customer.

- **Privacy.** Comply with laws and regulations, such as General Data Protection Regulation ("GDPR") and the California Consumer Privacy Act of 2018 ("CCPA"), by using first-party data, collected and privatized with Segment, instead of increasingly regulated third-party data.

- **Protocols.** Standardize data collection to create a single source of truth for customer data that is clean, consistent, and compliant, and adheres to a well thought out tracking plan.

Channel APIs

Our Channel APIs consist of software products that can be used individually or in combination to build rich contextual communications within applications. We offer flexible building blocks that enable our customers to build what they need. Our easy-to-use developer APIs provide a programmatic channel to access our software. Our Channel APIs include:

MessagingX

Twilio Programmable Messaging is an API to send and receive SMS, MMS and over-the-top ("OTT") (WhatsApp and Facebook Messenger) messages globally. It uses intelligent sending features to ensure messages reliably reach end users wherever they are. Our customers build use cases, such as appointment reminders, delivery notifications, order confirmations and many two-way and conversational use cases, such as customer care. Programmable Messaging includes:

- **SMS.** Programmatically send and receive SMS messages around the world, supporting localized languages in nearly every market. This includes support for the new 10-digit long code routes in the United States ("U.S.").

- **MMS.** Exchange picture messages and more over U.S. and Canadian phone numbers from customer applications with built-in image transcoding and media storage.

- **Toll-Free SMS.** Send and receive text messages with the same toll-free number used for voice calls in the U.S. and Canada.

- **High-Throughput Toll-Free SMS.** Starting at 25 messages per second, High-Throughput Toll Free SMS lets you send and receive a higher volume of messages with the same toll-free number used for voice calls in the U.S. and Canada.

- **OTT channels.** Programmatically send, receive and track messages to messaging apps such as WhatsApp and Facebook Messenger.

We charge on a per-message basis for most of our Programmable Messaging products.

Voice

Twilio Programmable Voice allows developers to build solutions to make and receive phone calls globally. They can make, manage and route calls to a browser, an app, a phone or anywhere else one can take a call. Developers can also incorporate advanced voice functionality such as text-to-speech, conferencing, recording and transcription. Through advanced call control software, developers can build customized applications that address use cases such as contact centers, call tracking and analytics solutions and anonymized communications. Our voice software works over both the traditional public switched telephone network ("PSTN") and over Internet Protocol ("VoIP"). Programmable Voice includes:

- **Twilio Voice.** Initiate, receive and manage phone calls globally, end to end through traditional voice technology or between web browsers and landlines or mobile phones.
- **Call Recording.** Securely record, store, transcribe and retrieve voice calls in the cloud.
- **Global Conference.** Integrate audio conferencing that intelligently routes calls through cloud data centers in the closest geographic region to reduce latency.
- **Voice Insights.** Call quality and performance data at the fingertips of our customers. Beyond details of a single call, every account on Twilio has access to the Voice Insights Dashboard, a powerful tool in Twilio Console that provides out-of-the-box visibility to key performance indicators and data to understand changes in call behavior.
- **Media Streams.** Allows for real-time access to the raw audio stream of your phone calls. Through Media Streams our customers can fork the media of a phone call in real-time, effectively creating a copy of the initial audio stream that can be routed to your own application or to a third party to power advanced capabilities of your choosing.
- **SHAKEN/STIR.** Signature-based Handling of Asserted Information Using toKENs ("SHAKEN") and Secure Telephone Identity Revisited ("STIR") standards (together, "SHAKEN/STIR") is a protocol mandated by the Federal Communications Commission ("FCC") to combat the rise in unwanted robocalls and unlawful caller ID spoofing. When adopted, carriers can present a trust indicator, like "Caller Verified," to recipients' phones. SHAKEN/STIR is free to all Twilio customers and allows them to increase answer rates for their calls by giving their calls the highest attestation under the SHAKEN and STIR caller authentication framework.
- **Programmable Voice SIP Interfaces.** Enables voice infrastructure to be augmented with cloud capabilities.
- **Emergency Calling.** Twilio's Emergency Calling for SIP API enables emergency call routing to Public Safety Answering Points ("PSAPs") in the U.S., Canada and the United Kingdom ("UK").
- **Bring Your Own Carrier Trunking ("BYOC").** Enables connection of customer's PSTN carrier to Twilio's programmable platform.

Email

The Twilio SendGrid Email API solves email delivery challenges at scale and ensures our customers' email program lives up to their product experience. Our Email API provides the flexibility for our customers to build customized solutions, as well as helpful shortcuts to streamline integration and optimize their inbox placement. Businesses use our email products for both marketing messages as well as transactional emails, including shipping notifications, friend requests, password resets and sign-up confirmations. Twilio SendGrid Email API includes:

- **Integrations.** Businesses can integrate our email API with multiple leading development frameworks and client libraries in multiple programming languages.
- **Internet Protocol ("IP") Management.** Domains and links can be customized, whether sending from shared IP address pools or from a dedicated IP address, to improve reputation management and delivery.

- **Deliverability.** Our proprietary Mail Transfer Agent ("MTA") optimizes for inbox placement while offering tools for sender reputation management and expert deliverability professional services. Our real-time email address validation API checks email address legitimacy before sending to improve deliverability.

- **Sender Authentication.** Our custom Sender Policy Framework and DomainKeys Identified Mail record creation is designed to eliminate domain spoofing and phishing.

- **Mobile support.** Our deep linking functionality enables email engagement for mobile apps.

- **Security.** Our two-factor authentication, API key permissions and Event Webhook Security helps enable secure management of our Email API by our customers.

Video

Programmable Video provides developers with the building blocks to add voice and video to web and mobile applications. Developers can address multiple use cases such as video consultations, telemedicine, distance learning, recruiting, social networking and more by using Programmable Video's global cloud infrastructure to build on WebRTC. They can use our JavaScript, iOS or Android SDKs, quickstarts and open source sample code to launch applications in minutes, then customize them to meet the unique needs of their use case. With Video Insights, developers can monitor the performance of their video applications directly from the Twilio Console.

Twilio Live

Twilio Live gives developers the tools to create immersive, interactive audio or video live streaming experiences. Low-latency delivery enables speakers and audience members to engage via chat, polls, and inviting audience members "on stage" to speak. Developers can build interactive shopping experiences, broadcast events such as conferences or concerts, fitness, and more using live streaming APIs, SDKs, and sample code optimized for iOS, Android, and all major browsers.

Conversations

The Twilio Conversations API allows developers to build rich, one-to-one and group interactions for customer support and commerce use cases. The unified messaging API provides cross-channel support for SMS and MMS, Chat, WhatsApp, Facebook Messenger, and Google Business Messages – all while archiving message history, preserving participant identity, and reducing time to market with software development kits ("SDKs") and pre-built mobile and web user interfaces.

Solutions

As we observe the customer engagement use cases that are most common and the workflows our customers find most challenging, we create Solutions. We bring these Solutions to a broader audience, including non-technical customers, in the form of higher level APIs. These solutions are built on top of our Channel APIs to offer more fully implemented functionality for a specific purpose, such as contact center or two-factor authentication. This saves developers significant time in building their applications. The higher level APIs in this layer of our platform are focused on addressing a massive opportunity to recreate and modernize the field of customer engagement. We charge on a per-seat or per-use basis for our Solutions, which include:

Contact Center

Businesses must continually adapt to stay ahead of customers' changing expectations. Twilio Flex is the industry's only fully programmable contact center platform that allows companies to deploy a broad array of customer engagement channels while providing the tools to easily create, change or extend any part of their custom solution. Twilio Flex enables businesses to rapidly deploy tailored cloud contact centers free from the limitations of software-as-a-service ("SaaS") applications.

User Verification

Online fraud has exploded from a minor nuisance to a major factor in how businesses operate today requiring advanced solutions to register, onboard and recognize customers. Twilio Verify is a managed solution that takes care of channel orchestration and management as well as security and business logic. Using our two-factor authentication APIs ("Twilio Verify"), developers can add an extra layer of security to their applications with second-factor passwords sent to a user via SMS, voice, email or push notifications. Twilio Verify provides user authentication codes through a variety of formats based on the developer's needs. Codes can be delivered through the Authy app on registered mobile phones, desktop or smart devices or via SMS and voice automated phone calls. In addition, authentication can be determined through a push notification on registered smartphones. To allow developers to know exactly who they are sending messages to, Twilio Lookup allows developers to validate number format, device type and provider prior to sending messages or initiating calls.

Marketing Campaigns

Marketing Campaigns is built on top of SendGrid's proven email infrastructure to help digital marketers build and send email campaigns at scale - faster than ever. With drag and drop editing, approachable automation and powerful contacts management, Marketing Campaigns help marketers attract and retain customers more efficiently. Marketing Campaigns include email design and templates, list management, dynamic content and email testing.

Super Network

While developers build applications with our software, Twilio manages the connections between the internet and the global telecommunications network. We call this the Twilio Super Network and it is a global network of connections with numerous carriers globally to provide connectivity in approximately 80 countries.

We do not own any physical network infrastructure. We use software to build a high performance network that optimizes performance for our customers, provides resiliency and redundancy to our platform and helps to minimize disruption from carrier delays or outages. Through handling massive volumes of traffic, we are able to detect issues often before our customers or carrier partners do. We receive real-time feedback on handset deliverability through a number of carriers and destinations and we use this data for our own routing decisions.

The Twilio Super Network operates a 24/7 global operations center that constantly monitors the carrier networks, alongside Twilio's dedicated communications engineers who optimize for changing traffic patterns. The Super Network also contains a set of APIs giving our customers access to more foundational components of our platform, like phone numbers, and SIP Trunking. The Super Network features include:

- **Phone Number Provisioning.** Acquire local, national, mobile and/or toll-free phone numbers on demand in approximately 80 countries and connect them into the customers' applications.
- **Elastic SIP Trunking.** Connect legacy voice applications to our Super Network over IP infrastructure with globally available phone numbers and pay-as-you-go pricing. Twilio's Emergency Calling for SIP Trunking feature enables emergency call routing to PSAPs in the U.S., Canada and the UK.
- **Interconnect.** Connect privately to Twilio to enable enterprise grade security and quality of service for Twilio Voice and Elastic SIP Trunking.

We charge on a per-minute or per-phone number basis for most of our Super Network products.

IoT

The most challenging aspect of connecting previously unconnected devices lies in making the connection reliable and secure enough to perform and add value for years on end. Twilio's IoT offerings therefore make connectivity simpler and coding of connected devices more reliable so that our customers can focus on building differentiated IoT experiences versus building and maintaining the required infrastructure underneath. Our customers use Twilio IoT for use cases, such as asset or fleet tracking, smart building management, consumer wearables (often pulling in other Twilio products such as Voice, Video, and Flex), predictive maintenance and inventory management.

Our Business Model for Innovators

Our goal is to include Twilio in the toolkit of every developer in the world, from small businesses to major enterprises. Because big ideas often start small, developers need the freedom and tools to experiment and iterate on their ideas.

In order to empower developers to experiment, our developer-first business model is low friction, eliminating the upfront costs, time and complexity that typically hinder innovation. Additionally, our model encourages experimentation and enables developers to grow as customers as their ideas succeed. Developers can begin building with a free trial. They have access to self-service documentation and free customer support to guide them through the process. Once developers determine that our software meets their needs, they can flexibly increase consumption and pay based on usage. In short, we acquire developers like consumers and enable them to spend like enterprises.

Our Growth Strategy

We are the leader in the cloud communications platform category based on revenue, market share and reputation and intend to continue to set the pace for innovation. We also have the leading market share in the Customer Data Platform category. Our overall strategy is to develop great APIs that developers love. These developers are our champions and bring us “in” to companies of every type, most frequently utilizing our messaging and email tools as an entry point. This “in” motion creates initial relationships with customers of all sizes including major enterprises that allow us to move “up” the software stack and provide those companies with software solutions that address their customer engagement requirements from marketing to sales and support. Today, we offer Twilio Campaigns for marketing, Twilio Flex for customer support and Twilio Verify to onboard and recognize customers. The more strategic nature of these software products also allows us to move up the organization chart, interacting with more senior and strategic purchasers. This “in” and “up” strategy is a motion we work on improving every day. We will also continue to invest aggressively in our platform approach, which prioritizes increasing our reach and scale. We intend to pursue the following growth strategies:

- **Continue Significant Investment in our Technology Platform.** We will continue to invest in building new software capabilities and extending our platform to bring the power of contextual customer engagement to a broader range of applications, geographies and customers. We have a substantial research and development team, comprising approximately 39% of our headcount as of December 31, 2021.

- **Grow Our Developer Community and Accelerate Adoption.** We will continue to enhance our relationships with developers globally and seek to increase the number of developers on our platform. In addition to adding new developers, we believe there is significant opportunity for revenue growth from developers who already have registered accounts with us but have not yet built their software applications with us, or whose applications are in their infancy and will grow with Twilio into an Active Customer Account. As of December 31, 2021, we had more than 256,000 Active Customer Accounts on our platform.

- **Increase Our International Presence.** Our platform serves over 180 countries today, making it as simple to communicate from São Paulo as it is from San Francisco. Customers outside the U.S. are increasingly adopting our platform, and for the years ended December 31, 2021 and 2020, revenue from international customer accounts accounted for 34% and 27% of our total revenue, respectively. We are investing to meet the requirements of a broader range of global developers and enterprises. We plan to grow internationally by continuing to expand our operations outside of the U.S. and collaborating with international strategic partners.

- **Further Penetrate the Enterprises.** We plan to drive greater awareness and adoption of Twilio from enterprises across industries. We intend to further increase our investment in sales and marketing to meet evolving enterprise needs globally, in addition to extending our enterprise-focused use cases and platform capabilities, like our Twilio Enterprise Plan. Additionally, we believe there is significant opportunity to expand our relationships with existing enterprise customers.

- **Expand Our Partner Channel.** Our Twilio Build partner program is focused on growing our community of technology and consulting partners. Twilio Build's ecosystem of partners offers customers both packaged applications and consulting expertise that make it possible for any customer to innovate with Twilio regardless of region, industry, business model or development resources. To help our partners grow their businesses and innovate for their customers, this program provides go-to-market support, certification and training programs and a partner success team. We have relationships with a number of technology partner customers that embed our products in the solutions that they sell to other businesses. We intend to expand our relationships with existing technology partner customers and to add new technology partner customers. We plan to invest in a range of initiatives to encourage increased collaboration with, and generation of revenue from, technology partner customers. We have developed relationships with consulting partners who provide consulting and development services for organizations that have limited software development expertise to build our platform into their software applications. We intend to continue to invest in and develop the ecosystem for our solutions in partnership with consulting partners to accelerate awareness and adoption of our platform.

- **Selectively Pursue Acquisitions and Strategic Investments.** We may selectively pursue acquisitions and strategic investments in businesses and technologies that strengthen our platform. From 2015 through 2021, we made several acquisitions which have allowed us to expand our platform and service offerings to include features such as a cloud-based API to seamlessly embed two-factor authentication and phone verification into any application, Web Real-Time-Communication (“Web RTC”) media processing technologies, contact center analytics, software mobile network infrastructure and language recognition capabilities. In addition, our acquisition of SendGrid in February 2019 allowed us to add a leading e-mail API platform to our product offerings, our acquisition of Segment in November 2020 allowed us to add the market-leading customer data platform to our product offerings and our acquisition of Zipwhip in July 2021 allowed us to expand the toll-free channel, offering developers and businesses another affordable, trusted, high-quality engagement option via messaging-enabled toll-free numbers.

The Twilio Magic

We believe there's a unique spirit to Twilio, manifested in who we are and how we work together. We value and invest in a positive culture of optimism, innovation, and accountability. Our values, which we call the Twilio Magic, remind us every day who we are at our core and guide how we act and how we make decisions.

We are **Builders**. We are **Owners**. We are **Curious**. We are **Positrons**.

Twilio.org

We believe communications play a critical role in solving some of the world’s toughest social challenges. Through Twilio.org, which is a part of our company and not a separate legal entity, we donate and sell our products at a reduced rate to social impact organizations and provide grant funding to help scale organizations' mission. In 2015, we reserved 1% of Twilio's common stock to fund Twilio.org. We have periodically replenished that initial reserve and as of December 31, 2021, the number of shares of Twilio Class A common stock set aside for Twilio.org operations was 618,857. We started Twilio.org so that more people around the world have the opportunity to thrive. In 2021, over 7,500 social impact organizations used Twilio products and funding to reach more than 500 million people worldwide. 2021 marked another year of living through the COVID-19 pandemic and Twilio products and funding were used by over 1,200 organizations to provide more than 300 million people with vaccine and COVID-19 related information.

Information on our key Environmental, Social and Governance (“ESG”) programs, goals and commitments, and certain metrics can be found in our annual Impact Report, available on our website at https://investors.twilio.com/governance. Website references throughout this document are provided for convenience only, and the content on the referenced websites is not incorporated by reference into this report. While we believe that our ESG goals align with our long-term growth strategy and financial and operational priorities, they are aspirational and may change, and there can be no assurance that they will be met.

Our Employees and Human Capital Resources

As of December 31, 2021, we had a total of 7,867 employees, including 2,964 employees located outside of the U.S. None of our U.S. employees are represented by a labor union with respect to their employment. Employees in certain of our non-U.S. subsidiaries have the benefits of collective bargaining arrangements at the national level. We consider our relations with our employees to be good and have not experienced interruptions of operations or work stoppages due to labor disagreements.

Diversity, Equity and Inclusion

We are driving a diversity, equity and inclusion (“DEI”) strategy based on the principles of antiracism. At Twilio, we use “antiracism” as an umbrella term for actively identifying and eliminating racism/oppression by changing systems, organizational structures, policies, practices, and attitudes, so that power is shared equitably. By educating and empowering Twilions to think and operate through an antiracist lens, we’ll be able to build a more diverse workforce, promote equity for all communities in the workplace and foster safe, inclusive environments.

Following our commitment to become an antiracist organization, we began the work to embed and operationalize antiracism across the business, with a strong focus on education. In 2021, over 100 senior Twilio executives participated in an antiracism workshop, with continued learning planned in 2022. We are growing our partnerships with global organizations to help us find, grow, and keep diverse talent in various demographics, regions, and countries. We are coordinating antiracist learning opportunities through employee resource group (“ERG”) specific programming and events. Lastly, we continue to maintain healthy pay parity, ensuring that employees with the same job and location are paid fairly relative to one another, regardless of gender or race.

We will continue to grow our DEI resources and global footprint to make sure DEI scales along with the business. Most recently, we expanded the DEI team and launched new ERG chapters globally. This will ensure we are translating antiracism and amplifying DEI efforts across all teams and regions.

Compensation and Benefits

Twilio is committed to delivering a comprehensive compensation and benefits program that provides support for all of our employees’ well-being. We provide competitive compensation and benefits to attract and retain talented employees, including offering market-competitive salaries, sales commissions for our sales teams, and equity. We generally offer full-time employees equity at the time of hire and through annual equity grants, as well as provide an employee stock purchase plan, to foster a strong sense of ownership and engage our employees in being committed to our long-term success.

We ensure that our compensation is fair for all employees, regardless of classifications, such as race and gender. We routinely run a rigorous statistical analysis to ensure compensation is fair, taking into account factors that should impact pay, like role, level, location and performance.

Our full-time employees are eligible to receive, subject to the satisfaction of certain eligibility requirements, our comprehensive benefits package including our medical, dental and vision insurance and life and disability insurance plans. In addition, we provide time off, as well as maintain a tax-qualified 401(k) retirement plan that provides eligible U.S. employees with an opportunity to save for retirement on a tax-advantaged basis. In 2021, we matched 50% of the first 6% of contributions by plan participants, subject to annual contribution limits set forth in the Internal Revenue Code of 1986, as amended.

In structuring these benefit plans, we seek to provide an aggregate level of benefits that are comparable to those provided by similar companies.

COVID-19 Response

To support employee well-being, Twilio established a number of new programs in response to the COVID-19 pandemic and the transition to full-time work from home. We established No Meeting Fridays, created flexible work schedule options, gave employees a home office stipend, a caregiver stipend, free Care.com membership and paid time off through our COVID-19 Support Leave to care for themselves or family members impacted by COVID-19.

Research and Development

Our research and development efforts are focused on building a trusted, smart engagement platform and enhancing our existing products and developing new products and features.

Our research and development organization is predominantly built around small development teams. Our small development teams foster greater agility, which enables us to develop new, innovative products and make rapid changes to our infrastructure that increase resiliency and operational efficiency. Our development teams designed, built and continue to expand our customer engagement platform, our core platforms stack and Super Network.

As of December 31, 2021, we had 3,103 employees in our research and development organization. We intend to continue to invest in our research and development capabilities to extend our platform and bring the power of contextual communications to a broader range of applications, geographies and customers.

Sales and Marketing

Our sales and marketing teams work together closely to drive awareness and adoption of our platform, accelerate customer acquisition and generate revenue from customers. We have a strategy to grow within our customers that we refer to as our “in and up” strategy. We get in to new customers through our messaging and email products, often directly via developers, then build on those relationships to grow our footprint with broader adoption and higher value products.

Our go-to-market model is primarily focused on initiating customer relationships by reaching and serving the needs of developers. We are a pioneer of developer evangelism and education and have cultivated a large global developer community. We reach developers through community events and conferences, including our annual SIGNAL customer and developer conference, to demonstrate how every developer can create differentiated applications incorporating communications using our products.

Once developers are introduced to our platform, we provide them with a low-friction trial experience. By accessing our easy-to-configure APIs, extensive self-service documentation and customer support team, developers can build our products into their applications and then test such applications during an initial free trial period that we provide. Once they have decided to use our products beyond the initial free trial period, customers provide their credit card information and only pay for the actual usage of our products, for a majority of our products. Our Flex contact center platform is generally offered on a per user, per month basis or on a usage basis per agent hour. Our email API is offered on a monthly subscription basis, while our Marketing Campaigns product is priced based on the number of email contacts stored on our platform and the number of monthly emails sent to those contacts through our email API. Our self-serve pricing matrix is publicly available and it allows for customers to receive tiered discounts as their usage of our products increases. As customers' use of our products grows larger, some enter into negotiated contracts with terms that dictate pricing, and typically include some level of minimum revenue commitments. Historically, we have acquired the substantial majority of our customers through this self-service model. As customers expand their usage of our platform, we expand our relationships with them to include business leaders within their organizations.

We supplement our self-service model with account executives and customer success managers aimed at engaging customers through a direct sales approach to expand usage and ensure satisfaction. To help increase our awareness in the enterprise, we have expanded our marketing efforts through programs like our Twilio Engage roadshow, where we seek to bring business leaders and developers together to discuss the future of customer engagement. We have developed products to support this effort as well, like the Twilio Enterprise Plan, which provides capabilities for advanced security, access management and granular administration. Our sales organization targets technical leaders and business leaders who are seeking to leverage software to drive superior customer engagement and competitive differentiation. As we educate these leaders on the benefits of developing applications incorporating our products to differentiate their business, they often consult with their developers regarding implementation. We believe that developers are often advocates for our products as a result of our developer-focused approach. Our sales organization includes sales development, inside sales, field sales, specialty sales and sales engineering personnel.

When potential customers do not have the available developer resources to build their own applications, we refer them to either our technology partners who embed our products in the solutions that they sell to other businesses (such as contact centers and sales force and marketing automation), or our professional services team or outside consulting partners who provide consulting and development services for organizations that have limited software development expertise to build our platform into their software applications.

As of December 31, 2021, we had 3,661 employees in our sales and marketing organization.

Customer Support

We have designed our products and platform to be self-service and to require minimal customer support. To enable this, we provide all of our users with helper libraries, comprehensive documentation, how-tos and tutorials. We supplement and enhance these tools with the participation of our engaged developer community. In addition, we provide support options to address the individualized needs of our customers. All developers get free support and system status notifications. Our developers can also engage with the broader Twilio community to resolve issues.

We also offer three paid tiers of support with increasing levels of availability and guaranteed response times. Our highest tier plan, intended for our largest customers, includes a dedicated support engineer, duty manager coverage and quarterly status reviews. Our support model is global, with 24x7 coverage and support offices located throughout the world, with our larger offices located in the U.S., Ireland, Colombia, India, and Singapore. We currently derive an insignificant amount of revenue from fees for customer support.

We also offer professional services which provide in-depth, hands-on, fee-based packages of advisory, software architecture, integration and coding services to existing and prospective customers and partners to optimize their use of the Twilio platform. Our goal is to help our customers achieve business results faster. Offerings include services for implementing contact center solutions, email implementation and deliverability, customer data platform design, and configuration and integration of communications capabilities.

Competition

The market for cloud communication platforms is rapidly evolving and increasingly competitive. We believe that the principal competitive factors in our market are:

- completeness of offering;
- credibility with developers;
- global reach;
- ease of integration and programmability;
- product features;
- platform scalability, reliability, security and performance;
- brand awareness and reputation;
- the strength of sales and marketing efforts;
- customer support; and,
- the cost of deploying and using our products.

We believe that we compete favorably on the basis of the factors listed above. We believe that none of our competitors currently competes directly with us across all of our product offerings.

Our competitors fall into four primary categories:

- legacy on-premises vendors;
- regional network service providers that offer limited developer functionality on top of their own physical infrastructure;
- smaller software companies that compete with portions of our product line; and,
- SaaS companies and cloud platform vendors that offer prepackaged applications and platforms.

Some of our competitors have greater financial, technical and other resources, greater name recognition, larger sales and marketing budgets and larger intellectual property portfolios. As a result, certain of our competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards or customer requirements. In addition, some competitors may offer products or services that address one or a limited number of functions at lower prices, with greater depth than our products or in geographies where we do not operate. With the introduction of new products and services and new market entrants, we expect competition to intensify in the future. Moreover, as we expand the scope of our platform, we may face additional competition.

Intellectual Property

We rely on a combination of patent, copyright, trademark and trade secret laws in the U.S. and other jurisdictions, as well as license agreements and other contractual protections, to protect our proprietary technology. We also rely on a number of registered and unregistered trademarks to protect our brand.

As of December 31, 2021, in the U.S., we had been issued 197 patents, which expire between 2029 and 2040. As of such date, we also had 36 issued patents in foreign jurisdictions, all of which are related to U.S. patents and patent applications. We have also filed various applications for protection of certain aspects of our intellectual property in the U.S. and internationally. In addition, as of December 31, 2021, we had 50 trademarks registered in the U.S. and 416 trademarks registered in foreign jurisdictions.

We further seek to protect our intellectual property rights by implementing a policy that requires our employees and independent contractors involved in development of intellectual property on our behalf to enter into agreements acknowledging that all works or other intellectual property generated or conceived by them on our behalf are our property, and assigning to us any rights, including intellectual property rights, that they may claim or otherwise have in those works or property, to the extent allowable under applicable law.

Despite our efforts to protect our technology and proprietary rights through intellectual property rights, licenses and other contractual protections, unauthorized parties may still copy or otherwise obtain and use our software and other technology. In addition, we intend to continue to expand our international operations, and effective intellectual property, copyright, trademark and trade secret protection may not be available or may be limited in foreign countries. Any significant impairment of our intellectual property rights could harm our business or our ability to compete. Further, companies in the communications and technology industries may own large numbers of patents, copyrights and trademarks and may frequently threaten litigation, or file suit against us based on allegations of infringement or other violations of intellectual property rights. We currently are subject to, and expect to face in the future, allegations that we have infringed the intellectual property rights of third parties, including our competitors and non-practicing entities.

Regulatory

We are subject to a number of U.S. federal and state and foreign laws and regulations that involve matters central to our business. These laws and regulations may involve privacy, data protection, intellectual property, competition, telecommunications, broadband, Voice over Internet Protocol (“VoIP”), consumer protection, export taxation or other subjects. Many of the laws and regulations to which we are subject are still evolving and being tested in courts and by regulatory authorities and could be interpreted in ways that could harm our business. In addition, the application and interpretation of these laws and regulations often are uncertain, particularly in the new and rapidly evolving industry in which we operate. Because U.S., federal, state and foreign laws and regulations have continued to develop and evolve rapidly, it is possible that we or our products or our platform may not be, or may not have been, compliant with each such applicable law or regulation.

For example, the General Data Protection Regulation (“GDPR”) and the United Kingdom’s GDPR (“UK GDPR”) impose strict requirements for processing the personal information of individuals located, respectively within the European Economic Area (“EEA”) and the United Kingdom (“UK”). Noncompliance with the GDPR and UK GDPR can result in, for example, bans on data processing and fines of up to the greater of 20 million euros (£17.5 million for the UK GDPR) or 4% of annual global revenue. Further, individuals may initiate litigation related to our processing of their personal information. Given the breadth and depth of changes in data protection obligations, meeting the requirements of GDPR has required significant time and resources, including a review of our technology and systems currently in use against the requirements of GDPR. Our actual or perceived failure to comply with laws, regulations or contractual commitments regarding privacy, data protection and data security could lead to costly legal action, adverse publicity, significant liability and decreased demand for our services, which could adversely affect our business, results of operations and financial condition.

In addition, laws such as the Telephone Consumer Protection Act of 1991 (“TCPA”), restrict telemarketing and the use of automatic SMS text messages without explicit customer consent. The scope and interpretation of the laws that are or may be applicable to the delivery of text messages are continuously evolving and developing. If we do not comply with these laws or regulations, or if our customers fail to do so, we could face direct liability.

Compliance with these laws and regulations has not had, and is not expected to have, a material effect on our capital expenditures, results of operations and competitive position as compared to prior periods, and we do not currently anticipate material capital expenditures for environmental control facilities, of which we currently have none. For additional information about government regulation applicable to our business, see Part I, Item 1A, “Risk Factors” in this Annual Report on Form 10-K.

Corporate Information

Twilio Inc. was incorporated in Delaware in March 2008. Our principal executive offices are located at 101 Spear Street, First Floor, San Francisco, California 94105, and our telephone number is (415) 390-2337. Our website address is www.twilio.com. Information contained on, or that can be accessed through, our website does not constitute part of this Annual Report on Form 10-K.

Twilio, the Twilio logo and other trademarks or service marks of Twilio appearing in this Annual Report on Form 10-K are the intellectual property of Twilio. Trade names, trademarks and service marks of other companies appearing in this Annual Report on Form 10-K are the intellectual property of their respective holders.

Information about Geographic Revenue

Information about geographic revenue is set forth in Note 12 of our Notes to Consolidated Financial Statements included in Part II, Item 8, “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Available Information

Our filings are available to be viewed and downloaded free of charge through our investor relations website after we file them with the Securities and Exchange Commission (“SEC”). Our filings include our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, our Proxy Statement for our annual meeting of stockholders, Current Reports on Form 8-K and other filings with the SEC. Our investor relations website is located at http://investors.twilio.com. The SEC also maintains an Internet website that contains periodic and current reports, proxy statements and other information about issuers, like us, that file electronically with the SEC. The address of that website is www.sec.gov.

We webcast our earnings calls and certain events we participate in or host with members of the investment community on our investor relations website. Additionally, we provide notifications of news or announcements regarding our financial performance, including SEC filings, investor events, press and earnings releases, and blogs as part of our investor relations website. Further corporate governance information, including our corporate governance guidelines and code of business conduct and ethics, is also available on our investor relations website under the heading “Governance.” The contents of our websites are not intended to be incorporated by reference into this Annual Report on Form 10-K or in any other report or document we file with the SEC, and any references to our websites are intended to be inactive textual references only.

Item 1A. ***Risk Factors***

A description of the risks and uncertainties associated with our business is set forth below. You should carefully consider the risks and uncertainties described below, together with all of the other information in this Annual Report on Form 10-K, including Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and related notes appearing elsewhere in this Annual Report on Form 10-K. The risks and uncertainties described below may not be the only ones we face. If any of the risks actually occur, our business, financial condition, results of operations and prospects could be materially and adversely affected. In that event, the market price of our Class A common stock could decline.

Risks Related to Our Business and Our Industry

The global COVID-19 pandemic may adversely impact our business, results of operations and financial condition.

The rapid spread of COVID-19 globally has in the past disrupted, and may continue to disrupt, our day-to-day operations and the operations of our customers, partners and service providers for an indefinite period of time, including as a result of changing public health recommendations, travel restrictions and limitations, the duration, spread and severity and potential recurrence of the virus and its variants, as well as the efficacy of vaccines and vaccine distribution and the timing and trajectory of the economic recovery, all of which could negatively impact our business and results of operations and financial condition. While the global economy is reopening in various parts of the world, some countries and locations are reinstating lockdowns and other restrictions that make a recovery difficult to predict. This may result in differing levels of demand for our products as the priorities, resources, financial conditions and economic outlook of our customers, partners and service providers change, which could adversely affect or increase the volatility of our financial results. Certain industries were initially more negatively impacted by COVID-19, while others were positively impacted. It has been and, until the COVID-19 pandemic is contained, will continue to be more difficult for us to forecast usage levels and predict revenue trends for the more adversely impacted industries. Any prolonged contractions in industries historically impacted by COVID-19, along with any effects on supply chain or on other industries in which our customers, partners and service providers operate, could adversely impact our business, results of operations and financial condition.

Additionally the COVID-19 pandemic has adversely affected global economic and market conditions, including causing labor shortages, supply chain disruptions and inflation, which are likely to continue for an extended period, and which could result in decreased business spending by our customers and prospective customers and business partners and third-party business partners, reduced demand for our solutions, lower renewal rates by our customers, longer or delayed sales cycles, including customers and prospective customers delaying contract signing or contract renewals, or reducing budgets or minimum commitments related to the product and services that we offer, all of which could have an adverse impact on our business operations and financial condition. Specifically, we often enter into annual or multi-year, minimum commitment arrangements with our customers. If customers fail to pay us or reduce their spending with us, we may be adversely affected by an inability to collect amounts due, the cost of enforcing the terms of our contracts, including litigation, or a reduction in revenue. The continuing pandemic could also result in constrained supply or reduced customer demand and willingness to enter into or renew contracts with us, any of which could adversely impact our business, results of operations and overall financial performance in future periods. While we have developed and continue to develop plans to help mitigate the potential negative impact of the pandemic on our business, these efforts may not be effective, and a protracted economic downturn, including due to factors such as labor shortages, supply chain disruptions and inflation, may limit the effectiveness of our mitigation efforts.

In addition, as companies continue to support a fully remote workforce, and begin to adapt to hybrid work environments, and as individuals increasingly utilize voice, video and messaging for their communication needs, there will be increased strain and demand for telecommunications infrastructure, including our voice, video and messaging products. Supporting increased demand will require us to make additional investments to increase network capacity, the availability of which may be limited. For example, if the data centers that we rely on for our cloud infrastructure and the network service providers that we interconnect with are unable to keep up with capacity needs or if governmental or regulatory authorities determine to limit our bandwidth, customers may experience delays, interruptions or outages in service. From time to time, including during the COVID-19 pandemic, our data center suppliers and our network service providers have had some outages which resulted in disruptions to service for some of our customers. Such traffic management measures could result in customers experiencing delays, interruptions or outages in services. Any of these events could harm our reputation, erode customer trust, cause customers to stop using our products, impair our ability to increase revenue from existing customers, impair our ability to grow our customer base, subject us to financial penalties and liabilities under our service level agreements and otherwise harm our business, results of operations and financial condition.

To the extent that the COVID-19 pandemic harms our business, results of operations and financial condition, many of the other risks described in this "Risk Factors" section will be exacerbated.

We have experienced rapid growth and expect our growth to continue, and if we fail to effectively manage our growth, then our business, results of operations and financial condition could be adversely affected.

We have experienced substantial growth in our business since inception. For example, our headcount has grown from 4,629 employees on December 31, 2020 to 7,867 employees on December 31, 2021. We have moved to a virtual on-boarding process since the imposition of COVID-19 restrictions on certain business activities. In addition, we are rapidly expanding our international operations. Our international headcount grew from 1,369 employees as of December 31, 2020 to 2,964 employees as of December 31, 2021. We expect to continue to expand our international operations in the future. We have also experienced significant growth in the number of customers, usage and amount of data that our platform and associated infrastructure support. This growth has placed and may continue to place significant demands on our corporate culture, operational infrastructure and management, particularly in light of virtual on-boarding.

We believe that our corporate culture has been a critical component of our success. We have invested substantial time and resources in building our team and nurturing our culture. As we expand our business in the U.S. and non-U.S. regions and mature as a public company, we may find it difficult to maintain our corporate culture while managing this growth. In addition, the COVID-19 pandemic may have long-term effects on the nature of the office environment and remote working. Our employees generally continue to work from home as we continue a phased reopening of offices and, in February 2021, we announced a new Open Work hybrid work approach, under which most employees will have a choice about where and how they work. We face uncertainty as to whether Open Work, and any adjustments we may make to our model, will meet the needs and expectations of our workforce. Any failure to preserve the key aspects of our culture as we manage our anticipated growth and organizational changes could hurt our chance for future success, including our ability to recruit and retain employees, and effectively focus on and pursue our corporate objectives. This, in turn, could adversely affect our business, results of operations and financial condition.

In addition, as we have rapidly grown, our organizational structure has become more complex. In order to manage these increasing complexities, we will need to continue to scale and adapt our operational, financial and management controls, as well as our reporting systems and procedures. The expansion of our systems and infrastructure will require us to commit substantial financial, operational and management resources before our revenue increases and without any assurances that our revenue will increase.

Finally, if this growth continues, it could strain our ability to maintain reliable service levels for our customers. If we fail to achieve the necessary level of efficiency in our organization as we grow, then our business, results of operations and financial condition could be adversely affected.

Our quarterly results may fluctuate, and if we fail to meet securities analysts' and investors' expectations, then the trading price of our Class A common stock and the value of your investment could decline substantially.

Our results of operations, including the levels of our revenue, cost of revenue, gross margin and operating expenses, have fluctuated from quarter to quarter in the past and may continue to vary significantly in the future. These fluctuations are a result of a variety of factors, many of which are outside of our control, and may be difficult to predict and may or may not fully reflect the underlying performance of our business. If our quarterly results of operations or forward-looking quarterly and annual financial guidance fall below the expectations of investors or securities analysts, then the trading price of our Class A common stock could decline substantially. Some of the important factors that may cause our results of operations to fluctuate from quarter to quarter include:

- the impact of COVID-19 on our customers, partners and service providers, our pace of hiring and the global economy in general;
- our ability to retain and increase revenue from existing customers and attract new customers;
- fluctuations in the amount of revenue from our Active Customer Accounts;
- our ability to attract and retain enterprises and international organizations as customers;
- our ability to introduce new products and enhance existing products;
- competition and the actions of our competitors, including pricing changes and the introduction of new products, services and geographies;

- changes in laws, industry standards, regulations or regulatory enforcement in the United States or internationally, such as the invalidation of the EU-U.S. Privacy Shield by the Court of Justice of the European Union, the implementation and enforcement of new global privacy laws, such as the General Data Protection Regulation ("GDPR"), the California Consumer Privacy Act of 2018 ("CCPA") and Brazil's General Data Protection Law (Lei Geral de Proteção de Dados Pessoais) (Law No. 13,709/2018), and the adoption of SHAKEN/STIR and other robocalling prevention and anti-spam standards, all of which increase compliance costs;
- changes to the policies or practices of third-party platforms, such as the Apple App Store and the Google Play Store, including with respect to Apple's Identifier for Advertisers (IDFA), which helps advertisers assess the effectiveness of their advertising efforts, and with respect to transparency regarding data processing;
- the number of new employee hires during a particular period;
- changes in network service provider fees that we pay in connection with the delivery of communications on our platform;
- changes in cloud infrastructure fees that we pay in connection with the operation of our platform;
- changes in our pricing as a result of our optimization efforts or otherwise;
- reductions in pricing as a result of negotiations with our larger customers;
- the rate of expansion and productivity of our sales force, including our enterprise sales force, which has been a focus of our recent expansion efforts;
- changes in the size and complexity of our customer relationships;
- the length and complexity of the sales cycle for our services, especially for sales to larger enterprises, government and regulated organizations;
- change in the mix of products that our customers use during a particular period;
- change in the revenue mix of U.S. and international products;
- the amount and timing of operating costs and capital expenditures related to the operations and expansion of our business, including investments in our international expansion, additional systems and processes and research and development of new products and services;
- significant security breaches of, technical difficulties with, or interruptions to, the delivery and use of our products on our platform;
- expenses in connection with mergers, acquisitions or other strategic transactions and the follow-on costs of integration;
- the timing of customer payments and any difficulty in collecting accounts receivable from customers;
- general economic conditions that may adversely affect a prospective customer's ability or willingness to adopt our products, delay a prospective customer's adoption decision, reduce the revenue that we generate from the use of our products or affect customer retention;
- labor shortages, supply chain disruptions and rising inflation and our ability to control costs, including our operating expenses;
- our ability to attract and retain qualified employees and key personnel;
- changes in foreign currency exchange rates and our ability to effectively hedge our foreign currency exposure;
- extraordinary expenses such as litigation or other dispute-related settlement payments;

- sales tax and other tax determinations by authorities in the jurisdictions in which we conduct business;
- the impact of new accounting pronouncements; and
- fluctuations in stock-based compensation expense.

The occurrence of one or more of the foregoing and other factors may cause our results of operations to vary significantly. As such, we believe that quarter-to-quarter comparisons of our results of operations may not be meaningful and should not be relied upon as an indication of future performance. In addition, a significant percentage of our operating expenses is fixed in nature and is based on forecasted revenue trends. Accordingly, in the event of a revenue shortfall, we may not be able to mitigate the negative impact on our income (loss) and margins in the short term. If we fail to meet or exceed the expectations of investors or securities analysts, then the trading price of our Class A common stock could fall substantially, and we could face costly lawsuits, including securities class action suits.

Additionally, global pandemics such as COVID-19 as well as certain large scale events, such as major elections and sporting events, can significantly impact usage levels on our platform, which has, and could in the future, cause fluctuations in our results of operations. We expect that significantly increased usage of all communications platforms, including ours, during certain seasonal and one-time events could impact delivery and quality of our products during those events. We also tend to experience increased expenses in connection with the hosting of SIGNAL, which we plan to continue to host annually. Such annual and one-time events may cause fluctuations in our results of operations and may impact both our revenue and operating expenses.

If we are not able to maintain and enhance our brand and increase market awareness of our company and products, then our business, results of operations and financial condition may be adversely affected.

We believe that maintaining and enhancing the “Twilio” brand identity and increasing market awareness of our company and products, particularly among developers, is critical to achieving widespread acceptance of our platform, to strengthen our relationships with our existing customers and to our ability to attract new customers. The successful promotion of our brand will depend largely on our continued marketing efforts, our ability to continue to offer high quality products, and our ability to successfully differentiate our products and platform from competing products and services. Our brand promotion and thought leadership activities may not be successful or yield increased revenue. In addition, independent industry analysts often provide reviews of our products and competing products and services, which may significantly influence the perception of our products in the marketplace. If these reviews are negative or not as strong as reviews of our competitors’ products and services, then our brand may be harmed.

From time to time, our customers have complained about our products, such as complaints about our pricing and customer support. If we do not handle customer complaints effectively, then our brand and reputation may suffer, our customers may lose confidence in us and they may reduce or cease their use of our products. In addition, many of our customers post and discuss on social media about Internet-based products and services, including our products and platform. Our success depends, in part, on our ability to generate positive customer feedback and minimize negative feedback on social media channels where existing and potential customers seek and share information. If actions we take or changes we make to our products or platform upset these customers, then their online commentary could negatively affect our brand, reputation and customer trust. Complaints or negative publicity about us, our products or our platform could adversely impact our ability to attract and retain customers, and otherwise harm our business, results of operations and financial condition.

The promotion of our brand also requires us to make substantial expenditures, and we anticipate that these expenditures will increase as our market becomes more competitive and as we expand into new markets. To the extent that these activities increase revenue, this revenue still may not be enough to offset the increased expenses we incur, including, but not limited to, as a result of recent inflationary pressures.

The market for our products and platform continues to evolve, and may decline or experience limited growth, and is dependent in part on developers continuing to adopt our platform and use our products.

We were founded in 2008, and we have been developing and providing a cloud-based platform that enables developers and organizations to integrate voice, messaging, video and email communications capabilities into their software applications. This market continues to evolve and is subject to a number of risks and uncertainties. We believe that our revenue currently constitutes a significant portion of the total revenue in this market, and therefore, we believe that our future success will depend in large part on the growth, if any, and evolution of this market. If developers and organizations do not recognize the need for and benefits of our products and platform, they may decide to adopt alternative products and services to satisfy some portion of their business needs. In order to grow our business and extend our market position, we intend to focus on educating developers and other potential customers about the benefits of our products and platform, expanding the functionality of our products and bringing new technologies to market to increase market acceptance and use of our platform. Our ability to expand the market that our products and platform address depends upon a number of factors, including the cost, performance and perceived value associated with such products and platform. The market for our products and platform could fail to grow significantly or there could be a reduction in demand for our products as a result of a lack of developer acceptance, technological challenges, competing products and services, decreases in spending by current and prospective customers, weakening economic conditions, including due to labor shortages, supply chain disruptions and inflationary pressures, and other causes. If our market does not experience significant growth or demand for our products decreases, then our business, results of operations and financial condition could be adversely affected.

