

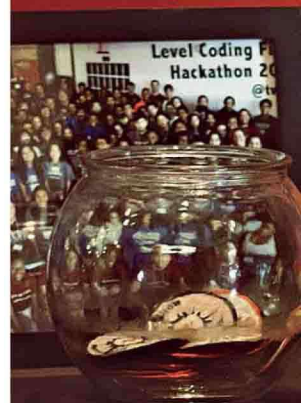
THE WIZARD OF APPS

THE HOTTEST STOCK IN AMERICA, TWILIO, IS A COMPANY YOU'VE NEVER HEARD OF. IT USES THE CLOUD TO PUT COMMUNICATIONS EVERYWHERE.

BY MIGUEL HELFT

Back in October of 2011, when Uber was still a tiny company beginning to expand beyond the San Francisco area, it sent an e-mail to its customers to alert them about a problem. Uber's SMS provider, Air2Web, was going to have a scheduled outage, which meant some Uber features, like notifications and SMS ride requests, would be temporarily unusable. "If you text in and don't receive a prompt response from us, it's not because we don't want to, it's because we can't!" said the snarky Uber note, its irritation at Air2Web poorly concealed.

The e-mail landed in the in-box of Jeff Lawson, the CEO of a crosstown



TIM PANNELL FOR FORBES

A full-body photograph of Jeff Lawson, a bald man with glasses, wearing a dark zip-up sweater over a collared shirt and blue jeans. He is holding a silver smartphone in his left hand and has his right hand in his pocket. He is standing in front of a red wall with a grid of circular perforations. A wooden desk is visible at the bottom of the frame.

Jeff Lawson, cofounder and CEO of Twilio, is helping everyone from Airbnb to Salesforce to Uber connect with their customers.

startup named Twilio, which specializes in cloud-based text and voice communications. Short, stocky and balding, with a round face framed by rectangular glasses, Lawson could double for George Costanza, only without the bumbling, neurotic personality. Lawson is low-key and personable, and what he lacks in the swagger and bombast associated with startup founders he offsets in engineering intensity and entrepreneurial discipline.

Lawson knew just what to do with the Uber e-mail, forwarding it to his friend Rob Hayes, an Uber board member at the time, along with a brief sentence: “For the love of God, they should be using Twilio.” Hayes then introduced Lawson to Uber CEO Travis Kalanick, and within a month Twilio was powering Uber’s SMS. “It was mutual love,” Hayes says. Little by little the relationship expanded, and Twilio now runs texts, alerts and voice calls on the Uber app in most parts of the world. When a driver and passenger call each other, they do so through a Twilio number that keeps their own phone numbers private. “We didn’t know Uber was going to be what it is,” says Patrick Malatack, Twilio’s head of product. “But it was great to see Jeff’s hustle.”

Twilio, as a company, reflects its chief executive’s personality. “Be humble and be frugal,” says Lawson, a 39-year-old father of two. That aw-shucks credo has translated into 30,000 customers—from small developers to large enterprises—who use Twilio to power some 75 billion annual connections that reach 1 billion devices. Match.com pairs potential lovebirds without revealing phone numbers, Airbnb sends rental notifications and the American Red Cross deploys volunteers, all through Twilio. ING, the European banking giant, recently announced it was yanking out 17 hardware and software systems across its global call centers and replacing all of it with Twilio. Its largest customer, WhatsApp, uses Twilio to verify customer accounts and logins. Apps from Lyft, Expedia, Netflix, Coca-Cola, Salesforce and the *New York Times* all have Twilio inside. “He’s built a fantastic business,” says Salesforce CEO Marc Benioff. “This is something that every company will build into their applications, like we have.”

