

Best Practice Checklist Series - Issue 21

Telephony

Understanding the basics: A layperson's guide and checklist for overseeing IT.

Best Practice Checklist Series
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Telephony

Years ago, the introduction of IP Telephony began the convergence of voice and data solutions.

Although Sandbox Technologies does not sell or provide advanced device-specific technical support to VoIP or PBX solutions, the current landscape is such that all IT professionals should have a basic understanding of IP telephony solutions. The reasons for this are twofold; first, to aid them in advising the organizations that they support, and second, to ensure that they possess the basic know-how to work with third-party telephony integrators to aid in successful deployments.

Background

As an early adopter of VoIP solutions (Sandbox Technologies was among the one of the first IT providers to become a certified integrator of Voice Over IP solutions), members of our staff amassed considerable knowledge of IP telephony implementation and troubleshooting.

While this experience provided us with valuable insight into the inner workings of IP telephony, we soon adopted the stance that although telephony and IT had become inextricably related, the countless distinctions between telephony solutions was such that the client's needs were best served when IT assumed an impartial advisory role, rather than specializing in one or two "one size fits all" solutions.

Instead, we've since focused on knowledgeable and objective advisors. In a market where hundreds of options exist, selecting the right system for the right environment can be difficult.

While organizations with simple telephony needs have numerous options that will suffice, choosing the right solution can be more difficult for companies requiring advanced call routing and call queueing features. Organizations within the entertainment industry are another example of companies that often have unique needs, one being the very niche-specific practice known as "rolling calls".

Without the proper guidance, organizations can fall prey to eager telephony sales professionals that unknowingly make promises that their engineering professionals are simply unable to deliver on.

Takeaway

This issue of the Best Practice Checklist Series checklist is short, largely because telephony planning itself is much too broad to cover. If anything should be taken from this installment, it is that prior to committing to the implementation of any telephony solution, it should be thoroughly vetted and tested to ensure suitability, and in many cases, it is recommended that the vendor be required to agree to a detailed Customer Performance Requirements document.

As always, should you wish to discuss IP telephony further, your Sandbox Technologies Engineer, Account Manager, or Consulting CIO will be happy to answer any questions you may have. Given the degree of specialization that exists within this field, you may find that in some cases even he or she may refer you to another representative within our organization with even greater experience in your particular needs.

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Vetting and Planning

Functionality Checklist

Were you required to complete a detailed functionality checklist to aid in the selection of a suitable telephony solution prior to making any financial or other commitment?

Prior to implementing any telephony solution, a well-qualified telephony integrator will in most cases provide a detailed and often lengthy list questions concerning your desired functionality and configuration. This is often a sign that you are in the hands of an organization that is experienced. Professionals will generally seek to clearly identify your organization's needs to determine their ability to perform in accordance with them. Although the absence of such a document doesn't necessarily mean the vendor is inadequate, it may merit additional scrutiny,

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Demonstration

Did the vendor bring a portable or self-contained unit to demonstrate the system's functionality to you?

Although some challenges can most certainly impede a vendor's ability to provide a live demonstration of their system within your environment, it's important to ask why? In many cases, firewall rules must be made to allow inbound and outbound communication, a well-organized vendor will often convey those rules to your IT professional(s) in advance of their visit.

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Environment

Has the vendor requested particulars concerning your environment and provided a detailed list of rules required for their system(s) to perform properly with your equipment?

While VoIP solutions are continually improving, it is a widely known fact that some do not perform well with certain firewall models and/or brands. Purchasing a telephony solution only to learn later that it will not function properly with your existing networking equipment can be a disruptive, costly, and thoroughly frustrating experience. An experienced and well-qualified VoIP integrator will ask the appropriate questions and apprise you of any network-related changes in advance of asking you to commit to the purchase of a solution.

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Special Functionality

Has the vendor requested particulars concerning any advanced calling functionality, such as call-center capabilities and queueing?

Although these features were once largely within the purview of more costly PBX-based VoIP solutions, many Cloud-based VoIP telephony products now also offer many of these features. Because many of the common Cloud-based VoIP solutions offered today are offshoots of the Linux-based, open-source Asterisk system, functionality differences are often based on the ingenuity of those responsible for building upon the base system. For this reason, it is highly recommended that every special detail be documented and confirmed with the vendor to verify that the developer's functionality goals are in line with that of the organization purchasing the system.

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Customer Performance Requirements

Is the vendor willing to sign off on a detailed list of customer performance requirements that commits to meeting them in the manner described?