Our actual or perceived failure to comply with increasingly stringent laws, regulations and contractual obligations relating to privacy, data protection and data security could harm our reputation and subject us to significant fines and liability or loss of business.

We and our customers are subject to numerous domestic (for example, CCPA in California) and foreign (for example, the GDPR in the EU) privacy, data protection and data security laws and regulations that restrict the collection, use, disclosure and processing of personal information, including financial and health data. These laws and regulations are evolving, are being tested in courts, may result in increasing regulatory and public scrutiny of our practices relating to personal information and may increase our exposure to regulatory enforcement action, sanctions and litigation.

The CCPA imposes obligations on businesses to which it applies. These obligations include, but are not limited to, providing specific disclosures in privacy notices and affording California residents certain rights related to their personal information. The CCPA allows for statutory fines for noncompliance. In addition, it is anticipated that the California Privacy Rights Act of 2020 (“CPRA”), effective January 1, 2023, will expand the CCPA. Similar laws have been enacted or been proposed at the state and federal levels. For example, Virginia and Colorado have each passed laws similar to but different from the CPRA that take effect in 2023. If we become subject to new privacy, data protection and data security laws, the risk of enforcement action against us could increase because we may become subject to additional obligations, and the number of individuals or entities that can initiate actions against us may increase (including individuals, via a private right of action, and state actors).

Outside the United States, an increasing number of laws, regulations, and industry standards apply to privacy, data protection and data security. For example, the GDPR and the United Kingdom’s GDPR (“UK GDPR”) impose strict requirements for processing the personal information of individuals located, respectively within the European Economic Area (“EEA”) and the United Kingdom (“UK”). For example, under the GDPR, government regulators may impose temporary or definitive bans on data processing, as well as fines. Further, individuals may initiate litigation related to our processing of their personal information. As another example, the General Data Protection Law (Lei Geral de Proteção de Dados Pessoais, or “LGPD”) (Law No. 13,709/2018) may apply to our operations. The LGPD broadly regulates processing of personal information of individuals in Brazil and imposes compliance obligations and penalties comparable to those of the GDPR.

Further, the interpretation and application of new domestic and foreign laws and regulations in many cases is uncertain, and our legal and regulatory obligations in such jurisdictions are subject to frequent and unexpected changes, including the potential for various regulatory or other governmental bodies to enact new or additional laws or regulations, to issue rulings that invalidate prior laws or regulations, or to increase penalties significantly.

Similarly, with our registration as an interconnected VoIP provider with the Federal Communications Commission ("FCC"), we also must comply with privacy laws associated with customer proprietary network information ("CPNI") rules in the U.S. If we fail to maintain compliance with these requirements, we could be subject to regulatory audits, civil and criminal penalties, fines and breach of contract claims, as well as reputational damage, which could impact the willingness of customers to do business with us.

In addition to our legal obligations, our contractual obligations relating to privacy, data protection and data security have become increasingly stringent due to changes in laws and regulations and the expansion of our offerings. Certain privacy, data protection and data security laws, such as the GDPR and the CCPA, require our customers to impose specific contractual restrictions on their service providers. In addition, we have begun to support customer workloads that involve the processing of protected health information and are required to sign business associate agreements ("BAAs") with customers that subject us to the requirements under the U.S. Health Insurance Portability and Accountability Act of 1996 and the U.S. Health Information Technology for Economic and Clinical Health Act as well as state laws that govern health information.

Our actual or perceived failure to comply with laws, regulations or contractual commitments regarding privacy, data protection and data security could lead to costly legal action, adverse publicity, significant liability, and decreased demand for our services, which could adversely affect our business, results of operations and financial condition.

As a cumulative example of these risks, because our primary data processing facilities are currently in the U.S., we have experienced hesitancy, reluctance, or refusal by European or multinational customers to continue to use our services due to the potential risk posed to such customers as a result of the Court of Justice July 2020 ruling in the "Schrems II" case, as well as related guidance from the European Data Protection Board. For example, absent appropriate safeguards or other circumstances, the GDPR and laws in Switzerland and the UK generally restrict the transfer of personal information to countries outside of the EEA, such as the United States, that the European Commission does not consider as providing an adequate level of privacy, data protection and data security. If we cannot implement a valid mechanism for cross-border data transfers, we may face increased exposure to regulatory actions, substantial fines, and injunctions against processing or transferring personal information from Europe or elsewhere. The inability to import personal information to the United States could significantly and negatively impact our business operations; limit our ability to collaborate with parties that are subject to data privacy and security laws; or require us to increase our personal information processing capabilities in Europe and/or elsewhere at significant expense. We and our customers are at risk of enforcement actions taken by an EU data protection authority during such time Twilio continues to require data transfers from the EEA for the provision of our services. While we are actively working to increase our data processing capabilities in Europe and other countries to limit or eliminate the need for data transfers out of the EEA, if we are unable to increase those capabilities quickly enough, and other valid solutions for personal information transfers to the United States or other countries are not available or are difficult to implement in the interim, we will likely face continuing reluctance from European and multinational customers to use our services and increased exposure to regulatory actions, substantial fines and injunctions against processing or transferring personal information from Europe.

Our business depends on customers increasing their use of our products, and a loss of customers or decline in their use of our products could adversely affect our business, results of operations and financial condition.

Our ability to grow and generate incremental revenue depends, in part, on our ability to maintain and grow our relationships with existing customers (including any customers acquired in connection with our acquisitions) and to have them increase their usage of our platform. If our customers do not increase their use of our products, then our revenue may decline, and our results of operations may be harmed. Customers are charged based on the usage of our products. Most of our customers do not have long-term contractual financial commitments to us and, therefore, most of our customers may reduce or cease their use of our products at any time without penalty or termination charges. Customers may terminate or reduce their use of our products for any number of reasons, including if they are not satisfied with our products, the value proposition of our products or our ability to meet their needs and expectations, or due to the introduction of new competing products by competitors. For example, on February 26, 2021, a critical feature enablement service on our platform became overloaded, which resulted in connection issues across multiple products in our cloud communications platform that affected our customers for a limited number of hours. The service disruption had a widespread impact on our customers' ability to use several of our products. We incurred certain costs associated with offering credits to our affected customers, but the overall impact was not material to our business. To protect our system from similar disruptions in the near term, we have significantly increased our server capacity and added additional caching layers to accommodate usage spikes. We also have undertaken longer term improvements to mitigate against future service disruptions, but there can be no guarantee that these actions or improvements will be effective in preventing or reducing such service disruptions.

We cannot accurately predict customers' usage levels, and the loss of customers or reductions in their usage levels of our products may each have a negative impact on our business, results of operations and financial condition and may cause our Dollar-Based Net Expansion Rate to decline in the future if customers are not satisfied with our products, the value proposition of our products or our ability to meet their needs and expectations. If a significant number of customers cease using, or reduce their usage of our products, then we may be required to spend significantly more on sales and marketing than we currently plan to spend in order to maintain or increase revenue from customers. Such additional sales and marketing expenditures could adversely affect our business, results of operations and financial condition.

If we are unable to attract new customers in a cost-effective manner, then our business, results of operations and financial condition would be adversely affected.

In order to grow our business, we must continue to attract new customers in a cost-effective manner. We use a variety of marketing channels to promote our products and platform, such as developer events and developer evangelism, as well as search engine marketing and optimization. We periodically adjust the mix of our other marketing programs such as regional customer events, email campaigns, billboard advertising and public relations initiatives. If the costs of the marketing channels we use increase dramatically, then we may choose to use alternative and less expensive channels, which may not be as effective as the channels we currently use. As we add to or change the mix of our marketing strategies, we may need to expand into more expensive channels than those we are currently in, which could adversely affect our business, results of operations and financial condition. We will incur marketing expenses before we are able to recognize any revenue that the marketing initiatives may generate, and these expenses may not result in increased revenue or brand awareness. We have made in the past, and may make in the future, significant expenditures and investments in new marketing campaigns, and we cannot guarantee that any such investments will lead to the cost-effective acquisition of additional customers. If we are unable to maintain effective marketing programs, then our ability to attract new customers could be adversely affected, our advertising and marketing expenses could increase substantially, and our results of operations may suffer.

If we do not develop enhancements to our products and introduce new products that achieve market acceptance, our business, results of operations and financial condition could be adversely affected.

Our ability to attract new customers and increase revenue from existing customers depends in part on our ability to enhance and improve our existing products, increase adoption and usage of our products and introduce new products. The success of any enhancements or new products depends on several factors, including timely completion, adequate quality testing, actual performance quality, market-accepted pricing levels and overall market acceptance. Enhancements and new products that we develop may not be introduced in a timely or cost-effective manner, may contain errors or defects, may require reworking features and capabilities, may have interoperability difficulties with our platform or other products or may not achieve the broad market acceptance necessary to generate significant revenue. Furthermore, our ability to increase the usage of our products depends, in part, on the development of new use cases for our products, which is typically driven by our developer community and may be outside of our control. We also have invested, and may continue to invest, in the acquisition of complementary businesses, technologies, services, products and other assets that expand the products that we can offer our customers. We may make these investments without being certain that they will result in products or enhancements that will be accepted by existing or prospective customers. Our ability to generate usage of additional products by our customers may also require increasingly sophisticated and more costly sales efforts and result in a longer sales cycle. In addition, adoption of new products or enhancements may put additional strain on our customer support team, which could require us to make additional expenditures related to further hiring and training. If we are unable to successfully enhance our existing products to meet evolving customer requirements, increase adoption and usage of our products, develop new products, or if our efforts to increase the usage of our products are more expensive than we expect, then our business, results of operations and financial condition would be adversely affected.

The market in which we participate is intensely competitive, and if we do not compete effectively, our business, results of operations and financial condition could be harmed.

The market for cloud communications is rapidly evolving, significantly fragmented and highly competitive, with relatively low barriers to entry in some segments. The principal competitive factors in our market include completeness of offering, credibility with developers, global reach, ease of integration and programmability, product features, platform scalability, reliability, deliverability, security and performance, brand awareness and reputation, the strength of sales and marketing efforts, customer support, as well as the cost of deploying and using our products. Our competitors fall into four primary categories:

- legacy on-premises vendors;

- regional network service providers that offer limited developer functionality on top of their own physical infrastructure;
- smaller software companies that compete with portions of our product line; and
- software-as a-service ("SaaS") companies and cloud platform vendors that offer prepackaged applications and platforms.

Some of our competitors and potential competitors are larger and have greater name recognition, longer operating histories, more established customer relationships, larger budgets and significantly greater resources than we do. In addition, they have the operating flexibility to bundle competing products and services at little or no perceived incremental cost, including offering them at a lower price as part of a larger sales transaction. As a result, our competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards or customer requirements. In addition, some competitors may offer products or services that address one or a limited number of functions at lower prices, with greater depth than our products or in different geographies. Our current and potential competitors may develop and market new products and services with comparable functionality to our products, and this could lead to us having to decrease prices in order to remain competitive. Customers utilize our products in many ways and use varying levels of functionality that our products offer or are capable of supporting or enabling within their applications. Customers that use many of the features of our products or use our products to support or enable core functionality for their applications may have difficulty or find it impractical to replace our products with a competitor's products or services, while customers that use only limited functionality may be able to replace our products more easily with competitive offerings. Our customers also may choose to build some of the functionality our products provide or establish direct connectivity with network service providers, which may limit or eliminate their demand for our products.

With the introduction of new products and services and new market entrants, we expect competition to intensify in the future. In addition, some of our customers may choose to use our products and our competitors' products at the same time. Further, customers and consumers may choose to adopt other forms of electronic communications or alternative communication platforms.

Moreover, as we expand the scope of our products, we may face additional competition and, in some cases, may find our products in competition with those of our customers, which could cause them to replace our products with competitive offerings. If one or more of our competitors were to merge or partner with another of our competitors or our suppliers, the change in the competitive landscape could also adversely affect our ability to compete effectively. For example, certain of our competitors have engaged in acquisition activity in 2021 and may continue to do so in the future. In addition, some of our competitors have lower list prices than us, which may be attractive to certain customers even if those products have different or lesser functionality. If we are unable to maintain our current pricing due to competitive pressures, our margins will be reduced and our business, results of operations and financial condition would be adversely affected. In addition, pricing pressures and increased competition generally could result in reduced revenue, reduced margins, increased losses or the failure of our products to achieve or maintain widespread market acceptance, any of which could harm our business, results of operations and financial condition.

We have a history of losses and may not achieve or sustain profitability in the future.

We have incurred net losses in each year since our inception, including net losses of $949.9 million, $491.0 million and $307.1 million in the years ended December 31, 2021, 2020 and 2019, respectively. We had an accumulated deficit of $2.1 billion as of December 31, 2021. We will need to generate and sustain increased revenue levels, and manage our operating expenses, in future periods to become profitable and, even if we do, we may not be able to maintain or increase our level of profitability. We expect to continue to expend substantial financial and other resources on, among other things:

- investments in our engineering team, improvements in security and data protection, the development of new products, features and functionality and enhancements to our platform;
- sales and marketing, including the continued expansion of our direct sales organization and marketing programs, especially for enterprises and for organizations outside of the United States, and expanding our programs directed at increasing our brand awareness among current and new developers;
- expansion of our operations and infrastructure, both domestically and internationally; and
- general administration, including legal, accounting and other expenses related to being a public company.

Our efforts to grow our business may be costlier than we expect, and we may not be able to increase our revenue enough to offset our increased operating expenses. We may incur significant losses in the future for a number of reasons, including the other risks described herein, and unforeseen expenses, difficulties, complications and delays and other unknown events. If we are unable to achieve and sustain profitability, the value of our business and Class A common stock may significantly decrease.

If we are unable to increase adoption of our products by enterprises, our business, results of operations and financial condition may be adversely affected.

Historically, we have relied on the adoption of our products by software developers through our self-service model for a majority of our revenue. Our ability to increase our customer base, especially among enterprises, and achieve broader market acceptance of our products will depend, in part, on our ability to effectively organize, focus and train our sales and marketing employees.

Our ability to convince enterprises to adopt our products will depend, in part, on our ability to attract and retain sales employees with experience selling to enterprises. We believe that there is significant competition for experienced sales professionals with the skills and technical knowledge that we require. Our ability to achieve significant revenue growth in the future will depend, in part, on our ability to recruit, train and retain a sufficient number of experienced sales professionals, particularly those with experience selling to enterprises. In addition, even if we are successful in hiring qualified sales employees, new hires require significant training and experience before they achieve full productivity, particularly for sales efforts targeted at enterprises and new territories. Our recent hires and planned hires may not become as productive as quickly as we expect, and we may be unable to hire or retain sufficient numbers of qualified individuals in the future in the markets where we do business. Because we do not have a long history of targeting our sales efforts at enterprises, we cannot predict whether, or to what extent, our sales will increase as we organize and train our sales force or how long it will take for sales employees to become productive.

As we seek to increase the adoption of our products by enterprises, including products like Flex, which is primarily aimed at complex contact center implementations at larger companies, we expect to incur higher costs and longer sales cycles. In the enterprise market segment, the decision to adopt our products may require the approval of multiple technical and business decision makers, including legal, security, compliance, procurement, operations and IT. In addition, while enterprise customers may quickly deploy our products on a limited basis, before they will commit to deploying our products at scale, they often require extensive education about our products and significant customer support time, engage in protracted pricing negotiations and seek to secure readily available development resources. In addition, sales cycles for enterprises are inherently more complex and less predictable than the sales through our self-service model, and some enterprise customers may not use our products enough to generate revenue that justifies the cost to obtain such customers. In addition, these complex and resource intensive sales efforts could place additional strain on our product and engineering resources. Further, enterprises, including some of our customers, may choose to develop their own solutions that do not include our products. They also may demand reductions in pricing as their usage of our products increases, which could have an adverse impact on our gross margin. As a result of our limited experience selling and marketing to enterprises, our efforts to sell to these potential customers may not be successful. If we are unable to increase the revenue that we derive from enterprises, then our business, results of operations and financial condition may be adversely affected.

If we are unable to expand our relationships with existing technology partner customers and add new technology partner customers, our business, results of operations and financial condition could be adversely affected.

We believe that the continued growth of our business depends in part upon developing and expanding strategic relationships with technology partner customers. Technology partner customers embed our software products in their solutions, such as software applications for contact centers and sales force and marketing automation, and then sell such solutions to other businesses. When potential customers do not have the available developer resources to build their own applications, we refer them to either our technology partners who embed our products in the solutions that they sell to other businesses or our consulting partners who provide consulting and development services for organizations that have limited software development expertise to build our platform into their software applications.

As part of our growth strategy, we intend to expand our relationships with existing technology partner customers and add new technology partner customers. If we fail to expand our relationships with existing technology partner customers or establish relationships with new technology partner customers in a timely and cost-effective manner, or at all, then our business, results of operations and financial condition could be adversely affected. Additionally, even if we are successful at building these relationships but there are problems or issues with integrating our products into the solutions of these customers, our reputation and ability to grow our business may be harmed.

To deliver our products, we rely on network service providers and internet service providers for our network service and connectivity, and disruption or deterioration in the quality of these services or changes in network service provider fees that we pay in connection with the delivery of communications on our platform could adversely affect our business, results of operations and financial condition.

We currently interconnect with network service providers around the world to enable the use by our customers of our products over their networks. Although we are in the process of acquiring authorization in many countries for direct access to phone numbers and for the provision of voice services on the networks of network service providers, we expect that we will continue to rely on network service providers for these services. Where we don't have direct access to phone numbers, our reliance on network service providers has reduced our operating flexibility, ability to make timely service changes and control quality of service. In addition, the fees that we are charged by network service providers may change daily or weekly, while we do not typically change our customers' pricing as rapidly.

At times, network service providers have instituted additional fees due to regulatory, competitive or other industry related changes that increase our network costs. For example, in early 2020, a major U.S. mobile carrier introduced a new Application to Person ("A2P") SMS service offering that adds a new fee for A2P SMS messages delivered to its subscribers, and other U.S. mobile carriers have added or are in the process of adding similar fees. While we have historically responded to these types of fee increases through a combination of further negotiating efforts with our network service providers, absorbing the increased costs or changing our prices to customers, there is no guarantee that we will continue to be able to do so in the future without a material negative impact to our business. In the case of these new carriers A2P SMS fees, after a short phase-in period where we absorbed the fees, we began on May 1, 2021 to pass these fees directly through to our customers who are sending SMS messages to these carriers' subscribers. We expect that this will increase our revenue and cost of revenue, but will not impact the gross profit dollars received for sending these messages. However, mathematically this will have a negative impact on our gross margins. Additionally, our ability to respond to any new fees may be constrained if all network service providers in a particular market impose equivalent fee structures, if the magnitude of the fees is disproportionately large when compared to the underlying prices paid by our customers, or if the market conditions limit our ability to increase the price we charge our customers.

Furthermore, many of these network service providers do not have long-term committed contracts with us and may interrupt services or terminate their agreements with us without notice. If a significant portion of our network service providers stop providing us with access to their infrastructure, fail to provide these services to us on a cost-effective basis, cease operations, or otherwise terminate these services, the delay caused by qualifying and switching to other network service providers could be time consuming and costly and could adversely affect our business, results of operations and financial condition. Further, if problems occur with our network service providers, it may cause errors or poor quality communications with our products, and we could encounter difficulty identifying the source of the problem. The occurrence of errors or poor quality communications on our products, whether caused by our platform or a network service provider, may result in the loss of our existing customers or the delay of adoption of our products by potential customers and may adversely affect our business, results of operations and financial condition.

Further, we sometimes access network services through intermediaries who have direct access to network service providers. Although we are in the process of securing direct connections with network service providers in many countries, we expect that we will continue to rely on intermediaries for these services. These intermediaries sometimes have offerings that directly compete with our products and may stop providing services to us on a cost-effective basis. If a significant portion of these intermediaries stop providing services or stop providing services on a cost-effective basis, our business could be adversely affected.

We also interconnect with internet service providers around the world to enable the use of our email products by our customers, and we expect that we will continue to rely on internet service providers for network connectivity going forward. Our reliance on internet service providers reduces our control over quality of service and exposes us to potential service outages and rate fluctuations. If a significant portion of our internet service providers stop providing us with access to their network infrastructure, fail to provide access on a cost-effective basis, cease operations, or otherwise terminate access, the delay caused by qualifying and switching to other internet service providers could be time consuming and costly and could adversely affect our business, results of operations, and financial condition.

Our future success depends in part on our ability to drive the adoption of our products by international customers.

In the years ended December 31, 2021, 2020 and 2019, we derived 34%, 27% and 29% of our revenue, respectively, from customer accounts located outside the United States. The future success of our business will depend, in part, on our ability to expand our customer base worldwide. While we have been rapidly expanding our sales efforts internationally, our experience in selling our products outside of the United States is, and our ability to conduct business in local currencies in certain jurisdictions may be or is, limited. Furthermore, our developer-first business model may not be successful or have the same traction outside the United States. As a result, our investment in marketing our products to these potential customers may not be successful. If we are unable to increase the revenue that we derive from international customers, then our business, results of operations and financial condition may be adversely affected.

We are continuing to expand our international operations, which exposes us to significant risks.

We are continuing to expand our international operations to increase our revenue from customers outside of the United States as part of our growth strategy. Between December 31, 2020 and December 31, 2021, our international headcount grew from 1,369 employees to 2,964 employees. We expect to open additional international offices and hire employees to work at these offices in order to reach new customers and gain access to additional technical talent. Operating in international markets requires significant resources and management attention and will subject us to regulatory, economic and political risks in addition to those we already face in the United States. Because of our limited experience with international operations or with developing and managing sales in international markets, our international expansion efforts may not be successful.

In addition, we will face risks in doing business internationally that could adversely affect our business, including:

- any long–term impact from the United Kingdom's withdrawal from the European Union, commonly referred to as Brexit, which formally took effect on January 31, 2020. In particular, any such long-term impact from Brexit on our business and operations will depend, in part, on the outcome of the U.K.'s continuing negotiations on a number of matters not definitively addressed in the UK-EU Trade and Cooperation Agreement and may require us to expend significant time and expense to make adjustments to our business and operations;

- the difficulty of managing and staffing international operations and the increased operations, travel, infrastructure and legal compliance costs associated with servicing international customers and operating numerous international locations;

- our ability to effectively price our products in competitive international markets;

- new and different sources of competition or other changes to our current competitive landscape;

- understanding and reconciling different technical standards, data privacy and telecommunications regulations, registration and certification requirements outside the United States, which could prevent customers from deploying our products or limit their usage;

- our ability to comply with the GDPR and Brazil's General Data Protection Law (Lei Geral de Proteção de Dados Pessoais) (Law No. 13,709/2018), and laws, regulations and industry standards relating to data privacy, data protection, data localization and data security enacted in countries and other regions in which we operate or do business;

- potentially greater difficulty collecting accounts receivable and longer payment cycles;

- higher or more variable network service provider fees outside of the United States;

- the need to adapt and localize our products for specific countries;

- the need to offer customer support in various languages;

- difficulties in understanding and complying with local laws, regulations and customs in non-U.S. jurisdictions;

- compliance with export controls and economic sanctions regulations administered by the Department of Commerce's Bureau of Industry and Security and the Treasury Department's Office of Foreign Assets Control;

- compliance with various anti-bribery and anti-corruption laws such as the Foreign Corrupt Practices Act and United Kingdom Bribery Act of 2010;

- changes in international trade policies, tariffs and other non-tariff barriers, such as quotas and local content rules;

- more limited protection for intellectual property rights in some countries;
- adverse tax consequences;
- fluctuations in currency exchange rates, which could increase the price of our products outside of the United States, increase the expenses of our international operations and expose us to foreign currency exchange rate risk;
- currency control regulations, which might restrict or prohibit our conversion of other currencies into U.S. dollars;
- restrictions on the transfer of funds;
- deterioration of political relations between the United States and other countries;
- the impact of natural disasters and public health epidemics or pandemics such as COVID-19 on employees, contingent workers, partners, travel and the global economy and the ability to operate freely and effectively in a region that may be fully or partially on lockdown; and
- political or social unrest or economic instability in a specific country or region in which we operate, which could have an adverse impact on our operations in that location.

Also, due to costs from our international expansion efforts and network service provider fees outside of the United States, which generally are higher than domestic rates, our gross margin for international customers is typically lower than our gross margin for domestic customers. As a result, our gross margin may be impacted and fluctuate as we expand our operations and customer base worldwide.

Our failure to manage any of these risks successfully could harm our international operations, and adversely affect our business, results of operations and financial condition.

Certain of our products are subject to telecommunications-related regulations, and future legislative or regulatory actions could adversely affect our business, results of operations and financial condition.

As a provider of communications products, we are subject to existing or potential FCC regulations relating to privacy, telecommunications, consumer protection and other requirements. In addition, the extension of telecommunications regulations to our non-interconnected VoIP services could result in additional federal and state regulatory obligations and taxes. We are also in discussions with certain jurisdictions regarding potential sales and other taxes for prior periods that we may owe. In the event any of these jurisdictions disagree with management's assumptions and analysis, the assessment of our tax exposure could differ materially from management's current estimates, which may increase our costs of doing business and negatively affect the prices our customers pay for our services. If we do not comply with FCC rules and regulations, we could be subject to FCC enforcement actions, fines, loss of licenses and possibly restrictions on our ability to operate or offer certain of our products. Any enforcement action by the FCC, which may be a public process, would hurt our reputation in the industry, could erode customer trust, possibly impair our ability to sell our VoIP products to customers and could adversely affect our business, results of operations and financial condition.

Certain of our products are subject to a number of FCC regulations and laws that are administered by the FCC. Among others, we must comply (in whole or in part) with:

- the Communications Act of 1934, as amended, which regulates communications services and the provision of such services;
- the Telephone Consumer Protection Act, which limits the use of automatic dialing systems for calls and texts, artificial or prerecorded voice messages and fax machines;
- the Communications Assistance for Law Enforcement Act, which requires covered entities to assist law enforcement in undertaking electronic surveillance;
- requirements to safeguard the privacy of certain customer information;
- payment of annual FCC regulatory fees and contributions to FCC-administered funds based on our interstate and international revenues; and

- rules pertaining to access to our services by people with disabilities and contributions to the Telecommunications Relay Services fund.

In addition, Congress and the FCC are attempting to mitigate the scourge of robocalls by requiring participation in a technical standard called SHAKEN/STIR, which allows voice carriers to authenticate caller ID, prohibiting malicious spoofing.

Similarly, in May 2021, the Biden Administration issued an Executive Order requiring federal agencies to implement additional information technology security measures, including, among other things, requiring agencies to adopt multifactor authentication and encryption for data at rest and in transit to the maximum extent consistent with Federal records laws and other applicable laws. The Executive Order will lead to the development of secure software development practices and/or criteria for a consumer software labeling program, the criteria which will reflect a baseline level of secure practices, for software that is developed and sold to the U.S. federal government. Software developers will be required to provide visibility into their software and make security data publicly available. Due to this Executive Order, federal agencies may require us to modify our cybersecurity practices and policies, thereby increasing our compliance costs. If we are unable to meet the requirements of the Executive Order, our ability to work with the U.S. government may be impaired and may result in a loss of revenue.

If we do not comply with any current or future rules or regulations that apply to our business, we could be subject to substantial fines and penalties, and we may have to restructure our offerings, exit certain markets or raise the price of our products. In addition, any uncertainty regarding whether particular regulations apply to our business, and how they apply, could increase our costs or limit our ability to grow.

As we continue to expand internationally, we have become subject to telecommunications laws and regulations in the foreign countries where we offer our products. Internationally, we currently offer our products in over 180 countries.

Our international operations are subject to country-specific governmental regulation and related actions that have increased and will continue to increase our costs or impact our products and platform or prevent us from offering or providing our products in certain countries. Moreover, the regulation of communications platform-as-a-service ("CPaaS") companies like us is continuing to evolve internationally and many existing regulations may not fully contemplate the CPaaS business model or how they fit into the communications regulatory framework. As a result, interpretation and enforcement of regulations often involve significant uncertainties. In many countries, including those in the European Union, a number of our products or services are subject to licensing and communications regulatory requirements which increases the level of scrutiny and enforcement by regulators. Future legislative, regulatory or judicial actions impacting CPaaS services could also increase the cost and complexity of compliance and expose us to liability. For example, in some countries, some or all of the services we offer are not considered regulated telecommunications services, while in other countries they are subject to telecommunications regulations, including but not limited to payment into universal service funds, licensing fees, provision of emergency services, provision of information to support emergency services and number portability. Specifically, the Australian Communications and Media Authority in 2019 issued a formal finding against several companies, including our Company, for failure to upload data into a centralized database for emergency services and, in the future, regulatory authorities in other jurisdictions in which we operate may also determine that we are a telecommunications company subject to similar regulations. Failure to comply with these regulations could result in our Company being issued remedial directions to undertake independent audits and implement effective systems, processes and practices to ensure compliance, significant fines or being prohibited from providing telecommunications services in a jurisdiction.

Moreover, certain of our products may be used by customers located in countries where voice and other forms of IP communications may be illegal or require special licensing or in countries on a U.S. embargo list. Even where our products are reportedly illegal or become illegal or where users are located in an embargoed country, users in those countries may be able to continue to use our products in those countries notwithstanding the illegality or embargo. We may be subject to penalties or governmental action if consumers continue to use our products in countries where it is illegal to do so or if we use a local partner to provide services in a country and the local partner does not comply with applicable governmental regulations. Any such penalties or governmental action may be costly and may harm our business and damage our brand and reputation. We may be required to incur additional expenses to meet applicable international regulatory requirements or be required to raise the prices of services, or restructure or discontinue those services if required by law or if we cannot or will not meet those requirements. Any of the foregoing could adversely affect our business, results of operations and financial condition.

If we are unable to obtain or retain geographical, mobile, regional, local or toll-free numbers, or to effectively process requests to port such numbers in a timely manner due to industry regulations, our business and results of operations may be adversely affected.

Our future success depends in part on our ability to obtain allocations of geographical, mobile, regional, local and toll-free direct inward dialing numbers or phone numbers as well as short codes and alphanumeric sender IDs (collectively “Numbering Resources”) in the United States and foreign countries at a reasonable cost and without overly burdensome restrictions. Our ability to obtain allocations of, assign and retain Numbering Resources depends on factors outside of our control, such as applicable regulations, the practices of authorities that administer national numbering plans or of network service providers from whom we can provision Numbering Resources, such as offering these Numbering Resources with conditional minimum volume call level requirements, the cost of these Numbering Resources and the level of overall competitive demand for new Numbering Resources.

In addition, in order to obtain allocations of, assign and retain Numbering Resources in the EU or certain other regions, we are often required to be licensed by local telecommunications regulatory authorities, some of which have been increasingly monitoring and regulating the categories of Numbering Resources that are eligible for provisioning to our customers. We have obtained licenses, and are in the process of obtaining licenses in various countries in which we do business, but in some countries, the regulatory regime around provisioning of Numbering Resources is unclear, subject to change over time, and sometimes may conflict from jurisdiction to jurisdiction. Furthermore, these regulations and governments’ approach to their enforcement, as well as our products and services, are still evolving and we may be unable to maintain compliance with applicable regulations, or enforce compliance by our customers, on a timely basis or without significant cost. Also, compliance with these types of regulation may require changes in products or business practices that result in reduced revenue. Due to our or our customers' assignment and/or use of Numbering Resources in certain countries in a manner that violates applicable rules and regulations, we have been subjected to government inquiries and audits, and may in the future be subject to significant penalties or further governmental action, and in extreme cases, may be precluded from doing business in that particular country. We have also been forced to reclaim Numbering Resources from our customers as a result of certain events of non-compliance. These reclamations result in loss of customers, loss of revenue, reputational harm, erosion of customer trust, and may also result in breach of contract claims, all of which could have an adverse effect on our business, results of operations and financial condition.

Due to their limited availability, there are certain popular area code prefixes that we generally cannot obtain. Our inability to acquire or retain Numbering Resources for our operations may make our voice and messaging products less attractive to potential customers in the affected local geographic areas. In addition, future growth in our customer base, together with growth in the customer bases of other providers of cloud communications, has increased, which increases our dependence on needing sufficiently large quantities of Numbering Resources. It may become increasingly difficult to source larger quantities of Numbering Resources as we scale and we may need to pay higher costs for Numbering Resources, and Numbering Resources may become subject to more stringent regulation or conditions of usage such as the registration and on-going compliance requirements discussed above.

Additionally, in some geographies, we support number portability, which allows our customers to transfer their existing phone numbers to us and thereby retain their existing phone numbers when subscribing to our voice and messaging products. Transferring existing numbers is a manual process that can take up to 15 business days or longer to complete. Any delay that we experience in transferring these numbers typically results from the fact that we depend on network service providers to transfer these numbers, a process that we do not control, and these network service providers may refuse or substantially delay the transfer of these numbers to us. Number portability is considered an important feature by many potential customers, and if we fail to reduce any related delays, then we may experience increased difficulty in acquiring new customers.

Any of the foregoing factors could adversely affect our business, results of operations and financial condition.

If we fail to adapt and respond effectively to rapidly changing technology, evolving industry standards, changing regulations, and changing customer needs, requirements or preferences, our products may become less competitive.

The market for communications in general, and cloud communications in particular, is subject to rapid technological change, evolving industry standards, changing regulations, as well as changing customer needs, requirements and preferences. The success of our business will depend, in part, on our ability to adapt and respond effectively to these changes on a timely basis. If we are unable to develop new products that satisfy our customers and provide enhancements and new features for our existing products that keep pace with rapid technological and industry change, including but not limited to SHAKEN/STIR and applicable industry standards, our business, results of operations and financial condition could be adversely affected. If new technologies emerge that are able to deliver competitive products and services at lower prices, more efficiently, more conveniently or more securely, such technologies could adversely impact our ability to compete effectively.

Our platform must integrate with a variety of network, hardware, mobile and software platforms and technologies, and we need to continuously modify and enhance our products and platform to adapt to changes and innovation in these technologies. For example, Apple, Google and other cell-phone operating system providers or inbox service providers have developed and, may in the future develop, new applications or functions intended to filter spam and unwanted phone calls, messages or emails. Third party platforms may also implement changes to their privacy policies or practices that may impact us or our customers. In addition, our network service providers may adopt new filtering technologies in an effort to combat spam or robocalling. Such technologies may inadvertently filter desired messages or calls to or from our customers. If cell-phone operating system providers, network service providers, our customers or their end users adopt new software platforms or infrastructure, we may be required to develop new versions of our products to work with those new platforms or infrastructure. This development effort may require significant resources, which would adversely affect our business, results of operations and financial condition. Any failure of our products and platform to operate effectively with evolving or new platforms and technologies could reduce the demand for our products. If we are unable to respond to these changes in a cost-effective manner, our products may become less marketable and less competitive or obsolete, and our business, results of operations and financial condition could be adversely affected.

We substantially rely upon Amazon Web Services to operate our platform, and any disruption of or interference with our use of Amazon Web Services would adversely affect our business, results of operations and financial condition.

We outsource a substantial majority of our cloud infrastructure to Amazon Web Services (“AWS”), which hosts our products and platform. Our customers need to be able to access our platform at any time, without interruption or degradation of performance. AWS runs its own platform that we access, and we are, therefore, vulnerable to service interruptions at AWS. We have experienced, and expect that in the future we may experience interruptions, delays and outages in service and availability due to a variety of factors, including infrastructure changes, human or software errors, website hosting disruptions and capacity constraints. Capacity constraints could be due to a number of potential causes, including technical failures, natural disasters, pandemics such as COVID-19, fraud or security attacks. In addition, if our security, or that of AWS, is compromised, or our products or platform are unavailable or our users are unable to use our products within a reasonable amount of time or at all, then our business, results of operations and financial condition could be adversely affected. In some instances, we may not be able to identify the cause or causes of these performance problems within a period of time acceptable to our customers. It may become increasingly difficult to maintain and improve our platform performance, especially during peak usage times, as our products become more complex and the usage of our products increases. To the extent that we do not effectively address capacity constraints, either through AWS or alternative providers of cloud infrastructure, our business, results of operations and financial condition may be adversely affected. In addition, any changes in service levels from AWS may adversely affect our ability to meet our customers’ requirements, result in negative publicity which could harm our reputation and brand and may adversely affect the usage of our platform.

The substantial majority of the services we use from AWS are for cloud-based server capacity and, to a lesser extent, storage and other optimization offerings. AWS enables us to order and reserve server capacity in varying amounts and sizes distributed across multiple regions. We access AWS infrastructure through standard IP connectivity. AWS provides us with computing and storage capacity pursuant to an agreement that continues until terminated by either party. AWS may terminate the agreement for cause upon notice and upon our failure to cure a breach within 30 days from the date of such notification and may, in some cases, suspend the agreement immediately for cause upon notice. Although we expect that we could receive similar services from other third parties, if any of our arrangements with AWS are terminated, we could experience interruptions on our platform and in our ability to make our products available to customers, as well as delays and additional expenses in arranging alternative cloud infrastructure services.

Any of the above circumstances or events may harm our reputation, erode customer trust, cause customers to stop using our products, impair our ability to increase revenue from existing customers, impair our ability to grow our customer base, subject us to financial penalties and liabilities under our service level agreements and otherwise harm our business, results of operations and financial condition.

We typically provide monthly uptime service level commitments of a minimum of 99.95% under our agreements with customers. If we fail to meet these contractual commitments, then our business, results of operations and financial condition could be adversely affected.

Our agreements with customers typically provide for service level commitments. If we suffer extended periods of downtime for our products or platform and we are unable to meet these commitments, then we are contractually obligated to provide a service credit, which is typically 10% of the customer's amounts due for the month in question. For example, on February 26, 2021, a critical feature enablement service on our platform became overloaded, which resulted in connection issues across multiple products in our cloud communications platform that affected our customers for a limited number of hours. The service disruption had a widespread impact on our customers' ability to use several of our products. We incurred certain costs associated with offering credits to our affected customers, but the overall impact was not material to our business. We may also ultimately lose or see reduced utilization of our products by one or more customers as a result of the outage. In addition, the performance and availability of AWS or other service providers that provide our cloud infrastructures is outside of our control and, therefore, we are not in full control of whether we meet our service level commitments. As a result, our business, results of operations and financial condition could be adversely affected if we suffer unscheduled downtime that exceeds the service level commitments we have made to our customers. Any extended service outages could adversely affect our business and reputation and erode customer trust.

Breaches of our networks or systems, or those of AWS or our service providers, could degrade our ability to conduct our business, compromise the integrity of our products, platform and data, result in significant data losses and the theft of our intellectual property, damage our reputation, expose us to liability to third parties and require us to incur significant additional costs to maintain the security of our networks and data.

We depend upon our IT systems to conduct virtually all of our business operations, ranging from our internal operations and research and development activities to our marketing and sales efforts and communications with our customers and business partners. We may be subject to a variety of evolving threats, including but not limited to social-engineering attacks (including through phishing attacks), malicious code (such as viruses and worms), malware (including as a result of advanced persistent threat intrusions), denial-of-service attacks (such as credential stuffing), personnel misconduct or error, ransomware attacks, supply-chain attacks, software bugs, server malfunctions, software or hardware failures, loss of data or other information technology assets, adware, telecommunications failures, earthquakes, fires, floods and other similar threats.
Individuals or entities may attempt to penetrate our network security, or that of our platform, and to cause harm to our business operations, including by misappropriating our proprietary information or that of our customers, employees and business partners or to cause interruptions of our products and platform. In particular, cyberattacks and other malicious internet-based activity continue to increase in frequency and in magnitude generally, and cloud-based companies have been targeted in the past. In addition to threats from traditional computer hackers, malicious code, software vulnerabilities, supply chain attacks and vulnerabilities through our third-party partners, employees theft or misuse, password spraying, phishing, credential stuffing and denial-of-service attacks, we also face threats from sophisticated organized crime, nation-state, and nation-state supported actors who engage in attacks (including advanced persistent threat intrusions) that add to the risk to our systems (including those hosted on AWS or other cloud services), internal networks, our customers' systems and the information that they store and process. Ransomware and cyber extortion attacks, including those perpetrated by organized criminal threat actors, nation-states, and nation-state-supported actors, are becoming increasingly prevalent and severe and can lead to significant interruptions in our operations, loss of data and income, reputational harm, and diversion of funds. Extortion payments may alleviate or reduce the negative impact of a ransomware attack, but we may be unwilling or unable to make such payments due to, for example, applicable laws or regulations prohibiting such payments. The COVID-19 pandemic and our remote workforce also pose increased risks to our IT systems and data. While we devote significant financial and employee resources to implement and maintain security measures, because the techniques used by such individuals or entities to access, disrupt or sabotage devices, systems and networks change frequently and may not be recognized until launched against a target, we may be required to make further investments over time to protect data and infrastructure as cybersecurity threats develop, evolve and grow more complex over time. We may also be unable to anticipate these techniques, and we may not become aware in a timely manner of such a security breach, which could exacerbate any damage we experience. Additionally, we depend upon our employees and contractors to appropriately handle confidential and sensitive data, including customer data, and to deploy our IT resources in a safe and secure manner that does not expose our network systems to security breaches or the loss of data. We have been and expect to be subject to cybersecurity threats and incidents, including denial-of-service attacks, employee errors or individual attempts to gain unauthorized access to information systems. Any data security incidents, including internal malfeasance or inadvertent disclosures by our employees or a third party's fraudulent inducement of our employees to disclose

information, unauthorized access or usage, virus or similar breach or disruption of us or our service providers, such as AWS, could result in loss of confidential information, damage to our reputation, erosion of customer trust, loss of customers, litigation, regulatory investigations, fines, penalties and other liabilities. For example, in 2020, SolarWinds Inc., one of our third party software service providers, was subject to a data security incident. We have completed our investigations of this incident and concluded that there was no adverse impact to us.

Furthermore, we are required to comply with laws and regulations that require us to maintain the security of personal information and we may have contractual and other legal obligations to notify customers or other relevant stakeholders of security breaches. Such disclosures are costly, and the disclosures or the failure to comply with such requirements could lead to adverse consequences. If we (or a third party upon whom we rely) experience a security incident or are perceived to have experienced a security incident, we may experience adverse consequences. These consequences may include: government enforcement actions (for example, investigations, fines, penalties, audits, and inspections); additional reporting requirements and/or oversight; restrictions on processing data (including personal data); litigation (including class claims); indemnification obligations; negative publicity; reputational harm; monetary fund diversions; interruptions in our operations (including availability of data); financial loss and other similar harms. Security incidents and attendant consequences could lead to negative publicity, may cause our customers to lose confidence in the effectiveness of our security measures and require us to expend significant capital and other resources to respond to and/or mitigate the security breach. Accordingly, if our cybersecurity measures or those of AWS or our service providers, fail to protect against unauthorized access, attacks (which may include sophisticated cyberattacks), compromise or the mishandling of data by our employees and contractors, then our reputation, customer trust, business, results of operations and financial condition could be adversely affected.

While we maintain errors, omissions and cyber liability insurance policies covering certain security and privacy damages, we cannot be certain that our existing insurance coverage will continue to be available on acceptable terms or will be available, and in sufficient amounts, to cover the potentially significant losses that may result from a security incident or breach or that the insurer will not deny coverage as to any future claim.

Defects or errors in our products could diminish demand for our products, harm our business and results of operations and subject us to liability.

Our customers use our products for important aspects of their businesses, and any errors, defects or disruptions to our products and any other performance problems with our products could damage our customers' businesses and, in turn, hurt our brand and reputation and erode customer trust. We provide regular updates to our products, which have in the past contained, and may in the future contain, undetected errors, failures, vulnerabilities and bugs when first introduced or released. Real or perceived errors, failures or bugs in our products could result in negative publicity, loss of or delay in market acceptance of our platform, loss of competitive position, lower customer retention or claims by customers for losses sustained by them. In such an event, we may be required, or may choose, for customer relations or other reasons, to expend additional resources to help correct the problem. In addition, we may not carry insurance sufficient to compensate us for any losses that may result from claims arising from defects or disruptions in our products. As a result, our reputation and our brand could be harmed, and our business, results of operations and financial condition may be adversely affected.

We currently generate significant revenue from our largest customers, and the loss or decline in revenue from any of these customers could harm our business, results of operations and financial condition.

