

# Best Practice Guidelines for Convergence

Considerations for Convergence



it's about **YOU**

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## Executive Summary

Before making any investment decision on convergence, it is fundamental to ensure that you have established what you hope to achieve with such an investment and have formulated a plan to achieve this.

In the development of such a plan, identifying what your pain points are in terms of communications and what impact this is having on your organisation is necessary. A telecommunications review broken down by staffing profile will help to isolate these requirements. Once you

have analysed your workplace and identified what is you wish to achieve through convergence, you can formulate your plan. Before moving forward, it is vital that you then consider your current investments and how you can develop a roadmap to convergence without serious interruption to staff and without breaking the bank.

Understanding what convergence is and what potential tools are available to enable your staff to do their job will help you to create a roadmap of what you expect to achieve with convergence.

Your roadmap to convergence will require an IP readiness assessment and examination of what network investment is necessary to support convergence technology. Once you have established your requirements you will then need to turn your attention to the commercial considerations that are necessary to ensure a successful outcome.

## Introduction

### Convergence. What does it mean to you and what is the best means to approach it?

The move of voice from a separate telephone network to a data network using Voice over IP is at the heart of convergence. Voice over IP (VoIP) is the data transport mechanism used to deliver telephony over a data network using Internet Protocol instead of using the Public Switched Telephone Network. IP Telephony uses VoIP to support voice communications platforms and applications. VoIP and IP Telephony are used interchangeably to refer to the same thing. However, VoIP denotes the transmission, whereas IP Telephony refers to the system and applications.

IP Telephony has cost advantages over conventional Private Branch Exchange (PBX) systems. Ease of management, flexibility in use, the reduction in costs associated with addition and relocation of personnel through moves, adds and changes (MACs), and the reduction in line costs mean that IP Telephony has can reduce overhead costs by 17 percent,<sup>1</sup> and for organisations with 500 or more staff, savings can be as high as 32 percent.<sup>2</sup>

Converging voice onto the network provides for enhanced flexibility and mobility within the organisation. As voice moves to the network it can be managed in a similar way to other applications, moving the voice system out of the closet onto the LAN and the WAN, enabling network managers to manage voice communications far more dynamically. For the end user, it means that the ability to communicate is no longer tied to a desk, but instead has been liberated to enable them to communicate from any location across the network.

Centralised management of a voice communication system can reduce overhead costs by removing the complexities that exist in maintaining traditional PBX systems. IP PBX systems are more flexible and extensible than traditional voice transmission technologies. The use of web-based tools to manage the system means that applications and services can be more dynamically designed and managed. In an IP PBX environment, new applications can be added simply, without the need to make adjustments to each physical device.

- Audit the status of the managed devices
- Perform remote programming and maintenance
- Locate unused directory numbers and unused circuits

Network managers can sit anywhere on the Wide Area Network or dial in from a remote location to assess network performance and make changes where necessary.

However, the true value in convergence lies in unifying communications. The aim of unifying communications is to reduce the communication gaps that exist between workers and the various devices and applications that are used to interact. Ultimately, improved business interaction improves workflow and reduces communication gaps, thereby increasing efficiency and boosting customer service.

Unified communications moves beyond the conventional context of convergence by integrating telephony with a multiplicity of communications tools. This is where convergence truly gets interesting. The convergence of voice and data enables new applications to be created, from presence and availability tools, to conferencing and collaboration tools to tools to enhance corporate mobility and business continuity.

<sup>1</sup> Cable and Wireless Case Study on Convergence: IP Convergence: reducing Capital and Operational Cost

<sup>2</sup> According to Analysys, Companies with 500 or more employees can save up to 32 percent in capital expenditures and operating costs by investing in an IP-based PBX system.

The alphabet soup of acronyms surrounding this area signals that there are many players and many approaches, coupled with many devices and services. Before any decision is taken on moving forward on convergence, it is necessary to have a strategy in place which outlines:

### **What you are trying to achieve**

### **What communications problems exist that you are trying to resolve**

### **What type of workers you have**

### **The existing technology you have in place and your investment in this.**

It is critical to understand that technology is not a magic panacea; it cannot fix underlying business management issues. Technology can be used to support communications but if business processes are broken, and are not rectified, the problems will persist, with or without convergence.

However, with the right approach, an organisation can use the development of a convergence strategy as a platform to evaluate business processes and identify the means to optimise the organisation.

Executed properly, communications technology can unleash your staff from communications bottlenecks; convergence holds the promise of improving not only staff efficiency, but the bottom line.

## **Convergence: The Tools That Can Change Your Life**

As the area of convergence matures, innovation in applications occurs organically. Organisations are a symbiotic part of the process: by identifying their pain points, vendors are better able to design creative new applications thanks to the flexibility convergence offers.