The latest group that seems to have noticed Twilio’s behind-the-scenes success: Wall Street. Defying the all-but-dead market for tech issues, Twilio, which still isn’t profitable, went public in June, raising \$150 million at a \$1.2 billion valuation. Shares of Twilio, which would have ranked high on our inaugural list of the 100 hottest cloud companies had it stayed private, nearly doubled the first day. And within two months, fueled by 70%

sales growth in its most recent quarter, it doubled again. Its recent \$4.6 billion market capitalization dwarfs better-known tech names like Box (\$1.7 billion), Fitbit (\$3.1 billion) and Yelp (\$3 billion).

Twilio’s coming-out party sends a multibillion-dollar signal that building communications functions into apps is both vital and easier than ever, which in turn promises to make every smartphone in the world even smarter. Lawson is aware of the potential. As part of the IPO celebrations, he gave each of his more than 650 employees a T-shirt with a simple message: “Day 1.”

ABOUT A YEAR AFTER LAWSON and two friends founded Twilio in 2008, Lawson was invited to introduce it at a popular networking mixer called the SF New Tech Meetup. Rather than talk about an inherently difficult-to-explain technology, Lawson decided to let the Twilio software speak for itself. In front of a thousand people Lawson began telling his story while simultaneously coding a Twilio app—a simple conference line. In just a few minutes he opened an account and secured a phone number, and after writing a handful of lines of code that

“THE IDEA THAT SOMEONE WITH NO TELECOM ENGINEERING EXPERIENCE COULD BUILD A CALL-CENTER FLOW BY DRAGGING AND DROPPING WAS AMAZING.”

everyone in the room could understand, his conference line was up and running. Lawson then asked everyone to phone in, and just like that a mob of developers was on a giant conference call. Lawson then added some more code, and his app called everyone back to thank them for participating. As phones throughout the room began buzzing, the crowd went wild with enthusiasm. “He is the let-me-show-you-what-we-can-do type of exec,” says Byron Deeter, of Bessemer Venture Partners, an early backer who has become Twilio’s largest shareholder. “There’s no bravado and no ego, and that gives him a special charisma and authenticity.”

Lawson’s parlor trick did more than generate industry buzz. It epitomized a developer-centric business strategy that has fueled its growth. Twilio is exceedingly simple to use and charges no upfront fees, so programmers often use it to test an idea or product. Pretty soon that product scales and turns into a six- or seven-figure account that required no traditional sales process. “We onboard developers like consumers and let them

spend like enterprises,” Lawson says. Like others that have embraced developer-driven marketing—Amazon for computing services, Stripe for payments, New Relic for analytics—Twilio benefits as companies increasingly turn to software for differentiation. “As that happens, and companies hire more developers, they come in with Twilio in their tool belt,” Lawson adds.

Given this ethos, all new Twilions, as the company’s employees call themselves, endure a rite of passage: They have to create a Twilio app and present it to the whole company. (And, no, the assistants and marketers and lawyers aren’t exempt: Non-engineers learn the ABCs of coding a Twilio app as part of an onboarding “boot camp.”) On a recent Wednesday evening a few dozen staffers, hunched over catered Vietnamese pho in the company’s cafeteria-cum-kitchen in San Francisco’s South of Market tech hub, cheer a handful of newbies as they unveil their handiwork.

Most of the apps are goofy. One answers text queries with a Simpsons’ GIF. Another allows users to text a math problem and promptly delivers an answer from Wolfram Alpha, a Web-based knowledge engine that does computations. The takeaway, however, is serious: Anyone can build a Twilio app. After each presentation, Lawson, dressed in his usual jeans, sneakers and a dark fleece vest over a button-down shirt, officially turns them into Twilio’s version of a varsity letterman: “Here’s your *traaaaack* jacket!” Lawson also hands them a Kin-

dle, which comes with \$30 in monthly credit. “We want to encourage people to invest in themselves,” he says.

The CEO has been investing in himself from a young age. Growing up outside Detroit, he started a business in middle school, filming and editing event videos, mostly bar mitzvahs. By the time he graduated high school, he’d moved up to black-tie weddings, pulling in as much as \$5,000 on some weekends. Lawson began coding in college, at the University of Michigan, and got his first paid programming gig while still a freshman.