In the years ended December 31, 2021, 2020 and 2019, our 10 largest Active Customer Accounts generated an aggregate of 11%, 14% and 13% of our revenue, respectively. In the event that any of our large customers do not continue to use our products, use fewer of our products, or use our products in a more limited capacity, or not at all, our business, results of operations and financial condition could be adversely affected. Additionally, the usage of our products by customers that do not have long-term contracts with us may change between periods. Those with no long-term contract with us may reduce or fully terminate their usage of our products at any time without notice, penalty or termination charges, which may adversely impact our results of operations.

If we are unable to develop and maintain successful relationships with consulting partners, our business, results of operations and financial condition could be adversely affected.

We believe that continued growth of our business depends in part upon identifying, developing and maintaining strategic relationships with consulting partners. As part of our growth strategy, we intend to further develop partnerships and specific solution areas with consulting partners. If we fail to establish these relationships in a timely and cost-effective manner, or at all, then our business, results of operations and financial condition could be adversely affected. Additionally, even if we are successful at developing these relationships but there are problems or issues with the integrations or enterprises are not willing to purchase through consulting partners, our reputation and ability to grow our business may be adversely affected.

Any failure to offer high quality customer support may adversely affect our relationships with our customers and prospective customers, and adversely affect our business, results of operations and financial condition.

Many of our customers depend on our customer support team to assist them in deploying our products effectively to help them to resolve post-deployment issues quickly and to provide ongoing support. If we do not devote sufficient resources or are otherwise unsuccessful in assisting our customers effectively, it could adversely affect our ability to retain existing customers and could prevent prospective customers from adopting our products. We may be unable to respond quickly enough to accommodate short-term increases in demand for customer support. We also may be unable to modify the nature, scope and delivery of our customer support to compete with changes in the support services provided by our competitors. Increased demand for customer support, without corresponding revenue, could increase costs and adversely affect our business, results of operations and financial condition. Our sales are highly dependent on our business reputation and on positive recommendations from developers. Any failure to maintain high quality customer support, or a market perception that we do not maintain high quality customer support, could erode customer trust and adversely affect our reputation, business, results of operations and financial condition.

Failure to set optimal prices for our products could adversely impact our business, results of operations and financial condition.

For certain of our products, we primarily charge our customers based on their use of such products ("usage-based pricing"). One of the challenges to our usage-based pricing is that the fees that we pay to network service providers over whose networks we transmit communications can vary daily or weekly and are affected by volume and other factors that may be outside of our control and difficult to predict. This can result in us incurring increased costs that we may be unable or unwilling to pass through to our customers, which could adversely impact our business, results of operations and financial condition.

We expect that we may need to change our pricing from time to time. In the past, we have sometimes reduced our prices either for individual customers in connection with long-term agreements or for a particular product. Further, as competitors introduce new products or services that compete with ours or reduce their prices, we may be unable to attract new customers or retain existing customers based on our historical pricing. As we expand internationally, we also must determine the appropriate price to enable us to compete effectively internationally. Moreover, enterprises, which are a primary focus for our direct sales efforts, may demand substantial price concessions. In addition, if the mix of products sold changes, including for a shift to IP-based products, then we may need to, or choose to, revise our pricing. As a result, in the future we may be required or choose to reduce our prices or change our pricing model, which could adversely affect our business, results of operations and financial condition.

We have been sued and may, in the future, be sued by third parties for alleged infringement of their proprietary rights, which could adversely affect our business, results of operations and financial condition.

There is considerable patent and other intellectual property development activity in our industry. We may also introduce or acquire new products or technologies, including in areas where we historically have not participated, which could increase our exposure to third party intellectual property claims. Our future success depends, in part, on not infringing the intellectual property rights of others and we may be unaware of the intellectual property rights of others that may cover some or all of our technology. Our competitors or other third parties have claimed and may, in the future, claim that our products or platform and underlying technology are infringing upon their intellectual property rights, and we may be found to be infringing upon such rights. For example, Telesign Corporation (“Telesign”) sued us in 2015 and 2016 alleging that we infringed four U.S. patents. The patent infringement allegations in the lawsuits related to our two-factor authentication use case, *Authy*, and an API tool to find information about a phone number. On October 19, 2018, a United States District Court in the Northern District of California entered judgment in our favor on all asserted claims, which was affirmed on appeal. We intend to vigorously defend ourselves against such lawsuits. During the course of these lawsuits, there may be announcements of the results of hearings and motions and other interim developments related to the litigation. If securities analysts or investors regard these announcements as negative, the trading price of our Class A common stock may decline.

Any claims or litigation could cause us to incur significant expenses and, if successfully asserted against us, could require that we pay substantial damages or ongoing royalty payments, prevent us from offering our products, or require that we comply with other unfavorable terms. We may also be obligated to indemnify our customers or business partners in connection with any such litigation and to obtain licenses or modify our products or platform, which could further exhaust our resources. Litigation is inherently uncertain and even if we were to prevail in the event of claims or litigation against us, any claim or litigation regarding intellectual property could be costly and time-consuming and divert the attention of our management and other employees from our business. Patent infringement, trademark infringement, trade secret misappropriation and other intellectual property claims and proceedings brought against us, whether successful or not, could harm our brand, business, results of operations and financial condition.

Indemnity provisions in various agreements potentially expose us to substantial liability for data breach, intellectual property infringement and other losses.

Our agreements with customers and other third parties typically include indemnification or other provisions under which we agree to indemnify or otherwise be liable to them for losses suffered or incurred as a result of claims of intellectual property infringement, loss or exposure of confidential or sensitive data, damages caused by us to property or persons or other liabilities relating to or arising from our products or platform or other acts or omissions. The term of these contractual provisions often survives termination or expiration of the applicable agreement. Large indemnity payments or damage claims from contractual breach could harm our business, results of operations and financial condition. Although typically we contractually limit our liability with respect to such obligations, we may still incur substantial liability related to them. Any dispute with a customer with respect to such obligations could have adverse effects on our relationship with that customer and other current and prospective customers, demand for our products and adversely affect our business, results of operations and financial condition.

We could incur substantial costs in protecting or defending our intellectual property rights, and any failure to protect our intellectual property could adversely affect our business, results of operations and financial condition.

Our success depends, in part, on our ability to protect our brand and the proprietary methods and technologies that we develop under patent and other intellectual property laws in the U.S. and in non-U.S. jurisdictions so that we can prevent others from using our inventions and proprietary information. As of December 31, 2021, in the United States, we had been issued 197 patents, which expire between 2029 and 2040. As of such date, we also had 36 issued patents in non-U.S. jurisdictions, all of which are related to U.S. patents and patent applications. We have also filed various applications for protection of certain aspects of our intellectual property in the United States and internationally. There can be no assurance that additional patents will be issued or that any patents that have been issued or that may be issued in the future will provide significant protection for our intellectual property. As of December 31, 2021, we had 50 registered trademarks in the United States and 416 registered trademarks in non-U.S. jurisdictions. If we fail to protect our intellectual property rights adequately, our competitors might gain access to our technology and our business, results of operations and financial condition may be adversely affected.

There can be no assurance that the particular forms of intellectual property protection that we seek, including business decisions about when to file patent applications and trademark applications, will be adequate to protect our business. We could be required to spend significant resources to monitor and protect our intellectual property rights. Litigation has in the past, and may be necessary in the future, to enforce our intellectual property rights, determine the validity and scope of our proprietary rights or those of others, or defend against claims of infringement or invalidity. Such litigation could be costly, time-consuming and distracting to management, result in a diversion of significant resources, the narrowing or invalidation of portions of our intellectual property and have an adverse effect on our business, results of operations and financial condition. Our efforts to enforce our intellectual property rights may be met with defenses, counterclaims and countersuits attacking the validity and enforceability of our intellectual property rights or alleging that we infringe the counterclaimant’s own intellectual property. Any of our patents, copyrights, trademarks or other intellectual property rights could be challenged by others or invalidated through administrative process or litigation.

We also rely, in part, on confidentiality agreements with our business partners, employees, consultants, advisors, customers and others in our efforts to protect our proprietary technology, processes and methods. These agreements may not effectively prevent disclosure of our confidential information, and it may be possible for unauthorized parties to copy our software or other proprietary technology or information, or to develop similar software independently without our having an adequate remedy for unauthorized use or disclosure of our confidential information. In addition, others may independently discover our trade secrets and proprietary information, and in these cases, we would not be able to assert any trade secret rights against those parties. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

In addition, the laws of some countries do not protect intellectual property and other proprietary rights to the same extent as the laws of the United States. To the extent we expand our international activities, whether through acquisitions, international product development, regulatory compliance of local data sovereignty, or improving our services (e.g. reducing latency or ensuring redundancy) our exposure to unauthorized copying, transfer and use of our proprietary technology or information may increase.

We cannot be certain that our means of protecting our intellectual property and proprietary rights will be adequate or that our competitors will not independently develop similar technology. If we fail to meaningfully protect our intellectual property and proprietary rights, our business, results of operations and financial condition could be adversely affected.

We may acquire or invest in companies, which may divert our management's attention and result in debt or dilution to our stockholders. We may be unable to integrate acquired businesses and technologies successfully or achieve the expected benefits of such acquisitions or investments.

We actively evaluate and consider potential strategic transactions, including acquisitions of, or investments in, businesses, technologies, services, products and other assets in the future. For example, in November 2020, we acquired Segment for a total purchase price of $3.0 billion, of which approximately $2.5 billion represented the value of our Class A common stock issued at closing. The estimated transaction value of $3.2 billion, as previously announced, included certain shares of Class A common stock and assumed equity awards that are subject to future vesting. Accordingly, at closing, our stockholders incurred substantial dilution. Any future acquisitions or strategic transactions may result in additional dilution or require us to take on debt in order to finance any such transactions. For further risks related to our acquisitions, please see below under "Risks Related to our Acquisitions." We also may enter into relationships with other businesses to expand our products and platform, which could involve preferred or exclusive licenses, additional channels of distribution, discount pricing or investments in other companies, such as our recent proposed minority investment of $500.0 million to $750.0 million in Syniverse Corporation.

Any acquisition, investment or business relationship may result in unforeseen operating difficulties and expenditures. In particular, we may encounter difficulties or delays in assimilating or integrating the businesses, technologies, products, employees or operations of the acquired companies, particularly if the key employees of the acquired company choose not to work for us, their products or services are not easily adapted to work with our platform, or we have difficulty retaining the customers of any acquired business due to changes in ownership, management or otherwise. In addition, we may discover liabilities or deficiencies associated with the assets or companies we acquire or ineffective or inadequate controls, procedures or policies at an acquired business that were not identified in advance, any of which could result in significant unanticipated costs. Acquisitions also may disrupt our business, divert our resources or require significant management attention that would otherwise be available for development of our existing business. Moreover, the anticipated benefits of any acquisition, investment or business relationship may not be realized or we may be exposed to unknown risks or liabilities.

Negotiating these transactions can be time consuming, difficult and expensive, and our ability to complete these transactions may often be subject to approvals that are beyond our control. Consequently, these transactions, even if announced, may not be completed. For one or more of those transactions, we may:

- issue additional equity securities that would dilute our existing stockholders;
- use cash that we may need in the future to operate our business;
- incur large charges or substantial liabilities;
- incur debt on terms unfavorable to us or that we are unable to repay;
- encounter difficulties retaining key employees of the acquired company or integrating diverse software codes or business cultures;
- invest in securities that are illiquid or decline in value;
- encounter difficulties retaining the acquired company's customers; or

- become subject to adverse tax consequences, substantial depreciation, or deferred compensation charges.

The occurrence of any of these foregoing could adversely affect our business, results of operations and financial condition.

We depend largely on the continued services of our senior management and other key employees, the loss or incapacitation of any of whom could adversely affect our business, results of operations and financial condition.

Our future performance depends on the continued services and contributions of our senior management and other key employees to execute on our business plan, to develop our products and platform, to deliver our products to customers, to attract and retain customers and to identify and pursue opportunities. The loss of services of senior management or other key employees could significantly delay or prevent the achievement of our development and strategic objectives. In particular, we depend to a considerable degree on the vision, skills, experience and effort of our co-founder and Chief Executive Officer, Jeff Lawson. None of our executive officers or other senior management are bound by a written employment agreement and any of them may terminate employment with us at any time with no advance notice. The replacement of any of our senior management would likely involve significant time and costs, and such loss could significantly delay or prevent the achievement of our business objectives. The loss of the services of any of our senior management or other key employees for any reason could adversely affect our business, results of operations and financial condition.

If we are unable to hire, retain and motivate qualified employees, our business will suffer.

Our future success depends, in part, on our ability to continue to attract and retain highly skilled employees. We believe that there is, and will continue to be, intense competition for highly skilled management, technical, sales and other employees with experience in our industry. In addition, we have experienced and may continue to experience employee turnover as a result of the ongoing “great resignation” occurring throughout the U.S. economy. New employees require training, take time before they achieve full productivity, and may not become as productive as we expect, and we may be unable to hire or retain sufficient numbers of qualified individuals. In addition, our new Open Work hybrid approach to work, announced in February 2021, may not meet the expectations of our workforce. Further, labor is subject to external factors that are beyond our control, including our industry’s highly competitive market for skilled workers and leaders, cost inflation, the COVID-19 pandemic and workforce participation rates. We must provide competitive compensation packages and a high quality work environment to hire, retain and motivate employees. If we are unable to retain and motivate our existing employees and attract qualified employees to fill key positions, we may be unable to manage our business effectively, including the development, marketing and sale of our products, which could adversely affect our business, results of operations and financial condition. To the extent we hire employees from competitors, we also may be subject to allegations that they have been improperly solicited or divulged proprietary or other confidential information. Volatility in, or lack of performance of, our stock price may also affect our ability to attract and retain key employees. If we are unable to retain our employees, our business, results of operations and financial condition could be adversely affected.

United States federal legislation and international laws impose certain obligations on the senders of commercial emails, which could minimize the effectiveness of our platform, and establish financial penalties for non-compliance, which could increase the costs of our business.

The Federal Controlling the Assault of Non-Solicited Pornography and Marketing Act of 2003, or the CAN-SPAM Act, establishes certain requirements for commercial email messages and transactional email messages and specifies penalties for the transmission of email messages that are intended to deceive the recipient as to source or content. Among other things, the CAN-SPAM Act, obligates the sender of commercial emails to provide recipients with the ability to “opt-out” of receiving future commercial emails from the sender. In addition, some states have passed laws regulating commercial email practices that are significantly more restrictive and difficult to comply with than the CAN-SPAM Act. For example, Utah and Michigan prohibit the sending of email messages that advertise products or services that minors are prohibited by law from purchasing or that contain content harmful to minors to email addresses listed on specified child protection registries. Some portions of these state laws may not be preempted by the CAN-SPAM Act. In addition, certain non-U.S. jurisdictions in which we operate have enacted laws regulating the sending of email that are more restrictive than U.S. laws. For example, some foreign laws prohibit sending broad categories of email unless the recipient has provided the sender advance consent (or "opted-in") to receipt of such email. If we were found to be in violation of the CAN-SPAM Act, applicable state laws governing email not preempted by the CAN-SPAM Act or foreign laws regulating the distribution of email, whether as a result of violations by our customers or our own acts or omissions, we could be required to pay large penalties, which would adversely affect our financial condition, significantly harm our business, injure our reputation and erode customer trust. The terms of any injunctions, judgments, consent decrees or settlement agreements entered into in connection with enforcement actions or investigations against our company in connection with any of the foregoing laws may also require us to change one or more aspects of the way we operate our business, which could impair our ability to attract and retain customers or could increase our operating costs.

Our customers' and other users' violation of our policies or other misuse of our platform to transmit unauthorized, offensive or illegal messages, spam, phishing scams, and website links to harmful applications or for other fraudulent or illegal activity could damage our reputation, and we may face a risk of litigation and liability for illegal activities on our platform and unauthorized, inaccurate, or fraudulent information distributed via our platform.

The actual or perceived improper sending of text messages or voice calls may subject us to potential risks, including liabilities or claims relating to consumer protection laws and regulatory enforcement, including fines. For example, the Telephone Consumer Protection Act of 1991 ("TCPA") restricts telemarketing and the use of automatic SMS text messages without explicit customer consent. TCPA violations can result in significant financial penalties, as businesses can incur penalties or criminal fines imposed by the FCC or be fined up to $1,500 per violation through private litigation or state attorneys general or other state actor enforcement. Class action suits are the most common method for private enforcement. This has resulted in civil claims against our company and requests for information through third-party subpoenas. The scope and interpretation of the laws that are or may be applicable to the delivery of text messages or voice calls are continuously evolving and developing. If we do not comply with these laws or regulations or if we become liable under these laws or regulations due to the failure of our customers to comply with these laws by obtaining proper consent, we could face direct liability.

Moreover, despite our ongoing and substantial efforts to limit such use, certain customers may use our platform to transmit unauthorized, offensive or illegal messages, calls, spam, phishing scams, and website links to harmful applications, reproduce and distribute copyrighted material or the trademarks of others without permission, and report inaccurate or fraudulent data or information. These issues also arise with respect to a portion of those users who use our platform on a free trial basis or upon initial use. These actions are in violation of our policies, in particular, our Acceptable Use Policy. However, our efforts to defeat spamming attacks, illegal robocalls and other fraudulent activity will not prevent all such attacks and activity. Such use of our platform could damage our reputation and we could face claims for damages, regulatory enforcement, copyright or trademark infringement, defamation, negligence, or fraud. Furthermore, enacting more stringent controls on our customers' use of our platform to combat such violations of our Acceptable Use Policy could increase friction for our legitimate customers and decrease their use of our platform.

Moreover, our customers' and other users' promotion of their products and services through our platform might not comply with federal, state, and foreign laws or of contractual requirements imposed by carriers, such as the CTIA Shortcode Agreement and associated policies. We rely on contractual representations made to us by our customers that their use of our platform will comply with our policies and applicable law, including, without limitation, our email and messaging policies. Although we retain the right to verify that customers and other users are abiding by certain contractual terms, our Acceptable Use Policy and our email and messaging policies and, in certain circumstances, to review their email, messages and distribution lists, our customers and other users are ultimately responsible for compliance with our policies, and we do not systematically audit our customers or other users to confirm compliance with our policies. We cannot predict whether our role in facilitating our customers' or other users' activities would expose us to liability under applicable state or federal law, or whether that possibility could become more likely if changes to current laws regulating content moderation, such as Section 230 of the Communications Decency Act are enacted. There are various Congressional, FCC and executive efforts to eliminate or restrict the scope of the protections under Section 230, which limits the liability of internet platforms for third-party content that is transmitted via those platforms and for good-faith moderation of offensive content. In addition, Florida and Texas adopted statutes intended to reduce or eliminate the protections granted under Section 230, although implementation of both statutes has been stayed by federal courts, and similar legislation was introduced in other states in 2021. Even if claims asserted against us do not result in liability, we may incur substantial costs in investigating and defending such claims. If we are found liable for our customers' or other users' activities, we could be required to pay fines or penalties, redesign business methods or otherwise expend resources to remedy any damages caused by such actions and to avoid future liability.

Our use of open source software could negatively affect our ability to sell our products and subject us to possible litigation.

Our products and platform incorporate open source software, and we expect to continue to incorporate open source software in our products and platform in the future. Few of the licenses applicable to open source software have been interpreted by courts, and there is a risk that these licenses could be construed in a manner that could impose unanticipated conditions or restrictions on our ability to commercialize our products and platform. Moreover, although we have implemented policies to regulate the use and incorporation of open source software into our products and platform, we cannot be certain that we have not incorporated open source software in our products or platform in a manner that is inconsistent with such policies. If we fail to comply with open source licenses, we may be subject to certain requirements, including requirements that we offer our products that incorporate the open source software for no cost, that we make available source code for modifications or derivative works we create based upon, incorporating or using the open source software and that we license such modifications or derivative works under the terms of applicable open source licenses. If an author or other third party that distributes such open source software were to allege that we had not complied with the conditions of one or more of these licenses, we could be required to incur significant legal expenses defending against such allegations and could be subject to significant damages, enjoined from generating revenue from customers using products that contained the open source software and required to comply with onerous conditions or restrictions on these products. In any of these events, we and our customers could be required to seek licenses from third parties in order to continue offering our products and platform and to re-engineer our products or platform or discontinue offering our products to customers in the event re-engineering cannot be accomplished on a timely basis. Any of the foregoing could require us to devote additional research and development resources to re-engineer our products or platform, could result in customer dissatisfaction and may adversely affect our business, results of operations and financial condition.

Changes in laws and regulations related to the Internet or changes in the Internet infrastructure itself may diminish the demand for our products, and could adversely affect our business, results of operations and financial condition.

The future success of our business depends upon the continued use of the Internet as a primary medium for commerce, communications and business applications. Federal, state or foreign government bodies or agencies have in the past adopted, and may in the future adopt, laws or regulations affecting the use of the Internet as a commercial medium. Changes in these laws or regulations could require us to modify our products and platform in order to comply with these changes. In addition, government agencies or private organizations have imposed and may impose additional taxes, fees or other charges for accessing the Internet or commerce conducted via the Internet. These laws or charges could limit the growth of Internet-related commerce or communications generally or result in reductions in the demand for Internet-based products and services such as our products and platform. In particular, a re-adoption of "network neutrality" rules in the United States, which President Biden supported during his campaign, could affect the services used by us and our customers. California's state network neutrality law went into effect after a federal district court denied a motion for preliminary injunction on March 10, 2021, and that decision was affirmed by the U.S. Court of Appeals for the Ninth Circuit on January 28, 2022. A number of other states have adopted or are adopting or considering legislation or executive actions that would regulate the conduct of broadband providers. In addition, the use of the Internet as a business tool could be adversely affected due to delays in the development or adoption of new standards and protocols to handle increased demands of Internet activity, security, reliability, cost, ease-of-use, accessibility and quality of service. The performance of the Internet and its acceptance as a business tool has been adversely affected by "viruses," "worms," and similar malicious programs. If the use of the Internet is reduced as a result of these or other issues, then demand for our products could decline, which could adversely affect our business, results of operations and financial condition.

The technology industry is subject to increasing scrutiny that could result in government actions that would negatively affect our business.

The technology industry is subject to intense media, political and regulatory scrutiny, both domestic and foreign, including on issues related to antitrust, privacy, and artificial intelligence, which exposes us to government investigations, legal actions and penalties. For instance, various regulatory agencies, including competition and consumer protection authorities, have active proceedings and investigations concerning multiple technology companies on antitrust and other issues. If we become subject to such investigations, we could be liable for substantial fines and penalties, be required to change our products and services or alter our business operations, receive negative publicity, or be subject to civil litigation, all of which could harm our business. Lawmakers also have proposed new laws and regulations, and modifications to existing laws and regulations, that affect the activities of technology companies, such as the recent legislative efforts to eliminate or modify Section 230 of the Communications Decency Act and to regulate platforms that offer apps and other similar actions in some U.S. states. If such laws and regulations are enacted or modified, they could impact us, even if they are not intended to affect our company. In addition, the introduction of new products and services, expansion of our activities in certain jurisdictions, or other actions that we may take may subject us to additional laws, regulations, and other scrutiny. The increased scrutiny of certain acquisitions in the technology industry also could affect our ability to enter into strategic transactions or to acquire other businesses.

Compliance with new or modified laws and regulations could increase the cost of conducting our business, limit the opportunities to increase our revenues, or prevent us from offering products or services. While we have adopted policies and procedures designed to ensure compliance with applicable laws and regulations, there can be no assurance that our employees, contractors or agents will not violate such laws and regulations. If we are found to have violated laws and regulations, it could materially adversely affect our reputation, financial condition and results of operations.

We also could be harmed by government investigations, litigation, or changes in laws and regulations directed at our customers, business partners, or suppliers in the technology industry that have the effect of limiting our ability to do business with those entities. There can be no assurance that our business will not be materially adversely affected, individually or in the aggregate, by the outcomes of such investigations, litigation or changes to laws and regulations in the future.

The standards imposed by private entities and inbox service providers to regulate the use and delivery of email have in the past interfered with, and may continue to interfere with, the effectiveness of our platform and our ability to conduct business.

From time to time, some of our IP addresses have become, and we expect will continue to be, listed with one or more denylisting entities due to the messaging practices of our customers and other users. We may be at an increased risk of having our IP addresses denylisted due to our scale and volume of email processed, compared to our smaller competitors. There can be no guarantee that we will be able to successfully remove ourselves from those lists. Because we fulfill email delivery on behalf of our customers, denylisting of this type could undermine the effectiveness of our customers' transactional email, email marketing programs and other email communications, all of which could have a material negative impact on our business, financial condition and results of operations.

Additionally, inbox service providers can block emails from reaching their users or categorize certain emails as "promotional" emails and, as a result, direct them to an alternate or "tabbed" section of the recipient's inbox. While we continually improve our own technology and work closely with inbox service providers to maintain our deliverability rates, the implementation of new or more restrictive policies by inbox service providers may make it more difficult to deliver our customers' emails, particularly if we are not given adequate notice of a change in policy or struggle to update our platform or services to comply with the changed policy in a reasonable amount of time. If the open rates of our customers' emails are negatively impacted by the actions of inbox service providers to block or categorize emails then customers may question the effectiveness of our platform and cancel their accounts. This, in turn, could harm our business, financial condition and results of operations.

Our global operations subject us to potential liability under export control, economic trade sanctions, anti-corruption, and other laws and regulations, and such violations could impair our ability to compete in international markets and could subject us to liability for compliance violations.

Certain of our products and services may be subject to export control and economic sanctions laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control. Exports of our products and the provision of our services must be made in compliance with these requirements. Although we take precautions to prevent our products from being provided in violation of such laws, we are aware of previous exports of certain of our products to a small number of persons and organizations that are the subject of U.S. sanctions or located in countries or regions subject to U.S. sanctions. If we fail to comply with these laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including: the possible loss of export privileges; fines, which may be imposed on us and responsible employees or managers; and, in extreme cases, the incarceration of responsible employees or managers. Obtaining the necessary authorizations, including any required license, for a particular deployment may be time-consuming, is not guaranteed and may result in the delay or loss of sales opportunities. In addition, changes in our products or services, or changes in applicable export or economic sanctions regulations may create delays in the introduction and deployment of our products and services in international markets, or, in some cases, prevent the export of our products or provision of our services to certain countries or end users. Any change in trade protection laws, policies, export, sanctions and other regulatory requirements affecting trade and investments, shift in the enforcement or scope of existing regulations, or change in the countries, governments, persons or technologies targeted by such regulations, could also result in decreased use of our products and services, or in our decreased ability to export our products or provide our services to existing or prospective customers with international operations. Any decreased use of our products and services or limitations on our ability to export our products and provide our services could adversely affect our business, results of operations and financial condition.

Further, we incorporate encryption technology into certain of our products. Various countries regulate the import of certain encryption technology, including through import permitting and licensing requirements, and have enacted laws that could limit our customers' ability to import our products into those countries. Encryption products and the underlying technology may also be subject to export control restrictions. Governmental regulation of encryption technology and regulation of exports of encryption products, or our failure to obtain required approval for our products, when applicable, could harm our international sales and adversely affect our revenue. Compliance with applicable regulatory requirements regarding the export of our products and provision of our services, including with respect to new releases of our products and services, may create delays in the introduction of our products and services in international markets, prevent our customers with international operations from deploying our products and using our services throughout their globally-distributed systems or, in some cases, prevent the export of our products or provision of our services to some countries altogether.

We are also subject to U.S. and foreign anti-corruption and anti-bribery laws, including the Foreign Corrupt Practices Act, as amended, the UK Bribery Act 2010, and other anti-corruption laws and regulations in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and generally prohibit corrupt payments by our employees and third parties acting on our behalf from directly or indirectly authorizing, offering, or providing, improper payments or things of value to recipients in the public or private sector, and also require that we maintain accurate books and records and adequate internal controls. While we have implemented a global compliance program designed to reduce the risk of bribery and corruption-related violations, our employees or third parties acting on our behalf may fail to comply with our policies, resulting in violations of applicable anti-corruption laws and regulations. Such violations could result in significant fines and penalties, criminal liability for us, our individual officers or employees, prohibitions on our ability to conduct business, and potential reputational damage

Our reliance on SaaS technologies from third parties may adversely affect our business, results of operations and financial condition.

We rely on hosted SaaS technologies from third parties in order to operate critical internal functions of our business, including enterprise resource planning, customer support and customer relations management services. If these services become unavailable due to extended outages or interruptions, or because they are no longer available on commercially reasonable terms or prices, our expenses could increase. As a result, our ability to manage our operations could be interrupted and our processes for managing our sales process and supporting our customers could be impaired until equivalent services, if available, are identified, obtained and implemented, all of which could adversely affect our business, results of operations and financial condition.

We may have additional tax liabilities, which could harm our business, results of operations and financial condition.

Significant judgments and estimates are required in determining our provision for income taxes and other tax liabilities. Our tax expense may be impacted, for example, if tax laws change or are clarified to our detriment or if tax authorities successfully challenge the tax positions that we take, such as, for example, positions relating to the arms-length pricing standards for our intercompany transactions and our indirect tax positions. In determining the adequacy of our provision for income taxes, we assess the likelihood of adverse outcomes that could result if our tax positions were challenged by the Internal Revenue Service (“IRS”), and other tax authorities. Should the IRS or other tax authorities assess additional taxes as a result of examinations, we may be required to record charges to operations that could adversely affect our results of operations and financial condition.

We conduct operations in many tax jurisdictions throughout the United States and internationally. In many of these jurisdictions, non-income-based taxes, such as sales, VAT, GST, and telecommunications taxes, are assessed on our operations or our sales to customers. We are subject to indirect taxes, and may be subject to certain other taxes, in some of these jurisdictions. We collect certain telecommunications-based taxes from our customers in certain jurisdictions, and we expect to continue expanding the number of jurisdictions in which we will collect these taxes in the future.

Many states are also pursuing legislative expansion of the scope of goods and services that are subject to sales and similar taxes as well as the circumstances in which a vendor of goods and services must collect such taxes. Following the U.S. Supreme Court decision in South Dakota v. Wayfair, Inc., states are now free to levy taxes on sales of goods and services based on an “economic nexus,” regardless of whether the seller has a physical presence in the state. Any additional fees and taxes levied on our services by any state may adversely impact our results of operations.

Historically, we have not billed or collected taxes in certain jurisdictions and, in accordance with generally accepted accounting principles in the United States (“U.S. GAAP”), we have recorded a provision for our tax exposure in these jurisdictions when it is both probable that a liability has been incurred and the amount of the exposure can be reasonably estimated. We reserved $25.4 million and $17.7 million for domestic jurisdictions and jurisdictions outside of the U.S., respectively, on our December 31, 2021 balance sheet for these tax payments. These estimates include several key assumptions, including, but not limited to, the taxability of our products, the jurisdictions in which we believe we have nexus or a permanent establishment, and the sourcing of revenues to those jurisdictions. In the event these jurisdictions challenge our assumptions and analysis, our actual exposure could differ materially from our current estimates. If the actual payments we make to any jurisdiction exceed the accrual in our balance sheet, our results of operations would be harmed. In addition, some customers may question the incremental tax charges and seek to negotiate lower pricing from us, which could adversely affect our business, results of operations and financial condition.

We are in discussions with certain jurisdictions regarding potential sales and other indirect taxes for prior periods that we may owe. If any of these jurisdictions disagree with management's assumptions and analysis, the assessment of our tax exposure could differ materially from management's current estimates. For example, San Francisco City and County has assessed us for $38.8 million in taxes, including interest and penalties, which exceeded the $11.5 million we had accrued for that assessment. We have paid the full amount, as required by law, and the payment made in excess of the accrued amount is reflected as a deposit on our balance sheet. We believe, however, that this assessment is incorrect and, after failing to reach a settlement, filed a lawsuit on May 27, 2021 contesting the assessment. However, litigation is uncertain and a ruling against us may adversely affect our financial position and results of operation.

Our global operations and structure subject us to potentially adverse tax consequences.

We generally conduct our global operations through subsidiaries and report our taxable income in various jurisdictions worldwide based upon our business operations in those jurisdictions. In particular, our intercompany relationships are subject to complex transfer pricing regulations administered by taxing authorities in various jurisdictions. Also, our tax expense could be affected depending on the applicability of withholding and other taxes (including withholding and indirect taxes on software licenses and related intercompany transactions) under the tax laws of certain jurisdictions in which we have business operations. The relevant revenue and taxing authorities may disagree with positions we have taken generally, or our determinations as to the value of assets sold or acquired or income and expenses attributable to specific jurisdictions. If such a disagreement were to occur, and our position were not sustained, we could be required to pay additional taxes, interest and penalties, which could result in one-time tax charges, higher effective tax rates, reduced cash flows and lower overall profitability of our operations.

Changes in global and U.S. tax legislation may adversely affect our financial condition, results of operations, and cash flows.

We are unable to predict what global or U.S. tax reforms may be proposed or enacted in the future or what effects such future changes would have on our business. Any such changes in tax legislation, regulations, policies or practices in the jurisdictions in which we operate could increase the estimated tax liability that we have expensed to date and paid or accrued on our balance sheet; affect our financial position, future results of operations, cash flows, and effective tax rates where we have operations; reduce post-tax returns to our stockholders; and increase the complexity, burden, and cost of tax compliance. We are subject to potential changes in relevant tax, accounting, and other laws, regulations, and interpretations, including changes to tax laws applicable to corporate multinationals. For example, in the United States, Congress and the Biden administration have recently proposed legislation (which has not yet been enacted) to make various tax law changes, including to increase U.S. taxation of international business operations and impose a global minimum tax. While it is too early to predict the outcome of these proposals and they are subject to change, if enacted, they could have a material effect on our income tax liability.

Certain government agencies in jurisdictions where we and our affiliates do business have had an extended focus on issues related to the taxation of multinational companies. In addition, the Organisation for Economic Co-operation and Development (the “OECD”) is conducting a project focused on base erosion and profit shifting in international structures, which seeks to establish certain international standards for taxing the worldwide income of multinational companies. In addition, the OECD is working on a “BEPS 2.0” initiative, which is aimed at (i) shifting taxing rights to the jurisdiction of the consumer and (ii) ensuring all companies pay a global minimum tax. On October 8, 2021, the OECD announced an agreement by members of the Inclusive Framework delineating an implementation plan, and on December 20, 2021, the OECD released model rules for the domestic implementation of a 15% global minimum tax. Further, several countries have proposed or enacted taxes applicable to digital services, which could apply to our business. As a result of these developments, the tax laws of certain countries in which we and our affiliates do business could change on a prospective or retroactive basis, and any such changes could increase our liabilities for taxes, interest and penalties, and therefore could harm our business, cash flows, results of operations and financial position.

The governments of countries in which we operate and other governmental bodies could make unprecedented assertions about how taxation is determined in their jurisdictions that are contrary to the way in which we have interpreted and historically applied the rules and regulations in our tax returns filed in such jurisdictions. New laws could significantly increase our tax obligations in the countries in which we do business or require us to change the way we operate our business. As a result of the large and expanding scale of our international business activities, many of these changes to the taxation of our activities could increase our worldwide effective tax rate and harm our financial position, results of operations, and cash flows.

If we experience fraudulent activity relating to our products, we could incur substantial costs.

Our products may be subject to fraudulent usage, including but not limited to revenue share fraud, domestic traffic pumping, subscription fraud, premium text message scams and other fraudulent schemes. Although our customers are required to set passwords or personal identification numbers to protect their accounts, third parties have in the past been, and may in the future be, able to access and use their accounts through fraudulent means. Furthermore, spammers attempt to use our products to send targeted and untargeted spam messages. We cannot be certain that our efforts to defeat spamming attacks will be successful in eliminating all spam messages from being sent using our platform. In addition, a cybersecurity breach of our customers' systems could result in exposure of their authentication credentials, unauthorized access to their accounts or fraudulent calls on their accounts, any of which could adversely affect our business, results of operations and financial condition.

We may require additional capital to support our business, and this capital might not be available on acceptable terms, if at all.

We intend to continue to make investments to support our business and may require additional funds. In particular, we may seek additional funds to develop new products and enhance our platform and existing products, expand our operations, including our sales and marketing organizations and our presence outside of the United States, improve our infrastructure or acquire complementary businesses, technologies, services, products and other assets. In addition, we may use a portion of our cash to satisfy tax withholding and remittance obligations related to outstanding restricted stock units. Accordingly, we may need to engage in equity or debt financings to secure additional funds. If we raise additional funds through future issuances of equity or convertible debt securities, our stockholders could suffer significant dilution, and any new equity securities we issue could have rights, preferences and privileges superior to those of holders of our Class A and Class B common stock. Any debt financing that we may secure in the future could involve restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and to pursue business opportunities. We may not be able to obtain additional financing on terms favorable to us, if at all. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, our ability to continue to support our business growth, scale our infrastructure, develop product enhancements and to respond to business challenges could be significantly impaired, and our business, results of operations and financial condition may be adversely affected.

We face exposure to foreign currency exchange rate fluctuations, and such fluctuations could adversely affect our business, results of operations and financial condition.

As our international operations expand, our exposure to the effects of fluctuations in currency exchange rates grows. For example, global political and economic events, such as the COVID-19 pandemic, trade tariff developments and other geopolitical events have caused global economic uncertainty and variability in foreign currency exchange rates. While we have primarily transacted with customers and business partners in U.S. dollars, we have also conducted business in currencies other than the U.S. dollar. We expect to significantly expand the number of transactions with customers that are denominated in foreign currencies in the future as we continue to expand our business internationally. We also incur expenses for some of our network service provider costs outside of the United States in local currencies and for employee compensation and other operating expenses at our non-U.S. locations in the respective local currency. Fluctuations in the exchange rates between the U.S. dollar and other currencies could result in an increase to the U.S. dollar equivalent of such expenses.

In addition, our international subsidiaries maintain net assets that are denominated in currencies other than the functional operating currencies of these entities. As we continue to expand our international operations, we become more exposed to the effects of fluctuations in currency exchange rates. Accordingly, changes in the value of foreign currencies relative to the U.S. dollar can affect our results of operations due to transactional and translational remeasurements. As a result of such foreign currency exchange rate fluctuations, it could be more difficult to detect underlying trends in our business and results of operations. In addition, to the extent that fluctuations in currency exchange rates cause our results of operations to differ from our expectations or the expectations of our investors and securities analysts who follow our stock, the trading price of our Class A common stock could be adversely affected.

We recently implemented a program to hedge transactional exposure against the Euro, and may do so in the future with respect to other foreign currencies. We also use derivative instruments, such as foreign currency forward and option contracts, to hedge certain exposures to fluctuations in foreign currency exchange rates. The use of such hedging activities may not offset any or more than a portion of the adverse financial effects of unfavorable movements in foreign exchange rates over the limited time the hedges are in place. Moreover, the use of hedging instruments may introduce additional risks if we are unable to structure effective hedges with such instruments.

Our ability to use our net operating losses and certain other tax attributes to offset future taxable income and taxes may be subject to certain limitations.

As of December 31, 2021, we had federal, state and foreign net operating loss carryforwards (“NOLs”), of $4.2 billion, $2.7 billion and $268.7 million, respectively. Utilization of these NOL carryforwards depends on our future taxable income, and there is risk that a portion of our existing NOLs could expire unused, and that even if we achieve profitability, the use of our unexpired NOLs would be subject to limitations, which could materially and adversely affect our operating results.

U.S. federal NOLs generated in taxable years beginning before January 1, 2018, may be carried forward only 20 years to offset future taxable income, if any. Under current law, U.S. federal NOLs generated in taxable years beginning after December 31, 2017, can be carried forward indefinitely, but the deductibility of such U.S. federal NOLs in taxable years beginning after December 31, 2020, is limited to 80% of taxable income. It is uncertain if and to what extent various states will conform to federal law.

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (the “Code”), and corresponding provisions of state law, a corporation that undergoes an “ownership change” (generally defined as a greater than 50-percentage-point cumulative change (by value) in the equity ownership of certain stockholders over a rolling three-year period) is subject to limitations on its ability to utilize its pre-change NOLs and other pre-change tax attributes to offset post-change taxable income and taxes. Our existing NOLs and other tax attributes may be subject to limitations arising from previous ownership changes, and if we undergo an ownership change in the future, our ability to utilize NOLs could be further limited by Section 382 of the Code. Future changes in our stock ownership, some of which may be outside of our control, could result in an ownership change under Section 382 of the Code. In addition, at the state level, there may be periods during which the use of NOL carryforwards is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed.

If our estimates or judgments relating to our critical accounting policies prove to be incorrect, our results of operations could be adversely affected.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, as provided in Part I, Item 2, “Management’s Discussion and Analysis of Financial Condition and Results of Operations.” The results of these estimates form the basis for making judgments about the carrying values of assets, liabilities and equity, and the amount of revenue and expenses that are not readily apparent from other sources. Assumptions and estimates used in preparing our consolidated financial statements include those related to revenue recognition and business combinations. Our results of operations may be adversely affected if our assumptions change or if actual circumstances differ from those in our assumptions, which could cause our results of operations to fall below the expectations of securities analysts and investors, resulting in a decline in the trading price of our Class A common stock.

Changes in financial accounting standards or practices may cause adverse, unexpected financial reporting fluctuations and affect our results of operations.

A change in accounting standards or practices may have a significant effect on our results of operations and may even affect our reporting of transactions completed before the change is effective. New accounting pronouncements and varying interpretations of accounting pronouncements have occurred and may occur in the future. Changes to existing rules or the questioning of current practices may adversely affect our reported financial results or the way we conduct our business.

For example, Accounting Standards Codification (“ASC”) 842, *“Leases”* that became effective January 1, 2019, had a material impact on our consolidated financial statements as described in detail in Note 2 to the consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on February 26, 2021. Adoption of these types of accounting standards and any difficulties in implementation of changes in accounting principles, including the ability to modify our accounting systems, could cause us to fail to meet our financial reporting obligations, which result in regulatory discipline and harm investors' confidence in us.

If we fail to maintain an effective system of disclosure controls and internal control over financial reporting, our ability to produce timely and accurate financial statements or comply with applicable regulations could be impaired.

As a public company, we are required to maintain internal control over financial reporting and to report any material weaknesses in such internal control. Section 404 of the Sarbanes-Oxley Act of 2002 (the “Sarbanes-Oxley Act”) requires that we evaluate and determine the effectiveness of our internal control over financial reporting and provide a management report on internal control over financial reporting. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our financial statements will not be prevented or detected on a timely basis.

Our current controls and any new controls that we develop may become inadequate because of changes in conditions in our business. Further, weaknesses in our disclosure controls and internal control over financial reporting may be discovered in the future. In addition, if we acquire additional businesses, we may not be able to successfully integrate the acquired operations and technologies and maintain internal control over financial reporting, if applicable, in accordance with the requirements of Section 404 of the Sarbanes-Oxley Act. Any failure to develop or maintain effective controls or any difficulties encountered in their implementation or improvement could harm our results of operations or cause us to fail to meet our reporting obligations and may result in a restatement of our financial statements for prior periods. Any failure to implement and maintain effective internal control over financial reporting also could adversely affect the results of periodic management evaluations and annual independent registered public accounting firm attestation reports regarding the effectiveness of our internal control over financial reporting that we are required to include in our periodic reports that will be filed with the SEC. Ineffective disclosure controls and procedures and internal control over financial reporting could also cause investors to lose confidence in our reported financial and other information, and could have a material and adverse effect on our business, results of operations and financial condition and could cause a decline in the trading price of our Class A common stock. In addition, if we are unable to continue to meet these requirements, we may not be able to remain listed on the New York Stock Exchange or the Long-Term Stock Exchange.

If our goodwill or intangible assets become impaired, we may be required to record a significant charge to earnings.

We review our intangible assets for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. Goodwill is required to be tested for impairment at least annually. As of December 31, 2021, we carried a net $6.3 billion of goodwill and intangible assets. An adverse change in market conditions, particularly if such change has the effect of changing one of our critical assumptions or estimates, could result in a change to the estimation of fair value that could result in an impairment charge to our goodwill or intangible assets. Any such charges may adversely affect our results of operations.

Risks Related to Ownership of Our Class A Common Stock

The trading price of our Class A common stock has been volatile and may continue to be volatile, and you could lose all or part of your investment.