Organisations can take advantage of these new applications without sacrificing their existing communications infrastructure, allowing an organisation to implement innovative work enhancement tools while retaining their existing equipment.

### **IP Contact Centres**

The flexibility of IP means you no longer have to dedicate a facility to operate a Contact Centre. IP Contact Centres enable an organisation to set up operations anywhere and use part-time staff who can work from home using broadband telephony. Moreover, geographically dispersed contact centre agents have the ability to work virtually, thereby enabling staff from different parts of the organisation to support the contact centre at peak hours of call traffic.

### **Broadband Telephony**

Location independent working for remote contact centre agents or for staff working extended hours, or for field staff who aren't fixed to one location. Taking advantage of broadband, users can now connect back to the office and access all the features of the corporate phone system seamlessly.

### **Speech Enabled Directory**

Speech recognition systems have come a long way over the past few years, enabling the introduction of a new generation of speech-enabled applications which allow users to access people, departments or services simply by stating the name or department they wish to connect to.

A speech enabled directory will save callers the trouble of remembering and dialling numbers and extensions, asking only that they say the name of the person or department they wish to speak to.

A speech-enabled directory not only improves employee productivity through improved caller management, but also can significantly reduce overhead, as fewer operators are required to manage the transfer of calls between staff.

### Soft phones

Soft phones provide call control on a PC to enable people to make calls on the desktop. Most people can't actually transfer a call or set up a conference call on a traditional phone. Providing people with features on their desktop to set up a conference call or transfer a call makes it much easier to use the features of the telephone system. Perhaps more importantly, people have become quite enamoured with the click-to-dial a number feature on their mobile phone. This is now available with a soft phone.

### Hot desking

Hot desking is optimal for staff working at multiple locations or staff working on rotation, as it allows multiple users to share the same IP phone. When a user logs into the IP phone, their attributes (previously defined in the system) are applied to that phone. Their own phone settings, including directory number, are associated with the device. Once they are ready to move on, they simply log off the phone. If the user fails to logout, the system has a safety guard in place to log the user out after a pre-determined period of idle time.

Attributes like phone number, call restrictions, call forwarding, message waiting indication and features on key appearances are all part of a user's profile.

### Hot Desking Features:

- Phones can be restricted when no one is logged in
- The hot desk profile includes, number, name, key appearances, message waiting, speed calls, pick-up groups, hunt groups, class of service (long-distance, outside calls)
- Allows users to be located at any desk

### Conferencing and Collaboration Tools for Presence and Availability, Work Force Interaction

Thanks to convergence, computer telephony integration has taken great strides in providing enhanced capabilities on the desktop. Softphones are a great demonstration of this, but even more exceptional is the integration between corporate productivity applications such as those enabled through Microsoft Live Communication Server and telephony to enable presence and availability on the desktop and secure instant messaging.

Such tools enable better front and back office interaction to allow workers to successfully complete interactions more quickly and efficiently. Interestingly, secure instant messaging provides for an effective means to provide informal engagements for workers which effectively are replacing 'watercooler' chats. While such informal engagements are hard to measure, they are a key means by which communications are exchanged amongst colleagues outside of formal meetings and communiqués.

Before any hasty decisions are made to ban usage of instant messaging within the corporate environment, attention should be paid to the important role informal communications play in an organisation. This should be part of a constructive discussion in any convergence strategy.

Moreover, IP holds the promise of unlocking the deepfreeze in which video conferencing exists to allow for more prevalent use of video conferencing.

### Traditional Video Conferencing:

- Complex to set up, frustrating IT and end users alike
- ISDN lines were expensive
- Restricted to boardroom conferencing, formal and required scheduling, limiting use

### IP Video Conferencing:

- With the touch-of-a-button, users can switch into a video session
- Easy to use, zero training
- Easy to maintain, minimal impact on IT support

However, one should note that informal, peer to peer conferencing is likely to become more pervasive than formal board room conferencing. Informal conferencing will likely enhance communications rather than replace other channels of communications. It should be considered for reducing social isolation of remote workers.

### Mobile Extension

Limiting voice communications to desktop phones has hitherto inhibited access to critical information, creating unnecessary gaps in communication and reducing business effectiveness.

Mobile Extension provides the means to allow staff on the go to improve their accessibility by offering callers one number to reach them on. By twinning the IP phone with other types of phones, this universal number will work across any mobile device from any provider as well as with IP DECT or SpectraLink WiFi phones. One number will ring all devices simultaneously, allowing the user to take the call from the device that is most expedient or cost effective, depending on where the user is.

