What does Twilio do?

Call me, text me, if you want to reach me

Justin
Oct 20, 2021

For a while, Twilio ($TWLO, $65B) made noise by putting up these billboards around San Francisco (last time I was there, I think a few were still up). The idea was that they didn't need to advertise any specifics about the product – it was so popular, and so ubiquitous among technical teams, that all you needed to do was "ask your developer."

Well, dear readers, I *am* your developer. And so today, we're diving into Twilio, what exactly they do, and why that makes them worth so much cold hard cash.

The TL;DR

Twilio makes a suite of products that help you **communicate with your customers** via SMS, video, calls, and more.

- Web and mobile apps need to **communicate with users**: think SMS and email code confirmations, etc.

- On the backend, **getting a phone number set up** to send and receive texts / calls from programmatically is a huge PITA
- Twilio started with one product – a **simple SDK** for programmatic SMS / calls
- Since then, they've expanded the product suite to **video, email, and WhatsApp**

Like Stripe did with payments, Twilio took one piece of the developer workflow with a particularly tedious set of constraints, made it really simple to do via well designed APIs, and made a boatload of money off of it. A pattern I smell perhaps??

Communicating with your customers

The basic starting point here is why would you use Twilio? What exactly are businesses doing with SMS / phone / video? The answer is that they're doing **a lot**, and use cases vary across the spectrum. Here are a few examples that might help:

1. **Call centers**

When you're angry at your delayed flight and decide to call the customer support line, there's an entire network behind that phone number with complex logic for routing, leaving messages, and putting people on hold (of course). A lot of work goes into setting these up.

Look at how happy these call center actors look!

2. **Verification / authentication**

More than ever, apps are using your phone number to verify your identity. The usual flow is that you download an app on your phone (or access one on the web), they ask for your phone number, and then send a one time confirmation code that you need to paste into the app. Sometimes, companies will do that every time you authenticate, which is called MFA.

3. **Text-based interfaces**

Beyond just authentication, there are entire apps that exist via text. There are cheeky examples like a weather app that you text every morning to get the forecast, but also more legit stuff like brands communicating new drops, sales, etc.

So to sum up, there are a lot of good reasons that companies need to use text and phone to talk to their customers. The problem, though, is that this is very hard to do!

The complex world of telephony

I forget who said it (it's completely possible I made it up), but I once heard that "everything that's big is complicated." This aptly describes the world of

telephony – a funny sounding word for calls and texts, carriers, cell towers, and all of that fun stuff. It has been around, at least in a primitive form, literally since the 1800's.

As a consumer, we mostly interface with this system through carriers. Verizon, AT&T, and other universally beloved (lol) businesses like them own their own proprietary networks of infrastructure; both above ground (cell towers) and below it. Yea, sure, it's really annoying to deal with these companies (if you've ever tried switching, you know what I'm talking about). But as a business, things get even more hairy. To quote from Twilio's own post about this topic:

> "*For you and me, that connection is simple: a cell phone or a home internet connection. Consumers are hidden from the complex world of languages, protocols, and hardware that goes into providing a global telephone network.*
>
> *But for businesses, it's not so simple. To build custom functionality on top of that connection, like a company phone system (PBX) or call center, many different additional pieces are required. Specialized servers and software are needed to do the work. Specialized facilities are needed to house and run the equipment. A specialized workforce is needed to install and maintain the equipment as well."*

If this story sounds familiar, it's because it's a common pattern. When we looked at what cloud is, the narrative rhymed – building your own data centers and maintaining servers is really expensive, tedious, and time consuming. The internet is different than telephony, but ultimately the lesson is the same; big networks are complicated and hard to run.

The Twilio post continues and gets into protocols:

> *"The telephony networks also run on a myriad of complex, and often proprietary, protocols. The internet largely communicates using a basic foundational protocol, HyperText Transport Protocol (HTTP).*
>
> *The telephony networks make use of a diverse set of protocols, each one tailored specifically to the task at hand. Session Initiation Protocol (SIP) for managing real-time voice, video and messaging sessions. Extensible Messaging and Presence Protocol (XMPP), a specialized real-time messaging*

> *protocol (think IRC). Real-time Transport Protocol (RTP) for delivering voice and video over IP. Global System for Mobile Communications (GSM) to connect mobile devices."*

Message received – this stuff is hard, resource intensive, and certainly not in the usual developer skill set.

The Twilio product – making it easy to text and call

Twilio exists to make all of the above really, really easy for developers. They take care of all of the infrastructure *behind* phone networks, and expose ergonomically designed APIs that let developers do things like create numbers and send or receive texts.