Prior to our initial public offering in June 2016, there was no public market for shares of our Class A common stock. On June 23, 2016, we sold shares of our Class A common stock to the public at $15.00 per share. From June 23, 2016, the date that our Class A common stock started trading on the New York Stock Exchange, through December 31, 2021, the trading price of our Class A common stock has ranged from $22.80 per share to $457.30 per share. The trading price of our Class A common stock may continue to fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- price and volume fluctuations in the overall stock market from time to time;
- volatility in the trading prices and trading volumes of technology stocks;
- changes in operating performance and stock market valuations of other technology companies generally, or those in our industry in particular;
- sales of shares of our Class A common stock by us or our stockholders;
- failure of securities analysts to maintain coverage of us, changes in financial estimates by securities analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- the financial projections we may provide to the public, any changes in those projections or our failure to meet those projections;
- announcements by us or our competitors of new products or services;
- the public’s reaction to our press releases, other public announcements and filings with the SEC;

- rumors and market speculation involving us or other companies in our industry;
- changes in laws, industry standards, regulations or regulatory enforcement in the United States or internationally, GDPR, the California Consumer Privacy Act of 2018 and other privacy or cybersecurity regulations that may be implemented in the future, including the Schrems II decision invalidating the EU-U.S. Privacy Shield, SHAKEN/STIR and other robocalling prevention and anti-spam standards and increased costs associated with such compliance, as well as enhanced Know-Your-Client processes that impact our ability to market, sell or deliver our products;
- actual or anticipated changes in our results of operations or fluctuations in our results of operations;
- actual or anticipated developments in our business, our competitors' businesses or the competitive landscape generally;
- litigation involving us, our industry or both, or investigations by regulators into our operations or those of our competitors;
- developments or disputes concerning our intellectual property or other proprietary rights;
- announced or completed acquisitions of businesses, products, services or technologies by us or our competitors;
- changes in accounting standards, policies, guidelines, interpretations or principles;
- any significant change in our management; and
- general economic conditions, including due to the COVID-19 pandemic, labor shortages, supply chain disruptions, inflation and slow or negative growth of our markets.

In addition, in the past, following periods of volatility in the overall market and the market price of a particular company's securities, securities class action litigation has often been instituted against these companies. This litigation, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources.

Substantial future sales of shares of our Class A common stock could cause the market price of our Class A common stock to decline.

The market price of our Class A common stock could decline as a result of substantial sales of our Class A common stock, particularly sales by our directors, executive officers and significant stockholders, or the perception in the market that holders of a large number of shares intend to sell their shares.

Additionally, the shares of Class A common stock subject to outstanding options and restricted stock unit awards under our equity incentive plans and the shares reserved for future issuance under our equity incentive plans will become eligible for sale in the public market upon issuance, subject to applicable insider trading policies.

The dual class structure of our common stock has the effect of concentrating voting control with those stockholders who held our capital stock prior to the completion of our initial public offering, including our directors, executive officers and their respective affiliates. This limits or precludes holders of our Class A common stock from the ability to influence corporate matters, including the election of directors, amendments of our organizational documents and any merger, consolidation, sale of all or substantially all of our assets, or other major corporate transaction requiring stockholder approval.

Our Class B common stock has 10 votes per share, and our Class A common stock has one vote per share. As of December 31, 2021, our directors, executive officers and their respective affiliates, held in the aggregate 21.3% of the voting power of our capital stock. Because of the 10-to-one voting ratio between our Class B common stock and Class A common stock, the holders of our Class B common stock collectively will continue to have concentrated control of the combined voting power of our common stock and therefore may be able to control certain matters submitted to our stockholders for approval until the earlier of (i) June 28, 2023, or (ii) the date the holders of two-thirds of our Class B common stock elect to convert the Class B common stock to Class A common stock. This concentrated control limits or precludes your ability to influence corporate matters for the foreseeable future, including the election of directors, amendments of our organizational documents, and any merger, consolidation, sale of all or substantially all of our assets, or other major corporate transaction requiring stockholder approval. In addition, this may prevent or discourage unsolicited acquisition proposals or offers for our capital stock that you may feel are in your best interest as one of our stockholders.

Future transfers by holders of Class B common stock will generally result in those shares converting to Class A common stock, subject to limited exceptions, such as certain transfers effected for estate planning purposes. The conversion of Class B common stock to Class A common stock will have the effect, over time, of increasing the relative voting power of those holders of Class B common stock who retain their shares in the long term.

If securities or industry analysts cease publishing research or reports about us, our business or our market, or if they change their recommendations regarding our Class A common stock adversely, the trading price of our Class A common stock and trading volume could decline.

The trading market for our Class A common stock is influenced by the research and reports that securities or industry analysts may publish about us, our business, our market or our competitors. If any of the analysts who cover us change their recommendation regarding our Class A common stock adversely, or provide more favorable relative recommendations about our competitors, the trading price of our Class A common stock would likely decline. If any analyst who covers us were to cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which in turn could cause the trading price of our Class A common stock or trading volume to decline.

Anti-takeover provisions contained in our amended and restated certificate of incorporation and second amended and restated bylaws, as well as provisions of Delaware law, could impair a takeover attempt.

Our amended and restated certificate of incorporation, second amended and restated bylaws and Delaware law contain provisions which could have the effect of rendering more difficult, delaying, or preventing an acquisition deemed undesirable by our board of directors. Among other things, our amended and restated certificate of incorporation and second amended and restated bylaws include provisions:

- authorizing “blank check” preferred stock, which could be issued by our board of directors without stockholder approval and may contain voting, liquidation, dividend and other rights superior to our Class A and Class B common stock;
- limiting the liability of, and providing indemnification to, our directors and officers;
- limiting the ability of our stockholders to call and bring business before special meetings;
- providing for a dual class common stock structure in which holders of our Class B common stock have the ability to control the outcome of matters requiring stockholder approval, even if they own significantly less than a majority of the outstanding shares of our Class A and Class B common stock, including the election of directors and significant corporate transactions, such as a merger or other sale of our company or its assets;
- providing that our board of directors is classified into three classes of directors with staggered three-year terms;

- prohibit stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders;
- requiring advance notice of stockholder proposals for business to be conducted at meetings of our stockholders and for nominations of candidates for election to our board of directors;
- controlling the procedures for the conduct and scheduling of board of directors and stockholder meetings; and
- providing for advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a meeting of stockholders, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of us.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management.

As a Delaware corporation, we are also subject to provisions of Delaware law, including Section 203 of the Delaware General Corporation law, which prevents certain stockholders holding more than 15% of our outstanding common stock from engaging in certain business combinations without approval of the holders of at least two-thirds of our outstanding common stock not held by such 15% or greater stockholder.

Any provision of our amended and restated certificate of incorporation, second amended and restated bylaws or Delaware law that has the effect of delaying, preventing or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock and could also affect the price that some investors are willing to pay for our Class A common stock.

Our second amended and restated bylaws provides that the Court of Chancery of the State of Delaware is the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our second amended and restated bylaws provides that the Court of Chancery of the State of Delaware is the exclusive forum for the following types of actions or proceedings under Delaware statutory or common law:

- any derivative action or proceeding brought on our behalf;
- any action asserting a breach of fiduciary duty owed by our directors, officers, employees or our stockholders;
- any action asserting a claim against us arising under the Delaware General Corporation Law; and
- any action asserting a claim against us that is governed by the internal-affairs doctrine (the "Delaware Forum Provision").

The Delaware Forum Provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim under the Securities Act, for which the United States District Court for the Northern District of California has sole and exclusive jurisdiction (the "Federal Forum Provision"), as we are based in the State of California. In addition, our second amended and restated bylaws provide that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock is deemed to have notice of and consented to the Delaware Forum Provision and the Federal Forum Provision; provided, however, that stockholders cannot and will not be deemed to have waived our compliance with the U.S. federal securities laws and the rules and regulations thereunder.

The Delaware Forum Provision and the Federal Forum Provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or employees, which may discourage lawsuits against us and our directors, officers and employees. If a court were to find the Delaware Forum Provision and the Federal Forum Provision in our second amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving the dispute in other jurisdictions, which could seriously harm our business.

We do not expect to declare any dividends in the foreseeable future.

We have never paid dividends and we do not anticipate declaring any cash dividends to holders of our common stock in the foreseeable future. Consequently, investors may need to rely on sales of their Class A common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investment. Investors seeking cash dividends should not purchase our Class A common stock.

Risks Related to our Indebtedness

Our indebtedness could adversely affect our financial condition.

As of December 31, 2021, we had $1.0 billion of indebtedness outstanding (excluding intercompany indebtedness). Our indebtedness could have important consequences, including:

- limiting our ability to obtain additional financing to fund future working capital, capital expenditures, acquisitions or other general corporate requirements;
- requiring a portion of our cash flows to be dedicated to debt service payments instead of other purposes, thereby reducing the amount of cash flows available for working capital, capital expenditures, acquisitions and other general corporate purposes;
- increasing our vulnerability to adverse changes in general economic, industry and competitive conditions;
- exposing us to the risk of increased interest rates as certain of our borrowings, including borrowings under a future revolving credit facility, may be at variable rates of interest; and
- increasing our cost of borrowing.

In addition, the indenture governs our 3.625% notes due 2029 (the “2029 Notes”) and our 3.875% notes due 2031 (the “2031 Notes,” and together with the 2029 Notes, the “Notes”) and contains restrictive covenants that limit our ability to engage in activities that may be in our long-term best interest. Our failure to comply with those covenants could result in an event of default which, under the indenture governing the Notes, if not cured or waived, could permit the trustee, or permit the holders of the Notes to cause the trustee, to declare all or part of the Notes to be immediately due and payable or to exercise any remedies provided to the trustee and/or result in the acceleration of substantially all of our indebtedness.

We may not be able to generate sufficient cash to service all of our indebtedness, including the Notes, and may be forced to take other actions to satisfy our obligations under our indebtedness, which may not be successful.

Our ability to make scheduled payments on or to refinance our debt obligations, including the Notes, depends on our financial condition and results of operations, which in turn are subject to prevailing economic and competitive conditions and to certain financial, business and other factors beyond our control. We may not be able to maintain a level of cash flows from operating activities sufficient to permit us to pay the principal, premium, if any, and interest on our indebtedness, including the Notes.

If our cash flows and capital resources are insufficient to fund our debt service obligations, we could face substantial liquidity problems and may be forced to reduce or delay investments and capital expenditures, or to sell assets, seek additional capital or restructure or refinance our indebtedness, including the Notes. Our ability to restructure or refinance our debt will depend on, among other things, the condition of the capital markets and our financial condition at such time. Any refinancing of our debt could be at higher interest rates and may require us to comply with more onerous covenants, which could further restrict our business operations. The terms of existing or future debt instruments and the indenture that governs the Notes may restrict us from adopting some of these alternatives. In addition, any failure to make payments of interest and principal on our outstanding indebtedness on a timely basis would likely result in a reduction of our credit rating, which could harm our ability to incur additional indebtedness. In the absence of such cash flows and resources, we could face substantial liquidity problems and might be required to dispose of material assets or operations to meet our debt service and other obligations.

Our inability to generate sufficient cash flows to satisfy our debt obligations, or to refinance our indebtedness on commercially reasonable terms or at all, would materially and adversely affect our financial position and results of operations.

If we cannot make scheduled payments on our indebtedness, we will be in default and holders of the Notes and other indebtedness could declare all outstanding principal and interest to be due and payable, the lenders under a future revolving credit facility could terminate their commitments to loan money, our secured lenders could foreclose against the assets securing their borrowings and we could be forced into bankruptcy or liquidation. If we breach the covenants under our debt instruments, we would be in default under such instruments. The holders of such indebtedness could exercise their rights, as described above, and we could be forced into bankruptcy or liquidation.

The indenture governing the Notes contain cross-default provisions that could result in the acceleration of all of our indebtedness.

A breach of the covenants under the indenture governing the Notes could result in an event of default under the applicable indebtedness. Such a default may allow the creditors to accelerate the related indebtedness and may result in the acceleration of any other indebtedness to which a cross-acceleration or cross-default provision applies. In addition, an event of default under a revolving credit facility may permit the lenders thereunder to terminate all commitments to extend further credit under that facility. Furthermore, if we were unable to repay amounts due and payable under a secured credit facility, those lenders could proceed against the collateral granted to them to secure that indebtedness. In the event our note holders accelerate the repayment of our borrowings, we and our guarantors may not have sufficient assets to repay that indebtedness. Additionally, we may not be able to borrow money from other lenders to enable us to refinance our indebtedness.

Risks Related to our Acquisitions

We may not realize potential benefits from our recent acquisitions, partnerships and investments because of difficulties related to integration, the achievement of synergies, and other challenges.

We regularly acquire or invest in businesses and technologies that are complementary to our business through acquisitions, partnerships or investments, including several transactions in fiscal year 2021. There can be no assurances that our businesses can be combined in a manner that allows for the achievement of substantial benefits. Any integration process may require significant time and resources, and we may not be able to manage the process successfully as our ability to acquire and integrate larger or more complex companies, products, or technology in a successful manner is unproven. If we are not able to successfully integrate these acquired businesses with ours or pursue our customer and product strategy successfully, the anticipated benefits of such acquisitions may not be realized fully or may take longer than expected to be realized. Further, it is possible that there could be a loss of our key employees and customers, disruption of ongoing businesses or unexpected issues, higher than expected costs and an overall post-completion process that takes longer than originally anticipated. In addition, the following issues, among others, must be addressed in order to realize the anticipated benefits of our acquisitions, partnerships or investments:

- combining the acquired businesses' corporate functions with our corporate functions;
- combining acquired businesses with our business in a manner that permits us to achieve the synergies anticipated to result from such acquisitions, the failure of which would result in the anticipated benefits of our acquisitions not being realized in the time frame currently anticipated or at all;
- maintaining existing agreements with customers, distributors, providers, talent and vendors and avoiding delays in entering into new agreements with prospective customers, distributors, providers, talent and vendors;
- determining whether and how to address possible differences in corporate cultures and management philosophies;
- integrating the companies’ administrative and information technology infrastructure;
- developing products and technology that allow value to be unlocked in the future;
- evaluating and forecasting the financial impact of such acquisitions, partnerships and investments, including accounting charges; and
- effecting potential actions that may be required in connection with obtaining regulatory approvals.

In addition, at times the attention of certain members of our management and resources may be focused on integration of the acquired businesses and diverted from day-to-day business operations, which may disrupt our ongoing business.

We have incurred, and may continue to incur, significant, nonrecurring costs in connection with our acquisitions, partnerships and investments and integrating our operations with those of the acquired businesses, including costs to maintain employee morale and to retain key employees. Management cannot ensure that the elimination of duplicative costs or the realization of other efficiencies will offset the transaction and integration costs in the near term or at all.

Purchase price accounting in connection with our acquisitions requires estimates that may be subject to change and could impact our consolidated financial statements and future results of operations and financial position.

Pursuant to the acquisition method of accounting, the purchase price we pay for our acquired businesses is allocated to the underlying tangible and intangible assets acquired and liabilities assumed based on their respective fair market values with any excess purchase price allocated to goodwill. The acquisition method of accounting is dependent upon certain valuations and other studies that are preliminary. Differences between these preliminary estimates and the final acquisition accounting may occur, and these differences could have a material impact on the consolidated financial statements and the combined company’s future results of operations and financial position.

General Risks

Any legal proceedings or claims against us could be costly and time-consuming to defend and could harm our reputation regardless of the outcome.

We are and may in the future become subject to legal proceedings and claims that arise in the ordinary course of business, such as disputes or employment claims made by our current or former employees. Any litigation, whether meritorious or not, could harm our reputation, will increase our costs and may divert management’s attention, time and resources, which may in turn seriously harm our business. Insurance might not cover such claims, might not provide sufficient payments to cover all the costs to resolve one or more such claims, and might not continue to be available on terms acceptable to us. A claim brought against us that is uninsured or underinsured could result in unanticipated costs and could seriously harm our business.

Unfavorable conditions in our industry or the global economy or reductions in spending on information technology and communications could adversely affect our business, results of operations and financial condition.

Our results of operations may vary based on the impact of changes in our industry or the global economy on our customers. Our results of operations depend in part on demand for information technology and cloud communications. In addition, our revenue is dependent on the usage of our products, which in turn is influenced by the scale of business that our customers are conducting. To the extent that weak economic conditions, including due to the COVID-19 pandemic, labor shortages, supply chain disruptions and inflation, geopolitical developments, such as existing and potential trade wars, and other events outside of our control such as the COVID-19 pandemic, result in a reduced volume of business for, and communications by, our customers and prospective customers, demand for, and use of, our products may decline. Furthermore, weak economic conditions may make it more difficult to collect on outstanding accounts receivable and increase our expenses. Additionally, we generate a portion of our revenue from small and medium-sized businesses, which may be affected by economic downturns and other adverse macroeconomic conditions to a greater extent than enterprises, and typically have more limited financial resources, including capital borrowing capacity, than enterprises. If our customers reduce their use of our products, or prospective customers delay adoption or elect not to adopt our products, as a result of a weak economy or rising inflation and increased costs, this could adversely affect our business, results of operations and financial condition.

Our business is subject to the risks of pandemics, earthquakes, fire, floods and other natural catastrophic events, and to interruption by man-made problems such as power disruptions, computer viruses, data security breaches or terrorism.

Our business operations are subject to interruption by natural disasters, flooding, fire, power shortages, pandemics such as COVID-19, terrorism, political unrest, cyber-attacks, geopolitical instability, war, the effects of climate change and other events beyond our control. For example, our corporate headquarters are located in the San Francisco Bay Area, a region known for seismic activity. A significant natural disaster, such as an earthquake, fire or flood, occurring at our headquarters, at one of our other facilities or where a business partner is located could adversely affect our business, results of operations and financial condition. Further, if a natural disaster or man-made problem were to affect our service providers, this could adversely affect the ability of our customers to use our products and platform. Natural disasters, pandemics, such as the COVID-19 pandemic, and acts of terrorism could cause disruptions in our or our customers’ businesses, national economies or the world economy as a whole.

We also rely on our network and third-party infrastructure and enterprise applications and internal technology systems for our engineering, sales and marketing, and operations activities. Although we maintain incident management and disaster response plans, in the event of a major disruption caused by a natural disaster or man-made problem, we may be unable to continue our operations and may endure system interruptions, reputational harm, delays in our development activities, lengthy interruptions in service, breaches of data security and loss of critical data, any of which could adversely affect our business, results of operations and financial condition.

In addition, computer malware, viruses and computer hacking, fraudulent use attempts and phishing attacks have become more prevalent in our industry, have occurred on our platform in the past and may occur on our platform in the future. Though it is difficult to determine what, if any, harm may directly result from any specific interruption or attack, any failure to maintain performance, reliability, security, integrity and availability of our products and technical infrastructure to the satisfaction of our users may harm our reputation and our ability to retain existing users and attract new users. In addition, global climate change could result in certain types of natural disasters occurring more frequently or with more intense effects. Any such events may result in users being subject to service disruptions or outages, and we may not be able to recover our technical infrastructure in a timely manner to maintain or resume operations, which may adversely affect our financial results.

Climate change may have an impact on our business.

While we seek to mitigate our business risks associated with climate change (such as drought, wildfires, hurricanes, increased storm severity and sea level rise), we recognize that there are inherent climate-related risks wherever business is conducted. Our primary locations may be vulnerable to the adverse effects of climate change. For example, certain of our offices have experienced, and are projected to continue to experience, climate-related events at an increasing frequency, including drought, heat waves, wildfires and resultant air quality impacts and power shutoffs associated with wildfire prevention. Changing market dynamics, global policy developments and the increasing frequency and impact of extreme weather events on critical infrastructure in the U.S. and elsewhere have the potential to disrupt our business, the business of our third-party suppliers and the business of our customers, and may cause us to experience losses and additional costs to maintain or resume operations. In addition, we may be subject to increased regulations, reporting requirements, standards or expectations regarding the environmental impacts of our business.

Item 1B. *Unresolved Staff Comments*

None.

Item 2. *Properties*

We lease all of our facilities and do not own any real property. Our headquarters is located in San Francisco, California, where we have sub-leased several floors, consisting of 259,416 square feet of office space at 101 Spear Street. The sub-lease covers several floors for which the terms commenced on December 1, 2018 and April 1, 2020 and will be expiring at various dates between March 2025 and June 2028. Our existing lease obligations are secured by letters of credit with a cumulative value of $23.7 million as of December 31, 2021.

We also lease approximately 600,000 square feet in various locations in North America, South America, Europe and Asia. This includes our international headquarters in Dublin, Ireland and regional offices used for business operations, sales, support, and product development.

Additional information regarding our lease commitments is available in Note 6 of our consolidated financial statements included in Part II, Item 8, “Financial Statements and Supplementary Data” included elsewhere in this Annual Report on Form 10-K.

We intend to procure additional space in the future as we continue expand geographically and add employees. We believe our facilities are adequate and suitable for our current needs and that, should it be needed, suitable additional or alternative space will be available to accommodate our operations.

Item 3. *Legal Proceedings*

Refer to Note 13(b) of our consolidated financial statements included elsewhere in this Annual Report on Form 10-K for a description of our current material legal proceedings.

Item 4. ***Mine Safety Disclosures***

Not applicable.

PART II

Item 5. ***Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities***

Market Price of Our Class A Common Stock

Our Class A common stock is traded on the New York Stock Exchange and, as of August 2021, the Long-Term Stock Exchange under the symbol “TWLO.” As of January 31, 2022, we had 196 holders of record of our Class A and Class B common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees.

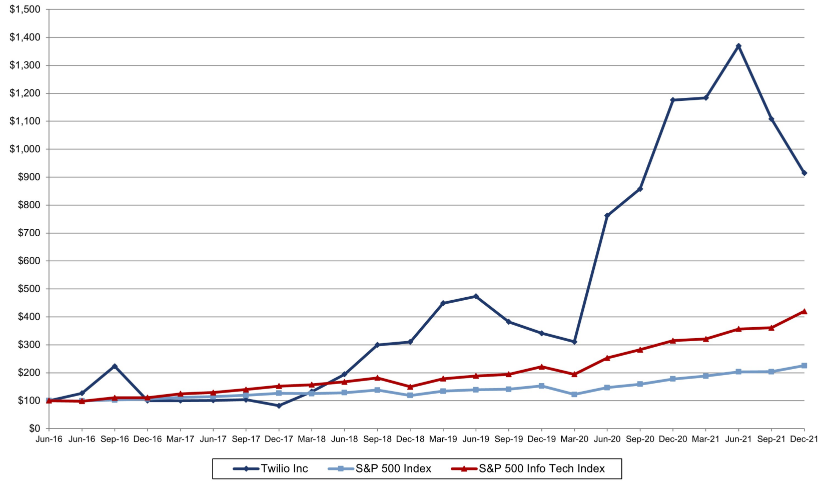
Dividend Policy

We have never declared or paid any cash dividends on our capital stock. We intend to retain any future earnings and do not expect to pay any dividends in the foreseeable future.

Stock Performance Graph

This performance graph shall not be deemed "soliciting material" or to be "filed" with the SEC for purposes of Section 18 of the Exchange Act, or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of Twilio Inc. under the Securities Act or the Exchange Act.

We have presented below the cumulative total return to our stockholders between June 23, 2016 (the date our Class A common stock commenced trading on the NYSE) through December 31, 2021, in comparison to the S&P 500 Index and S&P 500 Information Technology Index. All values assume a $100 initial investment and data for the S&P 500 Index and S&P 500 Information Technology Index assume reinvestment of dividends. The comparisons are based on historical data and are not indicative of, nor intended to forecast, the future performance of our Class A common stock.



Recent Sales of Unregistered Securities and Use of Proceeds from Registered Securities

(a) Sales of Unregistered Securities

In each of the years ended December 31, 2021 and 2020, Twilio.org donated 88,408 shares of our unregistered Class A common stock to an independent donor advised fund to further our philanthropic goals. The shares were "restricted securities" for purposes of Rule 144 under the Securities Act of 1933, as amended (the "Securities Act"), and had an aggregate fair market value on the date of donation of $31.2 million and $19.0 million, respectively.

In 2018, we issued $550.0 million in aggregate principal amount of 0.25% Convertible Senior Notes due 2023 (the "Convertible Notes"). In connection with the offering of the Convertible Notes, we entered into privately-negotiated capped call transactions with certain counterparties (the "capped calls"). The capped calls each had an initial strike price of approximately $70.90 per share, subject to certain adjustments, which corresponds to the initial conversion price of the Convertible Notes. The capped calls had initial cap prices of $105.04 per share, subject to certain adjustments. The capped calls covered, subject to anti-dilution adjustments, approximately 7,757,200 shares of Class A Common Stock. Refer to Note 10 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K for additional information about the Convertible Notes and capped calls.

We offered and sold the Convertible Notes to the initial purchasers in reliance on the exemption from registration provided by Section 4(a)(2) of the Securities Act and for resale by the initial purchasers to qualified institutional buyers pursuant to the exemption from registration provided by Rule 144A under the Securities Act. We relied on these exemptions from registration based in part on representations made by the initial purchasers in the purchase agreement dated May 14, 2018. On May 18, 2021, we issued a notice of redemption for our Convertible Notes and in June 2021, we redeemed all of the remaining outstanding principal amount of the Convertible Notes and settled all related capped call arrangements. These transactions are described in detail in Note 10 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

In connection with our acquisition of Zipwhip in July 2021, we issued an additional 526 shares of unregistered Class A common stock on November 15, 2021, pursuant to a post-closing adjustment. These issuances were exempt from registration under the Securities Act by virtue of Section 4(a)(2) of the Securities Act and Rule 506 of Regulation D promulgated thereunder.

(b) Use of Proceeds

In February 2021, we closed a follow-on public offering, in which we sold 4,312,500 shares of Class A common stock at a price to the public of $409.60 per share, including shares sold in connection with the exercise of the underwriters' option to purchase additional shares. The offer and sale of all of the shares in the follow-on offering were registered under the Securities Act pursuant to a registration statement on Form S-3 (File No. 333-231794), which was declared effective by the SEC on May 29, 2019. We raised $1.8 billion in net proceeds after deducting offering expenses paid by us. No payments were made by us to directors, officers or persons owning 10 percent or more of our capital stock or to their associates, or to our affiliates, other than payments in the ordinary course of business to officers for salaries. There has been no material change in the planned use of proceeds from our follow-on offering as described in our final prospectus filed with the SEC on February 22, 2021, pursuant to Rule 424(b)(5). We invested the funds received in accordance with our board-approved investment policy, which provides for investments in obligations of the U.S. government, money market instruments, registered money market funds and corporate bonds. The managing underwriters of our follow-on offering were Morgan Stanley & Co. LLC, J.P. Morgan Securities LLC, Academy Securities, Inc., Cabrera Capital Markets LLC, and Siebert Williams Shank & Co., LLC.

In August 2020, we closed a follow-on public offering, in which we sold 5,819,838 shares of Class A common stock at a price to the public of $247.00 per share, including shares sold in connection with the exercise of the underwriters' option to purchase additional shares. The offer and sale of all of the shares in the follow-on offering were registered under the Securities Act pursuant to a registration statement on Form S-3 (File No. 333-231794), which was declared effective by the SEC on May 29, 2019. We raised $1.4 billion in net proceeds after deducting underwriting discounts and commissions and offering expenses paid by us. No payments were made by us to directors, officers or persons owning 10 percent or more of our capital stock or to their associates, or to our affiliates, other than payments in the ordinary course of business to officers for salaries. There has been no material change in the planned use of proceeds from our follow-on offering as described in our final prospectus filed with the SEC on August 7, 2020, pursuant to Rule 424(b)(5). We invested the funds received in accordance with our board-approved investment policy, which provides for investments in obligations of the U.S. government, money market instruments, registered money market funds and corporate bonds. The managing underwriters of our follow-on offering were J.P. Morgan Securities LLC, Morgan Stanley & Co. LLC, Goldman, Sachs & Co. and BofA Securities, Inc.

In June 2019, we closed a follow-on public offering, in which we sold 8,064,515 shares of Class A common stock at a price to the public of $124.00 per share, including shares sold in connection with the exercise of the underwriters' option to purchase additional shares. The offer and sale of all of the shares in the follow-on offering were registered under the Securities Act pursuant to a registration statement on Form S-3 (File No. 333-231794), which was declared effective by the SEC on May 29, 2019. We raised $979.0 million in net proceeds after deducting underwriting discounts and commissions and offering expenses paid by us. No payments were made by us to directors, officers or persons owning 10 percent or more of our capital stock or to their associates, or to our affiliates, other than payments in the ordinary course of business to officers for salaries. There has been no material change in the planned use of proceeds from our follow-on offering as described in our final prospectus filed with the SEC on May 31, 2019, pursuant to Rule 424(b). We invested the funds received in accordance with our board-approved investment policy, which provides for investments in obligations of the U.S. government, money market instruments, registered money market funds and corporate bonds. The managing underwriters of our follow-on offering were Goldman, Sachs & Co. and J.P. Morgan Securities LLC.

(c) Issuer Purchases of Equity Securities

None.

Item 6. ***[Reserved]***

Item 7. ***Management’s Discussion and Analysis of Financial Condition and Results of Operations***

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and related notes appearing elsewhere in this Annual Report on Form 10-K. In addition to historical financial information, the following discussion contains forward-looking statements that are based upon current plans, expectations and beliefs that involve risks and uncertainties. Our actual results may differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth under Part I, Item 1A, “Risk Factors” in this Annual Report on Form 10-K. Our fiscal year ends on December 31.

Overview

We are the leader in the cloud communications platform category. We enable developers to build, scale and operate real-time customer engagement within their software applications. We offer a customer engagement platform with software designed to address specific use cases like account security and contact centers, and a set of Application Programming Interfaces (“APIs”) that handles the higher level communication logic needed for nearly every type of customer engagement. The power, flexibility and reliability offered by our software building blocks empower companies of virtually every shape and size to build world-class engagement into their customer experience. For additional detail on the description of our business and products please refer to Part I, Item 1, “Business”, included elsewhere on this Annual Report on Form 10-K.

We have achieved significant growth in recent periods. In the years ended December 31, 2021, 2020 and 2019, our revenue was $2.8 billion, $1.8 billion and $1.1 billion, respectively, and our net loss was $949.9 million, $491.0 million and $307.1 million, respectively. In the years ended December 31, 2021, 2020 and 2019, our 10 largest Active Customer Accounts generated an aggregate of 11%, 14% and 13% of our total revenue, respectively.

Acquisition of Zipwhip, Inc. in 2021

In July 2021, we acquired Zipwhip, Inc. (“Zipwhip”), a leading provider of toll-free messaging in the United States, for a purchase price of $838.8 million. The purchase price was paid in the form of shares of our Class A common stock and cash and included fair value of pre-combination services of Zipwhip employees that was embedded in the unvested equity awards which we assumed on the acquisition closing date. Part of the cash was paid to settle the vested stock options of Zipwhip employees that were outstanding on the acquisition closing date. We assumed all unvested and outstanding stock options and restricted stock units of Zipwhip continuing employees as converted into our own respective equity awards at the conversion ratio provided in the Agreement and Plan of Merger and Reorganization. Vesting of Class A shares of our common stock and assumed equity awards that were subject to service conditions is recorded into our stock-based compensation expense as the services are provided. This acquisition is described in detail in Note 7 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

Because the acquisition of Zipwhip occurred during the year ended December 31, 2021, the information presented in this section with respect to the year ended December 31, 2021 includes the contribution of Zipwhip starting from July 14, 2021, the date of acquisition. The information with respect to the periods prior to the date of acquisition relates to Twilio on a standalone basis, not including Zipwhip. As a result, comparisons to prior periods may not be indicative of future results or future rates of growth.

Acquisition of Segment.io, Inc. in 2020

In November 2020, we acquired Segment.io, Inc. (“Segment”), the market-leading customer data platform, for a purchase price of $3.0 billion. The purchase price was paid in the form of shares of our Class A common stock and cash and included fair value of pre-combination services of Segment employees that was embedded in the unvested equity awards which we assumed on the acquisition closing date. Part of the cash was paid to settle the vested equity awards of Segment employees that were outstanding on the acquisition closing date. We assumed all unvested and outstanding equity awards of Segment continuing employees as converted into our own equity awards at the conversion ratio provided in the Agreement and Plan of Reorganization. Vesting of Class A shares of our common stock and assumed equity awards that were subject to service conditions is recorded into our stock-based compensation expense over the period the services are provided. This acquisition is described in detail in Note 7 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

Because the acquisition of Twilio Segment occurred during the year ended December 31, 2020, the information presented in this section with respect to the year ended December 31, 2020 includes the contribution of Twilio Segment starting from November 2, 2020, the date of acquisition. The information with respect to periods prior to the date of acquisition relates to Twilio on a standalone basis, not including Segment. The information with respect to year 2021 includes Segment results for the full year. As a result, comparisons to prior periods or the current full year period may not be indicative of future results or future rates of growth.

Investment in Syniverse Corporation

In February 2021, we entered into a Framework Agreement, as amended, with Syniverse Corporation (“Syniverse”) and Carlyle Partners V Holdings, L.P., (“Framework Agreement”), pursuant to which Syniverse would issue to us shares of Syniverse common stock in consideration for an investment by us of up to $750.0 million, subject to certain terms and conditions. The initial agreements and conditions to closing of this transaction are described in detail in Note 13(a) to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

On February 9, 2022, Syniverse mutually terminated a proposed Agreement and Plan of Merger with M-3 Brigade Acquisition II Corp. (“MBAC”) because the rate of MBAC shareholder redemptions for the proposed transaction would have exceeded the minimum cash condition for closing, which occurred as a result of recent changes in market conditions (“MBAC Transaction Termination”). Because of the MBAC Transaction Termination, Twilio will not purchase any shares of common stock of, or make any investment in, MBAC.

The Framework Agreement, dated as of February 26, 2021, by and between Twilio, Syniverse and Carlyle Partners V Holdings, L.P., remains in full force and effect. The amendment, dated as of August 16, 2021, to the Framework Agreement terminated on February 9, 2022, as a result of the MBAC Transaction Termination. Pursuant to the terms and subject to the closing conditions set forth in the Framework Agreement, the parties thereto are pursuing the alternative transaction, whereby Twilio will make a minority investment of $500.0 million to $750.0 million in Syniverse and the parties (or their applicable subsidiaries) will enter into a wholesale agreement.

Public Equity Offerings

In February 2021, August 2020 and June 2019, we completed public equity offerings in which we sold 4,312,500 shares, 5,819,838 shares and 8,064,515 shares, respectively, of our Class A common stock at public offering prices of $409.60 per share, $247.00 per share and $124.00 per share, respectively. We received aggregate proceeds of $1.8 billion, $1.4 billion and $979.0 million, respectively, after deducting underwriting discounts and offering expenses paid by us.

Issuance of 2029 and 2031 Senior Notes

In March 2021, we issued and sold $1.0 billion aggregate principal amount of senior notes, consisting of $500.0 million principal amount of 3.625% notes due 2029 (the “2029 Notes”) and $500.0 million principal amount of 3.875% notes due 2031 (the “2031 Notes,” and together with the 2029 Notes, the “Notes”). The net proceeds from the offering of these Notes were approximately $984.7 million, after deducting underwriting discounts and issuance costs paid by us. These Notes are described in detail in Note 10 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

Redemption of Convertible Senior Notes and Capped Call Transactions

During 2021 we issued a notice of redemption for our convertible senior notes due 2023 (the “Convertible Notes”) and on June 2, 2021, we redeemed all of the remaining outstanding principal amount of the notes. During 2021 and through the date of the redemption, we converted $343.7 million aggregate principal amount of the Convertible Notes by issuing 4,846,965 shares of our Class A common stock. The extinguishment of these notes resulted in a $29.0 million loss that is included in other (expenses) income, net, in our consolidated statement of operations included elsewhere in this Annual Report on Form 10-K.

Concurrently with the principal redemption, we settled the related capped call arrangements that were entered into contemporaneously with the Convertible Notes offering in May 2018. The capped call arrangements were settled for gross cash consideration of $229.8 million that we received and recorded as additional paid-in-capital, net of $1.4 million of transaction costs and a $3.2 million realized gain. These transactions are described in detail in Note 10 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

COVID-19 UPDATE

The rapid spread of the COVID-19 globally has disrupted, and may continue to disrupt, our day-to-day operations and the operations of our customers, partners and service providers for an indefinite period of time, including as a result of changing public health recommendations, travel restrictions and limitations, the duration, spread and severity and potential recurrence of the virus and its variants, as well as the efficacy of vaccines and vaccine distribution and the timing and trajectory of the economic recovery, all of which could negatively impact our business and results of operations and financial condition. Since mid-March 2020, we have taken precautionary measures to protect our employees and contingent workers and to help minimize the spread of the virus by temporarily closing our worldwide offices and minimizing business travel. We have continued to monitor the progress of vaccination efforts around the world. In the second half of 2021, as COVID-19 related restrictions have eased in some geographies, we commenced a phased reopening for certain offices.

The broader implications of COVID-19 on our results of operations and overall financial performance remain uncertain. The COVID-19 pandemic and its adverse effects on economic and market conditions, including labor shortages, supply chain disruptions and inflation, have been prevalent in the locations where we, our customers, our suppliers or our third-party business partners conduct business. These adverse conditions may continue for an extended period and there may be additional impacts to the economy and our business as a result of COVID-19. This could result in decreased business spending by our customers and prospective customers and business partners and third-party business partners, reduced demand for our solutions, lower renewal rates by our customers, longer or delayed sales cycles, including customers and prospective customers delaying contract signing or contract renewals, or reducing budgets or minimum commitments related to the product and services that we offer, all of which could have an adverse impact on our business operations and financial condition. See the risk factor titled “The global COVID-19 pandemic may adversely impact our business, results of operations and financial condition” in Part I, Item 1A, “Risk Factors” of this Annual Report on Form 10-K for further discussion of the possible impact of the COVID-19 pandemic on our business, financial condition and results of operations.

Key Business Metrics

	Year Ended December 31,		
	2021	2020	2019
Number of Active Customer Accounts (as of end date of period) [1]	256,000	221,000	179,000
Total Revenue (in thousands) [1]	$ 2,841,839	$ 1,761,776	$ 1,134,468
Total Revenue Growth Rate [1]	61 %	55 %	75 %
Dollar-Based Net Expansion Rate [2]	131 %	137 %	135 %

[1] Includes the contributions from our Zipwhip business, acquired July 14, 2021; Twilio Segment business, acquired November 2, 2020; Twilio SendGrid business, acquired February 1, 2019; and other smaller acquisitions from the dates of their respective acquisitions except for the Number of Active Customer Accounts, which excludes customer accounts from our Zipwhip business.

[2] As previously announced in our Annual Report on Form 10-K filed with the SEC on March 2, 2020, commencing with the three-month period ended March 31, 2020, we calculate our Dollar-Based Net Expansion Rate by comparing total revenue from a cohort of Active Customer Accounts in a period to the same period in the prior year (the "New DBNE Definition"). To facilitate comparison between the periods presented, Dollar-Based Net Expansion Rate as presented in the table above has been calculated as if the New DBNE Definition had been in effect during that period. As a result of the New DBNE Definition, unless specifically identified as being calculated using total revenue, any Dollar-Based Net Expansion Rates disclosed by us in our SEC filings, press releases and presentations prior to the date of our press release for the three months ended March 31, 2020, will not be directly comparable to our Dollar-Based Net Expansion Rates going forward. Unless an acquisition closes on the first day of a quarter, revenue from an acquisition will not impact this calculation until the quarter following the one year anniversary of the acquisition.

Number of Active Customer Accounts. We believe that the number of Active Customer Accounts is an important indicator of the growth of our business, the market acceptance of our platform and future revenue trends. We define an "Active Customer Account" at the end of any period as an individual account, as identified by a unique account identifier, for which we have recognized at least $5 of revenue in the last month of the period. We believe that use of our platform by customers at or above the $5 per month threshold is a stronger indicator of potential future engagement than trial usage of our platform or usage at levels below $5 per month. In the years ended December 31, 2021, 2020 and 2019, revenue from Active Customer Accounts represented over 99% of total revenue in each period. A single organization may constitute multiple unique Active Customer Accounts if it has multiple account identifiers, each of which is treated as a separate Active Customer Account.

Dollar-Based Net Expansion Rate. Our ability to drive growth and generate incremental revenue depends, in part, on our ability to maintain and grow our relationships with existing Active Customer Accounts and to increase their use of the platform. An important way in which we have historically tracked performance in this area is by measuring the Dollar-Based Net Expansion Rate for Active Customer Accounts. Our Dollar-Based Net Expansion Rate increases when such Active Customer Accounts increase their usage of a product, extend their usage of a product to new applications or adopt a new product. Our Dollar-Based Net Expansion Rate decreases when such Active Customer Accounts cease or reduce their usage of a product or when we lower usage prices on a product. As our customers grow their businesses and extend the use of our platform, they sometimes create multiple customer accounts with us for operational or other reasons. As such, when we identify a significant customer organization (defined as a single customer organization generating more than 1% of revenue in a quarterly reporting period) that has created a new Active Customer Account, this new Active Customer Account is tied to, and revenue from this new Active Customer Account is included with, the original Active Customer Account for the purposes of calculating this metric. We believe that measuring Dollar-Based Net Expansion Rate provides a more meaningful indication of the performance of our efforts to increase revenue from existing customers.

For historical periods through December 31, 2019, our Dollar-Based Net Expansion Rate compared the revenue from Active Customer Accounts, other than large Active Customer Accounts that have never entered into 12-month minimum revenue commitment contracts with us, in a quarter to the same quarter in the prior year. For reporting periods starting with the three months ended March 31, 2020, our Dollar-Based Net Expansion Rate compares the revenue from all Active Customer Accounts in a quarter to the same quarter in the prior year. To calculate the Dollar-Based Net Expansion Rate, we first identify the cohort of Active Customer Accounts that were Active Customer Accounts in the same quarter of the prior year. The Dollar-Based Net Expansion Rate is the quotient obtained by dividing the revenue generated from that cohort in a quarter, by the revenue generated from that same cohort in the corresponding quarter in the prior year. When we calculate Dollar-Based Net Expansion Rate for periods longer than one quarter, we use the average of the applicable quarterly Dollar-Based Net Expansion Rates for each of the quarters in such period. Revenue from acquisitions does not impact the Dollar-Based Net Expansion Rate calculation until the quarter following the one-year anniversary of the applicable acquisition, unless the acquisition closing date is the first day of a quarter. As a result of the change in calculation of Dollar-Based Net Expansion Rate, unless specifically identified as being calculated based on total revenue, any Dollar-Based Net Expansion Rates disclosed by us in our SEC filings, press releases and presentations prior to the date of our press release for the three months ended March 31, 2020, will not be directly comparable to our Dollar-Based Net Expansion Rates going forward.

Net Loss Carryforwards

At December 31, 2021, we had federal, state and foreign net operating loss carryforwards of approximately $4.2 billion, $2.7 billion and $268.7 million, respectively, and federal and state tax credits of approximately $132.9 million and $84.9 million, respectively. If not utilized, the federal and state loss carryforwards will expire at various dates beginning in 2029 and 2025, respectively, and the federal tax credits will expire at various dates beginning in 2029. The state tax credits can be carried forward indefinitely. At present, we believe that it is more likely than not that the federal and state net operating loss and credit carryforwards will not be realized. Accordingly, a full valuation allowance has been established for these tax attributes, as well as the rest of the federal and state deferred tax assets.

Key Components of Statements of Operations

Revenue. We derive our revenue primarily from usage-based fees earned from customers using the software products within our Channel APIs. These usage-based software products include offerings, such as Programmable Messaging, Programmable Voice and Programmable Video, among others. Some examples of the usage-based fees that we charge include the number of text messages sent or received using our Programmable Messaging products, minutes of call duration activity for our Programmable Voice products and the number of authentications for our Verify product. In the years ended December 31, 2021, 2020 and 2019, we generated 72%, 76% and 75% of our revenue, respectively, from usage-based fees. We also earn monthly flat fees from certain fee-based products, such as our Email API, Marketing Campaigns, Twilio Flex, our cloud contact center platform, and Twilio Segment, our customer data platform.

When customers first begin using our platform, they typically pay upfront via credit card in monthly prepaid amounts and draw down their balances as they purchase or use our products. Our larger customers often enter into contracts for at least 12 months, that contain minimum revenue commitments, which may contain more favorable pricing. Customers on such contracts typically are invoiced monthly in arrears for products used.

Amounts that have been charged via credit card or invoiced are recorded in revenue, deferred revenue or customer deposits, depending on whether the revenue recognition criteria have been met. Our deferred revenue and customer deposits liability balance is not a meaningful indicator of our future revenue at any point in time because the number of contracts with our invoiced customers that contain terms requiring any form of prepayment is not significant.

We define U.S. revenue as revenue from customers with IP addresses or mailing addresses at the time of registration in the United States, and we define international revenue as revenue from customers with IP addresses or mailing addresses at the time of registration outside of the United States.