Moreover, when combined with Hot-Desking, Mobile Extension offers the ability to take or initiate a call on a mobile phone or a wireless phone while in transit and

switch to a desk-phone upon arriving at the office. A user can switch back to a wireless phone if attendance is required across the building or at a different location.

- One number rings all devices simultaneously
- Twinning Desktop phones and Wireless phones, mobile or DECT or SpectraLink
- Works with any mobile from any service provider
- Seamlessly transfers call to desktop
- Can be configured to share one voice mail box among all devices
- Eliminates the need for call forwarding or “find me, follow me”

### SMS Integration into the Contact Centre

SMS messages can be routed into the contact centre, allowing stakeholders to interact with your organisation after hours. From appointments to product requests, a user texts in their selection, which is routed through the system to the register their interest. SMS allows users to interact with organisations through a cheap and all pervasive communications medium, allowing them to do this after hours, opening new paths of communication between customers and business.

### Bulk Notification

Bulk Notification is an area of significant interest as the demand for instant access to critical information grows exponentially. There are many aspects to how bulk notification can be taken advantage of. To illustrate a simple example, SMS can be used to send bulk notification of arrears of payment. The system can also direct the caller to the automated banking service for payment, reducing the impact on the call centre and reducing the costs associated with paper notification. (If a letter costs £1.10 to prepare and write, including the purchase of the paper, envelope, stamp, person to write and stuff envelope, and compound this with the cost of the calls to the contact centre at the beginning of the month, the use of SMS bulk notification can significantly achieve cost benefits.<sup>3</sup>

<sup>3</sup> Source: NHSIA Estimates

## IP Duress Call

Staff may face risks in their daily lives when dealing with the public. Circumstances may arise in which a customer may act in an aggressive manner towards staff. A safety net is needed to ensure that emergency or security staff can be notified instantly.

This issue is easily addressed through the adoption of a panic button on the IP handset. Staff aren't required to remember unnecessary codes, they simply need to press a button to alert emergency services.

## Features

- The capability to initiate a "Silent Duress" call and escalate to the appropriate security person, local or remote
- Location identification by handset location
- Deployment of a front line link to first responder
- Not an all or nothing, can be deployed to selected phones
- IP solution
- Eliminating the need for structural wiring to deliver panic buttons

Convergence is an ever expanding area and new applications are being developed on a continual basis. In many ways we are limited by our own imaginations and the possibilities are endless.

## Assessment of your Organisation

Before investing in convergence technology, it is important to establish the reasons for doing so.

### Questions to Consider:

#### What are you trying to achieve with Convergence?

- Improved Customer Interaction
- Business Process Improvement
- Reduced Costs
- Employee Satisfaction and Retention
- Improved Staff Security
- Reducing Environmental Costs

#### What are your communications headaches?

- Mobile phone charges
- Gaps in communications for field based workers
- Abandoned calls from customers
- Communications support for home based working for those who wish to extend their working hours or for those seeking to work from home
- Staff Safety: Communications for staff working on their own
- Communications orphans: Staff working at remote sites on separate phone systems
- Communications complexity: call forwarding profiles, multiple voice mail boxes
- Audio conferencing charges
- Travel expenses for internal meetings

These questions are intended as guidelines only. This list is by no means exhaustive; a proper telecommunications review is required. A gap analysis should be conducted to understand the variance between what you aim to achieve with convergence and where you currently are.

This cannot be conducted in isolation however, it is equally important to understand Staff Requirements.

## Defining Requirements for Corporate Mobility

An appealing aspect of convergence is the improved flexibility it can offer. For many organisations with field based staff, mobile charges and IT costs (configuration, troubleshooting, provisioning, repair and maintenance) and device hardware are a significant overhead that negatively impact the bottom line. However, according to IDC, most organisations don't actually have a mobile strategy – they have a policy for buying handsets.<sup>4</sup>

Despite the fact that calls made from a mobile typically cost double those made on a landline, employers are slow to clamp down on staff using mobile phones from within the office. If they could persuade employees to avoid just one five minute mobile call a day it could save UK industry around £2.5 billion per year.<sup>5</sup>

When developing a policy for convergence then, it is important to understand what the communications issues are for staff and the make up of your organisation:

- Desk based Workers
- Mobile Workers
- Nomadic Workers

Workers have different communications requirements based on their profile. Desk based workers will not likely require mobile phones, but still require flexible communication tools.

Desk based workers, while not mobile, may be characterised as knowledge workers, administrative workers, or workers focused on customer interaction such as contact centre agents. This characterisation will help you to assess the types of communications tools they need in order to do their jobs effectively.

Workers who are not simply desk based require communications that offer mobility, but a distinction must be drawn between mobile workers and Nomadic Workers.

### Mobile Workers

People who work in one location but are constantly on the move and will not likely work from a fixed desk i.e.; doctors, nurses, facilities staff, security, IT staff, retail workers.

