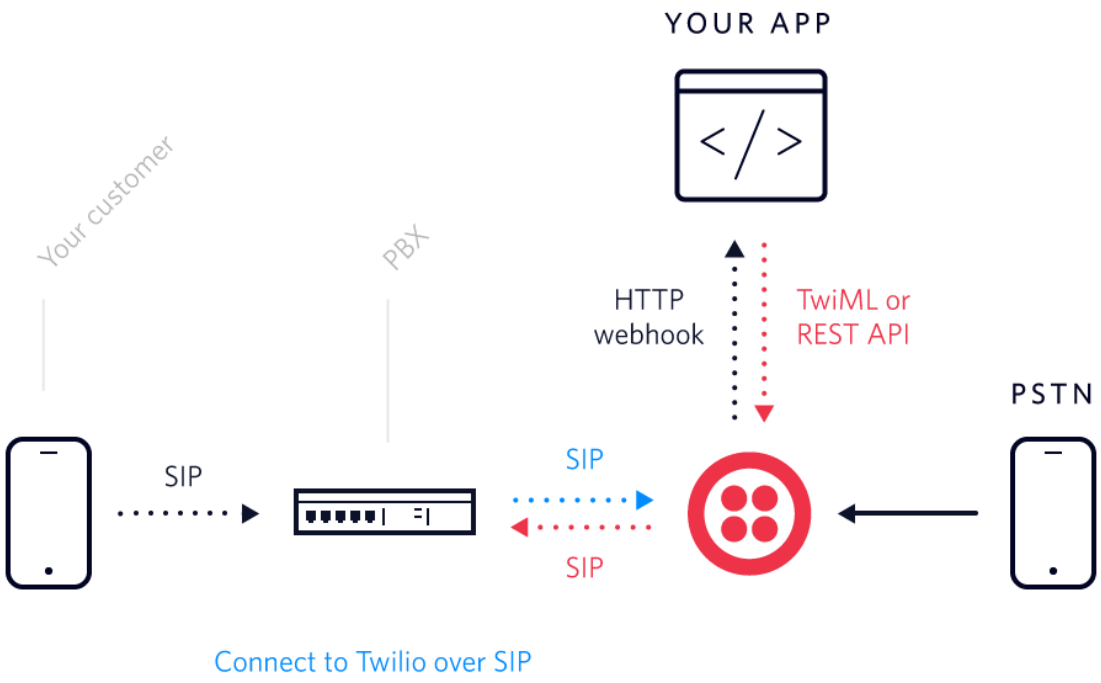
A comprehensive summary on Twilio

Twilio is a company founded by developers for developers! Twilio provides a software-based platform which enables customers to easily add voice, messaging and video to their apps. Twilio is NOT selling a final product that can be consumed by an end-user (e.g., prepackaged software to solve their business problems), but rather is providing developers/customers with the prefabricated building blocks (i.e., APIs) needed to build any communication-based functionality they desire right into their application. By just virtually buying a phone number and swiping their credit card for potential per minute usage, developers can build contextually relevant communications by preventing their own customers' users from leaving the application when they need to interact with someone (think why WeChat is popular in China). On this side of the world, popular use cases include ridesharing apps enabling anonymous communication between passengers and drivers and e-commerce companies sending automated delivery notifications or promotional messages.

So how does it work?



A developer signs up for Twilio, chooses a local virtual number (e.g., with 415 area-code for San Francisco, 212 for New York City) to send and receive voice, or SMS messages. The developer then maps the virtual number to a 'request' URL (the application's URL, which Twilio would request from the developer's application server when receiving a voice call on behalf of the developer/customer). The URL, or Uniform Resource Locator, created by the application developer, would describe to Twilio how to control the content of phone

calls.The developer defines a set of business rules, or instructions to handling incoming and outgoing calls for each customer cohort. These instructions include:

1) Say - inform the customer that his or her order has been processed, or play a prerecorded sound file
(message or music);

2) Gather - collect information from the caller;

3) Record - record the call;

4) Reject - hang up;

5)Dial - dial this specific rep number to forward the customer to, or set up a conference call. In essence, on one ends Twilio 'ingests' the phone call or the message flow, while on the other, it provides APIs for developers who, in turn, instructs Twilio on how to handle the incoming or outgoing phone calls.

An API, or Application Programming Interface is a prefabricated block of software code that performs basic, reusable functions—e.g., displaying text on a computer screen, enabling inter-app communication—to allow developers to simply focus on building value-add, user facing applications. The call gets 'load-balanced' to a number of nodes/servers in Twilio's cluster (managed by AWS). Each group of machines/servers perform specific roles—for example, some roles might be CPU-bound, a task is determined by the speed of the central processor, while others are memory-bound, determined by the amount of memory required to hold data—allowing Twilio to scale each group of machines independently of one another. The call comes in, gets load-balanced to a 'Voice' node cluster (i.e., a group of servers dedicated to voice function) to be answered by Asterisk, an open source PBX software platform. In general, a PBX allows telephone users to set up circuit-switched calls to other users in the same company (without toll charges) or to connect with users of the public telephone network. Effectively, PBXs shift some of the switching system out of the telephone company□s central office 'CO' and into the customer's premise. The switch permits direct inward dialing 'DID' to a specific extension. Twilio stores the 'DID' numbers in its database; on the other end, the developer/customer would associate her or his assigned 'DID' number to a specific URL of a web application. As the call comes in, Twilio would make an HTTP POST request to that URL. In turn, Twilio would receive from the application server the XML instructions on how to handle the call.