

The Strategic and Financial Justification for IP Communications

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The intent of this white paper is to provide senior managers with the necessary strategic and financial justifications to make effective decisions regarding investments in IP Communications. IP Communications—also known as “convergence”—refers to the integration of data, voice, and video solutions onto a single, Internet Protocol (IP) based network.

Often perceived as a technology of the future, the products and solutions that companies need in order to deploy IP Communications exist today. In fact, a recent Phillips InfoTech study found that 44 percent of enterprises are already in the process of migrating to IP telephony and that 12 percent of all voice lines shipped this year will be IP station lines.

IP Communications is now a viable technology, which is causing many IT managers to rethink their current network strategies. As a result, PBX sales have declined by 25 percent in the last two years and 62 percent of voice and data decision makers have reported postponing their investments in PBX technology in anticipation of migrating to IP Communications solutions.

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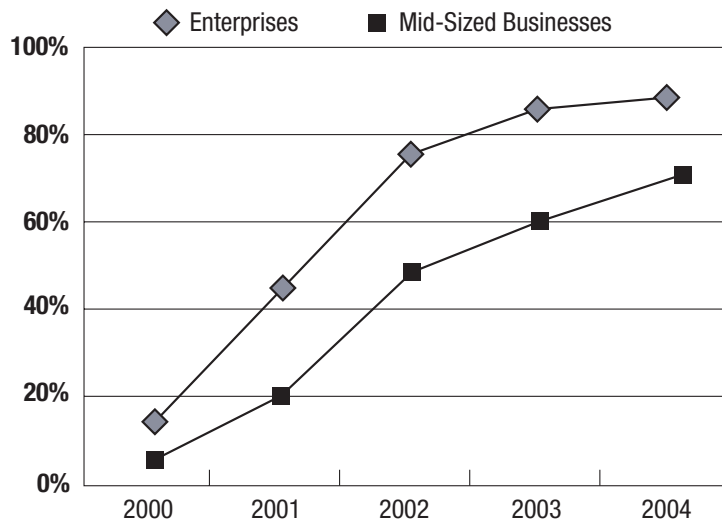
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Figure 1. Timeframe to begin implementing IP telephony



Executive Summary

Today's economic climate has made it more crucial than ever for decision makers to consider what type of return their organisations can expect from prospective investments. Enterprises that are investing in IP Communications have two primary returns in mind—reducing operational costs and improving their organisation's communications capabilities. More than half the respondents in a recent survey of enterprise decision makers agreed that the decision to deploy IP-based infrastructure and solutions is no longer a question of "if" but of "when." IP Communications is a viable technology that can be implemented today. By converging existing voice and data networks onto a single IP-based network, an enterprise can lower its total cost of network ownership by reducing expenditures associated with equipment and maintenance, network administration, and network carrier charges.

A converged network also enhances an organisation's communications capabilities by facilitating employee mobility and providing a solid foundation for the deployment of advanced, feature-rich services and solutions. IP telephony, unified messaging, and multi-channel contact center applications are just a few examples of such solutions.

While some organisations have expressed concern about migrating their existing network infrastructure to a converged model, industry studies show that 80-85 percent of the enterprises that have already implemented IP Communications indicated that the quality, resiliency, and scalability this technology delivers either met or exceeded their expectations.

IP Communications—The Time is Now

A recent study conducted by Phillips InfoTech found that 60 percent of enterprise decision makers agreed or strongly agreed that: "The decision to implement IP telephony is no longer a question of 'if we should do it,' but it is now a question of 'when we should do it.'"

The principal drivers behind converging voice and data networks are reduction in total cost of network ownership and enhanced business communications. Many of the new business applications that are now deployed on converged networks provide immediate ways to increase personal and workgroup productivity while enhancing customer care and responsiveness. A recent survey by Phillips InfoTech supports this assertion. Of the enterprises surveyed that have already deployed IP telephony, Phillips InfoTech found that three times as many enterprises were satisfied with their deployments, versus those that were not.