### Nomadic Workers

People who work from multiple locations, home, office, or customer site.

Like desk based workers, mobile and nomadic workers will also fall into different profiles, knowledge workers, carers, sales and marketing, maintenance, facilities, manufacturing, engineers, the list is endless. Corporate mobility requires an analysis of the types workers within your organisation and the requirements they have for pervasive access to communications.

<sup>4</sup> December 12, 2006, Incoming call, By Pete Swabey. Information Age.

<sup>5</sup> Calculation based on total number of employees in service industries in 2004 being 13.7 million (source: Office of National Statistics AnnualBusiness Survey) and average business mobile rate of 16 p/min.

## Mobile Workers

### Unleashing the Desktop: Pervasive Access to Communications

For certain mobile workers, persistent access to voice communications is mission critical. This can be seen to hold particular relevance to healthcare workers and security personnel. Wireless Telephony using a Wi-Fi network is an exceptional means of overcoming the issues that mobile workers face.

Traditionally, access to information and communications has been limited to wired devices. For workers who are highly mobile this limitation severely curtails their ability to be responsive. Delays in access to critical information can lead to undue stress, and unnecessary mistakes.

Wireless IP Telephony systems are ideally suited for mobile workers. As long as users are within range of a wireless access point, they can make and receive calls. With a combination of a wireless infrastructure and an IP-based phone system, wireless IP Telephony becomes an integral part of the communications infrastructure.

Both fixed LANs and Wireless LANs are capable of carrying IP Telephony traffic effectively. Wireless IP Telephony systems work with standard 802.11 a/b/g Wi-Fi LANs, reducing additional wiring costs. Once there is a wireless overlay in a location, it can be used for many things.

Devices such as SpectraLink wireless telephones are unique in that they not only serve as a telephone, but can act as a two way messaging device. Moreover, applications have been devised to support monitoring and remote control of heating and cooling and air conditioning devices, video cameras and motorised doors. Wireless handsets from SpectraLink can make people and processes more efficient, such as using “code blue” broadcasts in an emergency, adopting lone worker applications to support security staff as well as supporting tracking applications. The handsets have all the features of a desktop phone, and usage can be restricted according to job category.

<sup>6</sup> Source; London, UK, 30th August 2006 – Research from Mitel®

## Nomadic Workers

Nomadic workers possess characteristics of both mobile and desk based workers. They need access to communications, but a fixed desk phone is insufficient to meet their needs. Nomadic workers often represent the biggest overhead in terms of IT, both in terms of assets and IT management. They will often have numerous devices, mobile phones as well as desk phones. Nomadic workers want to have a consistent user experience regardless of whether they are in the main office, the remote office, or at home. Inconsistency in this experience leads to gaps in communications which can lead to errors and loss of business.

Nomadic workers have an over reliance on mobile phones even though they are less reliable due to network coverage and do not offer access to corporate resources. Moreover, mobile call charges are a significant avoidable cost that negatively impacts the bottom line.

Increasingly, nomadic workers use mobile phones even when they are in the office and have access to corporate desk phones. Nearly half (48%) of all UK employees admit to using a mobile phone while sitting at their desk, a habit which represents a significant cost to their employers.<sup>6</sup>

## Reducing Reliance on Mobile Phones

Fixed Mobile Convergence (FMC) holds the promise of seamless roaming between Voice over Wireless LAN and mobile networks. FMC is an excellent concept: a Wi-Fi/mobile device that allows you to carry on a conversation on your phone as you leave a building (using a Wi-Fi VoIP network) and into the parking lot (covered by a mobile network), or vice-versa. The appealing aspect of FMC is simplification; users will only need a single handset rather than the multiple devices many users currently carry.

However, complex hand-off technology between networks, varying standards in handset technologies and reluctance by carriers to give up billable mobile phone minutes are significant barriers to making this a viable proposition for enterprise level organisations.

To date, most available FMC services have been targeted at consumers and have had a lukewarm response - BT's Fusion has secured 40,000 subscribers since its debut in 2005.<sup>7</sup>

Current Analysis' Mohr-McClune says: "Enterprise FMC is a completely different beast to consumer FMC. Most of the currently available UMA solutions have been designed with the consumer in mind. Businesses have different priorities: they need reliable services which can leverage their PBX investments and offer high voice quality. Enterprise FMC cannot be off-the-shelf; it requires professional services and a wide range of companies to deliver the end product."<sup>8</sup>

Rather than focusing on FMC, organisations should instead be looking at the issues that arise for workers on the move. Meaningful solutions to the issues nomadic workers face should focus on the end user, not the device. Corporate mobility should offer a consistent user experience with pervasive access to communications while reducing the management burden on the end user and ICT department alike.

