

Demystifying the VoIP IP PBX – Mike Deerfield, CEO

This article will discuss the benefits of [IP PBX](#) and [3CX](#), the various business opportunities available because of it, and how to identify what each 3CX customer needs.

While reviewing the emerging database of partners engaging 3CX through [Deerfield.com](#), I recognize that many are IT companies that are working with IP PBX's (and phone systems in general) for the first time. This is a good thing. IP PBX's require an understanding of the Internet and TCPIP networking still not found in many "black box" phone system shops. IP PBX's allow the IT [VAR/Integrator](#) into the phone business. If you are already a black box VAR – then 3CX offers you another solution to round out your offerings.

At Deerfield.com, we spent about two years trying to figure out the best way to enter the VoIP market – wading through a sea of new terminologies and technologies in the process. Not to mention our initial attempts to put up Asterisk in the lab as a teaching platform; let's just say we kept a ready supply of Excedrin handy.... Slowly however, we began to understand what parts and pieces that were needed to be able to offer a solution to the market based on the IP PBX. We also learned what didn't work for our channel or us. What really put it all together for us was our introduction to the [3CX IP PBX](#) (based on the SIP standard) software, which was written for the Windows platform, and actually looked (from a configuration standpoint) very similar to other server applications that we publish and distribute.

For the purpose of simplicity, there are two models for IP PBX's: Hosted, and CPE (customer premise equipment). 3CX is currently the latter, and would typically be installed at a customer's site. Since the configuration is web-based it can be administered from any Internet connected PC (provided that the 3CX server is connected to the public Internet), but typically the phone system "server" will run at the customer's site.

For many 3CX Resellers, the allure to engage the IP PBX market is: a) It is a growth market opportunity b) they have a core competency in TCPIP internetworking c) they are already providing IT products and services to a customer base. d) they understand the value of IP PBX's over the old style, black box TDM (time division multiplexing) systems like Nortel, Cisco, etc.

Now, let's simply state the value proposition of IP PBX's. In other words, let's list the top three most compelling [features of 3CX](#), and why someone would want it. There are more – but let's keep it simple.

First and foremost is portability, and the increased productivity that is realized when a telecommuter, or road warrior has the ability to easily take their extension with them, either on the road – or from the home office. As long as they have access to broadband Internet connectivity – they can run either a soft phone on their PC, or a hard SIP phone and appear as the same extension on the corporate phone system as they would in the

office (with no additional Telco charges regardless of where they are). Also, the flexible call forwarding capabilities in 3CX allow them to receive their extension calls on their cell phone if they wish and their voice mail as email message attachments; in a word, slick.

Secondly, are the cost savings realized when the Internet is used as a backbone for branch office calls (3CX in one city to 3CX in another city), remote extensions, and voice mail to email capabilities. Also, you can subscribe to VoIP Provider services, which allow you to make calls to the publicly switched telephone network (PSTN) at rates far less than those of traditional long distance carriers. BTW, they also offer the ability to advertise local phone numbers in markets that are remote. For example, if a company in New York has a significant customer base in Paris, they can get a local phone number in Paris that would be routed to their 3CX installation in New York at very low cost rates.

Third, are the cost savings and flexibility realized when you run a phone system that has no vendor lock-in, is easily configurable via a web browser and can sit on the company data network just like any other Windows based application server. No mysterious black box and expensive add-on modules, or single-source option for upgrades.

Next, let's explore exactly what is needed for a complete phone system. It all starts with the 3CX license that fits an organization's size and needs. This can be determined using the 3CX Version Comparison Chart at:

<http://www.deerfield.com/products/3cx/features/compare.htm>. Once that has been determined, the next decision would be to decide what PC and OS the 3CX server is going to reside on. As a rule of thumb – the larger the installation, the more PC needed. Here's a link to the system requirements for the 3CX server:

<http://www.deerfield.com/products/3cx/requirements/>

Next, it will need to be determined what phones (or combination of phones) you want to use. This can be a single phone type from one manufacturer, or a combination of soft and hard phones from various manufacturers. Typically, the SMB Company will have hardware SIP phones in the office, and telecommuters will use soft phones on laptops or other PC's with a microphone headset. For this, the [3CX VoIP Client](#) is ideal because it is included free with the 3CX server, is tightly integrated, providing presence information in an easy to understand "virtual" light representation for lines and extensions, and provides a VPN for securing the calls and minimizing firewall concerns. X-lite is also popular – however it is more of a "generic" soft phone and does not provide any tight integration with 3CX. As for hard SIP phones – several are supported, but in general Grandstream is a good low-cost solution and SNOM is a great mid-high end solution. For a list of supported hardware take a look at: <http://www.3cx.com/support/sip-phones.html>

