Feel the Fire of Open Source Telephony: The Spark Your Organization Needs

Become a Hero in Five Easy Steps

Executive Summary

Your company is upgrading an existing contact center or opening a new contact center, and you've been charged with leading the selection and implementation of software and supporting infrastructure. You are currently using separate voice and data networks throughout your enterprise, but have heard a lot about the convergence capabilities of voice-over-Internet protocol (VoIP) and may choose to deploy VoIP in the near or distant future. At any rate, you want to ensure that your new contact center meets your company's needs today while laying a solid foundation for tomorrow.

You suspect that an Internet Protocol Private Branch Exchange (IP PBX) may satisfy your technological requirements more than a traditional PBX. No matter, you know that you would prefer to spend less of your limited budget on underlying infrastructure, and more on improving agent productivity and enhancing your customers' experiences.

An open source IP PBX can provide you with all of the features and functionality available in a proprietary IP PBX at one-half to one-third of the price. It can be "test driven" for little or no cost; and is easily integrated with your existing time division multiplexing (TDM) infrastructure, as well as standard hardware and applications from a variety of vendors.

This white paper will help you understand why you should consider an open source IP PBX for your contact center. It will also walk you through five steps that will enable you to save a significant amount of money on your infrastructure, reduce costs associated with customization, lay the foundation for the simple and inexpensive implementation and integration of future technologies, and ultimately become a company hero.

Open Source IP PBX – Ready for Primetime

Your trusty PBX has been owned and operated by your company for years, and it continues to serve you well. You find yourself wondering why you should "fix something that isn't broken."

The reason: new and emerging technologies that incorporate IP can offer your organization greater benefits, while reducing costs.

Many companies are today deploying or planning to implement VoIP in their contact centers to help them gain a competitive advantage. VoIP, which can be much more efficient than a traditional phone system, enables companies to combine networks and simultaneously transmit voice, data, and video over one "pipe." This convergence can allow companies to save on network and administration expenses, as well as toll charges. It can also reduce costs through increased agent productivity and efficiency. VoIP can be tightly integrated with other solutions to help contact centers provide better service by enabling a consistent experience across all communication channels.

These benefits are especially true for companies that have dynamic processes and require extreme flexibility, such as outsourcers who work with numerous customers with varying needs, or retailers
who experience seasonal volume spikes. Companies that are considering deploying VoIP in the near or distant future should be thinking about implementing an IP PBX. An existing PBX may effectively manage voice communications, but it cannot handle VoIP calls – an IP PBX can support both. An IP PBX also enables companies to move to IP at their own pace – either immediately or via gradual transition.

Open Source IP PBX Defined

Open source IP PBX is based on the open source software (OSS) model. The software can be downloaded for free, and the source code is available to all users for modification and redistribution. Like other OSS licenses, General Public Licenses (GPLs) enable users to download and deploy the software without paying a license fee to the original developer. Unlike other OSS licenses, GPLs provide contributors with financial incentive that encourage active contribution to ongoing development.

Cost savings, coupled with a rich and robust feature set and customization capabilities make open source IP PBX a viable option for your entire organization, especially for your contact center, which handles customer-facing interactions.

Open Source – Here to Stay

While the survivability of open source projects has been of concern to some, the phenomenal success of certain high profile endeavors should put those fears to rest and deliver proof that OSS is here to stay.

OSS is distributed via free downloads, making it difficult to determine exactly how many companies are using it. However, it is widely acknowledged that the OSS movement, fueled by low equipment prices and flexibility, has spread like wildfire during the past decade.

When the Linux operating system was introduced in 1991, people were skeptical about the value of an open source solution. As soon as IBM and other large software companies backed the offering and began delivering installation and maintenance services around it, Linux became a well-established application for enterprise-class operating systems. Today, Linux is the most used Unix-like operating system on the planet[1], with somewhere between four million and 27 million users, with best estimates towards the upper end of that range[2].