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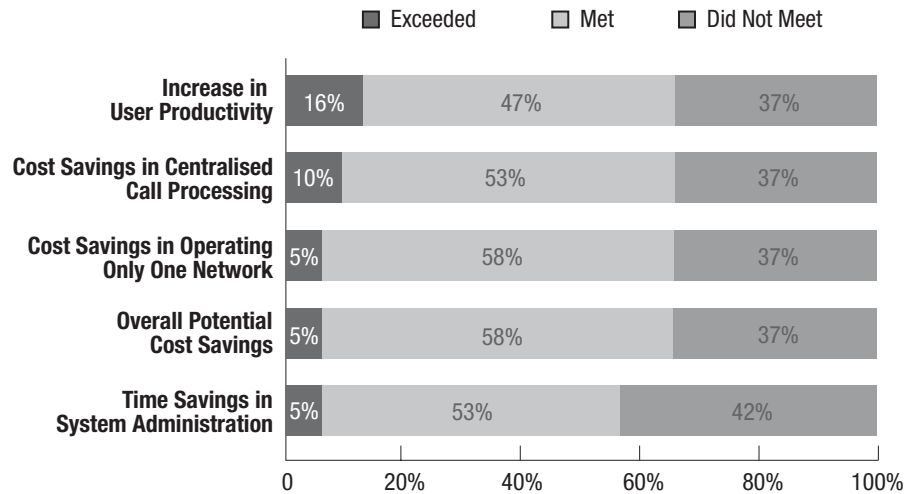
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Figure 2. Results of Enterprises that have completed Initial Implementation

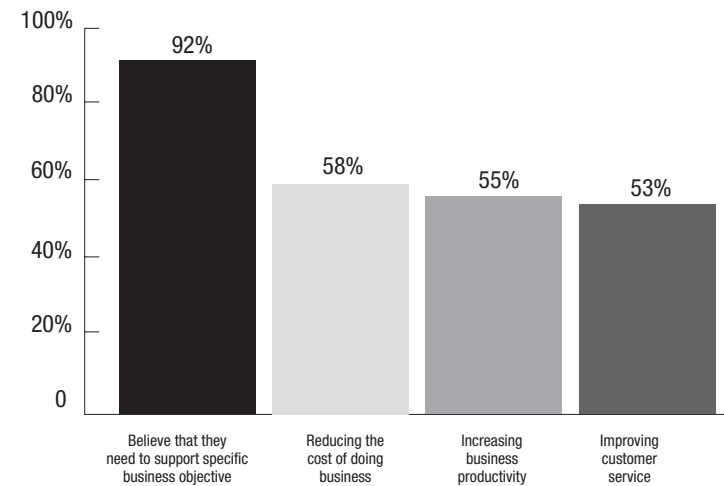


A New Reality for IT Investments

IT investments are now faced with a greater degree of scrutiny than ever before. The recent economic downturn has made it that much more important for IT managers to justify the strategic and financial value of proposed IT investments. As IT has gained greater acceptance as a strategic component of running a business, the parties involved in making company decisions have expanded to include business and financial managers who want greater strategic and financial justification for why they should invest the organisation's capital. Business and financial managers want to understand how investments will help them realise their business goals of generating more revenue, reducing operational costs, retaining an established customer base, and creating a sustainable competitive advantage that will, in turn, either boost or create value for shareholders.

According to Forrester Research, 68 percent of global enterprises believe that their network is a source of competitive advantage for their business. It's reasonable to expect that the network will continue to become a more critical source of a company's competitive advantage. According to a recent survey, 92 percent of IT professionals believe that future IT initiatives need to support specific business goals. These goals include reducing the cost of doing business (58 percent), increasing business productivity (55 percent), and improving customer service (53 percent).

Figure 3. Objectives of IT Investment



One of the primary benefits of IP is that it offers a transmission protocol in which data and voice communications can be combined together in an integrated fashion, reducing network



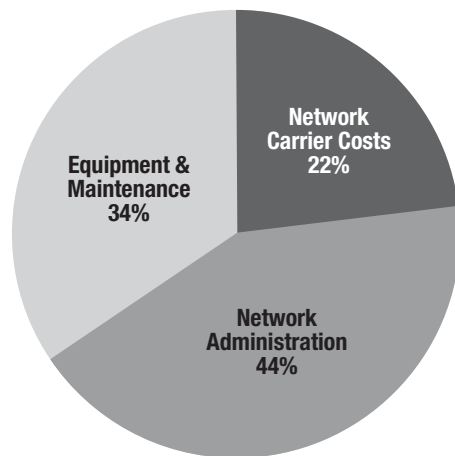


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complexity and enriching the user experience.