Soon after, Lawson launched his first Internet start-up, Varsity.com, which published notes from the biggest courses on campus. As Varsity gained traction and pulled in advertising revenue, Lawson dropped out of school, raised money from venture capitalists, moved the company to Silicon Valley and expanded the business to about 200 campuses.

In 2000, as the dot-com wave was cresting, Varsity was acquired by a competitor, CollegeClub.com, which had filed for an IPO. Unfortunately, the crash hit before the company could go public, and it collapsed soon after. Since Varsity had been acquired for stock, Lawson ended up empty-handed. “No one looked at their burn rate or their cash balance,” he says. “I learned a lot and became very cognizant of spending money wisely.”

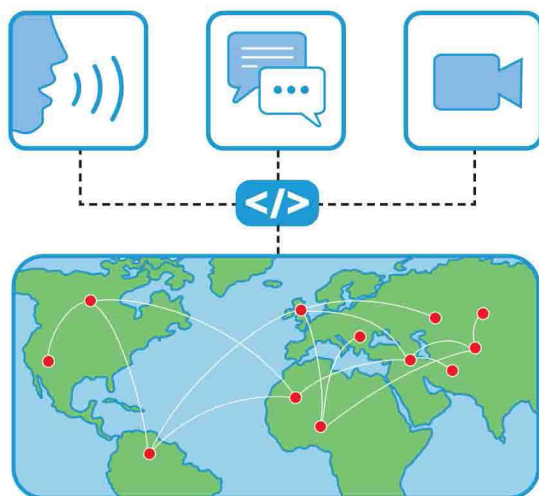
Bitten by the entrepreneurial bug, Lawson teamed up with a friend, Jeff Fluhr, who had recently cofounded StubHub. As the company’s first CTO, Lawson developed the original version of the ticket-reselling site in just six weeks. “He architected the whole thing and recruited a couple of people to help build it,” says Fluhr. But sports wasn’t his thing, and Lawson left the company after a few months, dabbling in a brick-and-mortar retail venture and finishing his college degree.

Hungry for some big-company experience to round out his skills, Lawson interviewed at Amazon in 2004. He got an offer from a tiny team that couldn’t tell him what it was up to until after he accepted. It was the beginning of what would become Amazon Web Services, and Lawson helped build the technology that Amazon launched publicly in 2006. “This whole idea that you can offer infrastructure as a service was kind of mind-blowing,” he says.

His 15 months at Amazon proved to be formative. Selling the building blocks of computing as a service was a brand-new idea, and Lawson was at its epicenter. The model gained traction with the advent of mobile apps, which over time prompted scores of businesses to turn to software as a way to interact with customers. As he began to think about where he could apply the Amazon Web Services model, Lawson homed in on communications, which had proved essential to every business he had started. Along with two friends, Evan Cooke,

TWILIO INSIDE

TWILIO TURNED VOICE, TEXT AND VIDEO CAPABILITIES INTO PROGRAMMABLE BUILDING BLOCKS THAT DEVELOPERS CAN PLUG INTO THEIR APPS.



TWILIO’S “SUPER-NETWORK” CONNECTS APPS WITH THEIR CUSTOMERS ACROSS THE GLOBE.

who now works in technology at the White House, and John Wolthuis, who remains at Twilio, they developed a prototype and put it up—where else?—on AWS. Initial reaction from developers was enthusiastic, and Twilio got its first customer, a service called PhoneMyPhone.com, which allowed people to type their number into a website to ring their own cellphone (handy when it's stuck between the couch pillows).