Similarly, in 1995, a group of programmers joined together to develop the Apache HTTP Server. Today, Apache is much more widely used than competing proprietary products such as Netscape's and Microsoft's server suites, and runs more than 50 percent of the world's web servers, with steadily increasing market share[3].

A recent study conducted by International Data Corporation (IDC), a leading industry analyst firm, surveyed 5,000 software developers. The study revealed that 71 percent of respondents were using OSS, and 54 percent of those surveyed said that OSS is in production at their organizations. In addition, half of those questioned for this IDC survey claimed that the use of OSS was increasing at their organizations[4].

It is clear that OSS is continuing to gain traction, and is now taking hold of the contact center industry. Consider Asterisk, an open source IP PBX. It has been downloaded 750,000 to one million times, with 250,000 reported installations since its first release in 1999. The software, which currently has 350 open source community contributors and a couple dozen active contributors, is downloaded 1,000 times per day. The Asterisk development list boasts 4,000 subscribers, while the Asterisk user list includes 10,000 subscribers. And, there are currently approximately 300,000 Asterisk IP PBXs in production.

OSS is here to stay, and open source telephony is blazing the trail toward the future.

Earning "Hero" Status

What makes open source telephony such a radical new opportunity? It creates a unique way for businesses to purchase and deploy software. It frees contact centers to realize their full value by interoperating unified or multichannel contact center applications with any underlying transport, rather than focusing on the PBX infrastructure. And, it empowers companies to make strategic choices that best support their overarching business objectives and customer interaction goals.

By following these five steps, you can help your organization understand and implement open source telephony. Achieving flexibility and realizing significant cost savings will make you a hero.

1. Overcome Fear

When selecting and deploying technology, too often managers believe that it is "better the devil they know than the devil they don't." In other words, managers often select vendors and products that are safe and typical, such as proprietary telephony systems; rather than those that might best contribute to the overall success of the company on a broader scale, like an open source IP PBX.

New and proven standards, such as session initiation protocol (SIP), enable open source telephony to deliver a cost-effective solution that allows companies to aggressively implement IP today or migrate over time. These same standards provide flexibility and ubiquity, and help companies to avoid pricey vendor lock-ins.

Anxiety about implementation and ongoing support, which was once an open source telephony showstopper for many managers, is no longer an issue. Similar to Linux and other OSS, the rising popularity of the open source IP PBX has resulted in the availability of packaged solutions from certain vendors that provide software and hardware, licenses, interoperability with other solutions, installation and deployment services, and post-deployment support.

While it is true that the unfamiliar is often scary, open source telephony is ready for the harshest business setting: your customer communications. Low cost and extreme flexibility, coupled with easy set-up and maintenance, makes an open source IP PBX a very viable option.

2. Find the Matches

Open source telephony is architected to be as reliable and scalable as any mainstream IP PBX. It presents a fresh, new option for demanding enterprises, while delivering these benefits:

- **Cost-effective** – Including application servers, software, and hard telephones, an open source IP PBX can be implemented for one-third to one-half the price of proprietary systems that are on the market today. There are minimal associated software costs and low cost SIP phones are readily available. There are minimal expenses relating to installation; and nominal expenditures for customization, and development – much of which can be handled in-house using well-known languages and protocols. Interoperability with standard hardware and inexpensive time division multiplexing (TDM) interfaces further increases cost savings.

  Spending less money on underlying infrastructure allows contact centers to focus on implementing technologies and programs that more profoundly impact customers and deliver additional value during the customer experience. For example, applications like contact center performance optimization – which includes workforce management, quality management, performance management and interaction optimization – can dramatically improve agent productivity and performance while enriching the experience companies deliver to their customers. Also, the savings can be applied to programs like training and agent development, which also have significant impact on enhancing the interactions agents have with customers.