Unified messaging is a good example of an application that leverages IP benefits. Unified messaging has existed for over five years and was originally developed for separate voice, video, and data networks. Initially it showed great promise, but has subsequently failed to achieve projected user adoption rates. Although unified messaging solutions have the potential to increase employee productivity and reduce IT support costs significantly, the financial and time investment required to integrate a unified messaging system into disparate networks often overshadows the benefits.

Figure 4. Average Percentage Contribution to Cost Savings



Why IP Communications?

The first question for many customers is “Why should I do this?” Two critical drivers should lead an organisation to begin evaluating IP Communications—the fact that it can lower total

cost of network ownership, and that it can significantly enhance business communications via the rapid deployment of new applications.

When we evaluate the total cost of network ownership, we break down the traditional barriers between voice and data departments and evaluate how overall costs can be decreased. Initial return on investment (ROI) analyses have determined that IP Communications deployments deliver a positive financial result approximately 70 percent of the time with an average payback of 16-18 months. IP Communications lowers an enterprise’s total cost of network ownership by eliminating multiple sets of infrastructure, simplifying system administration and maintenance, and consolidating voice and data circuits. On average, contributions to the total cost savings are:

Lower Cost of Network Ownership Reduction in Equipment and Maintenance Costs

As voice and data networks continue evolving to meet the pressures placed upon them, they grow significantly more complex and expensive because organisations must scale up multiple networks instead of one. A converged network can reduce equipment and maintenance costs by:

- Combining multiple network infrastructures into a single IP-based network. An organisation will no longer need to invest in a dedicated device such as a PBX or maintain a separate integrated services digital network (ISDN) for its videoconferencing needs. The City of Dallas was able to converge incompatible data networks—five in all—and one voice network into a single, converged network that will generate £11.3M in savings over a ten-year period. Another example is Cray Inc.—this company purchased a new converged data and voice network for its new facility in Minnesota for almost the same cost as a PBX alone would have incurred.
- Allowing enterprises to centralise call processing. Centralised call processing with IP telephony gives enterprises with many independent sites the ability to centralise their



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voice and data networks on a headquarter or regional basis, thereby eliminating the need for smaller key systems and resulting in a reduced investment in equipment for individual branch offices.

- Reducing the number of wiring drops in a new facility by 33 to 50 percent per user. Many enterprises that are deploying IP telephony in 'Greenfield' situations are realising savings of approximately £100-200 per seat because they can now run a PC and an IP phone on the same Ethernet port.
- Lowering hardware connection costs. For instance, connecting an existing voice mail server to a PBX requires a channelised T1 line with 1.5 megabits of bandwidth that can support 24 users and costs approximately £3,300. In a converged IP-based network running 100 megabit Ethernet with a unified messaging solution, a single server can support a similar number of sessions at a cost of only £325.00. In other words, for one-tenth of the cost, an organisation is able to increase its performance 100 times.
- Reducing or eliminating PBX/ACD upgrade costs. Many enterprises have a disparate network of standalone voice systems, many of them nearing obsolescence. It is often difficult to find new parts or enterprises are forced to pay exorbitant amounts on annual PBX upgrade costs.

Reduction in Network Administration Costs

IP Communications can enable enterprises to reduce network administration costs by:

- Improving the productivity of network support staff through simplified network management. Many customers are seeing improvements in productivity in the range of 10-40 percent.
- Allowing an organisation to minimise its outsourced contract costs. The improved productivity of internal network support staff has allowed many organisations to reevaluate the need to outsource certain responsibilities, thus providing them with greater control

over their network and oftentimes leading to a faster response time for their users.

- Enabling network support staff to manage much larger user communities with the same number of personnel. After converging its network, The Ministry of Social Policy in New Zealand was able to support an additional 2,500 users with the same network support staff of 10 people.
- Minimising expenditures associated with moves, adds, and changes. Moves are estimated to cost an organisation between £40 and £75. IP phones offering extension mobility allow organisations to significantly reduce this ongoing cost. For example, a typical enterprise with 5,000 employees that performs 2,000 moves per year at an average cost of £55 per move will save over £110K per year.