Twilio's reception on Sand Hill Road was more muted. Many VCs told Lawson that targeting developers, who don't control budgets of any significance, was a bad strategy. And his timing was lousy: One meeting with a prominent early-stage firm was interrupted by news of Lehman Bros.' collapse. Eventually, Lawson received some encouragement and capital from angels Mitch Kapor, who had developed the first popular spreadsheet and founded Lotus, and Dave McClure, who had run a developer program at PayPal. Chris Sacca, a former Googler who made his fortune backing Twitter and Uber, and Bessemer's Deeter also invested.

Deeter later secured Bessemer's position as lead fi-

more than 50 building blocks, or APIs, up from the initial 5—customers began programming increasingly complex functions and gaining access to analytics, routing data, pricing and other features, across not only voice and text but also video communications.

Today customers can build a call center entirely out of software building blocks rather than having to purchase expensive equipment or prepackaged communications solutions. What once required pulling copper wires into a data center and costly investments in carrier contracts and infrastructure can now be done by a small team of programmers with no upfront cost. Twilio charges only for usage.

"The things they made possible were crazy," says Sacca, who worked on various telecommunications projects at Google. "The idea that someone with no telecom engineering experience could build a call-center flow by dragging and dropping was amazing." Today Twilio connects to the global telecommunications network through 22 data centers in 7 regions and has agreements with most of the major carriers that allow it to deliver a message to pretty much any phone on the

planet. Lawson calls this Twilio's "super-network." "As our business grows, the super-network becomes more difficult to replicate over time," he recently told investors. Many analysts agree. "Twilio is a company that is light-years ahead of their competitive field," says Mark Murphy, an analyst at JPMorgan.

WHEN AN UBER DRIVER AND PASSENGER CALL EACH OTHER, THEY DO SO THROUGH A TWILIO NUMBER THAT KEEPS THEIR OWN PHONE NUMBERS PRIVATE.

nancier of the company's Series B round with a Twilian stunt: He used Twilio to program a conference line and asked Lawson to call in at a set time. Instead of a conference, Lawson was greeted by a message: "Thank you for calling the term-sheet hotline for Bessemer Venture Partners. We value your business." The robotic voice told Lawson to Press "1" for a \$15 million term sheet, "2" for \$20 million and so on in \$5 million increments to \$30 million. There were also options for hearing Katy Perry's "Last Friday Night" and for connecting with a psychic. Lawson ended up choosing to raise just \$12 million.

Twilio began by offering a simple set of basic programmable communications functions—things like "dial," "play," and "record"—which developers could bolt onto their apps. Underneath those, Twilio handled the messy task of plugging into the telecommunications infrastructure across a multitude of carriers in various countries. The service allowed any developer to easily add voice and text messaging to Web and mobile applications. As Twilio's capabilities expanded—it now offers

AT A RECENT ALL-HANDS MEETING at Twilio's headquarters, Lawson plays

MC in front of a hundred or so Twilions, most of whom sit on the cement floor. He's framed by large monitors that show colleagues from offices in Mountain View, New York, London, Dublin and Tallinn. Lawson introduces a handful of new employees and, to make sure everyone remembers their names, leads the group in a boisterous camp counselor call-and-response routine. (He's dressed exactly like the night before, when he watched new employees present their Twilio apps.) He then sits down for one of the mainstays of the weekly meetings: a customer Q&A. Gene Schriver, the CEO of Globo, a translation-services company, joins him at the front of the room, and the two embrace. "I'm hugging him because I bought Twilio at \$26," Schriver quips. No one in the audience needs a reminder that shares are above \$50.

With the two of them on barstools, Lawson, his leg shaking restlessly, listens intently as Schriver explains how he essentially built Globo on top of Twilio. Globo connects customers with translators around the world

over the telephone. The calls could be coming from a call center serving a customer who doesn't speak English or a hospital in Bangkok where a doctor needs to talk to a French-speaking tourist.

