



Tackling TELEPHONY

VoIP is generating a lot of excitement among consumers and almost as much ill-informed discussion and ad-hoc advice for businesses. The revolution is coming – but how does a business ride the wave without getting swamped?

BY SHARA EVANS

Inviting IP telephony into your business is both a risk and an opportunity. The opportunity is for you to improve your business communications while saving money. The risk is that by choosing the wrong service or systems, you end up with the worst of all worlds: something that doesn't work, doesn't save you money and doesn't suit your business.

The first thing to understand before you set out to implement IP telephony for a business is that the technology comes in many flavours and not all of them are suitable for a business to use as its primary line. *The key variables are:*

- **SERVICE TYPE:** Whether the VoIP service provider has designed its environment for consumer applications or business applications.
- **NETWORK TYPE:** Whether the VoIP service is accessible over a business grade data network or only over a public internet broadband service.

Providers concentrating on the business market are likely to operate higher-reliability services than consumer providers and, more importantly, the services are likely to offer a range of service features such as call hunt groups and detailed call reporting.

However, even where the service is designed for business users, the internet remains an unsuitable delivery mechanism for first-line business services: service quality across the public internet cannot be guaranteed because no single service provider is responsible for the end-to-end management of the internet.

Because most VoIP offerings are consumer services offered over the public internet, Market Clarity finds it useful to employ the term "business IP telephony" to distinguish the serious business service from the consumer offering.

THE VOIP BUSINESS CASE

Today, the promotion of VoIP services concentrates on presenting the cost savings available to users, because calls over the internet are free and call charges to PSTN telephones are cheap.

A “two-dollar-shop” view of business telephony is likely to be a disaster: if you seek only the cheapest deal without building in any of the other business benefits offered by VoIP, then you’ll be stuck with the worst of both worlds. The lowest cost phone system might not deliver the cost benefits you expected and may not be powerful enough to deliver on the productivity benefits that are the real payoff.

Those benefits include:

- **Extensions become independent of location:** In the PABX world, phone numbers are generally tied to a physical location. IP telephony systems can eliminate this problem forever, by associating a phone number (IP address) with a person, independent of their location.
- **Easier computer-telephony integration:** IP telephony systems run on the same kind of network, and use the same kinds of computers, as your IT environment, vastly simplifying the job of connecting computer applications (such as contact management systems) to telephone systems.
- **Ubiquitous accessibility:** In the IP telephony world, the extension is tied to the person instead of the telephone, so your staff can be called using a single number, anywhere they have network access.
- **New applications:** A good business IP telephony solution will give you access to new applications like IP videoconferencing, online collaboration and instant messaging, all of which can help make your people communicate better.

VOIP DEPLOYMENT OPTIONS

Business IP telephony deployment options fall into the classes shown in the table. Combinations of these options can also be deployed.

Determining the deployment option (or combination of options) that is best for you depends on the type and age of telephone systems, your calling patterns, the readiness of your network and IT systems to handle real-time communications and the nature of your business.

TRAPS AND PITFALLS

Probably the greatest risk the business faces in adopting IP telephony is that of enthusiasm: in the rush to get on the bandwagon, you overlook important aspects of telecommunications.

- **NUMBER PORTABILITY:** Every business knows that it will incur a significant financial burden if it doesn’t ensure its phone

numbers are portable. Otherwise, you’ll one day face the choice of sticking with a telecommunications contract or service you’re unhappy with, or adjusting yourself and your customers to new telephone numbers. No matter how good the deal, if a VoIP service provider can’t offer you number portability, then it’s not ready to provide your first-line service.

- **OPENNESS:** In spite of the industry talk about VoIP being “based on open systems”, there are many ways in which VoIP providers and equipment providers will try and lock their customers in. VoIP servers that will only work properly with one brand of desktop phone, desktop phones that can only be configured by experts, VoIP service providers who will only connect customers if they buy from a ‘preferred’ hardware and/or systems vendor — all of these should be avoided if possible.
- **COMPLEX EQUIPMENT:** Too many VoIP systems are overloaded with functions that are more complex than they need to be. We’re talking about a telephone here: if it takes five steps through a menu to transfer a call, then look for a different handset. Phone configuration should also be as simple as possible, or you will be calling for outside help (on a pay-by-the-hour basis) every time a staff member joins or leaves.
- **EMERGENCY SERVICES:** Consumer VoIP services promoting themselves as second-line services don’t have to worry about access to 000 calls. They tell their customers not to cancel their standard telephones. For a business, the question is more complex – you want your staff to be able to call 000 if they need to. If your VoIP service provider can’t ensure 000 access, you should keep at least one standard telephone line available.
- **THE INTERNET:** The internet is not good enough for the primary telephone service of a serious business. We’re not just talking call quality (which can range from fine to dreadful), but also availability. ADSL services don’t guarantee high availability (the typical level is 95%, which means you can lose the phone system for over 18 days per year). Business phones need business networks.
- **CONTRACTS:** Are you still under contract? It is surprisingly common for businesses to embark on system or service changes without checking the contractual position. If you still owe 18 months on the lease for the PABX, you’ll need an awful lot of cheap calls to pay for the contract penalties.
- **INSTALLATION LOGISTICS:** Make sure that the company selling you the VoIP system can supply everything on time, can install it on time and doesn’t need a month of configuration. If necessary, get expert help in migration planning. ►►►

MIGRATION CHECKLIST

With limited space, we cannot cover even a tenth of the planning details associated with the move to a business VoIP system. However, here are some ideas to get you started.