Cost of Revenue and Gross Margin. Cost of revenue consists primarily of fees paid to network service providers. Cost of revenue also includes cloud infrastructure fees, direct costs of personnel, such as salaries and stock-based compensation for our customer support employees, and non-personnel costs, such as depreciation and amortization expense related to data centers and hosting equipment, amortization of capitalized internal use software development costs and acquired intangibles. Our arrangements with network service providers require us to pay fees based on the volume of phone calls initiated or text messages sent, as well as the number of telephone numbers acquired by us to service our customers. Our arrangements with our cloud infrastructure provider require us to pay fees based on our server capacity consumption.

Our gross margin has been and will continue to be affected by a number of factors, including the timing and extent of our investments in our operations; our product mix; our ability to manage our network service provider and cloud infrastructure-related fees, including A2P SMS fees; the mix of U.S. revenue compared to international revenue; changes in foreign exchange rates; the timing of amortization of capitalized software development costs and acquired intangibles; and the extent to which we periodically choose to pass on our cost savings from platform optimization efforts to our customers in the form of lower usage prices.

Operating Expenses. The most significant components of operating expenses are personnel costs, which consist of salaries, benefits, sales commissions and bonuses and stock-based compensation. We also incur other non-personnel costs related to our general overhead expenses. We expect that our operating costs will increase in absolute dollars as we add additional employees and invest in our infrastructure to grow our business.

Research and Development. Research and development expenses consist primarily of personnel costs, outsourced engineering services, cloud infrastructure fees for staging and development, amortization of capitalized internal use software development costs, depreciation and an allocation of our general overhead expenses. We capitalize the portion of our software development costs that meets the criteria for capitalization.

We continue to focus our research and development efforts on adding new features and products, including new use cases, improving our platform and increasing the functionality of our existing products.

Sales and Marketing. Sales and marketing expenses consist primarily of personnel costs, including commissions for our sales employees. Sales and marketing expenses also include expenditures related to advertising, marketing, our brand awareness activities and developer evangelism, costs related to our SIGNAL customer and developer conferences, credit card processing fees, professional services fees, depreciation, amortization of acquired intangibles and an allocation of our general overhead expenses.

We focus our sales and marketing efforts on generating awareness of our company, platform and products, creating sales leads and establishing and promoting our brand, both domestically and internationally. We plan to continue investing in sales and marketing by increasing our sales and marketing headcount, supplementing our self-service model with an enterprise sales approach, expanding our sales channels, driving our go-to-market strategies, building our brand awareness and sponsoring additional marketing events.

General and Administrative. General and administrative expenses consist primarily of personnel costs for our accounting, finance, legal, human resources and administrative support personnel. General and administrative expenses also include costs related to business acquisitions, legal and other professional services fees, certain taxes, depreciation and amortization, charitable contributions and an allocation of our general overhead expenses. We expect that we will incur costs associated with supporting the growth of our business and to meet the increased compliance requirements associated with our international expansion. We may also incur higher than usual losses related to deterioration of quality of certain financial assets caused by the macroeconomic conditions and uncertainly in the COVID-19 environment.

Our general and administrative expenses include a certain amount of prior non-income-based taxes in certain domestic and international jurisdictions that we are subject to based on the manner we sell and deliver our products. Additional details are provided in Note 13(d) to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

Provision for Income Taxes. Our income tax provision or benefit consists primarily of income taxes, withholding taxes in foreign jurisdictions in which the Company conducts business and the tax benefit related to the release of valuation allowance from acquisitions. The primary difference between our effective tax rate and the federal statutory rate relates to the full valuation allowance the Company established on the federal, state and certain foreign net operating losses and credits.

Non-GAAP Financial Measures:

We use the following non-GAAP financial information, collectively, to evaluate our ongoing operations and for internal planning and forecasting purposes. We believe that non-GAAP financial information, when taken collectively, may be helpful to investors because it provides consistency and comparability with past financial performance, facilitates period-to-period comparisons of results of operations and assists in comparisons with other companies, many of which use similar non-GAAP financial information to supplement their GAAP results. Non-GAAP financial information is presented for supplemental informational purposes only, should not be considered a substitute for financial information presented in accordance with generally accepted accounting principles, and may be different from similarly-titled non-GAAP measures used by other companies. Whenever we use a non-GAAP financial measure, a reconciliation is provided to the most closely applicable financial measure stated in accordance with generally accepted accounting principles. Investors are encouraged to review the related GAAP financial measures and the reconciliation of these non-GAAP financial measures to their most directly comparable GAAP financial measures.

Non-GAAP Gross Profit and Non-GAAP Gross Margin. For the periods presented, we define non-GAAP gross profit and non-GAAP gross margin as GAAP gross profit and GAAP gross margin, respectively, adjusted to exclude, as applicable, certain expenses as presented in the table below:

	Year Ended December 31,		
	2021	2020	2019
Reconciliation:	(In thousands)		
Gross profit	$ 1,390,713	$ 915,661	$ 608,917
Gross margin	49 %	52 %	54 %
Non-GAAP adjustments:			
Stock-based compensation	14,074	8,857	7,123
Amortization of acquired intangibles	114,896	59,501	45,267
Payroll taxes related to stock-based compensation	—	—	104
Non-GAAP gross profit	$ 1,519,683	$ 984,019	$ 661,411
Non-GAAP gross margin	53 %	56 %	58 %

Non-GAAP Operating Expenses. For the periods presented, we define non-GAAP operating expenses (including categories of operating expenses) as GAAP operating expenses (and categories of operating expenses) adjusted to exclude, as applicable, certain expenses as presented in the table below:

	Year Ended December 31,		
	2021	2020	2019
Reconciliation:	(In thousands)		
Operating expenses	$ 2,306,297	$ 1,408,562	$ 978,702
Non-GAAP adjustments:			
Stock-based compensation	(618,211)	(353,054)	(257,195)
Amortization of acquired intangibles	(83,888)	(38,993)	(27,540)
Acquisition-related expenses	(7,449)	(21,765)	(15,713)
Charitable contributions	(31,169)	(18,993)	—
Payroll taxes related to stock-based compensation	(48,417)	(27,389)	(15,084)
Non-GAAP operating expenses	$ 1,517,163	$ 948,368	$ 663,170

Non-GAAP Income (Loss) from Operations and Non-GAAP Operating Margin. For the periods presented, we define non-GAAP income (loss) from operations and non-GAAP operating margin as GAAP loss from operations and GAAP operating margin, respectively, adjusted to exclude, as applicable, certain expenses as presented in the table below:

	Year Ended December 31,		
	2021	2020	2019
Reconciliation:	(In thousands)		
Loss from operations	$ (915,584)	$ (492,901)	$ (369,785)
Operating margin	(32) %	(28) %	(33) %
Non-GAAP adjustments:			
Stock-based compensation	632,285	361,911	264,318
Amortization of acquired intangibles	198,784	98,494	72,807
Acquisition-related expenses	7,449	21,765	15,713
Charitable contributions	31,169	18,993	—
Payroll taxes related to stock-based compensation	48,417	27,389	15,188
Non-GAAP income (loss) from operations	$ 2,520	$ 35,651	$ (1,759)
Non-GAAP operating margin	— %	2 %	— %

Results of Operations

The following tables set forth our results of operations for the periods presented and as a percentage of our total revenue for those periods. We have included Zipwhip in our results of operations prospectively after July 14, 2021, Twilio Segment after November 2, 2020; Twilio SendGrid after February 1, 2019, and all other acquisitions from the respective closing dates of each such acquisition. The period-to-period comparison of our historical results are not necessarily indicative of the results that may be expected in the future.

Our results of operations may be significantly affected by many factors, such as uncertainty regarding the impacts of the COVID-19 pandemic, fluctuations in foreign exchange rates, changes in global economic conditions and customer demand and spending, inflation, labor market constraints, world events and existing and new domestic and foreign laws and regulations, as well as those factors outlined in Part I, Item 1A, "Risk Factors."

Our revenue is primarily derived from usage-based fees we charge for certain of our products, which can lead to variability and at times create significant differences between forecasts and actual results. In addition, our product mix and mix of international and domestic customers may significantly impact our gross margin. Because usage trends by geographic region and by customer are inherently difficult to estimate, our actual results could differ materially from our estimates.

	Year Ended December 31,		
	2021	2020	2019
Consolidated Statements of Operations Data:	(In thousands, except share and per share amounts)		
Revenue	$ 2,841,839	$ 1,761,776	$ 1,134,468
Cost of revenue [1] [2]	1,451,126	846,115	525,551
Gross profit	1,390,713	915,661	608,917
Operating expenses:			
Research and development [1] [2]	789,219	530,548	391,355
Sales and marketing [1] [2]	1,044,618	567,407	369,079
General and administrative [1] [2]	472,460	310,607	218,268
Total operating expenses	2,306,297	1,408,562	978,702
Loss from operations	(915,584)	(492,901)	(369,785)
Other (expenses) income, net	(45,345)	(11,525)	7,569
Loss before benefit for income taxes	(960,929)	(504,426)	(362,216)
Benefit for income taxes	11,029	13,447	55,153
Net loss attributable to common stockholders	$ (949,900)	$ (490,979)	$ (307,063)
Net loss per share attributable to common stockholders, basic and diluted	$ (5.45)	$ (3.35)	$ (2.36)
Weighted-average shares used in computing net loss per share attributable to common stockholders, basic and diluted	174,180,465	146,708,663	130,083,046

[1] Includes stock-based compensation expense as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In thousands)		
Cost of revenue	$ 14,074	$ 8,857	$ 7,123
Research and development	258,672	173,303	126,012
Sales and marketing	213,351	103,450	60,886
General and administrative	146,188	76,301	70,297
Total	$ 632,285	$ 361,911	$ 264,318

[2] Includes amortization of acquired intangibles as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In thousands)		
Cost of revenue	$ 114,896	$ 59,501	$ 45,267
Research and development	1,260	—	—
Sales and marketing	82,493	38,915	27,540
General and administrative	135	78	—
Total	$ 198,784	$ 98,494	$ 72,807

	Year Ended December 31,		
	2021	2020	2019
**Consolidated Statements of Operations, as a percentage of revenue: ** **			
Revenue	100 %	100 %	100 %
Cost of revenue	51	48	46
Gross profit	49	52	54
Operating expenses:			
Research and development	28	30	34
Sales and marketing	37	32	33
General and administrative	17	18	19
Total operating expenses	81	80	86
Loss from operations	(32)	(28)	(33)
Other (expenses) income, net	(2)	(1)	1
Loss before benefit for income taxes	(34)	(29)	(32)
Benefit for income taxes	*	1	5
Net loss attributable to common stockholders	(33 %)	(28 %)	(27) %

* Less than 0.5% of revenue.
** Columns may not add up to 100% due to rounding.

Comparison of the Fiscal Years Ended December 31, 2021, 2020 and 2019

Revenue

	Year Ended December 31,						
	2021	2020	2019	2020 to 2021 Change		2019 to 2020 Change	
	(Dollars in thousands)						
Total Revenue	$ 2,841,839	$ 1,761,776	$ 1,134,468	$ 1,080,063	61 %	$ 627,308	55 %

2021 compared to 2020

In 2021, total revenue increased by $1.1 billion, or 61%, compared to the same period last year. This increase was primarily attributable to an increase in the usage of our products, particularly our Programmable Messaging products, Programmable Voice products and Email products, the adoption of additional products by our existing customers, the additional A2P fees imposed by certain carriers and revenue contributions from our acquisitions of Twilio Segment, Zipwhip and other businesses. The change in usage from our existing customers was reflected in our Dollar-Based Net Expansion Rate of 131% for the year ended December 31, 2021. The increase in usage was also attributable to a 16% increase in the number of Active Customer Accounts, from 221,000 as of December 31, 2020, to over 256,000 as of December 31, 2021.

In 2021, U.S. revenue and international revenue represented $1.9 billion or 66%, and $960.0 million, or 34%, respectively, of total revenue. In 2020, U.S. revenue and international revenue represented $1.3 billion, or 73%, and $479.6 million, or 27%, respectively, of total revenue. The increase in international revenue was attributable to the growth in usage of our products, particularly our Programmable Messaging products and Programmable Voice products, by our existing international Active Customer Accounts; a 14% increase in the number of international Active Customer Accounts driven in part by our focus on expanding our sales to customers outside of the United States; and revenue contribution from our recent acquisitions.

2020 compared to 2019

In 2020, total revenue increased by $627.3 million, or 55%, compared to the same period last year. This increase was primarily attributable to an increase in the usage of our products, particularly our Programmable Messaging products and Programmable Voice products, the adoption of additional products by our existing customers, and revenue contribution from our acquisition of our Twilio Segment business for the period from November 2, 2020, through December 31, 2020. This increase was partially offset by pricing decreases that we have implemented over time in the form of lower usage prices, in an effort to increase the reach and scale of our platform. The changes in usage and prices in 2020 were reflected in our Dollar-Based Net Expansion Rate of 137%. The increase in usage was also attributable to a 23% increase in the number of Active Customer Accounts, from 179,000 as of December 31, 2019, to over 221,000 as of December 31, 2020, which was also positively impacted by the customer accounts added through the acquisition of our Twilio Segment business.

In 2020, U.S. revenue and international revenue represented $1.3 billion or 73%, and $479.6 million, or 27%, respectively, of total revenue. In 2019, U.S. revenue and international revenue represented $808.9 million, or 71%, and $325.6 million, or 29%, respectively, of total revenue. The increase in international revenue was attributable to the growth in usage of our products, particularly our Programmable Messaging products and Programmable Voice products, by our existing international Active Customer Accounts; a 23% increase in the number of international Active Customer Accounts driven in part by our focus on expanding our sales to customers outside of the United States; and revenue contribution from the acquisition of our Twilio Segment business.

Cost of Revenue and Gross Margin

	Year Ended December 31,			2020 to 2021 Change		2019 to 2020 Change	
	2021	2020	2019				
		(Dollars in thousands)					
Cost of revenue	$ 1,451,126	$ 846,115	$ 525,551	$ 605,011	72 %	$ 320,564	6
Gross margin	49 %	52 %	54 %				

2021 compared to 2020

In 2021, cost of revenue increased by $605.0 million, or 72%, compared to the same period last year. The increase in cost of revenue was primarily attributable to a $465.5 million increase in network service providers' costs, which included the additional A2P fees imposed by certain carriers, and a $44.2 million increase in cloud infrastructure fees, all to support the growth in usage of our products. The increase was also due to a $55.4 million increase in the amortization expense of intangible assets that we acquired through business combinations. In addition, the year ended December 31, 2021, included cost of revenue from our recent acquisitions.

In 2021, the gross margin percentage declined compared to the same period last year. This decline was primarily driven by continued strong growth of our international messaging business, the additional A2P fees imposed by certain carriers and an increase in network service provider fees in certain geographies, which we pass to our customers at cost. The decline was also due to an increase in amortization expense related to our acquired intangible assets, These declines were partially offset by the growth of our other application services products, the impact of the acquisition of our Twilio Segment business and certain operational improvements.

2020 compared to 2019

In 2020, cost of revenue increased by $320.6 million, or 61%, compared to the same period last year. The increase in cost of revenue was primarily attributable to a $246.2 million increase in network service providers' costs and a $32.3 million increase in cloud infrastructure fees, both to support the growth in usage of our products. The increase was also due to a $14.2 million increase in the amortization expense of intangible assets that we acquired through business combinations.

In 2020, gross margin percentage declined compared to the same period last year. This decline was primarily driven by a re-acceleration in growth of our messaging business, an increase in amortization expense related to acquired intangible assets, the impact of an increasing mix of international product usage and an increase in network service provider fees in certain geographies, which we pass to our customers at cost. These declines were partially offset by the impact of the acquisition of our Twilio Segment business and certain operational improvements.

Operating Expenses

	Year Ended December 31,						
	2021	2020	2019	2020 to 2021 Change		2019 to 2020 Change	
	(Dollars in thousands)						
Research and development	$ 789,219	$ 530,548	$ 391,355	$ 258,671	49 %	$ 139,193	36 %
Sales and marketing	1,044,618	567,407	369,079	477,211	84 %	198,328	54 %
General and administrative	472,460	310,607	218,268	161,853	52 %	92,339	42 %
Total operating expenses	$ 2,306,297	$ 1,408,562	$ 978,702	$ 897,735	64 %	$ 429,860	44 %

2021 compared to 2020

In 2021, research and development expenses increased by $258.7 million, or 49%, compared to the same period last year. The increase was primarily attributable to a $225.0 million increase in personnel costs, net of a $15.7 million increase in capitalized software development costs, largely as a result of a 54% average increase in our research and development headcount, as we continued to focus on enhancing our existing products, introducing new products as well as enhancing product management and other technical functions. In addition, the year ended December 31, 2021 included research and development expenses and the impact of growth in headcount from our recent acquisitions.

In 2021, sales and marketing expenses increased by $477.2 million, or 84%, compared to the same period last year. The increase was primarily attributable to a $331.5 million increase in personnel costs, largely as a result of a 74% average increase in sales and marketing headcount, as we continued to expand our sales efforts globally. The increase was also due to a $43.6 million increase related to the amortization of acquired intangible assets and a $31.6 million increase in advertising expenses. In addition, the year ended December 31, 2021 included sales and marketing expenses and the impact of growth in headcount from our recent acquisitions.

In 2021, general and administrative expenses increased by $161.9 million, or 52%, compared to the same period last year. The increase was primarily attributable to a $142.1 million increase in personnel costs, largely as a result of a 75% average increase in general and administrative headcount, to support the growth of our business globally. The increase was also due to a $12.2 million increase in charitable contributions that we made through Twilio.org, $11.2 million increase in professional service fees incurred in the ordinary course of business, offset by a $14.2 million decrease in professional services related to our acquisitions. In addition, the year ended December 31, 2021 included general and administrative expenses and the impact of growth in headcount from our recent acquisitions.

2020 compared to 2019

In 2020, research and development expenses increased by $139.2 million, or 36%, compared to the same period last year. The increase was primarily attributable to a $128.3 million increase in personnel costs, net of a $17.8 million increase in capitalized software development costs, largely as a result of a 63% average increase in our research and development headcount, as we continued to focus on enhancing our existing products, introducing new products as well as enhancing product management and other technical functions. The increase was also due to a $13.3 million increase in our cloud infrastructure fees related to staging and development of our products. In addition, the year ended December 31, 2020 included research and development expenses and headcount from our recent acquisitions.

In 2020, sales and marketing expenses increased by $198.3 million, or 54%, compared to the same period last year. The increase was primarily attributable to a $137.4 million increase in personnel costs, largely as a result of a 88% average increase in sales and marketing headcount, as we continued to expand our sales efforts in the United States and abroad. The increase was also due to a $11.4 million increase related to the amortization of acquired intangible assets and a $20.1 million increase in advertising expenses. In addition, the year ended December 31, 2020, included sales and marketing expenses and headcount from our recent acquisitions.

In 2020, general and administrative expenses increased by $92.3 million, or 42%, compared to the same period last year. The increase was primarily attributable to a $25.4 million increase in personnel costs, largely as a result of a 66% average increase in general and administrative headcount, to support the growth of our business globally. The increase was also due to a $19.0 million increase in charitable contributions due to several donations made by Twilio.org, a $10.7 million increase in our allowance for estimated credit losses partially impacted by the COVID-19 environment and a $5.8 million increase in professional expenses related to our acquisitions of other business. Additionally, certain of our taxes increased by $7.9 million primarily in foreign jurisdictions and our professional services fees increased by $6.6 million. In addition, the year ended December 31, 2021 included general and administrative expenses and headcount from our recent acquisitions.

Liquidity and Capital Resources

Our principal sources of liquidity have been (i) the net proceeds of $979.0 million, $1.4 billion and $1.8 billion, net of underwriting discounts and offering expenses paid by us, from our public equity offerings in June 2019, August 2020 and February 2021, respectively; (ii) the aggregate net proceeds of approximately $537.0 million, after deducting purchaser discounts and debt issuance costs paid by us, from the issuance of our Convertible Notes in May 2018; (iii) the aggregate net proceeds of approximately $984.7 million, after deducting purchaser discounts and debt issuance costs paid by us, from the issuance of our 2029 Notes and 2031 Notes in March 2021; (iv) the net proceeds of $228.4 million, after deducting transaction costs paid by us, from settlement of our capped call arrangements in June 2021; and (v) the payments received from customers using our products.

Our primary uses of cash include operating costs, such as personnel-related costs, network service provider costs, cloud infrastructure costs, facility-related spending, as well as acquisitions and investments. Refer to Note 6, Note 10, Note 13(a) and Note 18 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K for detailed discussions of our obligations and commitments related to leases, debt, other purchase obligations and our proposed minority investment in Syniverse Corporation.

We may, from time to time, consider acquisitions of, or investments in, complementary businesses, products, services, capital infrastructure or technologies which might affect our liquidity requirements, cause us to secure additional financing or issue additional equity or debt securities. There can be no assurance that additional credit lines or financing instruments will be available in amounts or on terms acceptable to us, if at all.

We believe that our cash, cash equivalents and marketable securities balances, as well as the cash flows generated by our operations, will be sufficient to satisfy our anticipated cash needs for working capital and capital expenditures for the next 12 months and beyond. However, our belief may prove to be incorrect, and we could utilize our available financial resources sooner than we currently expect. Our future capital requirements and the adequacy of available funds will depend on many factors, including those set forth in Part I, Item 1A, “Risk Factors.” We may be required to seek additional equity or debt financing in order to meet these future capital requirements. In the event that additional financing is required from outside sources, we may not be able to raise it on terms acceptable to us, or at all. If we are unable to raise additional capital when desired, our business, results of operations and financial condition would be adversely affected. Additionally, cash from operations could also be affected by various risks and uncertainties in connection with the COVID-19 pandemic, including timing and ability to collect payments from our customers and other risks detailed in Part I, Item 1A, “Risk Factors.”

Cash Flows

The following table summarizes our cash flows:

	Year Ended December 31,		
	2021	2020	2019
	(In thousands)		
Cash (used in) provided by operating activities	$ (58,192)	$ 32,654	$ 14,048
Cash (used in) investing activities	(2,489,996)	(845,855)	(1,285,792)
Cash provided by financing activities	3,096,325	1,493,311	1,020,145
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(191)	40	—
Net increase (decrease) in cash, cash equivalents and restricted cash	$ 547,946	$ 680,150	$ (251,599)

Cash Flows from Operating Activities

In 2021, cash used in operating activities consisted primarily of our net loss of $949.9 million adjusted for non-cash items, including $632.3 million of stock-based compensation expense, $17.2 million of tax benefit related to release of valuation allowance in connection with our Zipwhip and prior acquisitions, $258.4 million of depreciation and amortization expense, $5.8 million amortization of the debt discount and issuance costs related to our long-term debt, $48.8 million of non-cash reduction to our operating right-of-use asset, $31.5 million amortization of deferred commissions and $185.1 million of cumulative changes in operating assets and liabilities. With respect to changes in operating assets and liabilities, accounts receivable and prepaid expenses increased $196.0 million primarily due to revenue growth, the timing of cash receipts and pre-payments for cloud infrastructure fees and certain operating expenses. Accounts payable and other current liabilities increased $137.7 million primarily due to increases in transaction volumes. Operating lease liability decreased $49.0 million due to payments made against our operating lease obligations. Other long-term assets increased $121.2 million primarily due to an increase in the sales commissions balances related to the growth of our business.

In 2020, cash provided by operating activities consisted primarily of our net loss of $491.0 million adjusted for non-cash items, including $360.9 million of stock-based compensation expense, $16.5 million of tax benefit related to release of valuation allowance in connection with our acquisitions of other businesses, $149.7 million of depreciation and amortization expense, $23.8 million amortization of the debt discount and issuance costs related to our long-term debt, $38.4 million of non-cash reduction to our operating right-of-use asset, $13.3 million amortization of deferred commissions, a $13.2 million increase in our allowance for credit losses, and $97.4 million of cumulative changes in operating assets and liabilities. With respect to changes in operating assets and liabilities, accounts receivable and prepaid expenses increased $92.9 million primarily due to the timing of cash receipts from certain of our larger customers, pre-payments for cloud infrastructure fees and certain operating expenses. Accounts payable and other current liabilities increased $98.4 million primarily due to increases in transaction volumes. Operating lease liability decreased $33.9 million due to payments made against our operating lease obligations. Other long-term assets increased $81.9 million primarily due to an increase in the sales commissions balances related to the growth of our business.

Cash Flows from Investing Activities

In 2021, cash used in investing activities was $2.5 billion primarily consisting of $1.9 billion of purchases of marketable securities and other investments, net of maturities and sales, $491.5 million of net cash paid to acquire other businesses as described in Note 7 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K, $44.0 million related to capitalized software development costs and $46.0 million related to purchases of long-lived assets.

In 2020, cash used in investing activities was $845.9 million primarily consisting of $453.1 million of purchases of marketable securities and other investments, net of maturities and sales, $333.6 million of net cash paid to acquire other businesses as described in Note 7 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K, $33.3 million related to capitalized software development costs and $25.8 million related to purchases of long-lived assets.

Cash Flows from Financing Activities

In 2021, cash provided by financing activities was $3.1 billion primarily consisting of $1.8 billion in net proceeds from our public equity offering, as described in Note 14 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K; $984.7 million in net proceeds from the issuance of our 2029 Notes and 2031 Notes and $228.4 million in net proceeds from the settlement of the capped call transactions related to our Convertible Notes, which were fully redeemed during 2021, as described in Note 10 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K; and $136.2 million in proceeds from stock options exercised by our employees and shares issued under our employee stock purchase plan.

In 2020, cash provided by financing activities was $1.5 billion primarily consisting of $1.4 billion in net proceeds from our public equity offering, as described in Note 14 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K, and $104.8 million in proceeds from stock options exercised by our employees and shares issued under our employee stock purchase plan.

Off-Balance Sheet Arrangements

We have not entered into any off-balance sheet arrangements and do not have any holdings in variable interest entities.

Segment Information

We have one business activity and operate in one reportable segment.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in accordance with generally accepted accounting principles in the United States of America. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, expenses and related disclosures. We evaluate our estimates and assumptions on an ongoing basis. Our estimates are based on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Our actual results could differ from these estimates.

We believe that the accounting policies, assumptions and estimates associated with revenue recognition and business combinations have the greatest potential impact on our consolidated financial statements. Therefore, we consider these to be our critical accounting policies and estimates.

See Note 2 to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for a discussion of our accounting policies.

Revenue Recognition

Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration we expect to receive in exchange for those products or services. We enter into contracts that can include various combinations of products and services, which are generally capable of being distinct and accounted for as separate performance obligations. Revenue is recognized net of allowances for credits and any taxes collected from customers, which are subsequently remitted to governmental authorities.

Our revenue is primarily derived from usage-based fees earned from customers accessing our enterprise cloud computing services. Platform access is considered a monthly series comprising one performance obligation and usage-based fees are recognized as revenue in the period in which the usage occurs.

Subscription-based fees are derived from certain non-usage-based contracts, such as with the sales of short codes, customer support, and fees charged to access the cloud-based platform of our Twilio Segment business, which acquisition is further described in Note 7 to our consolidated financial statements included elsewhere in this Annual Report of Form 10-K. Non-usage-based contracts revenue is recognized on a ratable basis over the contractual term which is generally from one to three years.

Our arrangements do not contain general rights of return. However, credits may be issued on a case-by-case basis. Credits are accounted for as variable consideration, are estimated based on historical trends and are recorded against revenue. The contracts do not provide customers with the right to take possession of the software supporting the applications. Amounts that have been invoiced are recorded in accounts receivable and in revenue or deferred revenue depending on whether the revenue recognition criteria have been met.

Business Combinations

Accounting for business combinations requires us to make significant estimates and assumptions, especially at the acquisition date with respect to tangible and intangible assets acquired and liabilities assumed. We use our best estimates and assumptions to accurately assign fair value to the tangible and intangible assets acquired and liabilities assumed at the acquisition date as well as the useful lives of those acquired intangible assets. Examples of critical estimates in valuing certain of the intangible assets and goodwill we have acquired include but are not limited to future expected cash flows from acquired developed technologies; existing customer relationships; uncertain tax positions and tax related valuation allowances assumed; and discount rates. Unanticipated events and circumstances may occur that may affect the accuracy or validity of such assumptions, estimates or actual results.

Recent Accounting Pronouncements Not Yet Adopted

See Note 2(ac) to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for a discussion of recent accounting pronouncements not yet adopted.

Item 7A.*Quantitative and Qualitative Disclosures about Market Risk*

We are exposed to certain market risks in the ordinary course of our business, including sensitivities as follows:

Interest Rate Risk

We had cash, cash equivalents and restricted cash of $1.5 billion and marketable securities of $3.9 billion as of December 31, 2021. Cash, cash equivalents and restricted cash consist of bank deposits, money market funds and commercial paper. Marketable securities consist primarily of U.S. treasury securities, non-U.S. government securities and high credit quality corporate debt securities. The cash and cash equivalents and marketable securities are held for working capital purposes. Such interest-earning instruments carry a degree of interest rate risk. To date, fluctuations in interest income have not been significant. The primary objective of our investment activities is to preserve principal while maximizing income without significantly increasing risk. We do not enter into investments for trading or speculative purposes and have not used any derivative financial instruments to manage our interest rate risk exposure. Due to the short-term nature of our investments, we have not been exposed to, nor do we anticipate being exposed to, material risks due to changes in interest rates. A hypothetical 10% change in interest rates during any of the periods presented would not have had a material impact on our consolidated financial statements.

In May 2018, we issued $550.0 million aggregate principal amount of Convertible Notes, which were fully redeemed as of June 2, 2021.

In March 2021, we issued $1.0 billion aggregate principal amount of our 2029 Notes and 2031 Notes carrying fixed interest rates of 3.625% and 3.875%, respectively.

Currency Exchange Risks

The functional currency of most of our foreign subsidiaries is the U.S. dollar. The local currencies of our foreign subsidiaries are the Australian dollar, the Bermuda dollar, the Brazilian real, the British pound, the Canadian dollar, the Colombian peso, the Czech Republic koruna, the Euro, the Hong Kong dollar, the Indian rupee, the Japanese yen, the Mexican Peso, the Polish Zloty, the Serbian Dinar, the Singapore dollar and the Swedish krona.

Our subsidiaries remeasure monetary assets and liabilities at period-end exchange rates, while non-monetary items are remeasured at historical rates. Revenue and expense accounts are remeasured at the average exchange rate in effect during the month in which a transaction occurs. If there is a change in foreign currency exchange rates, the conversion of our foreign subsidiaries’ financial statements into U.S. dollars would result in a realized gain or loss which is recorded in our consolidated statements of operations.

We enter into foreign currency derivative hedging transactions to mitigate our exposure to market risks that may result from changes in foreign currency exchange rates. For further information, see Note 2(x) and Note 5 to our consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

A hypothetical 10% change in foreign exchange rates during any of the periods presented would not have had a material impact on our consolidated financial statements.

Item 8. ***Financial Statements and Supplementary Data***

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Twilio Inc.:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of Twilio Inc. and subsidiaries (the "Company") as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

The Company acquired Zipwhip, Inc. during fiscal 2021, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2021, Zipwhip, Inc.'s internal control over financial reporting associated with total assets of $51.9 million and total revenues of $55.4 million included in the consolidated financial statements of the Company as of and for the year ended December 31, 2021. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Zipwhip, Inc.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Annual Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Evaluation of the sufficiency of audit evidence over revenue recognition

As discussed in Note 2(e) to the consolidated financial statements, the Company's revenue is derived from usage and non-usage based fees earned from customers accessing the Company's enterprise cloud computing services. As of December 31, 2021, the Company recorded $2.8 billion in revenues, a portion of which related to Programmable Messaging and Programmable Voice APIs. The Company's revenue recognition process is highly automated and revenue is recorded within the Company's general ledger through reliance on customized and proprietary information technology (IT) systems.

We identified the evaluation of the sufficiency of audit evidence over revenue recognition related to the Company's Programmable Messaging and Programmable Voice APIs as a critical audit matter. This matter required especially subjective auditor judgment because of the large number of information technology (IT) applications involved in the revenue recognition process. Auditor judgment was required in determining the nature and extent of audit evidence obtained over these information systems that process revenue transactions. Involvement of IT professionals with specialized skills and knowledge was required to assist with the performance and evaluation of certain procedures and determination of IT applications subject to testing.

The following are the primary procedures we performed to address this critical audit matter. We applied auditor judgment to determine the nature and extent of procedures to be performed over revenue recognition. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's Programmable Messaging and Programmable Voice revenue recognition process. We involved IT professionals with specialized skills and knowledge, who assisted in testing controls related to the Company's general information technology and application controls related to the systems utilized within the Company's Programmable Messaging and Programmable Voice revenue recognition process. For a sample of customer agreements, we tested the Company's identification and treatment of significant contract terms, including comparing the pricing reflected in the Company's revenue IT system to the contractually agreed upon pricing with the customer. For a sample of revenue transactions, we compared the amounts recognized for consistency with underlying documentation, including contracts with customers. We assessed the recorded revenue by comparing revenue to underlying cash receipts. We evaluated credits issued after year end to assess the revenue recorded within the period. In addition, we evaluated the overall sufficiency of audit evidence obtained by assessing the results of procedures performed, including appropriateness of the nature and extent of such evidence.

Valuation of the acquisition date intangible assets related to a business combination

As discussed in Note 7 to the consolidated financial statements, on July 14, 2021, the Company acquired Zipwhip, Inc. (Zipwhip) by issuing shares of its Class A common stock worth approximately $419.2 million and paying approximately $418.1 million of cash. As part of the acquisition, the Company acquired $244.5 million of intangible assets, including customer relationships.

We identified the assessment of the valuation of the acquisition date customer relationship intangible asset acquired as a critical audit matter. There was a high degree of subjective auditor judgment in assessing the discount rate and forecasted revenue growth rates used to derive the fair value of the customer relationship acquired intangible asset. In addition, this fair value was challenging to test due to the sensitivity of the fair value determination to changes in these assumptions.

The following are the primary procedures we performed to address the critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Company's process to value acquired intangible assets, including the Company's controls over the discount rate and forecasted revenue growth rate. We compared prior period forecasted revenue to prior period actual revenue to evaluate the Company's ability to forecast. We evaluated the Company's forecasted revenue growth rates used to value the customer relationship intangible asset by (1) comparing the growth forecast assumptions to historical growth rates of peer companies, and (2) comparing forecasted growth rates to historical growth rates. We involved a valuation professional with specialized skills and knowledge, who assisted in testing by:

- evaluating the discount rate used by the Company to value the customer relationship intangible asset by assessing the relevant inputs used by the Company in their calculation of their discount rate
- recalculating the estimate of the fair value of the customer relationship intangible asset acquired using the Company's cash flow forecast and discount rate independently corroborated by our valuation specialists and comparing the result to the Company's fair value estimate.

/s/ KPMG LLP

We have served as the Company's auditor since 2013.

Santa Clara, California
February 22, 2022

TWILIO INC.
Consolidated Balance Sheets

	As of December 31,	
	2021	2020
	(In thousands, except share and per share amounts)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 1,479,452	$ 933,885
Short-term marketable securities	3,878,430	2,105,906
Accounts receivable, net	388,215	251,167
Prepaid expenses and other current assets	186,131	81,377
Total current assets	5,932,228	3,372,335
Property and equipment, net	255,316	183,239
Operating right-of-use assets	234,584	258,610
Intangible assets, net	1,050,012	966,573
Goodwill	5,263,166	4,595,394
Other long-term assets	263,292	111,282
Total assets	$ 12,998,598	$ 9,487,433
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 93,333	$ 60,042
Accrued expenses and other current liabilities	417,503	252,895
Deferred revenue and customer deposits	140,389	87,031
Operating lease liability, current	52,325	48,338
Total current liabilities	703,550	448,306
Operating lease liability, noncurrent	211,253	229,905
Finance lease liability, noncurrent	25,132	17,856
Long-term debt	985,907	302,068
Other long-term liabilities	41,290	36,633
Total liabilities	1,967,132	1,034,768
Commitments and contingencies (Note 13)		
Stockholders' equity:		
Preferred stock, $0.001 par value, 100,000,000 shares authorized, none issued	—	—
Class A and Class B common stock, $0.001 par value per share		
Authorized shares 1,100,000,000 as of December 31, 2021 and 2020; Issued and outstanding shares 180,468,099 and 164,047,524 as of December 31, 2021 and 2020	180	164
Additional paid-in capital	13,169,118	9,613,246
Accumulated other comprehensive (loss) income	(18,141)	9,046
Accumulated deficit	(2,119,691)	(1,169,791)
Total stockholders' equity	11,031,466	8,452,665
Total liabilities and stockholders' equity	$ 12,998,598	$ 9,487,433

See accompanying notes to consolidated financial statements.

TWILIO INC.
Consolidated Statements of Operations

	Year Ended December 31,		
	2021	2020	2019
	(In thousands, except share and per share amounts)		
Revenue	$ 2,841,839	$ 1,761,776	$ 1,134,468
Cost of revenue	1,451,126	846,115	525,551
Gross profit	1,390,713	915,661	608,917
Operating expenses:			
Research and development	789,219	530,548	391,355
Sales and marketing	1,044,618	567,407	369,079
General and administrative	472,460	310,607	218,268
Total operating expenses	2,306,297	1,408,562	978,702
Loss from operations	(915,584)	(492,901)	(369,785)
Other (expenses) income, net	(45,345)	(11,525)	7,569
Loss before benefit for income taxes	(960,929)	(504,426)	(362,216)
Benefit for income taxes	11,029	13,447	55,153
Net loss attributable to common stockholders	$ (949,900)	$ (490,979)	$ (307,063)
Net loss per share attributable to common stockholders, basic and diluted	$ (5.45)	$ (3.35)	$ (2.36)
Weighted-average shares used in computing net loss per share attributable to common stockholders, basic and diluted	174,180,465	146,708,663	130,083,046

See accompanying notes to consolidated financial statements.

TWILIO INC.
Consolidated Statements of Comprehensive Loss

	Year Ended December 31,		
	2021	2020	2019
	(In thousands)		
Net loss	$ (949,900)	$ (490,979)	$ (307,063)
Other comprehensive (loss) income:			
Unrealized (loss) gain on marketable securities	(27,215)	3,674	3,804
Foreign currency translation	(266)	286	—
Net change in market value of effective foreign currency forward exchange contracts	294	—	—
Total other comprehensive (loss) income	(27,187)	3,960	3,804
Comprehensive loss attributable to common stockholders	$ (977,087)	$ (487,019)	$ (303,259)

See accompanying notes to consolidated financial statements.

	Common Stock Class A		Common Stock Class B		Additional Paid-In Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount	Shares	Amount				
	(In thousands, except share amounts)							
Balance as of December 31, 2018	80,769,763	$ 80	19,310,465	$ 20	$ 808,527	$ 1,282	$ (371,674)	$ 438,235
Net loss	—	—	—	—	—	—	(307,063)	(307,063)
Exercises of stock options	1,466,813	1	2,154,053	2	37,760	—	—	37,763
Recapitalization of a subsidiary	—	—	—	—	75	—	(75)	—
Vesting of restricted stock units	2,775,788	2	117,331	1	—	—	—	3
Value of equity awards withheld for tax liability	(23,543)	—	(22,095)	—	(5,412)	—	—	(5,412)
Conversion of shares of Class B common stock into shares of Class A common stock	10,029,127	9	(10,029,127)	(9)	—	—	—	—
Shares of Class A common stock issued under ESPP	244,628	—	—	—	19,738	—	—	19,738
Shares of Class A common stock issued in connection with a follow-on public offering, net of underwriters' discounts and issuance costs	8,064,515	8	—	—	979,039			979,047
Shares of Class A common stock issued in acquisition	23,555,081	24	—	—	2,658,874	—	—	2,658,898
Value of equity awards assumed in acquisition	—	—	—	—	182,554	—	—	182,554
Unrealized gain on marketable securities	—	—	—	—	—	3,804	—	3,804
Stock-based compensation	—	—	—	—	271,844	—	—	271,844
Balance as of December 31, 2019	126,882,172	$ 124	11,530,627	$ 14	$ 4,952,999	$ 5,086	$ (678,812)	$ 4,279,411
Net loss	—	—	—	—	—	—	(490,979)	(490,979)
Exercises of stock options	2,263,629	2	1,232,099	1	72,514	—	—	72,517
Vesting of restricted stock units	3,525,401	4	29,007	—	—	—	—	4
Value of equity awards withheld for tax liability	(34,893)	—	(4,692)	—	(8,778)	—	—	(8,778)
Conversion of shares of Class B common stock into shares of Class A common stock	2,235,739	2	(2,235,739)	(2)	—	—	—	—
Equity component from partial settlement of convertible senior notes due 2023	2,902,434	3	—	—	190,757	—	—	190,760
Shares of Class A common stock issued under ESPP	291,800	1	—	—	32,242	—	—	32,243
Shares of Class A common stock donated to charity	88,408	—	—	—	18,993	—	—	18,993
Issuance of shares of Class A common stock in connection with a follow-on public offering, net of underwriters' discounts and issuance costs	5,819,838	6	—	—	1,408,163	—	—	1,408,169
Shares of Class A common stock issued in acquisition	9,263,140	9	—	—	2,532,347	—	—	2,532,356
Value of equity awards assumed in acquisition	—	—	—	—	38,972	—	—	38,972
Shares of Class A common stock issued in acquisition subject to future vesting	258,554	—	—	—	—	—	—	—
Unrealized gain on marketable securities	—	—	—	—	—	3,674	—	3,674
Foreign currency translation	—	—	—	—	—	286	—	286
Stock-based compensation	—	—	—	—	375,037	—	—	375,037
Balance as of December 31, 2020	153,496,222	$ 151	10,551,302	$ 13	$ 9,613,246	$ 9,046	$ (1,169,791)	$ 8,452,665

Consolidated Statements of Stockholder's Equity

	Common Stock Class A		Common Stock Class B					
	Shares	Amount	Shares	Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Equity
	(In thousands, except share amounts)							
Balance as of December 31, 2020	153,496,222	$ 151	10,551,302	$ 13	$ 9,613,246	$ 9,046	$ (1,169,791)	$ 8,452,665
Net loss	—	—	—	—	—	—	(949,900)	(949,900)
Exercises of stock options	1,779,320	2	509,499	—	87,693	—	—	87,695
Vesting of restricted stock units	3,515,913	4	—	—	(4)	—	—	—
Value of equity awards withheld for tax liability	(32,002)	—	—	—	(10,388)	—	—	(10,388)
Conversion of shares of Class B common stock into shares of Class A common stock	1,218,696	1	(1,218,696)	(1)	—	—	—	—
Equity component from partial settlement and redemption of convertible senior notes due 2023	4,846,965	5	—	—	335,637	—	—	335,642
Settlement of capped call, net of related costs	—	—	—	—	225,233	—	—	225,233
Shares of Class A common stock issued under ESPP	198,926	—	—	—	48,465	—	—	48,465
Shares of Class A common stock donated to charity	88,408	—	—	—	31,169	—	—	31,169
Issuance of shares of Class A common stock in connection with a follow-on public offering, net of underwriters' discounts and issuance costs	4,312,500	4	—	—	1,765,709	—	—	1,765,713
Shares of Class A common stock issued in acquisition	1,116,816	1	—	—	419,169	—	—	419,170
Value of equity awards assumed in acquisition	—	—	—	—	1,511	—	—	1,511
Shares of Class A common stock subject to future vesting	84,230	—	—	—	—	—	—	—
Unrealized loss on marketable securities	—	—	—	—	—	(27,215)	—	(27,215)
Foreign currency translation	—	—	—	—	—	(266)	—	(266)
Net change in market value of effective foreign currency forward exchange contracts	—	—	—	—	—	294	—	294
Stock-based compensation	—	—	—	—	651,678	—	—	651,678
Balance as of December 31, 2021	170,625,994	$ 168	9,842,105	$ 12	$ 13,169,118	$ (18,141)	$ (2,119,691)	$ 11,031,466

See accompanying notes to consolidated financial statements.