Globo, which also offers e-mail, text and document translations, connects the calls through Twilio and routes them to the appropriate translator, not only by language but also by expertise, be it medical, legal, technological or other. "Twilio was a blank canvas upon which we could make anything happen," Schriver says. The capabilities and reliability of Twilio's platform, he adds, are what allowed Globo, which has just 40 employees, to beat far larger rivals for a federal government contract to offer translation for Medicare recipients and people signing up for ObamaCare at government exchanges. Schriver calls his choice of Twilio critical. "It's the most important bet that we made," he says.

Amid the lovefest, Lawson wants to know what's not working and what his team could do better. Schriver lists a few: Some services could work faster; analytics on voice quality could be improved; it would be nice to know what new features Twilio is planning. This kind of feedback is an integral part of how Twilio develops its products. Not long ago, Malack, the VP of product, found out that two large Twilio customers were parking callers they couldn't handle immediately on a conference line and muting them. He instructed his team to build a capability to queue calls. "We look at what customers are doing and try to make it easier," says Malack, a developer himself, who used Twilio to connect the buzzer of his Seattle apartment to his cellphone before joining the company.

Twilio's approach is resonating with all types of customers. When Yelp built a restaurant-reservation system to compete with OpenTable, it used Twilio to automate the confirmation process. Rather than have a host call customers the day before to make sure they're still planning to come, the interchange happens automatically via SMS, and restaurants see a confirmation on their dashboard. Similarly, Zendesk, a cloud-based provider of customer-service software, has used Twilio to offer call centers to small and medium-size businesses—say, a mom-and-pop limousine dispatcher.

Twilio has also brought its simple programmable communications capabilities to countless nonprofit organizations through its Twilio.org arm. Modeled after Salesforce's 1-1-1 commitment to donate 1% of employees' time, technology and resources to charitable causes, Twilio.org has been seeded with nearly 800,000 company shares and has a goal of delivering a billion

messages "for good." It's currently at 10% of that goal because of organizations like Trek Medics, which gives people access to emergency services in countries where 911 doesn't exist, like Haiti, the Dominican Republic and Tanzania.

In the United States the Crisis Text Line used Twilio to build a service that connects some 1,600 volunteers with people who are contemplating suicide or face a threat of domestic violence. As Twilio integrates with services like Facebook Messenger, the Crisis Text Line is taking advantage of those connections. "We want to reach people where they are," says Chris Johnson, Crisis Text Line's CTO.

Sizing the opportunity in front of Twilio, which did \$167 million in sales last year, is not easy. At its current growth Twilio would hit a \$1 billion annual run rate in the second half of 2018. Lawson calls telecommunications services a trillion-dollar market, with big portions of it poised to migrate from hardware to software. But legacy competitors like Avaya, Genesys and others are determined to defend their turf. And a crew of smaller startups, with the next generation of Lawsons, are also

"I WANTED TO MAKE SURE OUR CUSTOMERS KNEW WE WERE NOT SOME FLY-BY-NIGHT UNICORN."

courting software developers.

For now, none of the new players have the scale, features or reliability of Twilio. The bigger risk for the company is its overreliance on a handful of big customers, such as Facebook's WhatsApp, which account for about 13% of its revenue. But with most of the growth still coming from smaller accounts, Wall Street appears unconcerned. "It is very possible that Twilio will compound its growth nicely for many years to come," says JPMorgan's Murphy.

For Lawson, who learned his lessons during the dot-com boom, success is about not only growth but also financial discipline. Profitability is within reach in no small part because, by tech startup standards, Twilio is downright frugal.

Its headquarters south of Market Street are in a modest, revamped industrial building. What passes for a reception area is a cramped room with a security guard behind a small desk who directs visitors through a meandering series of hallways to a cavernous service elevator. Twilio occupies the third floor and parts of the second floor. The company has no fancy furniture

and no corporate chef. Free lunches, that tech company staple, are catered only a couple of times a week. The combination of thriftiness and rapid growth paved the way for Twilio to conduct its IPO on its own terms. Lawson says the company had more than \$100 million left in the bank and didn't need to go public. "I wanted to make sure our customers knew we were not some fly-by-night unicorn," he says.