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Reduction in Network Carrier Costs

Network carrier costs include toll-bypass charges and also refer to the impact that a converged network can have on a reduction in voice circuits. A converged network can enable enterprises to reduce network carrier costs by:

- Reducing PSTN tariffs via toll-bypass. This has become less relevant as domestic per-minute telephone rates have dropped as low as three to five cents, but this continues to be a significant area of savings for international calls.
- Reducing voice circuit costs. The ability to use the data network to transport voice traffic



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has allowed enterprises to significantly reduce annual voice circuit costs. IP Communications can significantly reduce a company's total cost of network ownership. To fully realise these cost savings, however, IT executives must be prepared to take whatever actions are necessary to leverage the inherent advantages of this technology. An organisation contemplating migration to a single voice and data network must also understand how a single network can improve its ability to scale for the future and quickly react to the dynamically changing needs of the business. Specific types of change can include the deployment of new applications and services designed to improve business processes or enhance customer care, adding new users to the network, and integrating new hardware solutions. Dow Chemical's challenge was to establish a flexible network that would enable them to make rapid changes as well as quickly integrate a series of new company acquisitions for which they were planning.

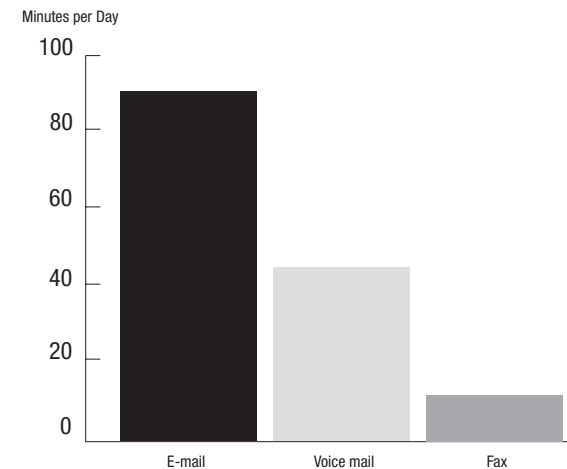
Enhanced Business Communications

An IP-based network enhances business communications by providing a flexible foundation upon which all types of new applications and services can be deployed, quickly and easily. These applications maximise productivity and improve communications by facilitating increased mobility, delivering advanced functionality, and streamlining administrative tasks. As a result, employees are able to communicate more effectively—with co-workers and customers alike—and can focus their efforts on activities that create new revenue streams or generate cost savings.

The power of the networked world is in its ability to allow people to communicate more rapidly through multiple delivery mechanisms. Voice messaging, e-mail, and fax technologies have greatly enhanced organisational communications. However, these technologies have also created a staggering amount of inefficiency in the enterprise.

Employees now spend an average of 2.5 hours per day retrieving and responding to e-mail, voice, and fax messages—not to mention the productivity losses resulting from downtime many mobile workers experience while away from the office. Identifying ways to make business-wide communications more efficient is crucial to a company's success.

Figure 5. Time Spent Managing Communications



IP Communications Enables the Mobile Workforce

IP Communications enables employees to be as productive out of the office as they are when they're in the office. Solutions like IP telephony, unified messaging, and IP contact center have been designed to provide an ideal foundation to support today's increasingly mobile workforce. This is especially important for salespeople, consultants, telecommuters, and computer technicians who spend much of their time away from their office, but still need access to the same network capabilities regardless of where they are. IP telephony in particular provides significant benefits in the areas of telecommuting and hoteling.

53 percent of employees believe that the ability to telecommute is an important factor influencing job satisfaction and enhancing productivity. In a traditional voice environment it has been cost prohibitive to provide voice network capabilities to the telecommuter. There have existed several different alternatives, but all are difficult to execute and can cost upwards of £800 per remote worker. With IP telephony and IP contact center solutions—

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using a VPN solution owned by the enterprise or managed by a service provider—a company is able to securely extend the voice capabilities of its network to the remote worker. In this deployment scenario, the remote worker with high-speed access can use their existing hard phone both in and out of the office or use a soft phone application that runs on their PC. Both scenarios allow employees to have full access to all network capabilities and to be free from the constraints of the home office, thereby increasing productivity while reducing calling charges, leased-line, and additional handset costs. The flexibility of allowing call agents to work from home improves an organisation's ability to attract and retain higher quality workers as well as cutting down on long-distance calling charges back to the home office.

