Building Phone Applications

A step-by-step guide

Vince Dasta

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A step-by-step guide to building powerful voice and SMS applications for business

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More information

This book, as well as my other telecom content, is available at http://vincedasta.com/

Preface

Building Phone Applications will show you step-by-step how to build powerful voice and SMS applications and how to leverage these applications to power your business. All of the examples in this book are written in PHP and use the Plivo Cloud API, but you can easily modify them to use different technology.

What you need

All you need to get started is a Plivo account, a server, VPS, or host that lets you run PHP, a text editor and an Internet connection. In later chapters we'll setup a Plivo account and build your hosting environment from scratch so don't worry if you don't have those setup yet.

Conventions

In this book different styles of text are used to distinguish different kinds of information. Here's a few examples.

Sample Code Block

```php
<?php
require_once 'lib/plivo.php';
echo 'hello world!';
?>
```

Bold text is used to show **New terms** and **important items**. Bold is also used to denote menu items or on screen options. For example, "Click **Applications** under the **Settings** menu."

Warnings

Warnings are used to indicate an important item which could cause trouble.

Tips

Tips and tricks appear like this.

1 Introduction

Let's face it, you want your business to be successful. There's probably not very many people out there that would say that they want to attract less customers, work harder for sales, and make it harder for their customers to use their products. But in reality that's what far too many tech companies do by not having a phone number posted on their website. If so many companies don't have a phone number on their site there must be a reason right?

1.1 The old way of thinking

What is the first image that comes to mind when you think about a phone number? Old fashioned? Expensive? Not scalable? Low-tech?
What about from your customer's perspective? Trustworthy? Legitamate? Safe? Helpful? Common sense would tell you that customers want to see a phone number before they buy from you. You have probably spent countless hours optimzing your site, your pricing pages, every word and image has been selected to show your value and convey that sense of trust that let's a potential customer know it's safe to enter their credit card number. What if adding a phone number was as easy as a few lines of code? What if you could track a conversion rate and run A/B tests with a phone number? What if you could handle a majority of your inbound phone calls without anyone from your company picking up a phone? These are the things that you can do once you abandon the old way of thinking about the phone system. In this book I'll show you how to use the old fashioned phone system as another channel for interacting with your customers and team using modern API's, innovative programming and some really simple integrations with your existing applications as well as a few powerful third party services.

1.2 Do what others think is too hard

Now that we know that most companies don't include the phone and for that matter SMS as a channel for their customers to interact with them and their product you can instantly differentiate yourself from the competion by embracing the phone. Take for example Ally Financial. Ally has spent millions of dollars advertising their "talk to a real person 24/7" campaign. Because Ally operates as a branchless bank they have realized that a major barrier for their customers is the fear of poor customer service. Notice that they don't advertise the fact that they are branchless, nor do they assert that their customer service is better than say, Bank of America's. But they have made their phone number a focal point of their customer experience. It took me about 5 minutes and several levels of navigation to find a contact number on bankofamerica.com and about 3 seconds to find one on ally.com. Despite the fact that I can walk into a BofA branch that's about 2 blocks from my house

and talk to a person face to face that can handle any issue or transaction I have, I instantly feel like Ally has better customer service.

At this point you're probably thinking that you can't offer 24/7 customer support over the phone because you're a small company, you don't have the staff, or you don't think you'll get the call volume to support hiring someone to answer the phone. And that's what keeps the other companies, the ones that don't read this book, from doing it. The reality is that you don't have to have anyone answer the phone most of the time. A well written phone or SMS application can handle 99.95% of all situations.

This is where most people again object and say that customers hate automated systems and endless phone menu trees. I agree, that's why we are going to design an application that doesn't act like a dumb menu but doesn't pretend to be a human either. This is the key to building a successful phone application. Done right a well designed application that integrates with your company at a low level is a great experience for your customers. Depending on your business, maybe this just means connecting a caller to the right person based on a list of factors, or maybe it means an entirely automated system with no live persons at all. Because every business is different every phone system should have be custom. Until a few years ago designing a custom phone system was a very expensive proposition, but not anymore.

1.3 Everyone has a phone

According to a Pew Research study in May 2013, 56% of adults in the US owned a smart phone. So if you build an app you can potentially reach 56% of the population. But some of those are iPhones, some are Android, some are BlackBerry and some are Windows phones, etc. So you really need to build 5 or 6 apps to reach all of those users. That's a lot of work to not even reach 46% of the adult population.