How many workers truly require FMC? Nomadic workers represent 27 percent of the total UK workforce,<sup>9</sup> and as such will likely constitute a similar figure within any business. Corporate mobility must look at the bigger picture of analysing the communication gaps for all staff, including those who are desk based.

Improved accessibility and simplicity can be gained through Mobile Extension, which means organisations don't have to purchase yet another device to gain flexibility. Mobile Extension operates regardless of service provider and type of device.

Mobile Extension provides the means to allow staff on the go to improve their accessibility by offering callers one number to reach them on. By twinning the IP phone with other types of phones, this universal number will work across any mobile device from any provider as well as with IP DECT or SpectraLink WiFi phones. One number will ring all devices simultaneously, allowing the user to take the call from the device that is most expedient or cost effective, depending on where the user is.

Moreover, when combined with Hot-Desking, Mobile Extension offers the ability to take or initiate a call on a mobile phone or a wireless phone while in transit and switch to a desk-phone upon arriving at the office. A user can switch back to a wireless phone if attendance is required across the building or at a different location.

Mobile Extension Features:

- One number rings all devices simultaneously
- Twinning Desktop phones and Wireless phones, mobile or DECT or SpectraLink
- Works with any mobile from any service provider
- Seamlessly transfers call to desktop
- Can be configured to share one voice mail box among all devices
- Eliminates the need for call forwarding or "find me, follow me"

<sup>7</sup> FMC you later . By Jo Best Published: Tuesday 09 January 2007, silicon.com

<sup>8</sup> Analysis: How operators are making it happen... By Anthony Plewes, Published: Wednesday 13 December 2006, silicon.com

<sup>9</sup> Centre for Economic and Business Research (CEBR), 2006.

Mobile charges are an issue that run across all staff profiles. The most valued feature of mobile phones is the ability to click-to-dial from the personal contact directory in a mobile phone. Consequently, according to IDC, “telecom managers believe approximately 28% of their employees are using mobile phones as their primary work phone.”<sup>10</sup>

Behaviour modification is possible with respect to user over-reliance on mobile phones. Soft phones are an effective way to reduce this reliance. Soft phones provide call control on a PC to enable people to make calls on the desktop. By using a soft phone the corporate and personal phone directories are made available on the desktop, allowing user’s simple click-to-call dialling.

Moreover, soft phones become even more appealing as they offer drag and drop features to set up conference calls and to transfer calls with ease. In many organisations, lack of end user confidence in transferring calls and setting up conference calls leads to delays and complications, soft phones are an effective means of putting control back in the hands of users.

For field based and home based workers, mobile phones can easily be replaced with broadband telephony. Simplicity is key here and users can take advantage of broadband telephony simply by plugging the telephone into a cable or DSL router to have 4 digit dialling, and access to corporate resources such as voice mail and conferencing.

This can have an immediate and positive effect on reducing mobile phone charges as internal calls are free and users can take advantage of least cost routing from the main switch. Moreover, users are no longer susceptible to the variances in reliability experienced with mobiles, enabling them to have a consistent communications experience.

## Customer Interaction

Managing communications with customers is an important facet for any organisation, public or private. Outbound and inbound communications need to be managed appropriately or an organisation can risk its reputation and its customer base.

Customers want their call to be answered immediately by someone capable of dealing with their issue on the spot, without being passed around or having to call back. Customer expectations continue to rise, while complaints tend to focus on the length of time taken to answer, and the use of poorly designed telephone IVR menus. The telephone is the channel of choice, even for interactions which the organisation might consider to be of low value.<sup>11</sup>

The telephone is the main vehicle of communications after engaging with someone in person. Handled properly it can create a positive impression of service - improperly, a negative one. For this reason, a contact centre is pivotal to successfully managing contact with the public. Informed management is essential in the provision of an effective contact centre.

Contact Centre Management is the art of having the right number of skilled people and supporting resources in place at the right times to handle and accurately forecast workload, at a guaranteed service level with quality staff. However to ensure the contact centre is running smoothly, analytical tools are required.

<sup>10</sup> Network World’s Convergence & VoIP Newsletter, 03/07/07. By Steve Taylor and Larry Hettick

<sup>11</sup> The UK Contact Centre Industry: A Study. DTI, 2004.

Over and above setting up a contact centre, tools to measure its performance are necessary:

- Senior Management demands for performance reports
- Decent management reporting on call centre activity is critical
- Management statistics can be used to identify patterns of behaviour
- Management and performance data is centralised and reduces time spent on collecting data
- Performance measurements help to identify good practice
- Reporting statistics can be used to help justify resources, especially at this time when there is pressure to cut staff

The flexibility of IP means you no longer have to dedicate a facility to operate a Contact Centre. IP Contact Centres enable an organisation to set up operations anywhere and use part-time staff who can work from home using broadband telephony. Moreover, geographically dispersed contact centre agents have the ability to work virtually, thereby enabling staff from different parts of the organisation to support the contact centre at peak hours of call traffic.