TWILIO INC.
Consolidated Statements of Cash Flows

	Year Ended December 31,		
	2021	2020	2019
CASH FLOWS FROM OPERATING ACTIVITIES:		(In thousands)	
Net loss	$ (949,900)	$ (490,979)	$ (307,063)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:			
Depreciation and amortization	258,378	149,660	110,430
Non-cash reduction to the right-of-use asset	48,786	38,395	23,193
Net amortization of investment premium and discount	36,158	6,789	(4,501)
Impairment of operating right-of-use assets	8,854	—	—
Amortization of debt discount and issuance costs	5,827	23,759	23,696
Stock-based compensation	632,285	360,936	264,318
Amortization of deferred commissions	31,541	13,322	4,511
Tax benefit related to release of valuation allowance	(17,236)	(16,459)	(55,745)
Value of shares of Class A common stock donated to charity	31,169	18,993	—
Loss on extinguishment of debt	28,965	12,863	—
Other adjustments	12,094	12,762	3,165
Changes in operating assets and liabilities:			
Accounts receivable	(117,943)	(81,303)	(51,357)
Prepaid expenses and other current assets	(78,012)	(11,636)	(20,316)
Other long-term assets	(121,225)	(81,908)	(18,021)
Accounts payable	10,191	10,060	17,255
Accrued expenses and other current liabilities	127,554	88,340	46,154
Deferred revenue and customer deposits	45,634	13,824	2,968
Operating lease liabilities	(49,046)	(33,938)	(21,138)
Other long-term liabilities	(2,266)	(826)	(3,501)
Net cash (used in) provided by operating activities	(58,192)	32,654	14,048
CASH FLOWS FROM INVESTING ACTIVITIES:			
Acquisitions, net of cash acquired and other related payments	(491,522)	(333,591)	122,749
Purchases of marketable securities and other investments	(3,523,232)	(1,636,590)	(2,038,422)
Proceeds from sales and maturities of marketable securities	1,614,779	1,183,459	697,171
Capitalized software development costs	(43,973)	(33,328)	(21,922)
Purchases of long-lived and intangible assets	(46,048)	(25,805)	(45,368)
Net cash used in investing activities	(2,489,996)	(845,855)	(1,285,792)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from public offerings, net of underwriters' discount and issuance costs	1,765,713	1,408,113	979,123
Proceeds from issuance of senior notes due 2029 and 2031	987,500	—	—
Payment of debt issuance costs	(2,777)	—	—
Principal payments on debt and finance leases	(8,295)	(10,784)	(11,046)
Proceeds from exercises of stock options and shares of Class A common stock issued under ESPP	136,160	104,760	57,480
Proceeds from settlements of capped call, net of settlement costs	228,412	—	—
Value of equity awards withheld for tax liabilities	(10,388)	(8,778)	(5,412)
Net cash provided by financing activities	3,096,325	1,493,311	1,020,145
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(191)	40	—
NET INCREASE (DECREASE) IN CASH, CASH EQUIVALENTS AND RESTRICTED CASH	547,946	680,150	(251,599)
CASH, CASH EQUIVALENTS AND RESTRICTED CASH—Beginning of year	933,885	253,735	505,334
CASH, CASH EQUIVALENTS AND RESTRICTED CASH —End of year	$ 1,481,831	$ 933,885	$ 253,735
Cash paid for income taxes, net	$ 6,147	$ 3,092	$ 1,368
Cash paid for interest	$ 20,637	$ 2,139	$ 2,290
NON-CASH INVESTING AND FINANCING ACTIVITIES:			
Purchases of property and equipment through finance leases	$ 22,157	$ 20,108	$ 5,848
Value of common stock issued and equity awards assumed in acquisition	$ 420,681	$ 2,571,328	$ 2,841,452
Value of common stock issued to settle convertible senior notes due 2023	$ 1,704,969	$ 892,640	$ —
RECONCILIATION OF CASH, CASH EQUIVALENTS AND RESTRICTED CASH TO THE CONSOLIDATED BALANCE SHEETS			
Cash and cash equivalents	$ 1,479,452	$ 933,885	$ 253,735
Restricted cash in other current assets	1,536	—	—
Restricted cash in other long-term assets	843	—	—
Total cash, cash equivalents and restricted cash	$ 1,481,831	$ 933,885	$ 253,735

See accompanying notes to consolidated financial statements.

TWILIO INC.
Notes to Consolidated Financial Statements

1. Organization and Description of Business

Twilio Inc. (the "Company") was incorporated in the state of Delaware on March 13, 2008. The Company is the leading cloud communications platform and enables developers to build, scale and operate real-time customer engagement within their software applications via simple-to-use Application Programming Interfaces ("API"). The power, flexibility, and reliability offered by the Company's software building blocks empower entities of virtually every shape and size to build world-class engagement into their customer experience.

The Company's headquarters are located in San Francisco, California, and the Company has subsidiaries across North America, South America, Europe, Asia and Australia.

2. Summary of Significant Accounting Policies

(a) Basis of Presentation

The accompanying consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States of America ("U.S. GAAP").

(b) Principles of Consolidation

The consolidated financial statements include the Company and its wholly owned subsidiaries. All significant intercompany balances and transactions have been eliminated.

(c) Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. These estimates are used for, but not limited to, revenue allowances and sales credit reserves; recoverability of long-lived and intangible assets; capitalization and useful life of the Company's capitalized internal-use software development costs; fair value of acquired intangible assets and goodwill; accruals and contingencies. Estimates are based on historical experience and on various assumptions that the Company believes are reasonable under current circumstances. However, future events are subject to change and best estimates and judgments may require further adjustments, therefore, actual results could differ materially from those estimates. Management periodically evaluates such estimates and they are adjusted prospectively based upon such periodic evaluation.

(d) Concentration of Credit Risk

Financial instruments that potentially expose the Company to a concentration of credit risk consist primarily of cash, cash equivalents, restricted cash, marketable securities and accounts receivable. The Company maintains cash, restricted cash, cash equivalents and marketable securities with financial institutions that management believes are financially sound and have minimal credit risk exposure although the balances will exceed insured limits.

The Company sells its services to a wide variety of customers. If the financial condition or results of operations of any significant customer deteriorates substantially, operating results could be adversely affected. To reduce credit risk, management performs credit evaluations of the financial condition of significant customers. The Company does not require collateral from its credit customers and maintains reserves for estimated credit losses on customer accounts when considered necessary. Actual credit losses may differ from the Company's estimates. During the years ended December 31, 2021, 2020 and 2019, no customer organization accounted for more than 10% of the Company's total revenue.

As of December 31, 2021 and 2020, no customer organization represented more than 10% of the Company's gross accounts receivable.

(e) Revenue Recognition

Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration the Company expects to receive in exchange for those products or services. The Company enters into contracts that can include various combinations of products and services, which are generally capable of being distinct and accounted for as separate performance obligations. Revenue is recognized net of allowances for credits and any taxes collected from customers, which are subsequently remitted to governmental authorities.

The Company determines revenue recognition through the following steps:

- Identification of the contract, or contracts, with a customer;
- Identification of the performance obligations in the contract;
- Determination of the transaction price;
- Allocation of the transaction price to the performance obligations in the contract; and,
- Recognition of revenue when, or as, the Company satisfies a performance obligation.

Nature of Products and Services

The Company's revenue is primarily derived from usage-based fees earned from customers accessing the Company's enterprise cloud computing services. Platform access is considered a monthly series comprising of one performance obligation and usage-based fees are recognized as revenue in the period in which the usage occurs. In the years ended December 31, 2021, 2020 and 2019, the revenue from usage-based fees represented 72%, 76% and 75% of total revenue, respectively.

Subscription-based fees are derived from certain non-usage-based contracts, such as those for the sales of short codes, customer support and fees charged to access the cloud-based platform of Segment io, Inc. (“Segment”), which the Company acquired in 2020 as further described in Note 7. Non-usage-based contracts revenue is recognized on a ratable basis over the contractual term which is generally between one to three years. In the years ended December 31, 2021, 2020 and 2019, the revenue from non-usage-based fees represented 28%, 24%, and 25% of total revenue, respectively.

No significant judgments are required in determining whether products and services are considered distinct performance obligations and should be accounted for separately versus together, or to determine the stand-alone selling price (“SSP”).

The Company's arrangements do not contain general rights of return. However, credits may be issued on a case-by-case basis. The contracts do not provide customers with the right to take possession of the software supporting the applications. Amounts that have been invoiced are recorded in accounts receivable and in revenue or deferred revenue depending on whether the revenue recognition criteria have been met.

Remaining Performance Obligations

Revenue allocated to remaining performance obligations represents unearned revenue and amounts that were and will be invoiced and recognized as revenue in future periods for non-cancelable multi-year subscription arrangements. The Company applies the optional exemption of not disclosing the transaction price allocated to the remaining performance obligations for its usage-based contracts and contracts with original duration of one year or less. Revenue allocated to remaining performance obligations for contracts with durations of more than one year was $154.2 million as of December 31, 2021, of which 62% is expected to be recognized over the next 12 months and 92% is expected to be recognized over the next 24 months.

(f) Deferred Revenue and Customer Deposits

Deferred revenue is recorded when a non-cancellable contractual right to bill exists or when cash payments are received in advance of future usage on non-cancelable contracts. Customer refundable prepayments are recorded as customer deposits. As of December 31, 2021 and 2020, the Company recorded $141.5 million and $87.2 million as its deferred revenue and customer deposits, respectively, that are included in deferred revenue and customer deposits and other long-term liabilities in the accompanying consolidated balance sheets. During the years ended December 31, 2021, 2020 and 2019, the Company recognized $70.1 million, $19.5 million and $18.7 million of revenue, respectively, that was included in the deferred revenue and customer deposits balance as of the end of the previous year.

(g) Deferred Sales Commissions

The Company records an asset for the incremental costs of obtaining a contract with a customer, for example, sales commissions that are earned upon execution of contracts. The Company uses the portfolio of data method to determine the estimated period of benefit of capitalized commissions which is generally determined to be up to five years. Amortization expense related to these capitalized costs related to initial contracts, upsells and renewals, is recognized on a straight line basis over the estimated period of benefit of the capitalized commissions. The Company applies the optional exemption of expensing these costs as incurred with amortization periods of one year or less.

Total net capitalized costs as of December 31, 2021 and 2020, were $193.4 million and $85.6 million, respectively, and are included in prepaid expenses and other current assets and other long-term assets in the accompanying consolidated balance sheets. Amortization of these assets was $31.5 million, $13.3 million and $4.5 million in the years ended December 31, 2021, 2020 and 2019, respectively, and is included in sales and marketing expense in the accompanying consolidated statements of operations.

(h) Cost of Revenue

Cost of revenue consists primarily of costs of communications services purchased from network service providers. Cost of revenue also includes fees to support the Company's cloud infrastructure, direct costs of personnel, such as salaries and stock-based compensation for the customer care and support services employees, and non-personnel costs, such as amortization of capitalized internal-use software development costs and amortization of acquired intangibles.

(i) Research and Development Expense

Research and development expenses consist primarily of personnel costs, cloud infrastructure fees for staging and development, outsourced engineering services, amortization of capitalized internal-use software development costs and an allocation of general overhead expenses. The Company capitalizes the portion of its software development costs that meets the criteria for capitalization.

(j) Internal-Use Software Development Costs

Certain costs of platform and other software applications developed for internal use are capitalized. The Company capitalizes qualifying internal-use software development costs that are incurred during the application development stage. Capitalization of costs begins when two criteria are met: (i) the preliminary project stage is completed and (ii) it is probable that the software will be completed and used for its intended function. Capitalization ceases when the software is substantially complete and ready for its intended use, including the completion of all significant testing. The Company also capitalizes costs related to specific upgrades and enhancements when it is probable the expenditures will result in additional functionality. Costs incurred for maintenance, minor upgrades and enhancements are expensed. Costs related to preliminary project activities and post-implementation operating activities are also expensed as incurred.

Capitalized costs of platform and other software applications are included in property and equipment. These costs are amortized over the estimated useful life of the software on a straight-line basis over three years. Management evaluates the useful life of these assets on an annual basis and tests for impairment whenever events or changes in circumstances occur that could impact the recoverability of these assets. The amortization of costs related to the platform applications is included in cost of revenue, while the amortization of costs related to other software applications developed for internal use is included in operating expenses.

(k) Advertising Costs

Advertising costs are expensed as incurred and were $78.8 million, $47.2 million and $27.0 million in the years ended December 31, 2021, 2020 and 2019, respectively. Advertising costs are included in sales and marketing expenses in the accompanying consolidated statements of operations.

(l) Stock-Based Compensation

All stock-based compensation to employees, including the purchase rights issued under the Company's 2016 Employee Stock Purchase Plan (the “ESPP”), is measured on the grant date based on the fair value of the awards on the date of grant. These costs are recognized as an expense following straight-line attribution method over the requisite service period. The Company uses the Black-Scholes option pricing model to measure the fair value of its stock options and the purchase rights issued under the ESPP. The fair value of the restricted stock units is determined using the fair value of the Company's Class A common stock on the date of grant and recognized as an expense following straight-line attribution method over the requisite service period. Forfeitures are recorded in the period in which they occur.

Compensation expense for stock options granted to nonemployees is calculated using the Black-Scholes option pricing model and is recognized in expense over the service period.

The Black-Scholes option pricing model requires the use of complex assumptions, which determine the fair value of stock options and the purchase rights issued under ESPP. These assumptions include:

- *Fair value of the common stock.* The Company uses the market closing price of its Class A common stock, as reported on the New York Stock Exchange, for the fair value.

- *Expected term.* The expected term represents the period that the stock option or the purchase right is expected to be outstanding. The Company uses the simplified calculation of expected term, which reflects the weighted-average time-to-vest and the contractual life of the stock option or the purchase right;

- *Expected volatility.* Prior to July 1, 2021, the expected volatility was derived from an average of the historical volatilities of the Class A common stock of the Company and several other entities with characteristics similar to those of the Company, such as the size and operational and economic similarities to the Company's principal business operations. Beginning with the third quarter 2021, the expected volatility was derived from the average of the historical volatilities of the Class A common stock of the Company.

- *Risk -free interest rate.* The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant for zero coupon U.S. Treasury notes with maturities approximately equal to the expected term of the stock-based awards; and

- *Expected dividend.* The expected dividend is assumed to be zero as the Company has never paid dividends and has no current plans to pay any dividends on its common stock.

If any of the assumptions used in the Black-Scholes model changes, stock-based compensation for future options may differ materially compared to that associated with previous grants.

Income Taxes

The Company accounts for income taxes in accordance with authoritative guidance which requires the use of the asset and liability approach. Deferred tax assets and liabilities are recognized for future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases, as well as net operating loss and tax credit carry-forwards. Deferred tax amounts are determined by using the enacted tax rates expected to be in effect when the temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. A valuation allowance reduces the deferred tax assets to the amount that is more likely than not to be realized.

The Company recognizes the effect of uncertain income tax positions only if those positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount that is greater than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs.

The Company records interest and penalties related to uncertain tax positions in the provision for income taxes in the consolidated statements of operations.

(m) Foreign Currency Translation

The functional currency of the Company's foreign subsidiaries is generally the U.S. dollar. Accordingly, the subsidiaries remeasure monetary assets and liabilities at period-end exchange rates, while non-monetary items are remeasured at historical rates. Revenue and expense accounts are remeasured at the average exchange rate in effect during the year. Remeasurement adjustments are recognized in the consolidated statements of operations as other income or expense in the year of occurrence. Foreign currency transaction gains and losses were insignificant for all periods presented.

For those entities where the functional currency is a foreign currency, adjustments resulting from translating the financial statements into U.S. dollars are recorded as a component of accumulated other comprehensive (loss) income in stockholders' equity. Monetary assets and liabilities denominated in a foreign currency are translated into U.S. dollars at the exchange rate on the balance sheet date. Revenue and expenses are translated at the weighted average exchange rates during the period. Equity transactions are translated using historical exchange rates. Foreign currency transaction gains and losses are included in other (expenses) income, net in the consolidated statements of operations.

(n) Comprehensive Loss

Comprehensive loss refers to net loss and other revenue, expenses, gains and losses that, under generally accepted accounting principles, are recorded as an element of stockholders' equity but are excluded from the calculation of net loss.

(o) Net Loss Per Share Attributable to Common Stockholders

The Company calculates its basic and diluted net loss per share attributable to common stockholders in conformity with the two-class method required for companies with participating securities. The Company has 100,000,000 shares of preferred stock that was authorized but never issued or outstanding.

Class A and Class B common stock are the only outstanding equity of the Company. The rights of the holders of Class A and Class B common stock are identical, except with respect to voting and conversion. Each share of Class A common stock is entitled to one vote per share and each share of Class B common stock is entitled to 10 votes per share. Shares of Class B common stock may be converted into Class A common stock at any time at the option of the stockholder on a one-for-one basis, and are automatically converted into Class A common stock upon sale or transfer, subject to certain limited exceptions. Shares of Class A common stock are not convertible.

The Company also has dilutive securities, such as potential or restricted common shares or common stock equivalents, that were excluded from the calculation of diluted net loss per share attributable to common stockholders as their effect is antidilutive. These securities are presented in Note 16 to these consolidated financial statements.

(p) Cash and Cash Equivalents

The Company considers all highly liquid investments with an original maturity of three months or less when purchased to be cash equivalents. Cash equivalents consist of cash deposited into money market funds and commercial paper. All credit and debit card transactions that process as of the last day of each month and settle within the first few days of the subsequent month are also classified as cash and cash equivalents as of the end of the month in which they were processed.

(q) Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are recorded net of the allowance for doubtful accounts. The allowance for doubtful accounts is estimated based on the Company's assessment of its ability to collect on customer accounts receivable. The Company regularly reviews the allowance by considering certain factors such as historical experience, credit quality, age of accounts receivable balances and other known conditions that may affect a customer's ability to pay. In cases where the Company is aware of circumstances that may impair a specific customer's ability to meet their financial obligations, a specific allowance is recorded against amounts due from the customer which reduces the net recognized receivable to the amount the Company reasonably believe will be collected. The Company writes-off accounts receivable against the allowance when a determination is made that the balance is uncollectible and collection of the receivable is no longer being actively pursued. As of December 31, 2021 and 2020, the allowance for doubtful accounts was not significant to the accompanying consolidated balance sheets.

(r) Costs Related to Public Offerings

Costs related to public offerings, which consist of direct incremental legal, printing and accounting fees are deferred until the offering is completed. Upon completion of the offering, these costs are offset against the offering proceeds within the consolidated statements of stockholders' equity.

(s) Property and Equipment

Property and equipment, both owned and under finance leases, is stated at cost less accumulated depreciation and amortization. Depreciation is computed using the straight-line method over the estimated useful life of the related asset. Maintenance and repairs are charged to expenses as incurred.

The useful lives of property and equipment are as follows:

Capitalized internal-use software development costs	3 years
Data center equipment	2 - 4 years
Office equipment	3 years
Furniture and fixtures	5 years
Software	3 years
Assets under financing lease	5 years or remaining lease term
Leasehold improvements	5 years or remaining lease term

(t) Leases

The Company determines if an arrangement is or contains a lease at contract inception. The Company presents the operating leases in long-term assets and current and long-term liabilities. Finance lease assets are included in property and equipment, net, and finance lease liabilities are presented in current and long-term liabilities in the accompanying consolidated balance sheets.

Right-of-use (“ROU”) assets represent the Company’s right to use an underlying asset for the lease term and lease liabilities represent the Company’s obligation to make lease payments arising from the lease. Operating lease ROU assets and lease liabilities are measured and recognized at the lease commencement date based on the present value of the remaining lease payments over the lease term. As the Company’s leases do not generally provide an implicit rate, the Company uses its incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. The Company’s lease agreements may have lease and non-lease components, which the Company accounts for as a single lease component. When estimating the lease term, the Company includes options to extend or terminate the lease when it is reasonably certain such options will be exercised. Operating lease costs are recognized in operating expenses in the accompanying consolidated statements of operations on a straight-line basis over the lease term and variable payments are recognized in the period they are incurred. The Company’s lease agreements do not contain any residual value guarantees. Leases with an initial term of 12 months or less are not recorded on the balance sheet.

Within the consolidated statements of cash flows, the Company presents the lease payments made on the operating leases as cash flows from operations and principal payments made on the finance leases as part of financing activities.

(u) Intangible Assets

Intangible assets recorded by the Company are costs directly associated with securing legal registration of patents and trademarks, acquiring domain names and the fair value of identifiable intangible assets acquired in business combinations.

Intangible assets with determinable economic lives are carried at cost, less accumulated amortization. Amortization is computed over the estimated useful life of each asset on a straight-line basis. The Company determines the useful lives of identifiable intangible assets after considering the specific facts and circumstances related to each intangible asset. Factors the Company considers when determining useful lives include the contractual term of any agreement related to the asset, the historical performance of the asset, the Company's long-term strategy for using the asset, any laws or other local regulations which could impact the useful life of the asset and other economic factors, including competition and specific market conditions. Intangible assets without determinable economic lives are carried at cost, not amortized and reviewed for impairment at least annually.

The useful lives of the intangible assets are as follows:

Developed technology	3 - 7 years
Customer relationships	2 - 10 years
Supplier relationships	2 - 5 years
Trade names	5 years
Order backlog	1 year
Patents	20 years
Telecommunication licenses	Indefinite
Trademarks	Indefinite
Domain names	Indefinite

(v) Goodwill

Goodwill represents the excess of the aggregate purchase price over the fair value of net identifiable assets acquired in a business combination. Goodwill is not amortized and is tested for impairment at least annually or whenever events or changes in circumstances indicate that the carrying value may not be recoverable. The Company has determined that it operates as one reporting unit and has selected November 30 as the date to perform its annual impairment test. In the valuation of goodwill, management must make assumptions regarding estimated future cash flows to be derived from the Company's business. If these estimates or their related assumptions change in the future, the Company may be required to record impairment for these assets.

The Company has the option to first perform a qualitative assessment to determine if it is more likely than not that the fair value of a reporting unit is less than its carrying amount. However, the Company may elect to bypass the qualitative assessment and proceed directly to the quantitative impairment tests. The impairment test involves comparing the fair value of the reporting unit to its carrying value, including goodwill. A goodwill impairment will be the amount by which a reporting unit’s carrying value exceeds its fair value. The impairment is limited to the carrying amount of goodwill.

No goodwill impairment charges have been recorded for any period presented.

(w) Derivatives and Hedging

The Company is exposed to a wide variety of risks arising from its business operations and overall economic conditions. These risks include exposure to fluctuations in various foreign currencies against its functional currency and can impact the value of cash receipts and payments. The Company minimizes its exposure to these risks through management of its core business activities, specifically, the amounts, sources and duration of its assets and liabilities, and the use of derivative financial instruments. During 2021, the Company started using foreign currency derivative forward contracts and in the future may also use foreign currency option contacts.

Foreign currency derivative forward contracts involve fixing the exchange rate for delivery of a specified amount of foreign currency on a specified date. These agreements are typically cash settled in U.S. dollars for their fair value at or close to their settlement date. Foreign currency option contracts will require the Company to pay a premium for the right to sell a specified amount of foreign currency prior to the maturity date of the option. The Company does not enter into derivative financial instruments trading for speculative purposes.

Derivative instruments are carried at fair value and recorded as either an asset or a liability until they mature. Gains and losses resulting from changes in fair value of these instruments are accounted for depending on the use of the derivative and whether it is designated and qualifies for hedge accounting. For derivative instruments designated as cash flow hedges, gains or losses are initially recorded in other comprehensive income (“OCI”) in the balance sheet, then reclassified into the statement of operations in the period in which the derivative instruments mature. These realized gains and losses are recorded within the same financial statement line item as the hedged transaction.

The Company’s foreign currency derivative contracts are classified within Level 2 of the fair value hierarchy because the valuation inputs are based on quoted prices and market observable data of similar instruments in active markets, such as currency spot and forward rates.

(x) Impairment of Long-Lived Assets

The Company evaluates its long-lived assets, including property, equipment and intangible assets, for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets held and used is measured by a comparison of the carrying amount of an asset or an asset group to estimated undiscounted future net cash flows expected to be generated by the asset or asset group. If such evaluation indicates that the carrying amount of the asset or the asset group is not recoverable, any impairment loss would be equal to the amount the carrying value exceeds the fair value. There were no impairments during the years ended December 31, 2021, 2020 and 2019.

(y) Business Combinations

The Company recognizes identifiable assets acquired and liabilities assumed at their acquisition date fair values. Goodwill is measured as the excess of the consideration transferred over the fair value of assets acquired and liabilities assumed on the acquisition date. While the Company uses its best estimates and assumptions as part of the purchase price allocation process to accurately value assets acquired and liabilities assumed, these estimates are inherently uncertain and subject to refinement. The authoritative guidance allows a measurement period of up to one year from the date of acquisition to make adjustments to the preliminary allocation of the purchase price. As a result, during the measurement period the Company may record adjustments to the fair values of assets acquired and liabilities assumed, with the corresponding offset to goodwill to the extent that it identifies adjustments to the preliminary purchase price allocation. Upon conclusion of the measurement period or final determination of the values of the assets acquired and liabilities assumed, whichever comes first, any subsequent adjustments will be recorded to the consolidated statement of operations.

(z) Segment Information

The Company's Chief Executive Officer is the chief operating decision maker, who reviews the Company's financial information presented on a consolidated basis for purposes of allocating resources and evaluating the Company's financial performance. Accordingly, the Company has determined that it operates in a single reporting segment.

(aa) Fair Value of Financial Instruments

The accounting guidance for fair value provides a framework for measuring fair value, clarifies the definition of fair value, and expands disclosures regarding fair value measurements. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date. The accounting guidance establishes a three-tiered hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value as follows:

- Level 1 Inputs: Unadjusted quoted prices in active markets for identical assets or liabilities accessible to the reporting entity at the measurement date.
- Level 2 Inputs: Other than quoted prices included in Level 1 inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the asset or liability.
- Level 3 Inputs: Unobservable inputs for the asset or liability used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at measurement date.

A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

The Company applies fair value accounting for all financial instruments on a recurring basis. The Company's financial instruments, which include cash, restricted cash, cash equivalents, accounts receivable and accounts payable are recorded at their carrying amounts, which approximate their fair values due to their short-term nature. Marketable securities consist of U.S. treasury securities, non-U.S government securities, high credit quality corporate debt securities and commercial paper. All marketable securities are considered to be available-for-sale and recorded at their estimated fair values. Unrealized gains and losses for available-for-sale securities are recorded in other comprehensive loss. In valuing these items, the Company uses inputs and assumptions that market participants would use to determine their fair value, utilizing valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs.

The fair value of the senior notes due 2031 and 2029 (“2029 Notes” and “2031 Notes,” respectively) and the fair value of the convertible senior notes due 2023 (the “Convertible Notes” fully redeemed in 2021) are determined based on their respective closing prices on the last trading day of the reporting period and are classified as Level 2 in the fair value hierarchy.

The carrying value of the strategic investments, which consist of restricted equity securities of a publicly held company and equity securities of privately held companies, is determined under the measurement alternative on a non-recurring basis adjusting for observable changes in fair value. The Company does not have a controlling interest nor can it exercise significant influence over any of these entities.

The Company regularly reviews changes to the rating of its debt securities by rating agencies and monitors the surrounding economic conditions to assess the risk of expected credit losses. As of December 31, 2021, the risk of expected credit losses was not significant.

Impairments are considered to be other than temporary if they are related to deterioration in credit risk or if it is likely that the security will be sold before the recovery of its cost basis. Realized gains and losses and declines in value deemed to be other than temporary are determined based on the specific identification method and are reported in other (expenses) income, net.

(ab) Recently Issued Accounting Guidance, Not yet Adopted

In October 2021, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2021-08, “Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers,” which requires that an entity recognize and measure contract assets and contract liabilities acquired in a business combination in accordance with ASC 606, "Revenue from Contracts with Customers". At the acquisition date, an acquirer should account for the related revenue contracts as if it had originated the contracts. Generally, this should result in an acquirer recognizing and measuring the acquired contact assets and contract liabilities consistent with how they were recognized and measured in the acquiree's financial statements, assuming the acquirer is able to assess and rely on how the acquiree applied ASC 606. ASU 2021-08 is effective for interim and annual periods beginning after December 15, 2022, with early adoption permitted. The Company expects to adopt ASU 2021-08 in the first quarter of 2022 with no material impact on the Company's consolidated financial statements.

3. Fair Value Measurements

Financial Assets

The following tables provide the financial assets measured at fair value on a recurring basis:

	Amortized Cost or Carrying Value	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value Hierarchy as of December 31, 2021			Aggregate Fair Value
				Level 1	Level 2	Level 3	
Financial Assets:				(In thousands)			
Cash and cash equivalents:							
Money market funds	$ 786,548	$ —	$ —	$ 786,548	$ —	$ —	$ 786,548
Commercial paper	46,076	—	—	—	46,076	—	46,076
Total included in cash and cash equivalents	832,624	—	—	786,548	46,076	—	832,624
Marketable securities:							
U.S. Treasury securities	375,305	6	(2,561)	372,750	—	—	372,750
Non-U.S. government securities	221,641	—	(1,355)	220,286	—	—	220,286
Corporate debt securities and commercial paper	3,300,326	960	(15,892)	31,000	3,254,394	—	3,285,394
Total marketable securities	3,897,272	966	(19,808)	624,036	3,254,394	—	3,878,430
Total financial assets	$ 4,729,896	$ 966	$ (19,808)	$ 1,410,584	$ 3,300,470	$ —	$ 4,711,054

	Amortized Cost or Carrying Value	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value Hierarchy as of December 31, 2020			Aggregate Fair Value
				Level 1	Level 2	Level 3	
Financial Assets:				(In thousands)			
Cash and cash equivalents:							
Money market funds	$ 656,749	$ —	$ —	$ 656,749	$ —	$ —	$ 656,749
Commercial paper	2,000	—	—	—	2,000	—	2,000
Total included in cash and cash equivalents	658,749	—	—	656,749	2,000	—	658,749
Marketable securities:							
U.S. Treasury securities	223,247	389	(1)	223,635	—	—	223,635
Corporate debt securities and commercial paper	1,874,257	8,149	(135)	50,000	1,832,271	—	1,882,271
Total marketable securities	2,097,504	8,538	(136)	273,635	1,832,271	—	2,105,906
Total financial assets	$ 2,756,253	$ 8,538	$ (136)	$ 930,384	$ 1,834,271	$ —	$ 2,764,655

The Company's primary objective when investing excess cash is preservation of capital, hence the Company's marketable securities primarily consist of U.S. Treasury Securities, non-U.S government securities, high credit quality corporate debt securities and commercial paper. As the Company views its marketable securities as available to support current operations, it has classified all available for sale securities as short-term. As of December 31, 2021 and 2020, for fixed income securities that were in unrealized loss positions, the Company has determined that (i) it does not have the intent to sell any of these investments, and (ii) it is not more likely than not that it will be required to sell any of these investments before recovery of the entire amortized cost basis. In addition, as of December 31, 2021 and 2020, the Company anticipates that it will recover the entire amortized cost basis of such fixed income securities before maturity.

Interest earned on marketable securities was $55.7 million, $32.4 million and $20.8 million in the years ended December 31, 2021, 2020 and 2019, respectively. The interest is recorded as other (expenses) income, net, in the accompanying consolidated statements of operations.

The following table summarizes the contractual maturities of marketable securities:

	As of December 31, 2021		As of December 31, 2020	
	Amortized Cost	Aggregate Fair Value	Amortized Cost	Aggregate Fair Value
Financial Assets:		(In thousands)		
Less than one year	$ 1,084,751	$ 1,085,006	$ 1,126,091	$ 1,128,927
One to three years	2,812,521	2,793,424	971,413	976,979
Total	$ 3,897,272	$ 3,878,430	$ 2,097,504	$ 2,105,906

Strategic Investments

As of December 31, 2021 and 2020, the Company held strategic investments with a carrying value of $68.3 million and $9.3 million, respectively. These securities are recorded as other long-term assets in the accompanying consolidated balance sheets. There were no impairments or other adjustments recorded in the years ended December 31, 2021 and 2020 related to these securities.

Financial Liabilities

The Company’s financial liabilities that are measured at fair value on a recurring basis consist of foreign currency derivative liabilities and are classified as Level 2 financial instruments in the fair value hierarchy. As of December 31, 2021, the aggregate fair value of these instruments and the associated gross unrealized losses were not significant.

The Company’s financial liabilities that are not measured at fair value on a recurring basis consist of its 2029 Notes and 2031 Notes, respectively. The Company’s Convertible Notes were fully redeemed in June 2021 and were no longer outstanding as of December 31, 2021. Refer to Note 10 for further details on these financial liabilities.

As of December 31, 2021 the fair values of the 2029 Notes and 2031 Notes were $510.2 million and $512.8 million, respectively. As of December 31, 2020, the fair value of the Convertible Notes was $1.7 billion.

4. Property and Equipment

Property and equipment consisted of the following:

	As of December 31,	
	2021	2020
	(In thousands)	
Capitalized internal-use software development costs	$ 198,589	$ 142,489
Data center equipment [(1)]	77,946	43,477
Leasehold improvements	85,297	69,756
Office equipment	58,636	35,346
Furniture and fixtures	15,360	12,312
Software	10,506	9,943
Total property and equipment	446,334	313,323
Less: accumulated depreciation and amortization [(1)]	(191,018)	(130,084)
Total property and equipment, net	$ 255,316	$ 183,239

[(1)] Data center equipment contains $63.0 million and $40.8 million in assets held under finance leases as of December 31, 2021 and 2020, respectively. Accumulated depreciation and amortization contains $26.8 million and $15.0 million in accumulated amortizations for assets held under finance leases as of December 31, 2021 and 2020, respectively.

Depreciation and amortization expense was $59.6 million, $51.1 million and $37.5 million for the years ended December 31, 2021, 2020 and 2019, respectively.

The Company capitalized $63.1 million, $47.1 million and $29.7 million in internal-use software development costs in the years ended December 31, 2021, 2020 and 2019, respectively.

5. Derivatives and Hedging

As of December 31, 2021, the Company had outstanding foreign currency forward contracts designated as cash flow hedges with total sell and buy notional values of $276.2 million and $243.1 million, respectively. The notional value represents the amount that will be purchased or sold upon maturity of the forward contract. As of December 31, 2021, these contracts had maturities of less than 12 months.

Gains and losses associated with these foreign currency forward contracts were as follows:

	Consolidated Statement of Operations and Statement of Comprehensive Loss	Year Ended December 31,
		2021
		(In thousands)
Gains recognized in OCI	Net change in market value of effective foreign currency forward exchange contracts	$
Losses recognized in income due to instruments maturing	Cost of revenue	$

The Company is subject to master netting agreements with certain counterparties of the foreign exchange contracts, under which it is permitted to net settle transactions of the same currency with a single net amount payable by one party to the other. It is the Company’s policy to present the derivatives at gross in its consolidated balance sheet. The Company’s foreign currency forward contracts are not subject to any credit contingent features or collateral requirements. The Company manages its exposure to counterparty risk by entering into contracts with a diversified group of major financial institutions and by actively monitoring its outstanding positions. As of December 31, 2021, the Company did not have any offsetting arrangements.

6. Right-of-Use Assets and Lease Liabilities

The Company has entered into various operating lease agreements for office space and data centers and finance lease agreements for data center and office equipment and furniture.

As of December 31, 2021, the Company had 31 leased properties with remaining lease terms of 0.1 years to 7.8 years, some of which include options to extend the leases for up to 5.0 years.

Operating lease costs recorded in the accompanying consolidated statements of operations were $61.0 million and $49.3 million for the year ended December 31, 2021 and 2020, respectively. Short-term lease, variable lease and finance lease costs were not significant.

Supplemental cash flow and other information related to operating leases was as follows:

	Year Ended December 31,	
	2021	2020
Operating cash flows paid for amounts included in operating lease liabilities (in thousands)	$ 60,085	$ 46,895
Weighted average remaining lease term (in years)	5.5	6.0
Weighted average discount rate	4.5 %	4.8 %

Maturities of operating lease liabilities were as follows:

	As of December 31, 2021
Year Ended December 31,	(In thousands)
2022	$ 63,086
2023	57,173
2024	50,742
2025	37,621
2026	34,827
Thereafter	54,760
Total lease payments	298,209
Less: imputed interest	(34,631)
Total operating lease obligations	263,578
Less: current obligations	(52,325)
Long-term operating lease obligations	$ 211,253

7. Business Combinations

Zipwhip, Inc.

In July 2021, the Company acquired all outstanding shares of Zipwhip, Inc. (“Zipwhip”), a leading provider of toll-free messaging in the United States, for a purchase price, as adjusted, of $838.8 million. The purchase price included $418.1 million of cash, $419.2 million fair value of 1.1 million shares of the Company's Class A common stock and $1.5 million fair value of the pre-combination services of Zipwhip employees reflected in the unvested equity awards assumed by the Company at closing. Additionally, at closing, the Company issued 59,533 shares of its Class A common stock which are subject to vesting over a period of 3 years. Vesting of these shares will be recorded in the stock-based compensation expense as the services are provided..

Part of the cash consideration paid at closing was to settle the vested equity awards of Zipwhip employees. The Company assumed all unvested and outstanding equity awards of Zipwhip continuing employees, as converted into its own equity awards, at the conversion ratio provided in the Agreement and Plan of Merger and Reorganization (the “Zipwhip Merger Agreement”). This transaction also included a $19.1 million of additional cash consideration for certain employees, which will vest as these employees provide services in the post-acquisition period. This amount will be recorded in the operating expenses over a period of 3 years as the services are provided.

The acquisition was accounted for as a business combination and the total purchase price of $838.8 million was allocated to the net tangible and intangible assets and liabilities based on their fair values on the acquisition date with the excess recorded as goodwill. These estimates were derived from information currently available. The determination of the fair values and estimated lives of depreciable tangible and identifiable intangible assets requires significant judgment. As of December 31, 2021, the areas that are not yet finalized include contingencies and income and other taxes.

The fair value of the 1.2 million aggregate number of shares of the Company's Class A common stock issued at closing was determined based on the closing market price of the Company's Class A common stock on the acquisition date. The fair value of the $30.7 million unvested equity awards assumed on the acquisition closing date was determined (a) for options, by using the Black-Scholes option pricing model with the applicable assumptions as of the acquisition date; (b) for restricted stock units, by using the closing market price of the Company's Class A common stock on the acquisition date. These awards will continue to vest as Zipwhip employees continue to provide services in the post-acquisition period. The fair value of these awards will be recorded into the stock-based compensation expense over the respective vesting period of each award.

The purchase price components, as adjusted, are summarized in the following table:

	Total
	(In thousands)
Fair value of Class A common stock transferred	$ 419,197
Cash consideration	418,073
Fair value of the pre-combination service through equity awards	1,511
Total purchase price	$ 838,781

The following table presents the purchase price allocation, as adjusted, recorded in the Company's consolidated balance sheet as of December 31, 2021:

	Total
	(In thousands)
Cash and cash equivalents	$ 21,610
Accounts receivable and other current assets	11,481
Property and equipment, net	2,950
Operating right-of-use asset	23,545
Intangible assets [1]	244,500
Other assets	370
Goodwill	600,403
Accounts payable and other liabilities	(20,239)
Deferred revenue	(4,526)
Operating lease liability, noncurrent	(23,169)
Deferred tax liability	(18,144)
Total purchase price	$ 838,781

(1) Identifiable intangible assets are comprised of the following:

	Total	Estimated life
	(In thousands)	(In years)
Developed technology	$ 56,800	7
Customer relationships	147,700	10
Supplier relationships	39,600	5
Trade names	400	5
Total intangible assets acquired	$ 244,500	

Goodwill generated from this acquisition primarily represents the value that is expected from the increased scale and synergies as a result of the integration of both businesses. Goodwill is not deductible for tax purposes.

The estimated fair value of the intangible assets acquired was determined by the Company. The Company engaged a third-party expert to assist with the valuation analysis. The Company used a relief-from-royalty method to estimate the fair values of the developed technology and trade names, a multi-period excess earnings method to estimate the fair values of customer relationships and a with-and-without method to estimate the fair value of the supplier relationships.

Most of the net tangible assets were valued at their respective carrying amounts as of the acquisition date as the Company believes that these amounts approximate their current fair values, except for operating right-of-use assets. The value of the acquired operating right-of-use assets was reduced to its respective fair value on the acquisition date.

The acquired entity's results of operations were included in the Company's consolidated financial statements from the date of acquisition, July 14, 2021. For the year ended December 31, 2021, Zipwhip contributed net operating revenue of $55.4 million, which is reflected in the accompanying consolidated statement of operations. Due to the integrated nature of the Company's operations, the Company believes that it is not practicable to separately identify earnings of Zipwhip on a stand-alone basis. Pro forma results of operations for this acquisition are not presented as the financial impact to the Company's consolidated financial statements is not significant.

Costs incurred related to the acquisition were not significant.

Other Fiscal 2021 Acquisitions

During 2021, the Company completed other business combinations for an aggregate purchase price of $105.0 million, of which $13.4 million was allocated to developed technology, $23.6 million was allocated to other intangible assets and $63.2 million was allocated to goodwill.

Fiscal 2020 Acquisitions

Segment.io, Inc.

In November 2020, the Company acquired all outstanding shares of Segment, the market-leading customer data platform, by issuing 9.5 million shares of its Class A common stock with a fair value of $2.6 billion and $415.9 million in cash, as adjusted. Of the total shares of Class A common stock issued at closing, 258,554 shares with the fair value of $70.7 million were subject to future vesting and are recorded in the stock-based compensation expense as the services are provided. The total amortization period was over 2.41 years from the date of acquisition. Part of the cash consideration was paid to settle the vested equity awards of Segment employees. The Company assumed all unvested and outstanding equity awards of Segment continuing employees as converted into its own equity awards at the conversion ratio provided in the Agreement and Plan of Reorganization (the "Merger Agreement").

The acquisition added additional products and services to the Company's offerings for its customers. With these additional products, the Company can now offer a customer engagement platform. The acquisition has also added new customers, new employees, technology and intellectual property assets.

The acquisition was accounted for as a business combination and the total purchase price of $3.0 billion, as adjusted, was allocated to the net tangible and intangible assets and liabilities based on their fair values on the acquisition date with the excess recorded as goodwill.

The purchase price, as adjusted, reflected the $2.5 billion fair value of 9.3 million shares of the Company's Class A common stock transferred as consideration for accredited outstanding shares of Segment, the $415.9 million cash consideration for unaccredited shares and vested equity awards and the $39.0 million fair value of the pre-combination services of Segment employees reflected in the unvested equity awards assumed by the Company on the acquisition date. As of December 31, 2021, 150,824 shares of Class A common stock issued at closing with future vesting was held in escrow.

The fair value of the 9.5 million shares of the Company's Class A common stock issued at closing was determined based on its closing price on the acquisition date. The fair value of the assumed unvested equity awards was determined (a) for options, by using a Black-Scholes option pricing model with the applicable assumptions as of the acquisition date, and (b) for restricted stock units, by using the closing market price of the Company's Class A common stock on the acquisition date.

The fair value of unvested employee equity awards assumed on the acquisition date was $245.3 million. These awards continue to vest as the Segment employees provide services in the post-acquisition period. The fair value of these awards is recorded in the stock-based compensation expense over the respective vesting period of each award.

The purchase price components, as adjusted, are summarized in the following table:

	Total
	(In thousands)
Fair value of Class A common stock transferred	$ 2,532,329
Cash consideration	415,899
Fair value of the pre-combination service through equity awards	38,972
Total purchase price	$ 2,987,200

The following table presents the purchase price allocation, as adjusted:

	Total
	(In thousands)
Cash and cash equivalents	$ 93,170
Accounts receivable and other current assets	90,635
Property and equipment, net	5,081
Operating right-of-use asset	53,630
Intangible assets [(1)]	595,000
Other assets	4,869
Goodwill	2,299,016
Accounts payable and other liabilities	(24,263)
Deferred revenue	(50,005)
Operating lease liability	(58,206)
Deferred tax liability	(21,728)
Total purchase price	$ 2,987,200

[(1)] Identifiable intangible assets are comprised of the following:

	Total	Estimated life
	(In thousands)	(In years)
Developed technology	$ 390,000	7
Customer relationships	190,000	6
Order backlog	10,000	1
Trade names	5,000	5
Total intangible assets acquired	$ 595,000	

Developed technology consists of software products and domain knowledge around customer data developed by Segment, which will enable Twilio to layer data across its platform to power timely and personalized communications over the right channel, further enhancing the Company's customer engagement platform. Customer relationships consists of contracts with platform users that purchase Segment’s products and services that carry distinct value.

Goodwill generated from this acquisition primarily represents the value that is expected from the increased scale and synergies as a result of the integration of both businesses. Goodwill is not deductible for tax purposes.

The estimated fair value of the intangible assets acquired was determined by the Company. The Company engaged a third-party expert to assist with the valuation analysis. The Company used a relief from royalty method to estimate the fair values of the developed technology and a multi-period excess earnings method to estimate the fair value of the customer relationships and order backlog.

Most of the net tangible assets were valued at their respective carrying amounts as of the acquisition date, as the Company believes that these amounts approximate their current fair values, except for operating right-of-use assets, which were reduced to their respective fair values as of the acquisition date.