The same study found that another 35% have a at least "dumb cell phone." now you're looking at 91% of the adult population with a cell phone of some type. So what can 91% of adults in the US do? Call and Text.

If you ask me spending a few dollars to reach 91% of the adults in the US is money well spent. Of the 9% without cell phones, most have a landline or can still make a phone call at a shared phone so now you're approaching 100% of your potential customers. Coincidently, according to another study, 9% of adults have never eaten a hotdog.

2 A Business phone system for $10 per month

Traditional logic tells you that a business phone system is expensive. There's the phones, the voicemail system, the PBX to handle the auto attendant, the monthly cost of a business phone line from the telco or cable company is at least $30 per month after taxes. That's why most new or small startup companies turn to the VoIP providers. The going rate for VoIP hosted/virtual PBX is $19-29 per user per month. Even this can get out of control really fast and lead to a triple digit bill each month. Why does it have to be that way?

The short answer is because it always has been. In the quest for an explanation behind this universal pricing model we can start off by dismissing traditional analog phone service from the "Phone Company." Land Line service, at least in the US is highly regulated so price isn't that flexible. Even if the old guard of carriers wanted to slash prices (and some of them actually do), they can't because of antiquiated tariff regulations and FCC competition rules. That leaves us with the less regulated VoIP providers who really are free to charge anything they want. VoIP phone service at its core is a commodity, is easily replaceable and has a low barrier to entry for the carriers. There are dozens of providers offering essentially the same stale service, most with poor customer service and countless hidden fees. Yet somehow they all get away with charging a 900% markup. How?

2.1 Big marketing budgets.

The flood of marketing that the big players in the VoIP industry unleash has trained most buyers to compare Hosted PBX service to an analog phone line. But this isn't fair. If you actually compare most VoIP hosted PBX providers to a traditional PBX platform you will see that the features aren't that different, and the total cost of ownership can actually be higher for the VoIP option despite the fact that the actual cost to provide these services is close to nothing. Most marketing pitches also focus on how advanced the provider's technology, and as a result, how reliable the service is.

After 3 years of working with our customers I saw that very few companies had the kinds of problems that needed to be solved with 40 year old PBX features and solutions and most didn't realize that the "quality guarantees" required very expensive dedicated MPLS circuits or T1's for a few hundred dollars a month. But once we explained some of the creative, outside the box things that could be done with Voice and SMS service that didn't involve "pressing 1 for sales..." I could see the gears turning. With a few lines of code you can integrate your phone system with your website, and link your CRM and shipping data so a customer can call, get their order information and a real time update on their shipping status without your phone ever ringing for example. They didn't even know these options existed, and if they did they thought it would cost too much.

This was the inspiration we used to launch our next generation platform. We called it SimpleVox. SimpleVox aimed to break the ITSP (Internet Telephone Service Provider) mold. I didn't want to build a "Hosted PBX" that just copied the features of an old dinosaur PBX. I wanted to provide a platform where companies could solve their business problems with telecom, a system to let companies build their own phone services and integrate with their existing applications. Because we didn't try to compete with traditional ITSP's we could charge a fair price based on the actual costs to provide the service with a fair profit built in, not a flat rate per phone, and our customers realized that the other guys were ripping them off.

But for some reason SimpleVox never gained the kind of traction I expected. I don't think the problem was lack of utility. The customers that we had love the product and are doing some really cool stuff. I think the problem was lack of awareness. Most companies don't even think these kinds of things are possible, so they aren't looking for a solution. The problem is education. Companies like Plivo are growing by leaps and bounds because they've turned voice into a an easy to implement API. This kind of technology isn't new at all, it's actually how most of our really expensive carrier grade IVR platforms worked. What is new is that it's now accessible to anyone for just a few bucks per month and they are evangelizing it. Now that these types of services are available to the public at large at a very low cost there isn't a need for the old guard of VoIP providers and "hosted PBX" companies anymore. So why are they still in business? Because at the surface it seems really complicated to implement phone APIs and counter intuitive to say you can build the same voice services these companies are charging a 900% markup for in one afternoon and a few bucks.

That's why I was inspired to write this book. In the next section I'm going to show you how to build a better product than the Hosted PBX providers that is 100% customized to your business and almost infinately scalable. I'm also going to show you how to build and run this phone system for less than $10 per month. That's not per user, or per line, that's the whole system.