- **Cabling:** Carry out an audit of your LAN cabling to make sure it performs at least to "Category 5" standards. If the cabling fails the test, you will need to include the cost of new cabling into the IP telephony migration strategy.
- **Power:** Desktop IP telephones are electricity hogs compared to old-style key phone systems. An ordinary phone uses almost no electricity at all except when it's in use; the IP phone on my desk needs a 5W-rated power supply. Carry out an electricity audit, and estimate the cost of increased power consumption as part of your business case.
- **Power-over-Ethernet:** Your IP phones need to get their electricity from somewhere, and a couple of hundred plug-packs all over the office is inconvenient and ugly. Ask whether your supplier's phones can use Power-over-Ethernet, and factor the cost into your business case.
- **Usage:** Carry out a thorough analysis of your telephone bills (or have the analysis carried out by an expert). This will help you in two ways: you will make an informed choice between different calling plans when you choose IP telephony providers, and later you can benchmark your costs to make sure you are achieving the savings you expected.
- **VLANs:** The best practise is to use virtual LANs, known as VLANs, to make sure your network always gives telephone calls preferential treatment. Insist that you have quotations for VLAN-capable networks, so you don't have to spend money on a network upgrade later. Also, make sure that the VLANs don't stop your PCs from viewing the telephones' configuration. If your company wants to also use softphones or other voice applications, ensure that they can be configured to work across a suitable VLAN.
- **Redundancy:** An IP telephone system is completely dependent

on the data network, so it's important that your LAN has redundant components and power supplies wherever possible – all the way to workgroup switches.

- **WAN:** When deploying IP telephony across multiple sites, your wide area network (WAN) must also support a robust QoS-based environment, and be capable of acting on the IP packet prioritisation and marking that is done in the LAN environment.
- **Logistics:** The supplier should be able to pre-configure your systems before delivery. It will save you time, money and it will alleviate the risk that your phone system is unplugged

for days because of some unforeseen circumstance (in the IT world, all circumstances are a surprise – how many times has your IT support expert said something along the lines of "that's not supposed to happen"?).

- **Responsibility:** Ensure that all your suppliers spell out the boundary of their responsibility. Otherwise, you can and will end up with carriers pointing at contractors pointing at suppliers pointing at you, the customer.

As you will have learned in this article, there are many complex factors which impact the investment needed to implement an IP telephony system. If you are unsure of the best strategy for your specific environment, consulting a professional advisor can save your organisation from making costly mistakes.

About the author

Shara Evans is the CEO of Market Clarity, an independent research and strategic advisory organisation that specialises in the Australian telecommunications market. Shara is recognised as a pre-eminent expert in the telecommunications industry and is a long-time evangelist of converged technologies and services.

SERVICE TYPE

CONSUMER SERVICE

BUSINESS SERVICE

VOIP SERVICE TYPES

Calls over the public internet

Unsuitable for business applications other than remote access.

May be used in conjunction with PSTN service to reduce some call costs, but should not be used as the only service.

Calls over a business grade data network

May offer high-reliability and quality, but service contracts may restrict business use.

May be suitable for use as primary line service.

SERVICE TYPE

TRADITIONAL (TDM) PABX WITH VOIP GATEWAY

ENTERPRISE IP TELEPHONY WITH PSTN/ISDN CONNECTIVITY

ENTERPRISE IP TELEPHONY, WITH PSTN/ISDN CONNECTIVITY AND BUSINESS GRADE DATA NETWORK SERVICE

ENTERPRISE IP TELEPHONY, WITH PSTN/ISDN CONNECTIVITY AND BUSINESS GRADE VOIP TRUNK SERVICE

ENTERPRISE IP TELEPHONY WITH PSTN/ISDN CONNECTIVITY AND INTERNET-BASED VOIP GATEWAYS

HOSTED IP TELEPHONY

VOIP DEPLOYMENT OPTIONS

CHARACTERISTICS

Traditional phone system with a media gateway (which converts TDM to IP). The gateway can connect to an organisation's business grade data networking service, or to a provider's VoIP trunk service.

Business IP telephony system using either an IP-enabled PABX or a pure IP telephony system, with a traditional carrier PSTN/ISDN connection.

Business IP telephony system using either an IP-enabled PABX or a pure IP telephony system, with a traditional carrier PSTN/ISDN connection. Additional connectivity provided via enterprise wide area data network.

Business IP telephony system using either an IP-enabled PABX or a pure IP telephony system, with a traditional carrier PSTN/ISDN connection. Additional connectivity provided via a business grade VoIP service.

Business IP telephony system using either an IP-enabled PABX or a pure IP telephony system, with a traditional carrier PSTN/ISDN connection. Additional connectivity provided via access to internet-based telephony service.

Carrier hosts and manages IP telephony system. Private network connection to customer site(s). Services available on a "pay by the handset, by the service feature, by the month" basis.

PROS

Minimum disruption to existing environment. Calls can be routed over an organisation's business grade data networking service to reduce PSTN call costs, or across a VoIP trunk. Provides VoIP support for customers under long-term PABX lease contracts.

Administration cost savings. Flexible system configuration. Single enterprise network for voice and computers.

Efficient and flexible system. Security. Voice trunk redundancy. Potential savings by routing intra-company calls across the business data network.

Efficient and flexible system. Security. Voice trunk redundancy. Potential savings by routing calls across the business grade VoIP trunk(s).

Efficient and flexible system. Voice trunk redundancy. Potential savings by routing calls across the internet-based VoIP trunk(s).

Minimum or no capital expenditure.

CONS

No new capabilities.

No call cost savings. (Assuming no changes were made to existing PSTN/ISDN services.)

Does not realise lowest-cost internet-based calls.

Does not realise lowest-cost internet-based calls, but may be less expensive than PSTN/ISDN tariffs. Requires business grade access links for connectivity to the VoIP service provider.

Internet VoIP service of uncertain quality, availability and reliability. Voice environment exposed to internet-borne security threats.

Feature availability under carrier control.