Telephony sales professionals often make the honest mistake of assuming that the engineering staff members charged with implementing their solutions are capable of overcoming most any programming or configuration challenge. Unfortunately, in some cases, the underlying architecture of a solution can render this impossible. To help avoid frustration and potential downtime, it is recommended that the vendor be asked to have their implementation engineers agree to a detailed CPR (Customer Performance Requirements) document prior to committing to the purchase of a solution.

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Redundancy Considerations

Redundant Voice Connectivity

Does your solution offer a sufficient means of redundancy in the event of a provider outage?

There are numerous means of connectivity employed to provide dial tone to internal telephone systems. SIP trunks are an Internet-based voice product employed to provide dial tone to an organization's internal telephone equipment.

A Copper PRI (Primary Rate Integrated Services Delivery Network) is typically a T-1 line with 23 voice channels and a single data/control channel. A single PRI can facilitate up to 23 concurrent inbound/outbound calls and usually offers guaranteed QoS (Quality of Service). Copper PRI lines are traditionally quite reliable; however, they are largely being replaced by the newer SIP trunks and Fiber PRI connections. Copper PRI lines are relatively expensive, and for this reason, most organizations opt to forego subscribing to redundant PRI connections in favor of less costly Fiber PRI's, when a PRI is called for.

Fiber PRI connections are similar to copper PRI circuits; however, they are typically delivered via an organization's Internet service provider. As a contingency against a carrier service outage, organizations leveraging fiber PRI's and SIP trunks that cannot afford downtime often employ the use of redundant Internet connections through disparate carriers. In such cases, carrier-based failures can often be mitigated by the redundant connection, subject to two key factors: (1) The primary carrier failure must be isolated from the secondary carrier failure. i.e., in the event a trunk line used by both carriers in the vicinity of the service location were to be severed, a secondary carrier would be of little benefit. (2) The ability to maintain continuity of service requires proper configuration of the customer's telephony system and firewall to perform properly immediately and without intervention.

It should also be noted that with the exception of Cloud-based VoIP solutions leveraging redundant Internet connections, none of the foregoing measures inherently offer complete protections against actual equipment failures, and even Cloud-based solutions with redundant Internet connections can sustain outages in the event of key equipment failures. such as network switches.

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PBX-Based Solutions - Implement LSP (Locally Survivable Processor) to provide automatic equipment redundancy in the event of a failure.

If your organization leverages a high-end, PBX-based VoIP solution and has minimal ability to tolerate downtime, has a LSP (Locally Survivable Processor) been deployed?

A LSP (Locally Survivable Processor) is a local redundant telephony appliance that can act as a call processor in the event of a failure impacting the primary unit. The use of a Locally Survivable Processor is a common recommendation for organizations that cannot afford to sustain any significant downtime in the event of an internal telephone system failure. Because many high-end, modern telephony solutions (e.g., enterprise solutions from vendors such as Cisco and Avaya) have effectively become "servers" that are hosted on site at the customer's premises or co-location facility or facilities, it is not uncommon for enterprise

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customers to invest in redundant systems designed to maintain continuity of service in the event of an equipment failure or outage at the primary location where the PBX is maintained.

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Special Considerations for Entertainment Industry and Ancillary Organizations

If your organization engages in the rare practice known within the entertainment industry as “rolling calls”, have you unequivocally verified that your vendor understands clearly understands every aspect of the requirement?

Typically, “rolling calls” as it has come to be known within the entertainment industry, requires the use of what is known as “BCA”, or “Bridged Call Appearances”. To date, we have encountered numerous organizations that made the critical error of failing to ensure a proposed solution is capable of meeting their requirements in this respect.

As of this writing, we are aware of two major vendors with PBX-based solutions are capable of adequately performing this function. A number of globally recognized PBX providers have tried with only limited success, and some Cloud-based vendors have experienced limited success, but with various “glitches” that cause “terminated” calls to carry on indefinitely in the event all other parties hang up while the “initiator” has placed them on hold to answer another incoming call.

Most often, this problem affects organizations accustomed to taking advantage of telephony solutions provided by major studios and high-profile talent agencies and management companies. If the term “rolling calls” has no meaning to you or the executives within your organization, this complexity is unlikely to be a problem. Conversely, if the ability to “roll calls” is something that your organization will ever require, our recommendation is to seek expert advice from someone that is extremely knowledgeable of the process and proceed with extreme caution before making the decision to commit to the implementation of ANY telephony solution.

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