Then, it will need to be determined what method will be used to make calls to the PSTN (ordinary phone calls to public telephone numbers). Two main options are available and they can be used exclusively, or intermixed. If you want to make calls using either existing or new phone lines (either analog, or digital), you will need an on-premise piece

of equipment called a VoIP Gateway. The VoIP Gateway should match the capability of the type of phone lines - POTS or T1- you have, or plan to have installed. POTS (plain old telephone system) lines are typically analog lines (like the ones in your house) that are terminated to RJ-11 (standard telephone jack) jacks, except in the case where there are a large number of them. T1 lines, aka ISDN and PRI (in the United States) are digital lines, and are typically terminated in the office to a RJ-45 jack. A typical T1 ISDN PRI (primary rate interface) line can support 24 channels (24 simultaneous calls), however the customer has the option of enabling less than that if they wish to. Generally, the point where it makes sense to go digital over analog financially for the customer is when the SMB exceeds 8 lines. Therefore, most analog VoIP Gateway's are 8 lines or less. So, if you need/have analog lines you need an analog VoIP Gateway, and if you need/have digital lines you need a digital VoIP Gateway.

The other option would be to "outsource" your telephone lines to a VoIP Service Provider. In this scenario there is no extra equipment installed on premise, and instead the calls go out to the service provider, then the service provider provides the gateway to the PSTN. However, care is needed to ensure that you have the proper broadband access to the Internet to support the maximum simultaneous calls you expect. It may be determined that you need a separate data T1 for voice traffic, or you may be OK if you only plan to use the VoIP Service Provider on occasion. BTW, all VoIP service providers are not created equal, and the best ones are referred to as SIP Trunking Providers. SIP Trunking Providers allow a customer to make and receive simultaneous calls with a single connection to them. They simply sell "minutes", and you use them at your discretion. At the end of the document I'll point you to a utility that will make it easy for you to determine what you need in this regard.

A typical scenario is a single company using both a VoIP gateway and a VoIP service provider. Why? Because today, still the best and most consistent "quality" of call is attained by using telephone lines (either analog or digital) and an on-premise VoIP Gateway. However, the best "economy" is attained by using a VoIP Service Provider. Here's what we do at [Deerfield](#). If we are making what I call a "first impression" call to a customer or partner we use the PSTN because it provides the best quality. If it is a call that is to a known/trusted source we'll often use a VoIP Service provider because it will provide the lowest cost for the call (to the PSTN), and we know that the occasional "blip" in the call (not the fault of 3CX - but Internet congestion) is not going to be as significant, especially when we're saving 5 cents a minute domestically, and much, much more than that if the call is International. This provides us with the best mix of voice quality and cost savings. I know many companies much larger than us that use VoIP Service Providers exclusively, and are completely comfortable doing so. Others exclusively use the PSTN with a VoIP Gateway. We use both for the reason I mentioned above and the redundancy it provides; and it works great for us.

The last major step will be to determine if you have any legacy equipment that you will want to use with 3CX - like a fax machine, or a single-line cordless phone. If the answer is yes, then you will need either a single port or multiple port FXS (foreign exchange station) gateway. In the simplest form, these devices (some the size of a pack of

cigarettes) have an RJ-11 and a RJ-45 port and convert analog device signals to digital so they can be plugged into the corporate Ethernet data network.

In order to make this all easier for you, we've created the 3CX Telephony Advisor, a web tool that will provide you with a configuration and potential sources for equipment, using a simple question and answer session. This tool is located here and is free to use as you see fit: <http://www.telephonyadvice.com/3cx/?a=false>. It will also email the results to you if you so desire.

Information about the Author:

#####

Mike Deerfield, CEO of Deerfield.com – 3CX North American Distributors

Mike Deerfield is the founder and CEO of Deerfield Communications Inc., a publisher and distributor of Windows based communication server applications designed to leverage the Internet for the SMB audience. Mike started in the IT industry in 1987 as a network engineer and business process consultant, and founded Deerfield.com in 1994. Today, Deerfield.com specializes in Internet-enabled communications software with a significant core competency in TCP/IP internetworking, product development, and e-distribution services. The company's product portfolio features communications software applications that help its customers manage their electronic and voice traffic using the Internet as a communications backbone.