Most companies have employees who are constantly on the road and rarely use their offices. Unfortunately, other employees cannot effectively use these unoccupied office spaces, because their phone extensions do not travel with them. The practice of hot-desking or hoteling has been in existence for almost a decade and originally promised significant savings in real estate and facilities costs. However, many organisations found that the costs of adapting their current networks to accommodate mobile employees outweighed the benefits. A converged network can help a company optimise the use of its facilities—and reduce associated costs—by providing a more flexible foundation to serve the needs of its users. A converged network with IP phones enables employees to freely move about the office to available spaces, while allowing their phone extensions to travel with them—as well as any services or applications that they have loaded on their phone. This is allowing many companies assign more workers to shared workspaces, thereby reducing the costs associated with office equipment and real estate.

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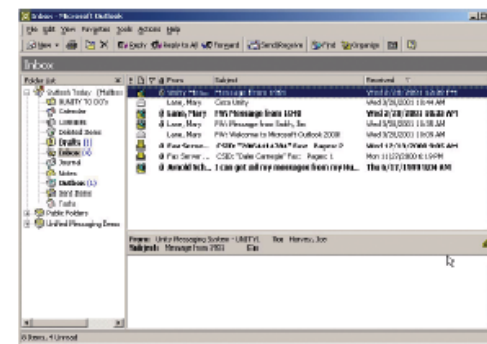
Unified Messaging

Unified messaging solutions deliver every message—regardless of media or type—into a single inbox, giving employees the ability to access and manage their communications using any device. A study done by The Radicati Group, Inc. found that unified messaging systems generate 25 to 40 minutes of additional productivity per employee per day and can reduce IT support and administrative costs up to 70 percent.

In contrast to today's voice, fax, and data-messaging systems—in which content must be manually copied or scanned for transmission between different system types—unified messaging on a converged network supports a universal inbox that can contain all three types of messages. Employees can easily access their e-mail, voice, and fax messages from wherever they may be, and respond to time-sensitive items quickly.

Although unified messaging has existed for more than five years—demonstrating tangible productivity benefits along the way—it's still a relatively undiscovered technology because of the inherent difficulties associated with software integration in a multiple network environment. A converged network provides the necessary platform to make unified messaging a reality for many organisations.

Figure 6. Unified Messaging—One Inbox for Every Message





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customers. New PC communication applications—such as IP soft phones—allow users to eliminate their hard phone and use their PC for voice calls. An intuitive, easy-to-use interface eliminates the need for two devices, and allows users to easily set up conference calls with the click of a mouse. In addition, because an IP soft phone can travel with a user, telecommuters who have high-speed access are able to take their phone extension home with them on their laptop and receive calls just like they would in the office.

Streamlining Administrative Tasks

A converged network and the applications it enables enhance business communications by providing employees with the tools they need to work smarter and faster. Even in today's information society, most knowledge still resides in the heads of a company's employees. Companies looking to the future are trying to identify methods to tap this individual-specific knowledge and share it with the entire enterprise. As the workforce becomes more mobile this problem will continue to increase. A converged network offers a platform upon which applications and services that are designed to disseminate this knowledge quickly and easily can be deployed. Several existing applications play a key role in this endeavor.

Remote Collaboration Tools

Collaboration applications that combine voice and video interaction with information sharing enhance business communications by improving knowledge management and facilitating easier access to and exchange of critical corporate information. Current features include application sharing whereby two users are able to read through a document together to agree on the correct content. Additional applications of this technology include online editing of video content, walking a remote group of people through a presentation, or sharing a white board to brainstorm ideas while in multiple locations. The convergence of voice, video, and data onto a single network helps make the obvious benefits of collaboration tools a reality.

The boom in customer relationship management (CRM) shows that most companies finally understand the value of keeping their current customers happy. An oft-cited statistic that

continues to resonate is that it is five to ten times more expensive to acquire a new customer than it is to retain an existing one. Many of the recently deceased B2C companies learned that lesson the hard way as they poured outrageous amounts of money into campaigns that were intended to turn browsers into buyers but often failed in their ability to build a loyal customer base. The Harvard

Business Review also found that a five percent increase in customer retention can increase profits by nearly 100 percent—with “completely satisfied” customers being six times more likely to become repeat buyers than “satisfied” customers. Implementing a converged network enables organisations to deploy applications and services that can help them outpace competitors while cultivating customer loyalty.