To improve first time call completion, presence availability tools coupled with secure instant messaging are an ideal complement to the contact centre. Back office interaction with the contact centre can be significantly improved by enabling contact centre agents to quickly identify which subject experts are available to quickly answer a question with instant messaging or to instil confidence that an expert is available to accept a transferred call.

Taking advantage of these tools can lead to greater efficiency in handling customer queries, which can translate into real savings:

- If an organisation can increase the number of queries that are resolved in a single phone call from an average of 82% to 91%, it will reduce overall call centre volume by 9%
- In a 50-agent call centre handling 70,000 calls per month, that can amount to 4.5 full-time employees<sup>12</sup>

For organisations establishing a convergence plan, it is necessary to evaluate:

- How customer interaction is being handled
- Requirements for inbound and outbound customer interaction
- Analyse current call handling to determine the abandoned call rate
- The time it is taking for calls to completed
- The cost to the business for managing customer interaction

For many organisations, the adoption of informal contact centres is becoming increasingly common place as it seen as most effective means of managing customer interaction. IP Contact centres provide for more flexible and effective alternatives for many organisations and should be a consideration for review in any convergence strategy.

<sup>12</sup> Revamped Call Centers Reduce Operating Costs, Gartner, 2002.

## Communications and Staff Safety

For organisations that require staff to be out in the field, often on their own, posing a safety risk for employees it is necessary to provide peace of mind and protect staff. A Lone Worker Alert System can be deployed to provide a safety net for field workers.

- A personnel tracking and safety system designed to monitor security of lone workers
- Users access system via a mobile or landline
- Time, place and expected departure time are entered to monitor the safety of a lone worker
- System monitors events and undertakes notification by phone, fax, email or a visual/aural emergency system when events are overdue
- Workers constantly update system using touch-tone or voice, both Voice and Text solutions can be deployed

Desk based staff working with the public can also be put at risk. Utilising IP, a panic button can be featured on the IP desk phone to be utilised by workers in crisis situations. Staff aren't required to remember unnecessary codes, they simply need to press a button to alert emergency services.

### Features

- The capability to initiate a "Silent Duress" call and escalate to the appropriate security person, local or remote
- Location identification by handset location
- Deployment of a front line link to first responder
- Not an all or nothing, can be deployed to selected phones
- IP solution
- Eliminating the need for structural wiring to deliver panic buttons

In any convergence strategy, tools to protect lone workers and workers dealing with the public should be a key part of the evaluation. IP offers more flexible and affordable means of protecting staff.

## Reality Bites: Living with Legacy Equipment and Software

Over two-thirds of UK companies are running parts of their business on technology that is over ten years old. <sup>13</sup>While 70 per cent plan to modernise their technology in 2007, rather than ripping out and replacing legacy systems, 34 per cent are looking to use service-oriented architecture and 29 per cent legacy modernisation as alternative means to improve their technology.<sup>14</sup>

Of those surveyed, only 13 per cent will be following the 'rip and replace' methodology, and 14 per cent said they were considering a combination of methods for their systems upgrade, such as SOA and legacy modernisation.<sup>15</sup>

"Choosing the best upgrade for your company should be the main priority," concluded Holyoake. "The main factors should include having the least knock-on effects in the short-term, such as staff downtime and high costs, yet long-term benefits and further modernisation potential. By considering all options, organisations can maximise their current IT investments and significantly reduce project and associated business risks."<sup>16</sup>

Businesses cannot afford to ignore legacy equipment. The complexity of technology is leading companies to spend 75% to 80% of IT budgets simply maintaining the systems they have already.<sup>17</sup>

<sup>13</sup> Software AG, 2006.

<sup>14</sup> 70 per cent of firms rely on legacy systems put in before 1996, says survey. PublicTechnology.net, Jan 05, 2007

<sup>15</sup> Ibid, 6

<sup>16</sup> Ibid, 6

<sup>17</sup> Google exec says IT 'crisis' preventing business innovation. By Jon Brodtkin, NetworkWorld.com, 01/23/07

## Migration and Interoperability

It is common for organisations to phase in the introduction of IP telephony so that they can continue to use existing PBX equipment while at the same time introducing new IP based phone systems. Many organisations have a heavy investment in their current telephony system and are considering IP telephony as an adjunct to their existing system. Organisations may be looking at IP Telephony to add supporting communications to a new department, or to replace a key system that has reached the end of life.

