Managed telephony

CrossPoint
BUSINESS TECHNOLOGY SOLUTIONS

Managed telephony discussion paper

From the days of operators sending and de-coding telegraph messages, to modern cloud-based solutions, managed telephony services have been with us in some form or another for over 100 years.

Even today, our home phones and mobiles are rented managed services that rely on complex networks and technology to deliver our calls and messages.

At a business level, modern organisations frequently adopt a mix of managed and self-managed services in order to meet their internal technology requirements. For example, companies may choose to manage their own LAN and PBX, and then purchase PSTN and WAN services from an external provider.

However, the question remains: what's the right balance between managed and self-managed telephony services for a company?

This paper provides an overview of the components of an IP-based telephony solution, as well as the various managed options and services available to your business.

Technology and operational matrix

It's important to note that almost every telephony service involves some degree of external management from a telecommunications carrier.

Figure 1 outlines the managed telephony options available to organisations as follows:

Technology

Traditional Time Division Multiplexing (TDM) and Analogue Voice, Hybrid Systems, and Integrated IP Telephony (IPT) solutions.

Operational models. In-house managed, facilities managed or outsourced.

In the diagram, the horizontal axis shows typical technological options, from traditional voice to IP-based telephony. The vertical axis shows the main operational models available, from in-house managed solutions to fully outsourced and cloud-based services.

Which operational model?

For the purposes of this paper, our focus is on the operational model options available. We highlight the differences between three models, enabling you to make an informed decision about your organisation's IP telephony requirements.

1. In-house managed service

This is the traditional model where the customer owns and operates its office telephony system. The customer also arranges connection to carrier services such as ISDN, PSTN or VoIP, however external contractors may carry out certain specialist tasks.

2. Facility managed service

This is where telephony hardware and software is owned or leased by the customer, however all operational management is outsourced to a managed service provider. A variation on this model sees PABX equipment reside in the provider's data centre, with a high capacity link to customer sites. The customer may be responsible for data and Telco connections, or have these services bundled as part of the solution.

3. Hosted/Cloud-based IP telephony service

This is where all telephony equipment is owned and operated by the managed service provider, and resides in its data centre. The customer subscribes to access the IPT service via Internet links or dedicated services.

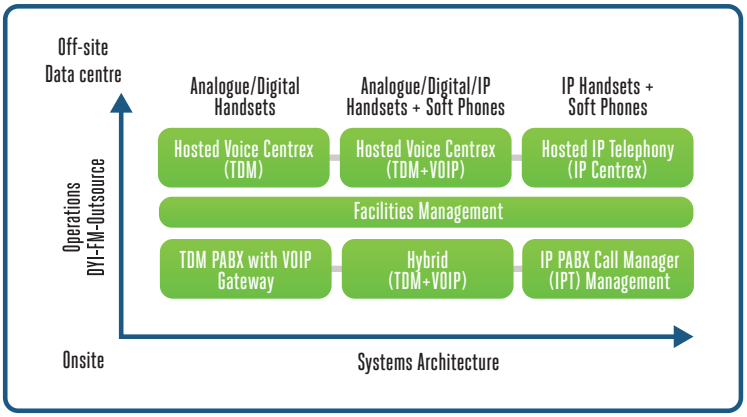

Figure 1 – Infrastructure Deployment Options

In addition to assessing the differences between each option, the following questions need to be considered:

- Who is the customer i.e. business or residential?
- Will the service be accessed via the Internet or a private network?
- Is the service for VoIP call termination only or does it require a full set of features such as call management functionality, IVR, hunt groups, voicemail, fax to email video telephony, and call centre functionality?

IP Telephony system components

Before we examine how much of your IP Telephony service should be managed, it's important to understand the various components of an IP Telephony system. These include:

Handsets

Including soft phones and mobiles that convert voice conversations into IP packets, which are then delivered over your data network.

Call processing

Control software directs and switches calls to target locations.

LAN

If your LAN isn't dedicated solely to voice, it's critical that voice can be separated into VLANs or at least prioritised over all other network traffic to ensure quality of service (QoS).

IP routing

A voice call converted to IP packets follows the same routing rules as other data on your network. Calls made between office phones are routed within the LAN, whilst calls to external locations are routed by the network. The main objective is to ensure that VoIP traffic has a higher priority across your routed network.

Inter-office data network

If you intend to make toll free calls between offices, your organisation needs to be connected via a data network. These are usually private data networks (Private IP or MPLS), although there is a trend towards using Internet connections (Public network) and providing office-to-office connectivity via VPN tunnels. Again, the main objective is to optimise and prioritise VoIP traffic, regardless of whether it's a private or public network.