- **Vendor neutral** - Using SIP and other telephony standards, open source IP PBXs can be easily integrated with applications, phones, servers and gateways from multiple vendors; as well as existing TDM infrastructure to ensure seamless interoperability with the contact centers throughout your organization, whether they are open source or proprietary systems. These IP PBXs are specifically designed to help companies avoid being "locked-in" to specific vendors or products. Ultimately, this freedom results in better pricing and greater choice.

"Early Adopters "have the insight to match an emerging technology to a strategic opportunity, driven by a dream. The core dream is a business goal, not a technology goal, and it involves taking a quantum leap forward in how business is conducted in their industry or by their customers."

Geoffrey Moore, *Crossing the Chasm*

- **Customizable** – While typical open source IP PBXs offer more than 100 standard features, including all the expected capabilities, in reality the number and scope of possibilities are infinite. Since the source code is readily available in downloadable versions of the software, companies can rapidly add an unlimited range of features and functionality to meet their unique and evolving needs. Immediate access allows companies to dictate their own product roadmaps, rather than rely on those of their commercial vendors whose interests are usually limited to the business that offers the most money.

- **Rapidly developed** – Proprietary systems use a pyramid model, where the select few at the top of the pyramid are empowered to design the software and others with the requirements to help with development. Because control is centralized, the development process is generally slow and inefficient.

  On the other hand, open source telephony, which is powered by a large community of programmers, creates an environment for test-driven development, continuous integration, and short iteration development techniques. A multitude of users with real-world experience and vested interests means that new capabilities can be quickly added and brought to market, and upgrades are timely.

  Also, open source telephony offers a fully-tested enterprise-class licensed option, which enables the developer to actually own the resulting work.

- **Stable and secure** – While it is not possible for any software to be entirely secure, open source undergoes constant peer review, which enables rapid identification of security threats. Because a large community of users has access to the code, multiple people can be simultaneously developing bug fixes – the most iron-clad option can be inserted, and the product updates can be promptly and easily distributed to users – at no cost.

  And because open source is open in terms of both code and philosophy, there is no motivation for hackers to try to "crack the code." It is all laid out for them through mailing lists, bulletin boards and forums for sharing code and ideas – essentially providing immediate feedback and news pathways.

  Open source projects, such as Apache, have been recognized as having some of the highest uptimes among web server applications; while open source operating systems such as Linux have been reported to have some of the lowest vulnerability ratings of all operating systems examined, including Microsoft Windows. Security issues have historically been reported less frequently with open source operating systems, and vendors have been able to deliver fixes for these issues much more quickly.[5]

As with VoIP, open source telephony isn't the right choice for every company. It is a cultural and a technological shift, which at the moment is most often embraced by those referred to as "Early Adopters" by Geoffrey Moore in his acclaimed book *Crossing the Chasm*. Today's Early Adopters of open source telephony include contact centers that are ready to fully or partially launch an IP strategy. They have reasonable yet dynamic business needs, and vendors that are perhaps not flexible enough to help them meet those needs; relatively competent IT infrastructures; and some experience with software development, licensing, and intellectual property policies.

3. *Start the Brushfires*

The barriers to entry are miniscule with open source telephony, enabling companies to simply and inexpensively implement it on a small scale to start. Because the downloadable software is free, there is no hard cost associated with a test drive. Companies can easily install, configure and experiment with open source IP PBX using spare resources and spare time. They can learn about the software and capabilities on non-critical systems.

Once the impressive benefits of open source IP PBX are realized first-hand, companies can begin to identify long-term uses across the enterprise. A larger scale implementation could increase overall results tenfold – maybe even more. By testing the capabilities on a scale like this, those who discover its power can really get others talking. As word of this success spreads, a warm glow will permeate the company and it will be impossible to contain the enthusiasm. There will be only one viable solution – the keeper of the fire must continue to add fuel.