However, this transition can lead to issues around inter-working between traditional and IP phone systems, including the loss of valuable telephony features that many organisations have come to rely upon. Features such as call line identity (CLI), camp on, cross network paging and the ability for switchboard operators to see whether someone is on the phone at a remote site are all aspects of a phone system that people depend upon.

To ensure features work across disparate telephone systems, manufacturers of telephony equipment have worked together to establish signalling protocols. Signalling protocols play a crucial role in providing interoperability between telephone systems by supporting features and functionality between telephone systems. The importance of signalling protocols cannot be underestimated.

Q.SIG and DPNSS (Digital Private Network Signalling System) are signalling protocols designed to provide communication between different PBXs. Signalling protocols are intended to allow disparate PBXs to pass selected feature capabilities between them. The adoption of a signalling protocol ensures that you will get a core set of features that all manufacturers support.

Q.SIG provides a lower level of feature transparency than DPNSS, while interoperability through DPNSS continues to provide the greatest level of integration for most PBXs.

In establishing a convergence plan, it is important then to establish your method of moving to IP Telephony. For organisations with an existing investment in traditional telephony, integration and interoperability with your existing equipment should be a fundamental consideration. IP Telephony can be integrated with your existing technology, and DPNSS integration should be a primary consideration for most traditional PBX platforms.

## SIP and Roadmaps

### Session Initiation Protocol

Previously, telephones and other communications devices from one PBX vendor could not be used with another vendor's PBX. With SIP, this is about to change.

SIP is primarily used in setting up and tearing down voice or video calls. The aim of SIP is to provide a signaling and call setup protocol for IP-based communications. It holds the promise of opening communications in ways previously impossible through proprietary TDM telephone systems.

While you may be limited to making a call and hanging up a call today, SIP is evolving and the technology community is working to develop the protocol further to ensure that features that you have come to expect from traditional voice protocols can be extended through SIP.

SIP is a standard that is being advanced by the Internet Engineering Task Force (IETF). SIP communication uses the same control, addressing, protocols, security and other mechanisms commonly found on IP networks and on the Web.

In addition to voice communication features, SIP enables new services that are very difficult or impossible to provide in traditional telephony-centric systems. These include:

- Presence
- Mobility
- User preferences
- Instant multimedia communications: text, voice / video / data
- Advanced multimedia conferencing
- Multiple media: text, voice, video, shared data
- Multiple devices: phones, PC / laptop, handheld computers, pagers

## SIP Characteristics

### Control Over Services Moved to Endpoints

In the traditional telecom environment, centralised switching elements control voice and other services. This significantly increases the time and costs required to build new services. By moving service control out to the endpoints (such as SIP-based mobile phones or PC clients), SIP eliminates the need for a central switching element. This promises to lower development costs and speed up development cycles of Web-based services to real-time communications.

### Future-Proofing

SIP should be a key consideration in any convergence strategy, and all technology evaluations should incorporate SIP. With this in mind it is also important to be mindful of the split directions SIP may take as all vendors will attempt to incorporate their own discretionary aspects of SIP to create differentiation and limit competition from other vendors.

It is in the nature of competition to attempt to create something that is unique and SIP is no different.

## Centralising Communications

In many organisations there are numerous examples of “Communications Orphans”, whereby there lacks a common communications infrastructure for all users. Capability often varies considerably by location, which means that users moving from site-to-site have no consistency of experience. Managing this type of communications infrastructure is time-consuming, expensive and involves staffing on-site resources or necessitates travel, which may introduce delays to issue resolution.

IP Telephony offers the means to overcome the issue of communications orphans by enabling an organisation to telephony to small sites without a heavy investment. Broadband telephony provides an affordable means to offer provide remote workers and micro sites with 4 digit extension number access to the central voice system and allow users to access all of the same features as the main site, like voice mail, centralised directory and conferencing.

## Network Interoperability

A Convergence strategy will require a comprehensive network analysis to understand your current network capacity and capability of supporting Voice. Voice over IP requires Quality of Service to prioritise voice over data on a converged network.

While data can withstand delays in packet delivery, voice is highly sensitive to any delays and packet loss can result in jitter, which the ear recognises as interruptions in the voice signal. To prevent this, voice needs to be prioritized over data to ensure a consistent voice signal.

In order to ensure optimal delivery of voice services, the network analysis should be conducted to gain an appreciation for the potential investment required and to build a plan for roll out of voice services based on the capability of your network.

It is important to understand that convergence is built upon the ethos of open standards. To get the most out of a convergence your approach should support integration into any corporate LAN/WAN infrastructure. Any convergence plan should be able to support your choice of network provider, regardless of the manufacturer, be it Cisco®, HP®, Enterasys®, Extreme®, Foundry®, Nortel® or 3Com®, indeed any infrastructure, thereby eliminating any issue with vendor lock-in and ensuring organisations can select best of breed technology to satisfy your communications requirements.