Call termination or gateway services

To make external calls, you need to be connected to the Public Switched Telephone Network (PSTN). This can be achieved directly via IP to a VoIP service provider, as part of a managed service, or via an IP to TDM gateway/router to interface between the IP PBX and the PSTN.

Least cost routing

A major advantage of IPT over traditional TDM technology is the fact that you can implement least cost routing into your IP solution.

For example, using a traditional PABX system, a call from your Sydney office to the New York office is delivered to the local carrier to connect the call and charge you appropriate international call rates. However, with a fully deployed IP Telephony system, your call could be routed via the San Francisco office, where it joins the PSTN network. You are now only charged for the cost of the call between San Francisco and New York.

Whilst there are many examples of similar cost saving technologies and services (i.e. Skype), they do not offer the flexibility or security of an enterprise-grade solution that's been designed to suit your organisation.

Telephony infrastructure readiness

Organisations need to consider a number of factors when assessing their infrastructure readiness to effectively deploy and utilise VoIP services, including:

- The current WAN or inter-office network and its ability to implement traffic prioritisation and QoS.
- The office cabling infrastructure e.g. Ethernet needs to be available in order to connect your office to IP services.
- A detailed assessment of current and future needs, including analysis on how a new telephony solution can help the company save money and increase efficiency.

To manage or not to manage

Each organisation needs to determine whether their telephony infrastructure can be managed internally or whether it's more cost effective and convenient to outsource the management to a service provider. As part of this assessment, the following questions need consideration:

Do we have appropriate IT resources in-house?

IPT requires specialist skills – if your current IT resources cannot manage the requirements internally, a managed IP service may be the answer.

What features do we need?

Which additional features do we require from a new system? Do we need call centre functionality?

Do we require enterprise-grade service levels?

If so, a managed service can meet this requirement. Additionally, having redundancy and/or the right SLAs for your IPT solution is crucial.

Is our system scalable?

Can the service provider cater to the current size of the organisation? If so, is the solution flexible and agile enough to adapt and grow with your business?

What happens if we outgrow the infrastructure?

Your managed telephony solution may be able to grow with you, but what happens when your capacity requirements exceed the technology? It's important to note that some providers will charge you for an upgrade, whereas others will replace or improve the capacity as part of your SLA.

How do we execute moves, adds and changes?

For an SME, your telephony may be outsourced to the PABX provider. A large corporation may have 1-2 people dedicated to the management of the telephony system. Switching to a managed service may save on these costs.

What is the total cost of ownership?

Answering this question is a challenge for anyone buying IT infrastructure. However, your current spend on telephony (including the cost of staff resources) is the starting point in determining your managed telephony needs.

Capex or Opex?

If your organisation prefers capital expenditure to operational costs, a purchased solution with installation and support may be preferable. If leasing is more desirable, a managed service may be appropriate.

Who will design and integrate the IPT into your existing LAN/WAN?

Smooth integration with your data networks is key to the success of the project. If your organisation doesn't have the in-house capabilities, a service provider can analyse your IT environment and advise on the best way to integrate IPT into your networks. Some providers will include this as part of the project, whereas others will charge a fee for this service.

What IPT standards does the solution use?

Many IPT solutions are propriety or closed software environments. However, you should be looking for a system that uses open standards. Open standard technologies enable inter-operability between any and all components regardless of where you source them. If they all communicate using the open SIP standard, they should work harmoniously with your call management software (assuming it's also based on open standards).

Conclusion

IP Telephony is an ideal solution when replacing an aging and/or obsolete analogue PABX.

Additionally, there are many advantages of adopting a managed telephony service, including:

- Reduced staff costs
- Improved service levels
- Smooth infrastructure maintenance and upgrades
- Access to latest technology
- Improved capacity management and flexibility
- Reduced cost of ownership, including call costs, maintenance, management, upgrades etc.
- Enterprise service levels and uptime
- Visibility of costs, SLAs, features and technology

Glossary

IPT	Internet Protocol Telephony
LAN	Local Area Network
WAN	Wide Area Network
MAN	Metro Area Network
MSP	Manage Service Provider
MTP	Managed Telephony Provider
PSTN	Public Switch Telephone Network
PABX	Private Automated Branch Exchange
QoS	Quality of Service
POP	Point of Presence
TDM	Time Division Multiplexed
VoIP	Voice over Internet Protocol

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