The acquired entity's results of operations were included in the Company's consolidated financial statements from the date of acquisition, November 2, 2020. For the year ended December 31, 2021, Segment contributed net operating revenue of $200.9 million, which is reflected in the accompanying consolidated statement of operations. Due to the integrated nature of the Company's operations, the Company believes that it is not practicable to separately identify earnings of Segment on a stand-alone basis.

During the year ended December 31, 2020, the Company incurred costs related to this acquisition of $20.8 million that were expensed as incurred and recorded in general and administrative expenses in the accompanying consolidated statement of operations.

The following unaudited pro forma condensed combined financial information gives effect to the acquisition of Segment as if it was consummated on January 1, 2019 (the beginning of the comparable prior reporting period), and includes pro forma adjustments related to the amortization of acquired intangible assets, share-based compensation expense, one-time tax benefit and direct and incremental transaction costs reflected in the historical financial statements. Specifically, the following adjustments were made:

- For the year ended December 31, 2020, the Company's and Segment's direct and incremental transaction costs of $79.3 million are excluded from the pro forma condensed combined net loss.
- For the year ended December 31, 2019, the Company's direct and incremental transaction costs of $20.8 are included in the pro forma condensed combined net loss.
- In the year ended December 31, 2020, the pro forma condensed combined net loss includes a reversal of the valuation allowance release of $13.8 million.
- In the year ended December 31, 2019, the pro forma condensed combined net loss includes a one-time tax benefit of $38.1 that would have resulted from the acquisition, and an ongoing tax benefit of $7.5 million.

This unaudited data is presented for informational purposes only and is not intended to represent or be indicative of the results of operations that would have been reported had the acquisition occurred on January 1, 2019. It should not be taken as representative of future results of operations of the combined company.

The following table presents the unaudited pro forma condensed combined financial information:

	Year Ended December 31,	
	2020	**2019**
	(Unaudited, in thousands)	
Revenue	$ 1,874,720	$ 1,217,502
Net loss attributable to common stockholders	$ (655,355)	$ (576,962)

Other Fiscal 2020 Acquisitions

During 2020, the Company completed other business combinations for an aggregate purchase price of $13.0 million. The total purchase price was allocated to the tangible and intangibles assets acquired and liabilities assumed based on their fair values at the time of the acquisition. The Company does not consider these acquisitions to be material, individually or in aggregate, to its consolidated financial statements.

8. Goodwill and Intangible Assets

Goodwill

Goodwill balance as of December 31, 2021 and 2020, was as follows:

	Total
	(In thousands)
Balance as of December 31, 2019	$ 2,296,784
Goodwill additions related to 2020 acquisitions	2,303,780
Measurement period adjustments	(5,170)
Balance as of December 31, 2020	$ 4,595,394
Goodwill additions related to 2021 acquisitions	663,599
Measurement period adjustments	4,173
Balance as of December 31, 2021	$ 5,263,166

Intangible assets

Intangible assets consisted of the following:

	As of December 31, 2021		
	Gross	Accumulated Amortization	Net
Amortizable intangible assets:		(In thousands)	
Developed technology	$ 794,831	$ (222,765)	$ 572,066
Customer relationships	538,264	(128,035)	410,229
Supplier relationships	51,671	(9,491)	42,180
Trade names	30,669	(13,874)	16,795
Order backlog	10,000	(10,000)	—
Patent	4,035	(508)	3,527
Total amortizable intangible assets	1,429,470	(384,673)	1,044,797
Non-amortizable intangible assets:			
Telecommunication licenses	4,920	—	4,920
Trademarks and other	295	—	295
Total	$ 1,434,685	$ (384,673)	$ 1,050,012

	As of December 31, 2020		
	Gross	Accumulated Amortization	Net
Amortizable intangible assets:		(In thousands)	
Developed technology	$ 724,599	$ (113,282)	$ 611,317
Customer relationships	379,344	(59,574)	319,770
Supplier relationships	4,356	(3,044)	1,312
Trade names	25,560	(7,921)	17,639
Order backlog	10,000	(1,667)	8,333
Patent	3,360	(373)	2,987
Total amortizable intangible assets	1,147,219	(185,861)	961,358
Non-amortizable intangible assets:			
Telecommunication licenses	4,920	—	4,920
Trademarks and other	295	—	295
Total	$ 1,152,434	$ (185,861)	$ 966,573

Amortization expense was $198.8 million, $98.6 million and $72.9 million for the years ended December 31, 2021, 2020 and 2019, respectively.

Total estimated future amortization expense is as follows:

Year Ended December 31,	As of December 31, 2021
	(In thousands)
2022	$ 204,837
2023	201,527
2024	195,953
2025	192,379
2026	119,045
Thereafter	131,056
Total	$ 1,044,797

9. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consisted of the following:

	As of December 31,	
	2021	2020
	(In thousands)	
Accrued payroll and related	$ 78,780	$ 54,683
Accrued bonus and commission	64,665	25,341
Accrued cost of revenue	118,004	80,620
Sales and other taxes payable	61,975	48,390
ESPP contributions	10,284	6,272
Finance lease liability, current	12,370	9,062
Accrued other expense	71,425	28,527
Total accrued expenses and other current liabilities	$ 417,503	$ 252,895

10. Notes Payable

Long-term debt consisted of the following:

	As of December 31,	
	2021	2020
	(In thousands)	
2029 and 2031 Senior Notes		
2029 Senior Notes		
Principal	$ 500,000	$ —
Unamortized discount	(5,701)	—
Unamortized issuance costs	(1,286)	—
Net carrying amount	493,013	—
2031 Senior Notes		
Principal	500,000	—
Unamortized discount	(5,832)	—
Unamortized issuance costs	(1,274)	—
Net carrying amount	492,894	—
Convertible Senior Notes and Capped Call Transactions		
Convertible Senior Notes		
Principal	—	343,702
Unamortized discount	—	(38,406)
Unamortized issuance costs	—	(3,228)
Net carrying amount	—	302,068
Total long-term debt	$ 985,907	$ 302,068

2029 and 2031 Senior Notes

In March 2021, the Company issued $1.0 billion aggregate principal amount of senior notes, consisting of $500.0 million principal amount of 3.625% notes due 2029 (the “2029 Notes”) and $500.0 million principal amount of 3.875% notes due 2031 (the “2031 Notes,” and together with the 2029 Notes, the “Notes”). Initially, none of the Company’s subsidiaries guaranteed the Notes. However, under certain circumstances in the future the Notes can be guaranteed by each of the Company’s material domestic subsidiaries. The 2029 Notes and 2031 Notes will mature on March 15, 2029 and March 15, 2031, respectively. Interest payments are payable semi-annually in arrears on March 15 and September 15 of each year, commencing on September 15, 2021.

The aggregate net proceeds from offering of the Notes were approximately $984.7 million after deducting underwriting discounts and issuance costs paid by the Company. The issuance costs of $2.8 million are amortized into interest expense using the effective interest method over the term of the Notes.

The Company may voluntarily redeem the 2029 Notes, in whole or in part, under the following circumstances:

(1) at any time prior to March 15, 2024 with the net cash proceeds received by the Company from an equity offering at a redemption price equal to 103.625% of the principal amount, provided the aggregate principal amount of all such redemptions does not exceed 40% of the original aggregate principal amount of the 2029 Notes. Such redemption shall occur within 180 days after the closing of an equity offering and at least 50% of the then-outstanding aggregate principal amount of the 2029 Notes shall remain outstanding, unless all 2029 Notes are redeemed concurrently;

(2) at any time prior to March 15, 2024 at 100% of the principal amount, plus a “make-whole” premium;

(3) at any time on or after March 15, 2024 at a prepayment price equal to 101.813% of the principal amount;

(4) at any time on or after March 15, 2025 at a prepayment price equal to 100.906% of the principal amount; and

(5) at any time on or after March 15, 2026 at a prepayment price equal to 100.000% of the principal amount;

in each case, the redemption will include the accrued and unpaid interest, as applicable.

The Company may voluntarily redeem the 2031 Notes, in whole or in part, under the following circumstances:

(1) at any time prior to March 15, 2024 with the net cash proceeds received by the Company from an equity offering at a redemption price equal to 103.875% of the principal amount, provided the aggregate principal amount of all such redemptions does not to exceed 40% of the original aggregate principal amount of the 2031 Notes. Such redemption shall occur within 180 days after the closing of an equity offering and at least 50% of the then-outstanding aggregate principal amount of the 2031 Notes shall remain outstanding, unless all 2031 Notes are redeemed concurrently;

(2) at any time prior to March 15, 2026 at 100% of the principal amount, plus a “make-whole” premium;

(3) at any time on or after March 15, 2026 at a prepayment price equal to 101.938% of the principal amount;

(4) at any time on or after March 15, 2027 at a prepayment price equal to 101.292% of the principal amount;

(5) at any time on or after March 15, 2028 at a prepayment price equal to 100.646% of the principal amount; and

(6) at any time on or after March 15, 2029 at a prepayment price equal to 100.000% of the principal amount;

in each case, the redemption will include accrued and unpaid interest, as applicable.

The Notes are unsecured obligations and will rank senior in right of payment to any of the Company’s indebtedness that is expressly subordinated in right of payment to the Notes that the Company may incur in the future and equal in right of payment with the Company’s existing and future liabilities that are not subordinated.

In certain circumstances involving a change of control event, the Company will be required to make an offer to repurchase all, or, at the holder’s option, any part, of each holder’s notes of that series at 101% of the aggregate principal amount, plus accrued and unpaid interest, as applicable.

The indenture governing the Notes (the “Indenture”) contains covenants limiting the Company’s ability and the ability of its subsidiaries to: (i) create liens on certain assets to secure debt; (ii) grant a subsidiary guarantee of certain debt without also providing a guarantee of the Notes; and (iii) consolidate or merge with or into, or sell or otherwise dispose of all or substantially all of its assets to another person. These covenants are subject to a number of limitations and exceptions. Certain of these covenants will not apply during any period in which the Notes are rated investment grade by either Moody’s Investors Service, Inc. or Standard & Poor’s Ratings Services.

The interest expense recognized during the year ended December 31, 2021 was not significant.

As of December 31, 2021, the Company was in compliance with all of its financial covenants under the Indenture.

Convertible Senior Notes and Capped Call Transactions

In May 2018, the Company issued $550.0 million aggregate principal amount of 0.25% convertible senior notes due 2023 (“Convertible Notes”) in a private placement, including $75.0 million aggregate principal amount of such Convertible Notes pursuant to the exercise in full of the over-allotment options of the initial purchasers. The total net proceeds from this offering, after deducting initial purchaser discounts and debt issuance costs paid by the Company, were approximately $537.0 million. The Convertible Notes had the original maturity date of June 1, 2023, unless earlier repurchased or redeemed by the Company or converted pursuant to their terms.

On May 18, 2021, the Company issued a notice of redemption for its Convertible Notes and in June 2021, redeemed all of the remaining outstanding principal amount of the Convertible Notes. During 2021 and through the date of the redemption, the Company converted $343.7 million aggregate principal amount of the Convertible Notes by issuing 4,846,965 shares of its Class A common stock. Of the $1.7 billion total value of these transactions, $1.4 billion and $335.7 million were allocated to the equity and liability components, respectively, utilizing the effective interest rate to determine the fair value of the liability component. The selected interest rate reflected the Company’s incremental borrowing rate, adjusted for the Company’s credit standing on nonconvertible debt with similar maturity. The extinguishment of these Convertible Notes resulted in a $29.0 million loss that is included in other (expenses) income, net, in the accompanying consolidated statement of operations. No sinking fund was provided for these Convertible Notes.

In the year ended December 31, 2020, the Company converted $206.3 million aggregate principal amount of the Convertible Notes by issuing 2,902,434 shares of its Class A common stock and $2.0 million of cash. Of the $894.6 million total value of these transactions, $701.9 million and $192.7 million were allocated to the equity and liability components, respectively. The extinguishment of these notes resulted in a $12.9 million loss and was included in other (expenses) income, net, in the accompanying consolidated statements of operations. There were no conversions in the year ended December 31, 2019.

Prior to their redemption, the Convertible Notes were convertible at the option of the holders only under the following circumstances:

(1) during any calendar quarter commencing after September 30, 2018, and only during such calendar quarter, if the last reported sale price of the Class A common stock for at least 20 trading days (whether or not consecutive) in a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is more than or equal to 130% of the conversion price on each applicable trading day;

(2) during the five business days period after any five consecutive trading day period in which, for each trading day of that period, the trading price per $1,000 principal amount of Convertible Notes for such trading day was less than 98% of the product of the last reported sale price of the Class A common stock and the conversion rate on each such trading day;

(3) upon the Company’s notice that it is redeeming any or all of the Convertible Notes; or

(4) upon the occurrence of specified corporate events.

Each $1,000 principal amount of the Convertible Notes was initially convertible into 14.104 shares of the Company’s Class A common stock par value $0.001, which was equivalent to an initial conversion price of approximately $70.90 per share. The conversion rate was subject to adjustment upon the occurrence of certain specified events but would not be adjusted for any accrued and unpaid special interest. In addition, upon the occurrence of a make-whole fundamental change, as defined in the indenture, the Company would, in certain circumstances, increase the conversion rate by a number of additional shares for a holder that elects to convert its Notes in connection with such make-whole fundamental change or during the relevant redemption period. Further, the Convertible Notes could bear special interest under specified circumstances relating to the Company’s failure to comply with its reporting obligations under the indenture relating to the issuance of Convertible Notes (the “indenture”) or if the Convertible Notes were not freely tradeable as required by the indenture. None of the above mentioned events occurred during the period the notes were outstanding and prior to the redemption.

Upon conversion, the Company had an ability to pay or deliver, as the case may be, cash, shares of Class A common stock, or a combination of cash and shares of Class A common stock, at the Company's election. Throughout the period the Convertible Notes were outstanding the conditional redemption feature was triggered several times and the Company settled the notes presented for conversion primarily in shares of its Class A common stock.

The foregoing description is qualified in its entirety by reference to the text of the indenture and the form of 0.25% convertible senior notes due 2023, which were filed as exhibits to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018, and are incorporated herein by reference.

In accounting for the issuance of the Convertible Notes, the Company separated the Convertible Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the fair value of a similar debt instrument that does not have an associated convertible feature. The carrying amount of the equity component representing the conversion option was $119.4 million and was determined by deducting the fair value of the liability component from the par value of the Notes. The equity component was not remeasured as long as it continued to meet the conditions for equity classification. The excess of the principal amount of the liability component over its carrying amount, or the debt discount, was amortized to interest expense at an annual effective interest rate of 5.7% over the contractual terms of the Convertible Notes.

In accounting for the transaction costs related to the Convertible Notes, the Company allocated the total amount incurred to the liability and equity components of the Convertible Notes based on the proportion of the proceeds allocated to the debt and equity components. Issuance costs attributable to the liability component were approximately $10.2 million, were recorded as an additional debt discount and were amortized to interest expense using the effective interest method over the contractual terms of the Convertible Notes and were written off upon the redemption of the Convertible Notes. Issuance costs attributable to the equity component were netted with the equity component in stockholders' equity.

The net carrying amount of the equity component of the Convertible Notes was as follows:

	As of December 31,	
	2021	2020
	(In thousands)	
Proceeds allocated to the conversion options (debt discount)	$ —	$ 74,636
Issuance costs	(2,819)	(2,819)
Net carrying amount	$ (2,819)	$ 71,817

In connection with the offering of the Convertible Notes in May 2018, the Company entered into privately negotiated capped call transactions with certain counterparties (the "capped calls"). The capped calls each had an initial strike price of approximately $70.90 per share, subject to certain adjustments, which corresponded to the initial conversion price of the Notes. The capped calls had initial cap prices of $105.04 per share, subject to certain adjustments. The capped calls covered, subject to anti-dilution adjustments, approximately 7,757,200 shares of Class A common stock. The capped calls were generally intended to reduce or offset the potential dilution to the Class A common stock upon any conversion of the Notes with such reduction or offset, as the case may be, subject to a cap based on the cap price.

Concurrently with the redemption of the Convertible Notes, the Company settled its capped call arrangement. The capped call arrangement was settled in June 2021 for gross cash consideration of $229.8 million received by the Company and recorded in additional paid-in-capital, net of $1.4 million in transaction costs and a $3.2 million realized gain. The gain was primarily driven by the change in the fair value of the Company's Class A common stock on the transaction settlement date. The gain was recorded in other (expenses) income, net, in the accompanying consolidated statement of operations.

11. Supplemental Balance Sheet Information

A roll-forward of the Company's customer credit reserve is as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In thousands)		
Balance, beginning of period	$ 16,783	$ 6,784	$ 3,015
Additions	55,937	50,817	18,143
Deductions against reserve	(54,143)	(40,818)	(14,374)
Balance, end of period	$ 18,577	$ 16,783	$ 6,784

12. Revenue by Geographic Area

Revenue by geographic area is based on the IP address or the mailing address at the time of registration. The following table sets forth revenue by geographic area:

	Year Ended December 31,		
	2021	2020	2019
Revenue by geographic area:	(In thousands)		
United States	$ 1,881,873	$ 1,282,213	$ 808,857
International	959,966	479,563	325,611
Total	$ 2,841,839	$ 1,761,776	$ 1,134,468
Percentage of revenue by geographic area:			
United States	66 %	73 %	71 %
International	34 %	27 %	29 %

Long-lived assets outside of the United States were not significant.

13. Commitments and Contingencies

(a) Lease and Other Commitments

The Company entered into various non-cancelable operating lease agreements for its facilities. See Note 6 to these consolidated financial statements for additional detail on the Company's operating lease commitments.

Additionally, the Company has contractual commitments with its cloud infrastructure provider, network service providers and other vendors that are noncancellable and expire within one to four years. Future minimum payments under these noncancellable purchase commitments were as follows. Unrecognized tax benefits are not included in these amounts because any amounts expected to be settled in cash are not material:

Year Ending December 31,	As of December 31, 2021 (In thousands)
2022	$ 213,106
2023	222,852
2024	35,066
2025	561
Total payments	$ 471,585

In February 2021, the Company entered into a Framework Agreement, as subsequently amended, with Syniverse Corporation ("Syniverse") and Carlyle Partners V Holdings, L.P. ("Carlyle") (the "Framework Agreement"), pursuant to which Syniverse would issue to the Company shares of Syniverse common stock in consideration for an investment by the Company of up to $750.0 million. In August 2021, Syniverse entered into an Agreement and Plan of Merger (the "Merger Agreement") with Blue Steel Merger Sub Inc. (the "Merger Sub") and M-3 Brigade Acquisition II Corp. ("MBAC"), which would result in Syniverse being a wholly owned subsidiary of MBAC (the "Merger"). Concurrently, the Company and MBAC entered into the Twilio Subscription Agreement (the "Subscription Agreement"), pursuant to which the Company agreed, subject to the terms and conditions set forth therein, to subscribe for and purchase, and MBAC agreed to issue and sell to the Company, immediately prior to the closing of the Merger, shares of Class A common stock and, if applicable, shares of Class C common stock for an aggregate amount up to $750.0 million, depending on redemptions by MBAC's shareholders. In connection with the closing of the investment, the Company and Syniverse (or their respective subsidiaries) would enter into a wholesale agreement.

See Note 18 for details on developments on this transaction which occurred in the period subsequent to December 31, 2021.

(b) Legal Matters

The City and County of San Francisco ("San Francisco") has assessed the Company for additional Telephone Users Tax ("TUT") and Access Line Tax ("ALT") on certain of the Company's services for the years 2009 through 2018. The assessments totaled $38.8 million, including interest and penalties. The Company paid the assessments under protest in the third quarter of 2020.

On May 27, 2021, the Company filed a lawsuit against San Francisco in San Francisco Superior Court challenging the assessments. The Company raised numerous defenses to the assessments including that its services are not telecommunications services, application of the taxes to Twilio's services violates the Internet Tax Freedom Act and San Francisco does not have jurisdiction to impose tax on services provided outside of San Francisco. The Company is seeking refunds of the taxes paid, waivers of interest and penalties, cost of suit and reasonable attorneys' fees, and other legal and equitable relief as the court deems appropriate.

The Company believes it has strong arguments against the assessments, but litigation is uncertain and there is no assurance that it will prevail in court. Should the Company lose on one or more of its arguments, it could incur additional losses associated with taxes, interest, and penalties that together, in aggregate, could be material. The Company regularly assesses the likelihood of adverse outcomes resulting from tax disputes such as this and examines all open years to determine the necessity and adequacy of any tax reserves. The Company's tax reserves are further discussed in Note 13(d) of these consolidated financial statements.

In addition to the litigation discussed above, from time to time, the Company may be subject to legal actions and claims in the ordinary course of business. The Company has received, and may in the future continue to receive, claims from third parties asserting, among other things, infringement of their intellectual property rights. Future litigation may be necessary to defend the Company, its partners and its customers by determining the scope, enforceability and validity of third-party proprietary rights, or to establish our proprietary rights. The results of any current or future litigation cannot be predicted with certainty, and regardless of the outcome, litigation can have an adverse impact on the Company because of defense and settlement costs, diversion of management resources, and other factors.

Legal fees and other costs related to litigation and other legal proceedings are expensed as incurred and are included in general and administrative expenses in the accompanying consolidated statements of operations.

(c) Indemnification Agreements

The Company has signed indemnification agreements with all of its board members and executive officers. The agreements indemnify the board members and executive officers from claims and expenses on actions brought against the individuals separately or jointly with the Company for certain indemnifiable events. Indemnifiable events generally mean any event or occurrence related to the fact that the board member or the executive officer was or is acting in his or her capacity as a board member or an executive officer for the Company or was or is acting or representing the interests of the Company.

In the ordinary course of business and in connection with our financing and business combinations transactions, the Company enters into contractual arrangements under which it agrees to provide indemnification of varying scope and terms to business partners, customers and other parties with respect to certain matters, including, but not limited to, losses arising out of the breach of such agreements, intellectual property infringement claims made by third parties and other liabilities relating to or arising from the Company's various products, or its acts or omissions. In these circumstances, payment may be conditional on the other party making a claim pursuant to the procedures specified in the particular contract. Further, the Company's obligations under these agreements may be limited in terms of time and/or amount, and in some instances, the Company may have recourse against third parties for certain payments. The terms of such obligations may vary.

As of December 31, 2021 and 2020, no amounts were accrued related to any outstanding indemnification agreements.

(d) Other Taxes

The Company conducts operations in many tax jurisdictions within and outside the United States. In many of these jurisdictions, non-income-based taxes, such as sales, use, telecommunications, and other local taxes are assessed on the Company's operations. In the last several years the Company has expanded to collect taxes in most jurisdictions where it operates. The Company continues to carry reserves for certain of its prior non-income-based tax exposures in certain jurisdictions when it is both probable that a liability was incurred and the amount of the exposure could be reasonably estimated. These reserves are based on estimates which include several key assumptions including, but not limited to, the taxability of the Company's services, the jurisdictions in which its management believes it had nexus, and the sourcing of revenues to those jurisdictions

The Company continues to remain in discussions with certain jurisdictions regarding its prior sales and other taxes that it may owe. In the event any of these jurisdictions disagree with management's assumptions and analysis, the assessment of the Company's tax exposure could differ materially from management's current estimates. For example, San Francisco City and County has assessed the Company for $38.8 million in taxes, including interest and penalties, which exceeded the $11.5 million the Company had accrued for the period covered by this assessment. The Company paid the full amount as required by law. The payment made in excess of the accrued amount is reflected as a deposit in the accompanying consolidated balance sheets. The Company believes, however, that this assessment is incorrect and, after failing to reach a settlement, filed a lawsuit on May 27, 2021 contesting the assessment as described above. However, litigation is uncertain and a ruling against the Company, or a dismissal of our complaint, may adversely affect its financial position and results of operations.

As of December 31, 2021, the liabilities recorded for these taxes were $25.4 million for domestic jurisdictions and $17.7 million for jurisdictions outside of the United States. As of December 31, 2020, these liabilities were $25.6 million and $9.6 million, respectively.

14. Stockholders' Equity

Preferred Stock

As of December 31, 2021 and 2020, the Company had authorized 100,000,000 shares of preferred stock, par value $0.001, of which no shares were issued and outstanding.

Common Stock

As of December 31, 2021 and 2020, the Company had authorized 1,000,000,000 shares of Class A common stock and 100,000,000 shares of Class B common stock, each par value $0.001 per share. As of December 31, 2021, 170,625,994 shares of Class A common stock and 9,842,105 shares of Class B common stock were issued and outstanding. As of December 31, 2020, 153,496,222 shares of Class A common stock and 10,551,302 shares of Class B common stock were issued and outstanding.

The Company had reserved shares of common stock for issuance as follows:

	As of December 31,	
	2021	**2020**
Stock options issued and outstanding	3,351,313	5,625,735
Unvested restricted stock units issued and outstanding	6,475,700	7,523,882
Class A common stock reserved for Twilio.org	618,857	707,265
Stock-based awards available for grant under 2016 Plan	24,650,104	18,942,205
Stock-based awards available for grant under ESPP	6,382,830	4,941,281
Class A common stock reserved for the Convertible Notes	—	7,569,731
Total	41,478,804	45,310,099

Public Equity Offerings

In February 2021, August 2020 and June 2019, the Company completed public equity offerings in which it sold 4,312,500 shares, 5,819,838 shares and 8,064,515 shares, respectively, of its Class A common stock at a public offering price of $409.60, $247.00 and $124.00 per share, respectively. The Company received total proceeds of $1.8 billion, $1.4 billion and $979.0 million, respectively, net of underwriting discounts and offering expenses paid by the Company.

15. Stock-Based Compensation

2008 Stock Option Plan

The Company maintained a stock plan, the 2008 Stock Option Plan, as amended and restated (the “2008 Plan”), which allowed the Company to grant incentive (“ISO”), non-statutory (“NSO”) stock options and restricted stock units (“RSU”) to its employees, directors and consultants to participate in the Company’s future performance through stock-based awards at the discretion of the board of directors. Under the 2008 Plan, options to purchase the Company’s common stock could not be granted at a price less than fair value in the case of ISOs and NSOs. Fair value was determined by the board of directors, in good faith, with input from valuation consultants. On June 22, 2016, the plan was terminated in connection with the Company’s IPO. Accordingly, no shares are available for future issuance under the 2008 Plan. The 2008 Plan continues to govern outstanding equity awards granted thereunder. The Company’s right of first refusal for outstanding equity awards granted under the 2008 Plan terminated upon completion of the IPO. All remaining outstanding stock options granted under the 2008 Plan are vested and exercisable.

2016 Stock Option Plan

The Company's 2016 Stock Option and Incentive Plan (the "2016 Plan") became effective on June 21, 2016. The 2016 Plan provides for the grant of ISOs, NSOs, restricted stock, RSUs, stock appreciation rights, unrestricted stock awards, performance share awards, dividend equivalent rights and cash-based awards to employees, directors and consultants of the Company. A total of 11,500,000 shares of the Company's Class A common stock were initially reserved for issuance under the 2016 Plan. These available shares automatically increase each January 1, beginning on January 1, 2017, by 5% of the number of shares of the Company's Class A and Class B common stock outstanding on the immediately preceding December 31, or such lesser number of shares as determined by the Company's compensation committee. On January 1, 2021 and 2020, the shares available for grant under the 2016 Plan were automatically increased by 8,202,376 shares and 6,920,640 shares, respectively.

Under the 2016 Plan, the stock options are granted at a price per share not less than 100% of the fair market value per share of the underlying common stock on the date of grant.

Segment 2013 Stock Incentive Plan

In connection with its acquisition of Segment, the Company assumed and replaced all stock options and restricted stock units of continuing employees issued under Segment's 2013 Stock Incentive Plan ("Segment Plan") that were unvested and outstanding on the acquisition date. The assumed equity awards will continue to be outstanding and will be governed by the provisions of the Segment Plan.

SendGrid 2009, 2012 and 2017 Stock Incentive Plans

In connection with its acquisition of SendGrid, the Company assumed all stock options and restricted stock units issued under SendGrid's 2009, 2012 and 2017 Stock Incentive Plans that were outstanding on the date of acquisition. The assumed equity awards will continue to be outstanding and will be governed by the provisions of their respective plans. Additionally, the Company assumed shares of SendGrid common stock that were reserved and available for issuance under SendGrid's 2017 Equity Incentive Plan, on an as converted basis. These shares can be utilized for future equity grants under the Company's 2016 Plan, to the extent permitted by New York Stock Exchange rules.

Zipwhip 2008 Stock Plan and 2018 Equity Incentive Plan

In connection with its acquisition of Zipwhip, the Company assumed and replaced all stock options and restricted stock units of continuing employees issued under Zipwhip Amended and Restated 2008 Stock Plan and 2018 Equity Incentive Plan ("Zipwhip Plans") that were unvested and outstanding on the acquisition date. The assumed equity awards will continue to be outstanding and will be governed by the provisions of the Zipwhip Plans.

Under all plans, stock options generally expire 10 years from the date of grant and vest over periods determined by the board of directors. The vesting period for stock options and restricted stock units is generally four years from the date of grant. For existing employees and, effective February 2021, for new-hires the stock options and restricted stock units vest in equal monthly and quarterly installments, respectively, over the service period.

2016 Employee Stock Purchase Plan

The Company's Employee Stock Purchase Plan ("2016 ESPP"), as amended, initially became effective on June 21, 2016. A total of 2,400,000 shares of the Company's Class A common stock were initially reserved for issuance under the 2016 ESPP. These available shares automatically increase each January 1, beginning on January 1, 2017, by the lesser of 1,800,000 shares of the Company's Class A common stock, 1% of the number of shares of the Company's Class A and Class B common stock outstanding on the immediately preceding December 31 or such lesser number of shares as determined by the Company's compensation committee. On January 1, 2021 and 2020, the shares available for grant under the 2016 ESPP were automatically increased by 1,640,475 shares and 1,384,128 shares, respectively.

The 2016 ESPP allows eligible employees to purchase shares of the Company's Class A common stock at a discount of up to 15% through payroll deductions of their eligible compensation, subject to any plan limitations. The 2016 ESPP provides for separate six-month offering periods beginning in May and November of each fiscal year.

On each purchase date, eligible employees purchase the Company's stock at a price per share equal to 85% of the lesser of (i) the fair market value of the Company's Class A common stock on the offering date or (ii) the fair market value of the Company's Class A common stock on the purchase date.

As of December 31, 2021, total unrecognized compensation cost related to the 2016 ESPP was not significant.

Stock-options and restricted stock units activity under the Company's 2008 Plan and 2016 Plan as well as respective Stock Incentive Plans of SendGrid and Segment was as follows:

Stock Options

	Number of options outstanding	Weighted-average exercise price (Per share)	Weighted-average remaining contractual term (In years)	Aggregate intrinsic value (In thousands)
Outstanding options as of December 31, 2020	5,070,735	$ 51.71	6.85	$ 1,454,222
Granted	350,208	343.94		
Assumed in acquisition	83,539	49.26		
Exercised	(1,733,819)	40.44		
Forfeited and canceled	(419,350)	131.01		
Outstanding options as of December 31, 2021	3,351,313	$ 78.10	6.09	$ 646,760
Options vested and exercisable as of December 31, 2021	2,152,819	$ 37.21	4.92	$ 490,502

	Year Ended December 31, 2021	2020	2019
	(In thousands, except per share amounts)		
Aggregate intrinsic value of stock options exercised (1)	$ 508,539	$ 603,597	$ 394,998
Total estimated grant date fair value of options vested	$ 138,851	$ 107,854	$ 81,292
Weighted-average grant date fair value per share of options granted	$ 216.29	$ 170.70	$ 58.13

(1) Aggregate intrinsic value represents the difference between the fair value of the Company’s Class A common stock as reported on the New York Stock Exchange and the exercise price of outstanding “in-the-money” options.

As of December 31, 2020, the Company had outstanding 555,000 shares of performance-based stock options with a weighted average exercise price of $31.72 and an aggregate intrinsic value of $170.3 million. All performance conditions had been met. During the year ended December 31, 2021, all of these stock options were exercised. The aggregate intrinsic value of these stock options exercised was $140.2 million. As of December 31, 2021, no performance-based stock options remain outstanding.

As of December 31, 2021, total unrecognized compensation cost related to all unvested stock options was $151.5 million, which will be amortized on a ratable basis over a weighted-average period of 2.2 years.

Restricted Stock Units

	Number of awards outstanding	Weighted-average grant date fair value (Per share)	Aggregate intrinsic value (In thousands)
Unvested RSUs as of December 31, 2020	7,523,882	$ 131.76	$ 2,542,858
Granted	3,465,980	328.38	
Vested	(3,493,652)	114.70	
Forfeited and canceled	(1,020,510)	$ 188.76	
Unvested RSUs as of December 31, 2021	6,475,700	$ 237.22	$ 1,705,311

As of December 31, 2021, the Company had outstanding 24,697 restricted stock awards (“RSAs”) that were held in escrow with future vesting conditions. The aggregate intrinsic value of these awards was not significant.

As of December 31, 2021, total unrecognized compensation cost related to unvested RSUs and RSAs was $1.4 billion, which will be amortized over a weighted-average period of 3.1 years.

As of December 31, 2021, the unrecognized compensation cost related to Class A common stock subject to future vesting conditions is $60.1 million, which will be amortized over a term of 2.0 years.

Valuation Assumptions

The fair value of employee stock options was estimated on the date of grant using the following assumptions in the Black-Scholes option pricing model:

	Year Ended December 31,		
Employee Stock Options:	**2021**	**2020**	**2019**
Fair value of common stock	$268.55 - $409.21	$108.37 - $301.72	$103.70 - $130.70
Expected term (in years)	0.30 - 6.39	0.52 - 6.08	0.33 - 6.08
Expected volatility	42.9% - 61.5%	51.9% - 65.1%	49.0% - 66.5%
Risk-free interest rate	0.1% - 1.4%	0.1% - 1.4%	1.6% - 2.5%
Dividend rate	—%	—%	—%

	Year Ended December 31,		
Employee Stock Purchase Plan:	**2021**	**2020**	**2019**
Expected term (in years)	0.50	0.50	0.49 - 0.50
Expected volatility	46.4% - 58.7%	54.4% - 72.1%	43.1% - 50.3%
Risk-free interest rate	—% - 0.1%	0.1% - 0.2%	1.6% - 2.4%
Dividend rate	—%	—%	—%

Stock-Based Compensation Expense

The Company recorded total stock-based compensation expense as follows:

	Year Ended December 31,		
	2021	**2020**	**2019**
		(In thousands)	
Cost of revenue	$ 14,074	$ 8,857	$ 7,123
Research and development	258,672	173,303	126,012
Sales and marketing	213,351	103,450	60,886
General and administrative	146,188	76,301	70,297
Total	$ 632,285	$ 361,911	$ 264,318

16. Net Loss Per Share Attributable to Common Stockholders

The following table sets forth the calculation of basic and diluted net loss per share attributable to common stockholders during the periods presented:

	Year Ended December 31,		
	2021	**2020**	**2019**
Net loss attributable to common stockholders (in thousands)	$ (949,900)	$ (490,979)	$ (307,063)
Weighted-average shares used to compute net loss per share attributable to common stockholders, basic and diluted	174,180,465	146,708,663	130,083,046
Net loss per share attributable to common stockholders, basic and diluted	$ (5.45)	$ (3.35)	$ (2.36)

The following outstanding shares of common stock equivalents were excluded from the calculation of the diluted net loss per share attributable to common stockholders because their effect would have been anti-dilutive:

	As of December 31,		
	2021	2020	2019
Stock options issued and outstanding	3,351,313	5,625,735	7,705,848
Restricted stock units issued and outstanding	6,475,700	7,523,882	8,490,517
Class A common stock reserved for Twilio.org	618,857	707,265	795,673
Class A common stock committed under ESPP	147,947	103,703	207,792
Convertible Notes[1]	—	4,847,578	3,150,647
Class A common stock in escrow	75,506	75,612	—
Class A common stock in escrow and restricted stock awards subject to future vesting	235,054	268,030	—
Total	10,904,377	19,151,805	20,350,477

[1] The Convertible Notes were fully redeemed in 2021 and were no longer outstanding as of December 31, 2021. As of December 31, 2020, the Company expected to settle the principal amount of the notes in shares of its Class A common stock, and as such used the if-converted method to calculate any potential dilutive effect of the debt settlement on diluted net income per share, if applicable. Prior to the fourth quarter 2020, the Company expected to settle the principal amount of these notes in cash and any excess in shares of the Company's Class A common stock. Hence, as of December 31, 2019, the Company used the treasury stock method to calculate any potential dilutive effect of the conversion spread on diluted net income per share, if applicable. The conversion spread has a dilutive impact on diluted net income per share of Class A common stock when the average market price of the Company's Class A common stock for a given period exceeds the conversion price of $70.90 per share for the Convertible Notes. The conversion spread was calculated using the average market price of Class A common stock during the period, consistent with the treasury stock method.

17. Income Taxes

The following table presents domestic and foreign components of loss before income taxes for the periods presented:

	Year Ended December 31,		
	2021	2020	2019
		(In thousands)	
United States	$ (737,360)	$ (403,148)	$ (328,902)
International	(223,569)	(101,278)	(33,314)
Loss before provision for income taxes	$ (960,929)	$ (504,426)	$ (362,216)

Benefit for income taxes consists of the following:

	Year Ended December 31,		
	2021	2020	2019
Current:		(In thousands)	
Federal	$ 122	$ —	$ —
State	420	272	198
Foreign	8,274	5,215	2,684
Total	8,816	5,487	2,882
Deferred:			
Federal	(13,772)	(12,719)	(49,393)
State	(4,083)	(3,563)	(7,474)
Foreign	(1,990)	(2,652)	(1,168)
Total	(19,845)	(18,934)	(58,035)
Income tax benefit	$ (11,029)	$ (13,447)	$ (55,153)

The following table presents a reconciliation of the statutory federal tax rate and the Company's effective tax rate:

	Year Ended December 31,		
	2021	2020	2019
Tax benefit at federal statutory rate	21 %	21 %	21 %
State tax, net of federal benefit	8	12	8
Stock-based compensation	16	24	14
Credits	4	3	4
Foreign rate differential	(1)	(4)	(2)
Permanent book vs. tax differences	—	(1)	—
Change in valuation allowance	(46)	(51)	(29)
Other	—	—	(1)
Effective tax rate	2 %	4 %	15 %

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. The following table presents the significant components of the Company's deferred tax assets and liabilities:

	As of December 31,	
	2021	2020
Deferred tax assets:	(In thousands)	
Net operating loss carryforwards	$ 1,054,585	$ 656,755
Accrued and prepaid expenses	24,831	15,408
Stock-based compensation	44,261	32,900
Research and development credits	148,282	92,899
Charitable contributions	15,219	8,229
Capped call	—	4,475
Debt issuance cost	—	230
Depreciable property	3,675	—
Intangibles	135,500	135,500
Lease liability	71,651	68,566
Other	14,567	—
Gross deferred tax assets	1,512,571	1,014,962
Valuation allowance	(1,136,827)	(677,782)
Net deferred tax assets	375,744	337,180
Deferred tax liabilities:		
Capitalized software	(28,825)	(19,174)
Prepaid expenses	(1,649)	(450)
Acquired intangibles	(251,034)	(231,379)
Property and equipment	—	(85)
Convertible debt	—	(9,495)
Right-of-use asset	(64,277)	(66,243)
Deferred commissions	(47,897)	(21,162)
Other	—	(2,876)
Net deferred tax liability	$ (17,938)	$ (13,684)

The following table summarizes our tax carryforwards, carryovers, and credits:

	As of December 31, 2021	Expiration Date (If not utilized)
	(In thousands)	
Federal net operating loss carryforwards	$ 320,167	Various dates beginning in 2029
Federal tax credits	$ 132,920	Various dates beginning in 2029
Federal net operating loss carryforwards	$ 3,906,263	Indefinite
State net operating loss carryforwards	$ 2,737,083	Various dates beginning in 2025
State tax credits	$ 84,858	Indefinite
Foreign net operating loss carryforwards	$ 268,653	Indefinite

A limitation may apply to the use of the net operating loss and credit carryforwards, under provisions of the Internal Revenue Code of 1986, as amended, and similar state tax provisions that are applicable if the Company experiences an "ownership change." An ownership change may occur, for example, as a result of issuance of new equity. Should these limitations apply, the carryforwards would be subject to an annual limitation, resulting in a potential reduction in the gross deferred tax assets before considering the valuation allowance.

The Company's accounting for deferred taxes involves the evaluation of a number of factors concerning the realizability of its net deferred tax assets. The Company primarily considered such factors as its history of operating losses, the nature of the Company's deferred tax assets, and the timing, likelihood and amount, if any, of future taxable income during the periods in which those temporary differences and carryforwards become deductible. Additionally, in December 2020, the Company completed an intra-entity asset transfer of certain intellectual property rights to an Irish subsidiary where its international business is headquartered. The transfer resulted in a step-up in the tax basis of the transferred intellectual property rights and a correlated $135.5 million increase in foreign deferred tax assets.

At present, the Company does not believe that it is more likely than not that the federal, state and foreign net deferred tax assets will be realized, and accordingly, a full valuation allowance has been established. The valuation allowance increased by approximately $459.0 million and $421.9 million during the years ended December 31, 2021 and 2020, respectively.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In thousands)		
Unrecognized tax benefit, beginning of year	$ 191,183	$ 49,042	$ 15,635
Gross increases for tax positions of prior years	3,496	4,259	12,939
Gross decrease for tax positions of prior years	(10,693)	(931)	(395)
Gross increases for tax positions of current year	39,394	138,813	20,863
Unrecognized tax benefit, end of year	$ 223,380	$ 191,183	$ 49,042

As of December 31, 2021, the Company had approximately $223.4 million of unrecognized tax benefits. If the $223.4 million is recognized, $6.6 million would affect the effective tax rate. The remaining amount would be offset by the reversal of related deferred tax assets which are subject to a full valuation allowance.

The Company recognizes interest and penalties, if any, related to uncertain tax positions in its income tax provision. As of December 31, 2021 and 2020, such amounts are not significant.

The Company does not anticipate any significant changes within 12 months of December 31, 2021, in its uncertain tax positions that would be material to the consolidated financial statements taken as a whole because nearly all of the unrecognized tax benefit has been offset by a deferred tax asset, which has been reduced by a valuation allowance.

The Company files U.S. federal income tax returns as well as income tax returns in many U.S. states and foreign jurisdictions. As of December 31, 2021, the tax years 2008 through the current period remain open to examination by the major jurisdictions in which the Company is subject to tax. Fiscal years outside the normal statute of limitation remain open to audit by tax authorities due to tax attributes generated in those early years, which have been carried forward and may be audited in subsequent years when utilized. The Company is fully reserved for all open U.S. federal, state and local, or non-U.S. income tax examinations by any tax authorities.

On June 7, 2019, a three-judge panel from the U.S. Court of Appeals for the Ninth Circuit overturned the U.S. Tax Court's decision in Altera Corp. v. Commissioner and upheld the portion of the Treasury regulations under Section 482 of the Internal Revenue Code that requires related parties in a cost-sharing arrangement to share expenses related to share-based compensation. As a result of this decision, the Company's gross unrecognized tax benefits increased to reflect the impact of including share-based compensation in cost-sharing arrangements. On July 22, 2019, Altera filed a petition for a rehearing before the full Ninth Circuit and the request was denied on November 12, 2019. On February 10, 2020, Altera filed a petition to appeal the decision to the Supreme Court and on June 22, 2020 the Supreme Court denied the petition. There is no impact on the Company’s effective tax rate for years ended December 31, 2021 and 2020 due to a full valuation allowance against its deferred tax assets. We will continue to monitor future developments and their potential effects on our consolidated financial statements.

In connection with the Zipwhip acquisition, the Company recorded a net deferred tax liability which provides an additional source of taxable income to support the realization of the pre-existing deferred tax assets and, accordingly, during the year ended December 31, 2021, the Company released a total of $15.9 million of its U.S. valuation allowance. The Company continues to maintain a valuation allowance for its U.S. Federal and State net deferred tax assets.

In connection with the Segment acquisition, the Company recorded a net deferred tax liability which provides an additional source of taxable income to support the realization of the pre-existing deferred tax assets and, accordingly, during the year ended December 31, 2020, the Company released a total of $13.8 million of its U.S. valuation allowance. The Company continues to maintain a valuation allowance for its U.S. Federal and State net deferred tax assets.

In connection with the SendGrid acquisition, the Company recorded a net deferred tax liability which provides an additional source of taxable income to support the realization of the pre-existing deferred tax assets and, accordingly, during the year ended December 31, 2019, the Company released a total of $55.0 million of its U.S. valuation allowance. The Company continues to maintain a valuation allowance for its U.S. Federal and State net deferred tax assets.