Lawson, whose stake in Twilio gives him a fortune that approaches \$500 million, is halfway to personal unicorn status. If Twilio's stock doubles yet again, Lawson will be a billionaire. As the world gets increasingly mobile and cloud-based, that seems entirely possible—not in two months but perhaps in two years. Says Lawson: "We are absolutely just getting started." **F**

THE CLOUD 100

OUR EXCLUSIVE RANKING OF THE HOTTEST PRIVATE COMPANIES IN THE CLOUD FACTORED IN REVENUE GROWTH, FINANCING, MARKET SHARE AND BUZZ. THE LIST WAS COMPILED WITH THE ASSISTANCE OF BESSEMER VENTURE PARTNERS AND 20 OF THEIR PUBLIC CEO PEERS.

1 Slack

San Francisco

Stewart Butterfield

EMPLOYEES: 600

FUNDING RAISED: \$540 MIL¹

TEAM MESSAGING APP

2 Dropbox

San Francisco

Drew Houston

EMPLOYEES: 1,500

FUNDING RAISED: \$600 MIL

DOCUMENT SHARING

3 DocuSign

San Francisco

Keith Krach

EMPLOYEES: 1,800

FUNDING RAISED: \$525 MIL

ELECTRONIC SIGNATURE MANAGER

4 Stripe

San Francisco

Patrick Collison

EMPLOYEES: 505

FUNDING RAISED: \$300 MIL

ONLINE PAYMENTS

5 Cloudera

Palo Alto, Calif.

Tom Reilly

EMPLOYEES: 1,043²

FUNDING RAISED: \$1,040 MIL²

DATA STORAGE

6 SurveyMonkey

Palo Alto, Calif.

Zander Lurie

EMPLOYEES: 618

FUNDING RAISED: \$1.2 BIL

ONLINE SURVEY MANAGER



SLACK: THE END OF E-MAIL

STEWART BUTTERFIELD, CEO, COFOUNDER

As CEO of one of the hottest companies in tech, Stewart Butterfield can barely keep up with his messages. "Every freaking app on my phone has a backlog," he says. It could be a lot worse. Butterfield's company, Slack, has taken a big bite of the e-mail deluge now commonplace in offices. Each day 3 million people take to Slack on their computers and phones to send co-workers everything from routine messages to goofy cat pics. "People are creating expense reports or time-off requests with just a button," says Slack's chief.

Butterfield believes the market for his software is as large as several hundred million people. Slack is already ubiquitous in some industries (media and tech), and they're working on a new product geared to the needs of large businesses; Harvard University and the State Department already use Slack's current version. "The scale of this opportunity is to build something that lasts for decades or even longer," he says.

7 MailChimp

Atlanta

Ben Chestnut

EMPLOYEES: 540

FUNDING RAISED: BOOTSTRAPPED

E-MAIL MARKETING

8 Squarespace

New York City

Anthony Casalena

EMPLOYEES: 563

FUNDING RAISED: \$79 MIL

WEBSITE BUILDER

9 AppDynamics

San Francisco

David Wadhvani

EMPLOYEES: 1,000

FUNDING RAISED: \$314 MIL

APP MANAGER

10 Adyen

San Francisco and Amsterdam, The Netherlands

Peter van der Does

EMPLOYEES: 400

FUNDING RAISED: \$266 MIL

ONLINE PAYMENTS

11 CloudFlare

San Francisco

Matthew Prince

EMPLOYEES: 311

FUNDING RAISED: \$182 MIL

WEB SECURITY

12 Qualtrics

Provo, Utah

Ryan Smith

EMPLOYEES: 1,243

FUNDING RAISED: \$220 MIL

ONLINE SURVEY MANAGER

¹ TOTAL PUBLICLY-DISCLOSED VENTURE FINANCING
² ESTIMATE COURTESY OF PITCHBOOK