## Key Network Considerations for Convergence

Installing a telephony system requires considerable planning to determine the type of phones and features required, and their location. Integration with a data network adds a number of other areas to consider.

These lists in are not exhaustive, but are intended as a guideline to the types of questions you should be asking and the areas that need to be considered, especially with respect to installation on a data network. Remember that it is easier and more cost-effective to consider the requirements up front, rather than afterwards.

### IP Readiness Review

- System configuration analysis.
- Determining if and when to upgrade the network.
- Managing the transition to IP Telephony.
- Commercial aspects of a transition.
- Identifying other areas of opportunity for business improvement.
- Custom application development.
- Obtain a network diagram of the proposed networking infrastructure.
- Does a legacy PBX need to be supported?
- How many sites, buildings, floors, wiring closets, and nodes are there?
- Is the design adequately sized for TDM, IP, call features, and resources?
- Has the design been checked by System Engineering?
- How much growth is anticipated? Should the solution accommodate the expected growth now or simply address the current requirements and grow as needed? Consider the network devices and cabling as well as telecom requirements.
- Consider availability of services to the user. What processes will be used for handling failures?

- Obtain information on site power distribution, backup, and physical layout.
- Obtain a telephony network diagram and understand the following:
  - Physical and logical distributions of phones.
  - Emergency Support (for example, 999, 112).
  - PSTN trunk connections, gateway requirements, compression, IP networking.
  - Location of applications - Voice Mail, Auto Attendant, and so on.
  - Other TDM services such as fax and modem. Modems do not work across IP trunks because of required echo cancellation techniques. Fax works under limited settings, although a T.38 gateway is recommended.
- Consider spares, response time, and available resources in the event of a failure.
- Is resiliency or network redundancy required?

Include the following steps when designing an IP telephony network

- Perform an assessment of the current network.
- Determine bandwidth and network performance requirements.
- Design a network topology including the IP telephony equipment.
- Design a consistent end-to-end QoS policy, including VLAN 802.1p/Q and DSCP.
- Design a general network setup that includes DHCP, TFTP, firewalls, NAT, STP, CCDP, 802.1x.
- Consider ongoing engineering requirements; networks and requirements evolve even after an installation is complete.
- Plan for regular checks on voice quality performance.
- Consider staged installation and commissioning at larger sites.

## Commercial Considerations

- Assess the Statement of Work (SOW) - Who does what? For example, is there a 3rd party network provider, maintainer?
- Agree on the work schedule, who maintains the network, installs the network, installs and maintains telephones and applications.
- Consider the availability of network knowledge and experience.
- Consider the effect of including applications, especially virtual phone usage, sockets, monitors, performance, licenses, AMC access, and Internet access.
- What about on-going maintenance and database backup agreements?
- Consider power and heating and cooling requirements.
- What is the effect of a staged installation and commissioning at large sites?

## Getting the Most out of Convergence

Understanding what it is you are trying to achieve and how convergence tools can aid your organisation is a vital first step on the road to convergence. Understanding where you are today and what is required to achieve your goals will enable you to develop your roadmap. Appreciation of and due consideration for the technological, human and financial aspects of such a plan will ensure you are successful in achieving your goals

### Why Mitel

Mitel is a recognised leader in helping organisations migrate to the world of IP Telephony.

Building on 30 years of experience in telephony, Mitel has developed a state of the art communications platform designed to enable organisations to take advantage of new technology while protecting their existing investment.

Mitel appreciates that legacy equipment is a reality for most organisations, and for true unified communications to exist, Mitel designs technology for the power of the new while accounting for the realities of the old.

Moreover, Mitel offers a wide variety of tools designed to improve communications and operational efficiency. Hot-desking, video conferencing, broadband telephony, contact centre management tools, SMS, desktop tools for call management and presence and availability, and lone worker alert systems are just the beginning. Working closely with its clients, Mitel raises the bar in innovation by designing systems that genuinely reflect end user requirements, while offering technology that offers ease of use.

MITEL  
it's about **YOU**

Companies don't make decisions, people do. That is why Mitel is leading the way toward a new and more personalized approach to communications for enterprise and small business. Our innovative solutions, applications and desktop appliances enable you to access, process and control your communications and information naturally, simply and efficiently. Our solutions allow you to collaborate over distance and time and to interact with your customers, colleagues and partners as never before. By combining the power of voice, data and video over converged high speed networks, Mitel provides you with flexible and personalized tools that let you leverage the latest advances for personal and organizational advantage.

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