4. *Crank Up the Heat*

The next step is to identify the areas of the business that require a more flexible solution and offer a high potential return from open source telephony. It may be wise for companies to initially focus on less ambitious projects, such as a small help desk or a new branch office contact center implementation, to gain an even stronger understanding of capabilities and potential pitfalls before tackling larger implementations. SIP will ensure that the new open source IP PBX interoperates with hardware and software from various vendors, and seamlessly ties into existing proprietary systems. Regardless, it is strongly recommended that companies fully assess open source software for interoperability with other applications prior to implementation.

It is also recommended that, before deployment, companies gain a thorough understanding of the internal and external resources that are required to install, maintain and continue development of an open source IP PBX; and identify IT or networking staff, and outside resources, that are willing and able to provide active support. Companies must determine if their needs will be met by the self-service support offerings available with free open source telephony (e.g. forums, mailing lists, handbooks, chat sessions, and troubleshooting guides), or if they want a more comprehensive package, which can be purchased from open source telephony software developers and their partners.

Careful research and planning can help managers more fully appreciate all that open source telephony has to offer. It enables more accurate short-term and long-term cost savings forecasting – including potential costs associated with moving from a proprietary system to open source software – and illuminates the competitive advantages. Mobile workers can truly benefit from the flexibility of anywhere, anytime access to their company's PBX resources and the ease of access VoIP provides. New subscribers can be configured in a matter of minutes without worries over physical equipment requirements or even work location as access to the company data network and a hard or soft IP phone is usually all that is required for the new PBX user to get up and running.

5. *Revel in the Warmth*

Now is the time to deploy open source telephony and realize the significant cost savings that are possible without sacrificing the quality of the underlying infrastructure. Decreased spending on underlying infrastructure ensures that more budget is available for strategic initiatives that positively and directly impact customers. For example, new presence applications could be deployed to enable important transactions to find the most appropriate and available resource regardless of their location.

Focusing limited resources on contact center performance optimization applications or training can improve agent productivity and quality of service and lead to enhanced customer experiences. Making the right investment can pay off in spades – it can mean the difference between customer acquisition and retention, and customer churn

Fanning the Flames

An open source IP PBX is an effective tool that allows you to cost-effectively focus on the applications that ride on the transport, rather than on the transport itself. A healthy combination of vision, research, ingenuity and planning can help you to use open source telephony to effectively balance consumer demands with the realities of the bottom line.

In today's competitive marketplace, why would you focus your limited financial and human resources on infrastructure and hardware that has no bearing on agent performance or customer experience? Instead, you could concentrate on efforts that maximize agent productivity, enhance customer satisfaction and ultimately increase your bottom line.

You won't be sorry if you stoke that fire today. Saying yes to an open source IP PBX could be just the spark your organization needs.

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2. Open Source Initiative. http://www.opensource.org/advocacy/faq.php
3. Open Source Initiative. http://www.opensource.org/advocacy/faq.php
4. Open Source in Global Software: Market Impact, Disruption, and Business Models (IDC #202511), IDC, August 2006
5. Why Open Source Software/Free Software? Look at the Numbers!, David A. Wheeler, http://www.dwheeler.com/oss_fs_why.html, November 2005

About Aspect

Aspect provides software and consulting services that turn the potential of unified communications into real business results across the enterprise and in the contact center. Applying 35 years of insight and experience, Aspect helps two-thirds of the FORTUNE Global 100, as well as small and medium enterprises, power their business processes with communications. For more information, visit **www.aspect.com.**

About Digium

Digium is the original creator and primary developer of Asterisk, the industry's first open source PBX and Asterisk Business Edition, the professional-grade version of Asterisk. Code for Asterisk, originally written by Mark Spencer of Digium Inc., has been contributed to from open source software engineers around the world. It supports a wide range of TDM protocols for the handling and transmission of voice over traditional telephony interfaces, and VoIP packet protocols such as IAX, SIP and H.323. It supports US and European standard signaling types used in business phone systems, allowing it to bridge between next-generation voice-data integrated networks and existing infrastructure. For more information, visit **www.digium.com**.

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