Superior customer care has been a particularly vexing issue for companies who are in the process of major e-commerce initiatives. How can a company create an online environment that provides a comparable level of service to a physical store staffed by real people? Converged networks provide organisations with a fully integrated voice, video, and data infrastructure designed to improve knowledge management across the enterprise and deliver a richer online experience to its customers.

Multi-Channel Contact Centers

Converged networks help an enterprise create a truly multi-channel contact center. In the past, call center agents have only been able to interact with customers via phone. Customers would at times be frustrated because they were unable to see the person they talked to and often, they were forced to provide simple account data multiple times before their problem could be resolved. A multi-channel contact center allows an organisation to put a face with the voice while facilitating access to critical data, making the agent more productive, shortening handle-times, and improving customer satisfaction. Multi-channel contact centers also give online customers the option of click-to-talk functionality where they can click a button while on the Web site and be put in contact with a customer service agent immediately. Easy access to customer data can also lead to cross-sell and up-sell opportunities for an organisation.



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The enhanced mobility features of a converged network allow call agents to be located remotely. This can reduce labor costs and increase employee quality by allowing organisations to recruit on a regional, national, or even international basis rather than within one specific market. This can also have a positive impact on customer satisfaction as organisations can establish contact centers in other countries—like India, where labor is less expensive—and route customers to an agent who speaks their native language. This can also reduce the investment in call center facilities and the flexibility provided to employees could potentially boost employee morale.

Collaboration Tools

Collaboration applications—and their ability to directly affect the customer's experience—are among the most compelling reasons to justify migration to a converged network. With over two-thirds of all online shopping carts never making it through checkout, there is an obvious disconnect between the level of service that customers receive and the level of service they require to be successfully converted from a browser into a buyer. This disconnect cost North American businesses over \$1.6 billion in e-commerce revenue last year. And according to Jupiter Research, over 90 percent of online shoppers want some form of online human interaction. Collaboration software running over a converged network allows the customer service agent to look at the same page on the Web site as the customer, make recommendations and product comparisons, instantly transfer relevant documents to the customer's desktop, and walk them through the check-out process. As customers continue to demand a similar level of service as they receive in a physical store, online collaboration tools can provide the customer with a customised online experience that eliminates many of the dehumanising qualities associated with the Internet.

With a prospect on the line or engaged in a chat session, agents can help shorten the sales cycle by offering to share content through co-browsing. Using collaboration tools, many participants can instantly view a PowerPoint presentation. There is no need to schedule expensive in-person meetings when the next phase of the sales cycle can take place immediately. For example, a large telecommunications hardware provider recently turned to Cerida—an advanced IP-based contact center that focuses on driving the entire sales cycle

using Web collaboration and chat—for support of its marketing initiatives. This support has led to 1,197 highly qualified leads passed from Cerida agents to the client's sales representatives, with a nine percent conversion rate, resulting in an earned US \$8.87M in total revenue.

Contact center applications and online collaborative tools offer the most obvious customer care benefits. However, unified messaging and personal communication assistants can also improve customer service by providing customers quicker response times to their inquiries. For instance, if a customer urgently needs to reach their account manager, personal communication assistant software allows that call to be routed to the salesperson's current location rather than to their voice mailbox. Similarly, unified messaging reduces the time required to access and read or listen to voice mail, e-mail, and faxes. This in turn can reduce the time that it takes to respond to a customer.

Migrating to a converged network and the applications enabled by it can not only offer an organisation short-term reductions in its total cost of ownership, but also can generate substantial long-term benefits like increased personal and workgroup productivity, enhanced customer care and increased organisational flexibility. In other words, it has the potential to be a source of strategic value rather than just a cost center.