The provision for income taxes recorded in the years ended December 31, 2021 and 2020, consists primarily of income taxes, withholding taxes in foreign jurisdictions in which the Company conducts business and the tax benefit related to the release of valuation allowance from acquisitions. The Company’s U.S. operations have been in a loss position and the Company maintains a full valuation allowance against its U.S. deferred tax assets.

18. Subsequent Events

As described in Note 13(a), the Company was a party to a certain Framework Agreement, as amended, and a Subscription Agreement pursuant to which the Company intended to purchase up to $750.0 million in common stock of MBAC, subject to certain terms and conditions.

In February 2022, Syniverse, MBAC and the Merger Sub mutually terminated the Merger Agreement and the related proposed Merger. The parties agreed to this termination because the rate of MBAC shareholder redemptions for the proposed transaction would have exceeded the minimum cash condition for closing, which occurred as a result of the recent changes in market conditions. Consequently, the Company will not be purchasing any shares of common stock of, or making any investments in, MBAC.

Notwithstanding the above, the Framework Agreement between the Company, Syniverse and Carlyle remains in full force and effect. Pursuant to the terms and subject to the closing conditions set forth in the Framework Agreement, the parties are pursuing the alternative transaction, whereby the Company will make a minority investment of $500.0 million to $750.0 million in Syniverse and the parties (or their applicable subsidiaries) will enter into a wholesale agreement.

The transaction is expected to close in 2022.

Item 9. ***Changes in and Disagreements with Accountants on Accounting and Financial Disclosure***

None.

Item 9A. ***Controls and Procedures***

(a) Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and our Principal Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act), as of the end of the period covered by this Annual Report on Form 10-K.

Based on this evaluation, our Chief Executive Officer and our Principal Financial Officer concluded that, as of December 31, 2021, our disclosure controls and procedures were effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and our Principal Financial Officer, as appropriate, to allow timely decisions regarding required disclosures.

(b) Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting and for the assessment of the effectiveness of internal control over financial reporting as defined in Rule 13a-15(f) and 15d-15(f) under the Exchange Act. Internal control over financial reporting is a process designed under the supervision and with the participation of our management, including our Chief Executive Officer and our Principal Financial Officer, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S generally accepted accounting principles.

Under the supervision and with the participation of our Chief Executive Officer and our Principal Financial Officer and oversight of the board of directors, our management conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2021, based on the criteria set forth in *Internal Control-Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on this evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2021.

On July 14, 2021 the Company acquired Zipwhip, Inc. (“Zipwhip”). Management excluded Zipwhip from its assessment of the effectiveness of the Company’s internal control over financial reporting as of December 31, 2021. Zipwhip's total assets excluded from this assessment was $51.9 million, representing 0.4% of the Company’s consolidated total assets as of December 31, 2021, and Zipwhip's total revenue of $55.4 million represented 2% of the Company’s consolidated revenue for the year ended December 31, 2021.

The effectiveness of our internal control over financial reporting as of December 31, 2021 has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report which is included in Part II, Item 8, “Financial Statements and Supplementary Data”, of this Annual Report on Form 10-K.

(c) Changes in Internal Control

On July 14, 2021, the Company acquired Zipwhip. As a result of this acquisition, the Company is reviewing the internal controls of Zipwhip and is making appropriate changes as deemed necessary. Except for the changes in internal controls related to Zipwhip, there were no changes in our internal control over financial reporting in connection with the evaluation required by Rule 13a-15 (d) and 15d-15 (d) of the Exchange Act that occurred during the quarter ended December 31, 2021, that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

(d) Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and our Principal Financial Officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within the Company have been detected. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions, or the degree of compliance with the policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Item 9B. *Other Information*

Not applicable.

Item 9C. *Disclosure Regarding Foreign Jurisdictions that Prevent Inspections*

Not applicable.

PART III

Item 10. *Directors, Executive Officers and Corporate Governance*

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2022 Annual Meeting of Stockholders. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2021.

Codes of Business Conduct and Ethics

Our board of directors has adopted a Code of Business Conduct and Ethics that applies to all officers, directors and employees, which is available on our website at (investors.twilio.com) under “Governance Documents”. We intend to satisfy the disclosure requirement under Item 5.05 of Form 8-K regarding amendments to, or waiver from, a provision of our Code of Business Conduct and Ethics and by posting such information on the website address and location specified above.

Item 11. *Executive Compensation*

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2022 Annual Meeting of Stockholders. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2021.

Item 12. *Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters*

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2022 Annual Meeting of Stockholders. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2021.

Item 13. ***Certain Relationships and Related Transactions and Director Independence***

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2022 Annual Meeting of Stockholders. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2021.

Item 14. ***Principal Accountant Fees and Services***

The information required by this item is incorporated by reference to our Proxy Statement relating to our 2022 Annual Meeting of Stockholders. The Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of the fiscal year ended December 31, 2021.

PART IV

Item 15. ***Exhibits and Financial Statement Schedules***

(a) The following documents are filed as part of this report:

1. Financial Statements

See Index to Financial Statements at Item 8 herein.

2. Financial Statement Schedules

Schedules not listed above have been omitted because they are not required, not applicable, or the required information is otherwise included.

3. Exhibits

The exhibits listed below are filed as part of this Annual Report on Form 10-K or are incorporated herein by reference, in each case as indicated below.

EXHIBIT INDEX

		Incorporated by Reference			
Exhibit Number	Description	Form	File No.	Exhibit	Filing Date
2.1	Agreement and Plan of Merger and Reorganization, dated as of May 16, 2021, by and among Twilio Inc., a Delaware corporation, Zeus Merger Sub I, Inc., a Delaware corporation, Zeus Merger Sub II, LLC, a Delaware limited liability company, Zipwhip, Inc., a Delaware corporation and Fortis Advisors LLC, a Delaware limited liability company	10-Q	001-37806	2.1	July 30, 2021
2.2	Agreement and Plan of Reorganization, dated October 12, 2020, by and among Twilio Inc., a Delaware corporation, Scorpio Merger Sub, Inc., a Delaware corporation, Segment.io, Inc., a Delaware corporation, and Shareholder Representative Services LLC, a Colorado limited liability company	S-3	333-249889	2.1	November 5, 2020
2.3	Framework Agreement Letter Agreement, dated as of August 16, 2021, by and among Twilio Inc., a Delaware corporation, Carlyle Partners V Holdings, L.P., a Delaware limited partnership, and Syniverse Corporation, a Delaware corporation	8-K	001-37806	2.1	August 17, 2021
3.1	Amended and Restated Certificate of Incorporation of Twilio Inc.	S-1A	333-211634	3.1	June 13, 2016
3.2	Second Amended and Restated Bylaws of Twilio Inc.	10-Q	001-37806	3.1	August 4, 2020
4.1	Form of Class A Common Stock Certificate of Twilio Inc.	S-1	333-211634	4.1	May 26, 2016
4.2	Amended and Restated Investors' Rights Agreement, dated April 24, 2015, between Twilio Inc. and certain of its stockholders	S-1	333-211634	4.2	May 26, 2016
4.3	Indenture, dated as of May 17, 2018, between Twilio Inc. and Wilmington Trust, National Association, as trustee	8-K	001-37806	4.1	May 18, 2018
4.4	Form of 0.25% Convertible Senior Notes due 2023 (included in Exhibit 4.3)	8-K	001-37806	4.2	May 18, 2018
4.5	Indenture, dated as of March 9, 2021 by and between Twilio Inc. and U.S. Bank National Association, as Trustee	8-K	001-37806	4.1	March 9, 2021

4.6	First Supplemental Indenture, dated as of March 9, 2021, between Twilio Inc. and U.S. Bank National Association, as Trustee	8-K	001-37806	4.2	March 9, 2021
4.7	Form of 3.625% Senior Notes due 2029	8-K	001-37806	4.3	March 9, 2021
4.8	Form of 3.875% Senior Notes due 2031	8-K	001-37806	4.4	March 9, 2021
4.9	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934	10-K	001-37806	4.5	February 26, 2021
10.1*	Form of Indemnification Agreement	10-K	001-37806	10.1	February 26, 2021
10.2*	Twilio Inc. Amended and Restated 2008 Stock Option Plan and forms of Stock Option Agreement and form of Stock Option Grant Notice	10-K	001-37806	10.2	February 26, 2021
10.3*	Twilio Inc. Amended and Restated 2016 Stock Option and Incentive Plan, and forms of Agreements thereunder	10-K	001-37806	10.3	February 26, 2021
10.4*	Twilio Inc. 2019 France Sub-Plan to the 2016 Stock Option and Incentive Plan	10-Q	001-37806	10.2	October 31, 2019
10.5*	Segment.io, Inc. Fifth Amended and Restated 2013 Stock Option and Grant Plan and related form agreements	10-K	001-37806	10.5	February 26, 2021
10.6*	SendGrid, Inc. Amended and Restated 2012 Equity Incentive Plan	10-K	001-37806	10.6	February 26, 2021
10.7*	SendGrid, Inc. Amended and Restated 2017 Equity Incentive Plan	10-K	001-37806	10.7	February 26, 2021
10.8*	Twilio Inc. Amended and Restated 2016 Employee Stock Purchase Plan	10-Q	001-37806	10.1	October 31, 2019
10.9*	Zipwhip, Inc. 2018 Equity Incentive Plan	S-8	333-211634	99.1	August 2, 2021
10.10*	Zipwhip, Inc. Amended and Restated 2008 Stock Plan	S-8	333-211634	99.2	August 2, 2021
10.11	Office Lease, dated January 8, 2016, as amended January 8, 2016, between Twilio Inc. and Bay Area Headquarters Authority	S-1	333-211634	10.6	May 26, 2016
10.12	Sublease, dated as of August 30, 2018, by and between Salesforce.com, Inc. and Twilio Inc.	10-Q	001-37806	10.1	November 8, 2018
10.13	Consent to Sublease Agreement, dated as of September 25, 2018, by and among Hudson Rincon Center, LLC, Salesforce.com Inc. and Twilio Inc.	10-Q	001-37806	10.2	November 8, 2018
10.14*	Offer Letter with Khozema Shipchandler, dated August 20, 2018	8-K	001-37806	10.1	October 25, 2018
10.15*	Offer Letter with Marc Boroditsky, dated October 25, 2021				Filed herewith
10.16*	Offer Letter with Eyal Manor, dated October 13, 2021				Filed herewith
10.17*	Offer Letter with Dana Wagner dated October 7, 2021				Filed herewith
10.18*	Chief Executive Officer Severance Plan dated March 28, 2018 and form of participation letter	10-Q	001-37806	10.1	May 10, 2018
10.19*	Key Executive Severance Plan, dated March 28, 2018 and Form of Participation Letter	10-Q	001-37806	10.2	May 10, 2018
10.20	Form of Capped Call Confirmation	8-K	001-37806	10.1	May 18, 2018
10.21+†	Framework Agreement by and among Twilio Inc., a Delaware corporation, Carlyle Partners V Holdings, L.P., a Delaware limited partnership, and Syniverse Corporation, a Delaware corporation, dated as of February 26, 2021	10-Q	001-37806	10.1	May 6, 2021
21.1	List of Subsidiaries of the Registrant				Filed herewith
23.1	Consent of KPMG, LLP, Independent Registered Public Accounting Firm				Filed herewith
31.1	Certification of the Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				Filed herewith
31.2	Certification of the Chief Operating Officer (Principal Financial Officer) pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				Filed herewith
32.1**	Certification of the Chief Executive Officer and Chief Operating Officer (Principal Financial Officer) pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				Furnished herewith
101.INS	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document				Filed herewith
101.SCH	Inline XBRL Taxonomy Extension Schema Document.				Filed herewith
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.				Filed herewith
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.				Filed herewith
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.				Filed herewith

101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.	Filed herewith
104	Cover Page with Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibits 101).	

\+ Schedules and other similar attachments have been omitted pursuant to Item 601(b)(2) of Regulation S-K. The registrant hereby undertakes to furnish supplemental copies of any of the omitted schedules and other similar attachments upon request by the Securities and Exchange Commission.

† Certain portions of this exhibit have been omitted because they are not material and they are the type of information that the registrant treats as private or confidential.

* Indicates a management contract or compensatory plan or arrangement.

** The certifications furnished in Exhibit 32.1 hereto are deemed to accompany this Annual Report on Form 10-K and will not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, except to the extent that the registrant specifically incorporates it by reference.

Item 16. *Form 10-K Summary*

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

	Twilio Inc.
February 22, 2022	/s/ JEFF LAWSON Jeff Lawson Director and Chief Executive Officer (Principal Executive Officer)
February 22, 2022	/s/ KHOZEMA Z. SHIPCHANDLER Khozema Z. Shipchandler Chief Operating Officer (Principal Accounting and Financial Officer)
February 22, 2022	/s/ RICHARD L. DALZELL Richard L. Dalzell Director
February 22, 2022	/s/ BYRON B. DEETER Byron B. Deeter Director
February 22, 2022	/s/ ELENA A. DONIO Elena A. Donio Director
February 22, 2022	/s/ DONNA L. DUBINSKY Donna L. Dubinsky Director
February 22, 2022	/s/ JEFF EPSTEIN Jeff Epstein Director
February 22, 2022	/s/ JEFFREY R. IMMELT Jeffrey R. Immelt Director
February 22, 2022	/s/ DEVAL L. PATRICK Deval L. Patrick Director
February 22, 2022	/s/ ERIKA ROTTENBERG Erika Rottenberg Director

October 25, 2021

Dear Marc,

On behalf of Twilio Inc., a Delaware corporation (the "*Company*"), I am pleased to offer you an expanded position of **Chief Revenue Officer** ("*CRO*") with the Company, reporting to the Company's Chief Executive Officer. We are very excited to work with you and look forward to your continued success. The terms of your new position with the Company are as set forth below.

1. **Position**. As CRO, you will continue to make yourself available to work in the Company's **San Francisco** office on a full-time basis. This role is classified as exempt from overtime rules. The Company reserves the right to modify your job duties from time to time in its sole discretion.

2. **Start Date**. You will be transferring into your new position effective on **October 27, 2021** (the "*Start Date*").

3. **Compensation**.

a. **Base Salary**. You will receive a gross base annual salary rate, subject to applicable deduction and withholding, of **$500,000.00 USD**. Your salary will be payable on a bi-weekly basis pursuant to the Company's regular payroll policy. As an exempt employee, you are not eligible for overtime pay, and your compensation will not fluctuate according to the quantity of work performed.

b. **Variable Compensation**. Additionally, you will be eligible to earn incentive compensation and your annual target incentive compensation opportunity will be **$500,000.00 USD**. The actual amount that you will earn, specific terms and conditions of your commission eligibility, goals, incentives, pay-out timing and other provisions will be set forth in a written Sales Commission Plan to be provided by the Company, and as it may be revised by the Company from time to time, in its sole discretion.

c. **Restricted Stock Units**. Subject to approval by the Company's Board of Directors (the "*Board*") following your Start Date, you will be granted restricted stock units (the "*RSUs*") with a total value of approximately **$5,750,000.00 USD**. The number of RSUs subject to such grant will be determined by dividing $5,750,000.00 by the average closing market price on the New York Stock Exchange of one share of the Company's Class A common stock over the 30-day period ending five business days before the effective date of grant (the "Grant Date"). Each RSU entitles you to one share of the Company's Class A Common Stock if and when the RSU vests. The RSUs will vest in 8 equal quarterly installments over two years beginning on the first to occur of February 15, May 15, August 15 or November 15 (or the first business day after such date if such date is not a business day) following the Grant Date, subject to your continued employment with the Company through each vesting date. The grant outlined is subject to the terms and conditions of the equity incentive plan under which they are granted and the RSU agreement thereunder, which you will be required to sign as a condition to receiving the RSUs. Please expect to receive these documents via your Charles Schwab account within two weeks of the effective date of the grant.

d. Options. Subject to approval by the Board, following your Start Date, you will be granted an option, with the award value of **$5,750,000.00 USD**, to purchase shares of the Company's Class A Common Stock (the "Options"), at an exercise price equal to the fair market value of a share of the Company's Class A Common Stock on the date that your Options are granted. The Options value will be converted to a number of options in accordance with Twilio's current equity award grant policies. Starting one month following your Grant Date, the Options shall vest in 24 equal monthly installments over the following two years, subject to your continued employment through each vesting date. The Options will be subject to the terms and conditions of the equity incentive plan under which it is granted (the "Plan") and the stock option agreement thereunder, which you will be required to sign as a condition to receiving your Options. The Options granted pursuant to this paragraph will include a term specifying that the deadline to exercise the Options is three years from the date of your separation from service due to your termination by the Company without Cause or by you for Good Reason or 10 years from the date of the grant, whichever comes first. Upon any other separation from service, the terms of the Plan and the stock option agreement will apply.

a. **Accelerated Vesting**. As part of this offer letter agreement, you are being offered RSUs and Options (together, the "*Unvested Shares*"). If, on or prior to the last vesting date of the Unvested Shares, the Company terminates your employment without Cause (other than as a result of your death or disability) or you resign your employment for Good Reason (either such termination referred to as a "*Qualifying Termination*, then subject to (i) your execution and non-revocation (such that it becomes effective by its terms) of a separation agreement containing, among other provisions, a release of claims in favor of the Company and its affiliates (and its and their successors) and nondisparagement, in the form and manner satisfactory to the Company (the "*Separation Agreement*"), all within sixty (60) days of the date of termination, and (ii) your continued compliance with the terms of this offer letter agreement, the Company shall accelerate the vesting of the Unvested Shares such that one hundred percent (100%) of such shares shall be deemed immediately vested and exercisable as of the date of your Qualifying Termination (the "*Accelerated Vesting*"). For the avoidance of doubt, the Accelerated Vesting treatment will not apply to any other options or equity awards you may hold at the time of such Qualifying Termination, regardless of whether such grants were made prior to or following the date of this letter agreement.

4. **Definitions**. For purposes of this offer letter agreement, the following terms shall have the following meanings:

a. "*Cause*". For purposes of this offer letter agreement, "*Cause*" shall mean, and shall be limited to, the occurrence of any one or more of the following events: (i) willful conduct by you constituting a material act of misconduct in connection with the performance of your duties, including, without limitation, misappropriation of funds or property of the Company or any of its subsidiaries or affiliates other than the occasional, customary and de minimis use of Company property for personal purposes; (ii) the commission of, or plea of guilty or no contest to, any felony or any crime involving moral turpitude, deceit, dishonesty or fraud, or any conduct by you that would reasonably be expected to result in material injury or reputational harm to the Company or any of its subsidiaries and affiliates if you were retained in your position; (iii) continued non-performance by you of your duties to the Company (other than by reason of your physical or mental illness, incapacity or disability) which has continued for 30 days following written notice of such non-performance from the Company; (iv) a material breach by you of any of the provisions contained in the Proprietary Information, Inventions, Non-Competition and Non- Solicitation Agreement entered into between you and the Company or any other confidentiality, invention assignment or similar agreement with the Company that would reasonably be expected to result in material injury to the Company and, if curable, has continued for 30 days following written notice of violation; (v) a material violation by you of the Company's written employment policies or the Company's Code of Conduct that would reasonably be expected to result in material injury to the Company and, if curable, has continued for 30 days following written notice of violation; or (vi) your failure to cooperate with a bona fide internal investigation or an investigation by regulatory or law enforcement authorities, after being instructed by the Company to cooperate, or your willful destruction or willful failure to preserve documents or other materials known to be relevant to such investigation or the inducement of others to fail to cooperate or to produce documents or other materials in connection with such investigation.

b. "*Good Reason*". For purposes of this offer letter agreement, you shall have *"Good Reason*" for resignation from employment with the Company if any of the following actions are taken by the Company without your prior written consent and you have complied with the "*Good Reason Process*" following the occurrence of any of the following actions: (i) a material diminution in your responsibilities, authority or duties; (ii) a material reduction in your base salary except for across-the-board salary reductions similarly affecting all or substantially all management employees; (iii) the relocation of the Company office at which you are principally employed to a location more than 35 miles from such office; or (iv) a material change in your reporting relationship such that you no longer report to the person serving as the Company's Chief Executive Officer.

c. "*Good Reason Process*". For the purposes of this offer letter agreement, "*Good Reason Process*" shall mean: (i) you reasonably determine in good faith that a "Good Reason" condition has occurred; (ii) you notify the Company in writing of the occurrence of the Good Reason condition within 30 days of the occurrence of such condition; (iii) you cooperate in good faith with the Company's efforts, for a period of 30 days following such notice (the "*Cure Period*"), to remedy the condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist following the Cure Period; and (v) you terminate your employment and provide the Company with a Notice of Termination with respect to such termination, each within 30 days after the end of the Cure Period. If the "*Good Reason*" event is a material diminution of your responsibilities, authority or duties resulting from the Company employing your successor as CRO, you shall not need to comply with subpart (v) of the "*Good Reason Process*" to qualify for the Accelerated Vesting. If the Company cures the Good Reason condition during the Cure Period, Good Reason shall be deemed not to have occurred.

5. **Compliance with Section 409A.** It is intended that the Accelerated Vesting set forth in this offer letter agreement satisfy, to the greatest extent possible, the exemptions from the application of Section 409A of the

Internal Revenue Code of 1986, as amended, (the "*Code*") (Section 409A, together with any state law of similar effect, "*Section 409A*") provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9). For purposes of Section 409A (including, without limitation, for purposes of Treasury Regulations 1.409A-2(b)(2)(iii)), your right to receive any installment payments under this agreement (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary in this agreement, if the Company (or, if applicable, the successor entity thereto) determines that the Accelerated Vesting constitute "deferred compensation" under Section 409A and you are, on the date of your Qualifying Termination a "specified employee" of the Company or any successor entity thereto, as such term is defined in Section 409A(a)(2)(B)(i) of the Code (a "*Specified Employee*"), then, solely to the extent necessary to avoid the incurrence of adverse personal tax consequences under Section 409A, the timing of the Accelerated Vesting shall be delayed until the earliest of: (i) the date that is six (6) months and one (1) day after your Qualifying Termination date, (ii) the date of your death, or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Code Section 409A(a)(2)(B)(i) period, all payments or benefits deferred pursuant to this section shall be paid in a lump sum or provided in full by the Company (or the successor entity thereto, as applicable), and any remaining payments due shall be paid as otherwise provided herein. No interest shall be due on any amounts so deferred. If the Accelerated Vesting benefits are not covered by one or more exemptions from the application of Section 409A and the Separation Agreement could become effective in the calendar year following the calendar year in which you have a Qualifying Termination, the Separation Agreement will not be deemed effective any earlier than the deadline set forth in the Separation Agreement for such agreement to become effective by its terms. The Accelerated Vesting benefits are intended to qualify for an exemption from application of Section 409A or, if not so exempt, to comply with its requirements to the extent necessary to avoid adverse personal tax consequences under Section 409A, and any ambiguities herein shall be interpreted accordingly. Notwithstanding anything to the contrary herein, to the extent required to comply with Section 409A, a termination of employment shall not be deemed to have occurred for purposes of any provision of this agreement providing for the payment of amounts or benefits upon or following a termination of employment unless such termination is also a "separation from service" within the meaning of Section 409A. With respect to reimbursements or in-kind benefits provided to you hereunder (or otherwise) that are not exempt from Section 409A, the following rules shall apply: (i) the amount of expenses eligible for reimbursement, or in-kind benefits provided, during any one of your taxable years shall not affect the expenses eligible for reimbursement, or in-kind benefit to be provided in any other taxable year, (ii) in the case of any reimbursements of eligible expenses, reimbursement shall be made on or before the last day of your taxable year following the taxable year in which the expense was incurred, (iii) the right to reimbursement or in-kind benefits shall not be subject to liquidation or exchange for another benefit.

6. **Miscellaneous**. This offer letter agreement, any applicable severance participation letters, and the Employment, Confidential Information, Invention Assignment, and Arbitration Agreement you signed on February 20, 2015 constitute the entire agreement between you and the Company regarding the terms and conditions of your employment. You agree that no agreements or representations, verbal or written, with respect to the subject matter of this offer have been made to you other than those set forth in this letter agreement. To the extent any such agreements or representations were made, this agreement supersedes any and all previous offers, statements, agreements and representations that you made with the company in the course of discussions and negotiations for this offer. Changes to the terms of this agreement, other than the changes to employment terms reserved to the Company's discretion, require a written modification signed by an authorized officer of the Company.

We are all delighted to be able to extend you this offer and look forward to working with you. To indicate your acceptance of the Company's offer as set forth above, please sign and date this letter in the space provided below. This letter may not be modified or amended except by a written agreement, signed by the Company and by you.

Very truly yours,

TWILIO INC.

/s/ Christy Lake

Christy Lake
Chief People Officer

10-25-21

ACCEPTED AND AGREED:

I agree to and accept employment with the Company on the terms and conditions set forth in this letter agreement. I understand and agree that my employment with the Company is “at will” and may be terminated by me or the Company at any time, with or without cause or notice.

/s/ Marc Boroditsky

MARC BORODITSKY

10-25-21

October 8th, 2021

Dear Eyal,

On behalf of Twilio Inc., a Delaware corporation (the "*Company*"), I am pleased to offer you the position of **Chief Product Officer** with the Company, conditional upon your passing a background check pursuant to applicable law and upon your ability to demonstrate your authorization to work in the United States. The terms of your new position with the Company are as set forth below.

1. **Position**. As **Chief Product Officer**, you will make yourself available to work in the Company's **San Francisco** office on a full-time basis. This role is classified as exempt from overtime rules. The Company reserves the right to modify your job duties from time to time at its sole discretion.

2. **Start Date**. Subject to the fulfillment of any conditions imposed by this letter agreement and unless otherwise agreed upon, your employment with the Company is anticipated to start on **November 15th, 2021** (the "*Start Date*").

3. **Proof of Right to Work**. For purposes of federal immigration law, you will be required to provide to the Company documentary evidence of your identity and eligibility for employment in the United States. Such documentation must be provided to us within three (3) business days of your Start Date or our employment relationship with you may be terminated.

4. **Compensation.**

a. **Base Salary.** You will receive a gross base yearly salary, subject to applicable deduction and withholding, of **$900,000.00**. Your salary will be payable on a bi-weekly basis pursuant to the Company's regular payroll policy. As an exempt employee, you are not eligible for overtime pay, and your compensation will not fluctuate according to the quantity of work performed.

b. **Restricted Stock Units.** Subject to approval by the Company's Board of Directors (the "*Board*"), following your Start Date, you will be granted restricted stock units (the "*RSUs*") with a total value of approximately **$35,000,000.00**. The number of RSUs subject to such grant will be determined by dividing **$35,000,000.00** by the average closing market price on the New York Stock Exchange of one share of the Company's Class A common stock over the 30-day period ending five business days before the effective date of grant. Each RSU entitles you to one share of the Company's Class A Common Stock if and when the RSU vests. The RSUs will vest over four years in accordance with the schedule set forth on Exhibit A, depending upon your Start Date. In general, 25% of the RSUs will vest on the first to occur of February 15, May 15, August 15 or November 15 (or the first business day after such date if such date is not a business day) on or following the first anniversary of the vesting commencement date (as set forth in the applicable RSU agreement), and the balance will vest in quarterly installments over the next three years, subject to your continued employment with the Company through each vesting date. Please carefully review the attached Exhibit A for details relating to your specific vesting schedule. The RSUs will be subject to the terms and conditions of the equity incentive plan under which they are granted (the "*Plan*") and the RSU agreement thereunder, which you will be required to sign as a condition to receiving your RSUs.

c. **Options**. Subject to approval by the Company's Board of Directors (the "*Board*"), following your Start Date, you will be granted an option to purchase **54,428** shares of the Company's Class A Common Stock (the "*Option*"), at an exercise price equal to the fair market value of a share of the Company's Class A Common Stock on the date that your Option is granted. Twenty-five percent (25%) of the Option shall vest on the first anniversary of your Start Date and the remaining portion of the Option shall vest in equal monthly installments over the following three years, subject to your continued service through each vesting date. We will recommend to the Board that your Option be classified as an "incentive stock option" within the meaning of Section 422 of the U.S. Internal Revenue Code of 1986 (the "*Code*"), to the maximum extent permissible under the Code. The Option will be subject to the terms and conditions of the equity incentive plan under which it is granted (the "*Plan*") and the stock option agreement thereunder, which you will be required to sign as a condition to receiving your Option.

5. **Benefits.** While employed with the Company, you will be eligible to participate in the Company's benefits plans as outlined in Twilio's benefits summary, which will be provided to you separately. Your benefits include participation in the Company's flexible time off program. All benefits will be administered pursuant to

Company policy and any applicable law. Eligibility and coverage under Company benefit programs will be subject to the terms and conditions of the applicable plans or programs, which may change from time to time. The benefit plans and packages offered by the Company may be modified at any time, with or without advance notice, at the Company's sole discretion.

6. **Confidentiality and Inventions Agreement.** Your acceptance of this offer and commencement of employment with the Company is contingent upon the execution and delivery to the Company of the Company's Proprietary Information and Inventions Agreement ("*PIIA*") and Arbitration Agreement, which shall be sent separately for your review and execution.

7. **At-Will Employment**. Your employment with the Company will be on an "at will" basis, meaning that either you or the Company may terminate your employment at any time with or without cause or advance notice. This is the full and complete agreement between you and the Company on this term and nothing in this agreement or in any document or statement, and nothing implied from any course of conduct shall limit the Company's or your right to terminate at-will employment. Although your job duties, title, reporting relationship, compensation and benefits, as well as the Company's personnel policies and procedures, may change from time to time, the "at will" nature of your employment may only be changed in an express written agreement signed by you and a duly authorized officer of the Company.

8. **Obligations to the Company**.

a. You agree that to the best of your ability and experience you will at all times loyally and conscientiously perform all of the duties and obligations required of you pursuant to the express and implicit terms hereof, and to the reasonable satisfaction of the Company. During your employment, and in return for the compensation paid to you in connection with such employment, you agree to devote all of your business time, best efforts, skill, knowledge, attention and energy to the business of the Company, the advancement of the Company's business and interests, and to the performance of your duties and responsibilities as an employee of the Company. The Company will be entitled to all of the benefits and profits arising from or incident to all such work services and advice. You further agree that you will not directly or indirectly engage or participate in any business or outside activities that are competitive in any manner with the business of the Company or which conflict with the performance of your duties to the Company.

b. As an employee of Twilio, you must read and comply with Twilio's data protection and information security policies, each as updated from time to time. You must only process personal data relating to Twilio staff, customers, end-users, suppliers and other third parties as necessary for the performance of your role and must protect the confidentiality of that personal data at all times. Failure to comply with Twilio's data protection and information security policies is subject to discipline up to and including termination.

9. **Standards of Conduct.** As a Company employee, you must abide by Company rules and standards of conduct now existing or established from time to time by the Company. As a condition of employment, you must read and abide by the policies contained in the Company's Employee Handbook and Code of Conduct, as adopted or modified by the Company from time to time.

10. **Miscellaneous**.

a. You acknowledge that Company has directed you not to bring with you any confidential or proprietary material of any former employer or to violate any other obligations you may have to any former employer. You represent and warrant that you are not subject to any agreement or understanding with any current or prior employer or business (or any other entity or person) which would, in any manner, preclude you from fulfilling any of the duties or obligations you may have with the Company or which would result in any additional payment from the Company.

b. This agreement, the PIIA and the Arbitration Agreement constitute the entire agreement between you and the Company regarding the terms and conditions of your employment. You agree that no agreements or representations, verbal or written, with respect to the subject matter of our offer have been made to you other than those set forth in this letter agreement. To the extent any such agreements or representations were made, this agreement supersedes any and all previous offers, statements, agreements and representations made in the course of discussions and negotiations for this offer. Changes to the terms of this agreement, other than the changes to employment terms reserved to the Company's discretion, require a written modification signed by an authorized officer of the Company. If any provision of this offer letter agreement is determined to be invalid or unenforceable, in whole or in part, this determination shall not affect any other provision of this offer letter agreement and the provision in question shall be modified so as to be rendered enforceable in a manner consistent with the intent of the parties insofar as possible under applicable law. This letter may be delivered and executed via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and shall be deemed to have been duly and validly delivered and executed and be valid and effective for all purposes.

c. You represent and warrant that the information you provided to us during the hiring process is true and accurate, and you acknowledge that this offer is contingent on your consent to, and the successful completion of reference and background checks.

We are all delighted to be able to extend you this offer which will remain open for 10 ***calendar*** days from the **Company's** signing date below. To indicate your acceptance of the Company's offer as set forth above, please sign and date (i) this letter in the space provided below, (ii) the PIIA, and (iii) the Arbitration Agreement. This letter may not be modified or amended except by a written agreement, signed by the Company and by you.

[Signature Page to Follow]

Very truly yours,

TWILIO INC.

/s/ Christy Lake

Christy Lake
Chief People Officer

10-8-21

ACCEPTED AND AGREED:

I agree to and accept employment with the Company on the terms and conditions set forth in this letter agreement. I understand and agree that my employment with the Company is “at will” and may be terminated by me or the Company at any time, with or without cause or notice.

/s/ Eyal Manor

EYAL MANOR

10-13-21

October 5, 2021

Dear Dana,

On behalf of Twilio Inc., a Delaware corporation (the "*Company*"), I am pleased to offer you the position of **Chief Legal Officer** with the Company, conditional upon your passing a background check pursuant to applicable law and upon your ability to demonstrate your authorization to work in the United States. The terms of your new position with the Company are as set forth below.

1. **Position**. As Chief Legal Officer, you will make yourself available to work in the Company's USA - San Francisco office on a full-time basis. This role is classified as exempt from overtime rules. The Company reserves the right to modify your job duties from time to time at its sole discretion.

2. **Start Date**. Subject to the fulfillment of any conditions imposed by this letter agreement and unless otherwise agreed upon, your employment with the Company is anticipated to start on **December 13, 2021** (the "*Start Date*").

3. **Proof of Right to Work**. For purposes of federal immigration law, you will be required to provide to the Company documentary evidence of your identity and eligibility for employment in the United States. Such documentation must be provided to us within three (3) business days of your Start Date or our employment relationship with you may be terminated.

4. **Compensation.**

Base Salary. You will receive a gross base yearly salary rate, subject to applicable deduction and withholding, of **$600,000.00**. Your salary will be payable on a bi-weekly basis pursuant to the Company's regular payroll policy. As an exempt employee, you are not eligible for overtime pay, and your compensation will not fluctuate according to the quantity of work performed.

Sign-On Bonus. On the first payroll following your hire date, you will be advanced a one-time sign-on bonus of **$250,000.00** ("Sign-On Bonus"), less customary withholdings, which you shall vest monthly in equal installments on a pro-rata basis over the course of the first year of your employment and which shall be fully earned on the first anniversary of the Start Date. In the event that you resign from the Company or the Company terminates your employment for misconduct prior to completing your first year of employment with the Company, you agree to the fullest extent permitted by applicable law to refund the unvested portion of your Sign-On Bonus to the Company within 15 calendar days of your separation date. In the event of any claim or litigation relating to such refund of the Sign-On Bonus and to the extent permitted by applicable law, the prevailing party shall recover its reasonable attorneys' fees.

Restricted Stock Units. Subject to approval by the Company's Board of Directors (the "*Board*"), following your Start Date, you will be granted restricted stock units (the "*RSUs*") with a total value of approximately **$16,000,000.00**. The number of RSUs subject to such grant will be determined by dividing **$16,000,000.00** by the average closing market price on the New York Stock Exchange of one share of the Company's Class A common stock over the 30-day period ending five business days before the effective date of grant. Each RSU entitles you to one share of the Company's Class A Common Stock if and when the RSU vests. The RSUs will vest over four years in accordance with the schedule set forth on Exhibit A, depending upon your Start Date. In general, 25% of the RSUs will vest on the first to occur of February 15, May 15, August 15 or November 15 (or the first business day after such date if such date is not a business day) on or following the first anniversary of the vesting commencement date (as set forth in the applicable RSU agreement), and the balance will vest in quarterly installments over the next three years, subject to your continued employment with the Company through each vesting date. Please carefully review the attached Exhibit A for details relating to your specific vesting schedule. The RSUs will be subject to the terms and conditions of the equity incentive plan under which they are granted (the "*Plan*") and the RSU agreement thereunder, which you will be required to sign as a condition to receiving your RSUs.

5. **Benefits.** While employed with the Company, you will be eligible to participate in the Company's benefits plans as outlined in Twilio's benefits summary, which will be provided to you separately. Your benefits include participation in the Company's flexible time off program. All benefits will be administered pursuant to Company policy and any applicable law. Eligibility and coverage under Company benefit programs will be subject to the terms and conditions of the applicable plans or programs, which may change from time to time. The benefit plans and packages offered by the Company may be modified at any time, with or without advance notice, at the Company's sole discretion.

6. **Confidentiality and Inventions Agreement.** Your acceptance of this offer and commencement of employment with the Company is contingent upon the execution and delivery to the Company of the Company's Proprietary Information and Inventions Agreement ("*PIIA*") and Arbitration Agreement, which shall be sent separately for your review and execution.

7. **At-Will Employment**. Your employment with the Company will be on an "at will" basis, meaning that either you or the Company may terminate your employment at any time with or without cause or advance notice. This is the full and complete agreement between you and the Company on this term and nothing in this agreement or in any document or statement, and nothing implied from any course of conduct shall limit the Company's or your right to terminate at-will employment. Although your job duties, title, reporting relationship, compensation and benefits, as well as the Company's personnel policies and procedures, may change from time to time, the "at will" nature of your employment may only be changed in an express written agreement signed by you and a duly authorized officer of the Company.

8. **Obligations to the Company**.

a. You agree that to the best of your ability and experience you will at all times loyally and conscientiously perform all of the duties and obligations required of you pursuant to the express and implicit terms hereof, and to the reasonable satisfaction of the Company. During your employment, and in return for the compensation paid to you in connection with such employment, you agree to devote all of your business time, best efforts, skill, knowledge, attention and energy to the business of the Company, the advancement of the Company's business and interests, and to the performance of your duties and responsibilities as an employee of the Company. The Company will be entitled to all of the benefits and profits arising from or incident to all such work services and advice. You further agree that you will not directly or indirectly engage or participate in any business or outside activities that are competitive in any manner with the business of the Company or which conflict with the performance of your duties to the Company.

b. As an employee of Twilio, you must read and comply with Twilio's data protection and information security policies, each as updated from time to time. You must only process personal data relating to Twilio staff, customers, end-users, suppliers and other third parties as necessary for the performance of your role and must protect the confidentiality of that personal data at all times. Failure to comply with Twilio's data protection and information security policies is subject to discipline up to and including termination.

9. **Standards of Conduct.** As a Company employee, you must abide by Company rules and standards of conduct now existing or established from time to time by the Company. As a condition of employment, you must read and abide by the policies contained in the Company's Employee Handbook and Code of Conduct, as adopted or modified by the Company from time to time.

10. **Miscellaneous**.

a. You acknowledge that Company has directed you not to bring with you any confidential or proprietary material of any former employer or to violate any other obligations you may have to any former employer. You represent and warrant that you are not subject to any agreement or understanding with any current or prior employer or business (or any other entity or person) which would, in any manner, preclude you from fulfilling any of the duties or obligations you may have with the Company or which would result in any additional payment from the Company.

b. This agreement, the PIIA and the Arbitration Agreement constitute the entire agreement between you and the Company regarding the terms and conditions of your employment. You agree that no agreements or representations, verbal or written, with respect to the subject matter of our offer have been made to you other than those set forth in this letter agreement. To the extent any such agreements or representations were made, this agreement supersedes any and all previous offers, statements, agreements and representations made in the course of discussions and negotiations for this offer. Changes to the terms of this agreement, other than the changes to employment terms reserved to the Company's discretion, require a written modification signed by an authorized officer of the Company. If any provision of this offer letter agreement is determined to be invalid or unenforceable, in whole or in part, this determination shall not affect any other provision of this offer letter agreement and the provision in question shall be modified so as to be rendered enforceable in a manner consistent with the intent of the parties insofar as possible under applicable law. This letter may be delivered and executed via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and shall be deemed to have been duly and validly delivered and executed and be valid and effective for all purposes.

c. You represent and warrant that the information you provided to us during the hiring process is true and accurate, and you acknowledge that this offer is contingent on your consent to, and the successful completion of reference and background checks.

We are all delighted to be able to extend you this offer which will remain open for 10 ***calendar*** days from the **Company's** signing date below. To indicate your acceptance of the Company's offer as set forth above, please sign and date (i) this letter in the space provided below, (ii) the PIIA, and (iii) the Arbitration Agreement. This letter may not be modified or amended except by a written agreement, signed by the Company and by you.

[Signature Page to Follow]

Very truly yours,

TWILIO INC.

/s/ Christy Lake

Christy Lake
Chief People Officer

10-5-21

ACCEPTED AND AGREED:

I agree to and accept employment with the Company on the terms and conditions set forth in this letter agreement. I understand and agree that my employment with the Company is "at will" and may be terminated by me or the Company at any time, with or without cause or notice.

/s/ Dana Wagner

Dana Wagner

10-7-21

Exhibit 21.1

List of Significant Subsidiaries of Twilio Inc.

Subsidiary	Country
Ionic Security Inc.	United States
Segment.io, Inc.	United States
Zipwhip, LLC	United States
Twilio Australia Pty Ltd	Australia
Teravoz Telecom Telecomunicacoes Ltda.	Brazil
Segment Technologies Canada Inc	Canada
Twilio Canada Corp.	Canada
Zipwhip Canada, Inc.	Canada
Twilio Colombia S.A.S.	Colombia
Quiubas Networks Colombia S.A.S	Colombia
Twilio Czechia	Czechia
Twilio Estonia OÜ	Estonia
Twilio France SARL	France
Twilio Berlin GmbH	Germany
Twilio Germany GmbH	Germany
Twilio Hong Kong Limited	Hong Kong
Twilio Technology India Private Limited	India
ValueFirst Digital Media Private Limited	India
Segment Technologies Ireland Ltd.	Ireland
Twilio Ireland Limited	Ireland
Twilio Japan GK	Japan
CISA Telecomunicaciones, S.C.	Mexico
Twilio Netherlands B.V.	The Netherlands
Twilio Poland sp. z o.o.	Poland
Quiubas Mobile Ltd.	Serbia
Twilio Singapore Pte. Ltd.	Singapore
Twilio SVG Pte. Ltd.	Singapore
Twilio Spain, S.L.	Spain
Twilio Sweden AB	Sweden
Twilio UK Limited	England and Wales

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the registration statements (No. 333-212191, 333-224812, 333-229580, 333-236819, 333-250032 and 333-258368) on Form S-8 and (No. 333-231794, 333-249889 and 333-258364) on Form S-3 of Twilio Inc. of our report dated February 22, 2022, with respect to the consolidated financial statements of Twilio Inc. and the effectiveness of internal control over financial reporting.

The Company acquired Zipwhip, Inc. (Zipwhip) during fiscal 2021, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2021, Zipwhip's internal control over financial reporting associated with $51.9 million of the Company's total assets and $55.4 million of revenue included in the consolidated financial statements as of and for the year ended December 31, 2021. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Zipwhip.

/s/ KPMG LLP

Santa Clara, California
February 22, 2022

Exhibit 31.1

CERTIFICATION PURSUANT TO RULE 13a-14(a) OR 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Jeff Lawson, certify that:

1. I have reviewed this Annual Report on Form 10-K of Twilio Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 22, 2022

/s/ JEFF LAWSON

Jeff Lawson
Chief Executive Officer (Principal Executive Officer)

Exhibit 31.2

**CERTIFICATION PURSUANT TO RULE 13a-14(a) OR 15d-14(a) OF
THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002**

I, Khozema Z. Shipchandler certify that:

1. I have reviewed this Annual Report on Form 10-K of Twilio Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 22, 2022

/s/ KHOZEMA Z. SHIPCHANDLER

Khozema Z. Shipchandler

Chief Operating Officer (Principal Accounting and Financial Officer)

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, (the “Exchange Act”) and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, Jeff Lawson, Chief Executive Officer of Twilio Inc. (the “Company”), and Khozema Z. Shipchandler, Chief Operating Officer of the Company, each hereby certifies that, to the best of his knowledge:

1. The Company’s Annual Report on Form 10-K for the year ended December 31, 2021, to which this Certification is attached as Exhibit 32.1 (the “Periodic Report”), fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

2. The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 22, 2022

/s/ JEFF LAWSON
Jeff Lawson
Chief Executive Officer (Principal Executive Officer)

/s/ KHOZEMA Z. SHIPCHANDLER
Khozema Z. Shipchandler
Chief Operating Officer (Principal Accounting and Financial Officer)