A common use case for Twilio is sending a text message. Let's say you're a developer building the login screen for your app, and you want your new users to verify their phones. To do that, you need to send a text to their number with a one time code, and have them enter that code on the site. Sending a text in Twilio is as easy is a few lines of code:

```
client.messages.create({from: '+15017122661', body: 'Hi there', to:
'+15558675310'})
```

The .create method is the money maker here – you give it a "from" number, an actual message, and a "to" number, and you're good to go. There is, of course, some configuration that has to happen in advance – you need to generate a number from Twilio, as well as set up that client object with your credentials – but it's mostly boilerplate (=straightforward). I remember Fred Wilson writing that Jeff Lawson (Twilio founder) did this demo live for him during a pitch, and it was one of the best he had ever seen.

> **🔍 Deeper Look 🔍**
>
> Just because developers don't have to deal with carriers doesn't mean that they don't exist. The value of Twilio here (beyond smart approaches to

> programmatic messaging) is that *they* take care of creating and managing numbers. I'm still trying to understand exactly how this works behind the scenes.
>
> **🔍 Deeper Look 🔍**

Like any good SDK, Twilio has APIs for *everything* you'd need to do around SMS. A few examples:

- Tracking delivery status
- Getting and modifying message history
- Redact content from an existing message

And since these are all just APIs, you can do interesting things with them. If you work on an app that lets people book haircuts, you might run a job every day that looks at all of the appointments in your database and uses Twilio to send text reminders to your customers.

Twilio has their own markup language for generating the actual content in these texts, and they call it TwiML (short for Twilio Markup Language). This is how you might author a two message text:

```
<Response>
    <Message>Hello. This is Vandelay Industries.</Message>
    <Message>Are you interested in buying latex?</Message>
</Response>
```

The final thing to mention here is that like most "API companies" (I hate this phrase), Twilio maintains client libraries so you can use it in your favorite programming languages like JavaScript, Python, etc.

Growing the product / acquisitions

Twilio started out as texts and calls, but they've expanded the product suite to include email, video, and other messaging like WhatsApp. A little more in depth:

1. **Email**

In early 2019, Twilio bought a company named Sendgrid. Sendgrid was a programmatic email company, just like Mailgun – they let developers send email from their apps via APIs. Instead of setting up an entire email server, you could just write code like:

```
const message = {
  to: 'kruger@krugerindustrialsmoothing.com'
  from: 'art@vandelayindustries.com',
  subject: 'Potential Latex Opportunities',
  text: 'Is latex smoothing an option? Call me.'
}

sendgrid.send(message)
```

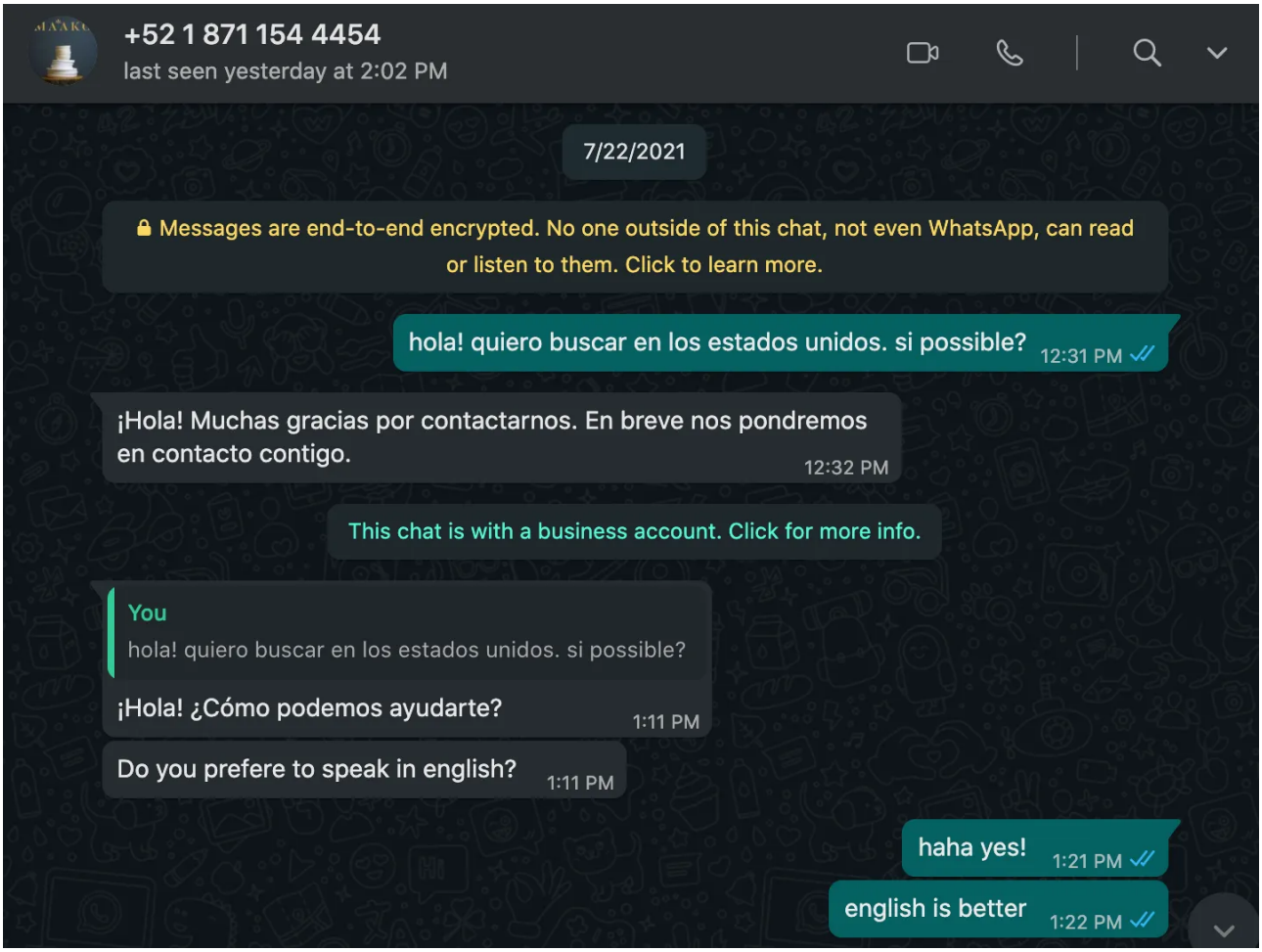
Which is obviously a lot easier (I've personally used Sendgrid a lot). This acquisition obviously makes sense from a communications perspective, and added yet another channel (email) to Twilio's suite of communication APIs.