Common Concerns About Transitioning to IP Communications

Several common perceptions exist regarding the problems with IP Communications solutions like IP telephony, unified messaging, and IP contact centers. They tend to focus on cost, reliability, and migration. This white paper has already addressed the issue of total cost of ownership (TCO) and will now turn to the other two areas. A recent survey by Phillips InfoTech asked enterprises that have already deployed IP Communications to assess their level of satisfaction with their deployment:

- 85 percent stated that voice quality met or exceeded their expectations
- 80 percent noted that they were satisfied with system reliability and scalability



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Voice Quality

Latency, jitter, and echo were early problems that plagued IP telephony. These were largely caused by a lack of QoS in the network. A converged network must be able to separate each traffic type and handle it according to its unique requirements. For example, data traffic is not time-sensitive; it travels in bursts and requires accurate delivery.

However, voice—and to a certain extent video—traffic is very time-sensitive. Adding voice packets to a bursty IP environment requires QoS to the desktop. An organisation needs to understand what QoS is and how important it can be to ensure proper network performance for voice, in addition to data and video. Traffic classification and marking, queuing, and data packet fragmentation and interleaving techniques are available now to guarantee voice quality. Planning a QoS strategy before deployment saves time and money, and eliminates user frustration. Most IP telephony vendors can now deliver toll-quality voice. However, to ensure this high quality, networks need end-to-end QoS policy management in all routers and switches. Even if an organisation is not fully committed to a convergence strategy now, it makes sense that all of its new data equipment be equipped to handle voice and video because this will ease the path to eventual migration.

Reliability/Availability

Reliability is also a critical concern for companies that are contemplating converging their networks. Universal experience with traditional analog or digital phones is that upon picking up the receiver, the user receives a dial tone 99.999 percent of the time. It is often assumed that when merging voice onto a data network, it will become unreliable. However, the PBX is inherently no more reliable than a data network; what makes it more reliable is that organisations recognise that voice is mission critical and therefore usually invest in the necessary redundancy and power backup systems. Many IP telephony vendors have built similar levels of redundancy into their systems via call processing server clusters, redundant routers and switches, and UPS systems. With the correct design considerations and best practices, converged networks running IP telephony can achieve a comparable level of reliability to the traditional voice network. The added benefit of building redundancy into a

converged network is that organisations can also improve the reliability of their data and video traffic.

Investment Protection/Migration

Most organisations have made significant investments in their existing voice, video, and data networks. They are understandably concerned about their ability to protect these investments while migrating separate networks to a converged networking model. Therefore, a low-risk migration path is required from the old world to the new world.

Most converged networking vendors have created products to ease this transition and ensure that new equipment can integrate with the existing infrastructure. In the longer term, a converged network will most likely make additional technology purchases more interoperable because it will be based on open standards and will be one network as opposed to separate voice, video, and data networks. As in any technology investment—especially one with such far-reaching implications as convergence—an initial investment in the technology will be required to migrate to a converged network. For some organisations that are opening new offices, retiring PBXs, or already planning to make significant investments in data networking equipment, the insertion point for this new technology is clear. For smaller deployments, a flash-cut is the typical strategy for transitioning to IP Communications. For larger enterprise deployments, there are countless examples of organisations that have hybrid Time Division Multiplexing (TDM) and IP networks. Over time they will build out IP and slowly reduce their dependency on TDM technologies.



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Summary and Conclusions

Convincing an executive committee to invest in new technology in these lean economic times can be a daunting task. The IT initiative must support core business strategies, yet must also provide quick returns to meet an organisation's short-term financial focus. IP Communications can deliver both. Its ability to reduce the total cost of network ownership by lowering network equipment, ongoing administration, and facilities costs can maximise an organisation's return on its network investments. In addition, a converged voice and data network can serve as a platform for the deployment of a whole range of feature-rich applications such as unified messaging, IP telephony, and IP-based contact center solutions. These applications will allow an enterprise to increase employee productivity and enhance the customer experience.

To prepare for migration to a converged network, companies must understand all the relevant factors to ensure a high probability of success. It is important to understand your existing PBX vendor's future architectural plans for your current voice network and how they plan to provide viable migration paths to IP. Convergence can potentially take many forms, but some vendor's strategies generate greater ROI than others. Finally, IT managers must begin to evaluate IP Communications on its own terms rather than as merely a replacement for the traditional PBX. This will be a gradual process for some, but companies that immediately grasp the benefits of IP Communications will create networks that effect change and innovation rather than impede them.