2. **Video**

Twilio provides a set of APIs for building video into your app, either as 1<>1 video chats (think: with a customer support rep, a doctor, etc.) or as larger live streams and meetings. A video chat is called a "Room" in Twilio speak, and you can create one in a few lines of code.

3. **WhatsApp / Multi-channel**

It was in beta for a while, but now it's generally available – beyond SMS, you can now send WhatsApp messages via Twilio. It's definitely not as popular in the US, but abroad tons of business gets done via WhatsApp, like me trying to buy these glasses I liked in horribly broken Spanish:



Using Twilio lets businesses like Casa Maako automate talking to idiots like me.

4. **Segment???**

In one of the more notable acquisitions of last year, Twilio bought Segment. What Segment actually does is kind of complicated (so of course, I wrote about it). But the quick gist is that it's an event platform for moving your customer data around – so tracking what your customers are doing, and then moving that data into your usual tools like Salesforce.

This one, at surface level at least, was a bit more difficult to parse than the Sendgrid acquisition (or some of Twilio's other acquisitions). I'm interested to see how they integrate it and where this goes.

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5 Comments

Write a comment...

Connor Oct 20, 2021 Liked by Justin

Am PM at Twilio currently working on Voice products but previously worked on carrier and phone number things. Great write up (and that Quota post is insane too, feel like I learned a lot from that lol). Available for product questions if ya have 'em!

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3 replies

No Hype Investing Writes No Hype Investing Feb 18, 2022 · *edited Feb 18, 2022*

Thanks for this great article about Twilio. As described in your article, the phone network with all its different protocols seems to be quite complex and the main reason for a developer to use Twilio.

Looking into the future, I assume that most of our communication will be over the Internet (email, Whatsapp or whatever).

Isn't that a huge headwind for the company?Twilio's old business and possibly biggest moat, if I understand correctly, is based on the complex phone network and the simple "workaround" for developers that Twilio created with its product.

But how does it look now specifically in the case of digital communication?If I understood correctly from your article, the biggest advantage for Twilio in digital communication is that you don't have to set up your own server? But how does it look now specifically in the case of digital communication? If I understood correctly from your article, the biggest advantage for Twilio in digital communication is that you don't have to set up your own server? Otherwise, what about the complexity for the developer? How is the effort different for a developer who wants to send, for example, a verification by email instead of SMS - is the incentive still so great to work with Twilio?

And a question about your Whatsapp chat example. As I understand it, you were trying to buy a pair of glasses and so you were writing to the seller on Whatsapp. I don't really understand what Twilio is needed for here or which Twilio product is applied here?

I would be very happy to receive an answer :)

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