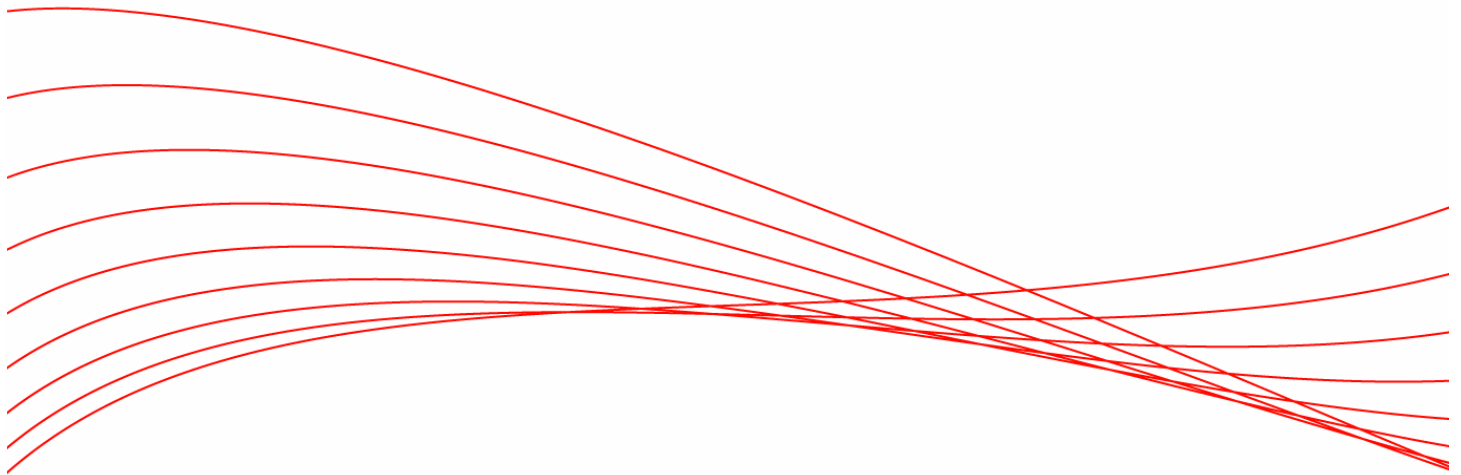


IP Telephony Solution

White Paper



| | |
|--|----|
| Introduction | 2 |
| Why IP telephony? | 3 |
| IP Telephony Solutions: Business Benefits | 4 |
| Quality of service (QoS) | 5 |
| Reliability | 5 |
| Security | 5 |
| Interoperability | 5 |
| Ease of use | 5 |
| Affordability | 6 |
| ProCurve Networking IP Telephony Solution Overview | 6 |
| ProCurve and Mitel Networks Strategic Partnership | 7 |
| ProCurve IP Telephony Deployment Scenarios | 7 |
| Example Implementations | 8 |
| Government | 8 |
| Education | 8 |
| Healthcare | 9 |
| Finance | 9 |
| Manufacturing | 9 |
| IP Telephony Solution Services | 9 |
| Summary | 9 |
| For more information | 11 |

Introduction

IP telephony – the implementation of voice over an IP-based network – is fast becoming an attractive and viable opportunity for businesses. Its adoption is no longer a question of if, but when.

Today the market for IP telephony is rapidly maturing (Figure 1). There has been widespread deployment and acceptance of IP telephony solutions in a broad range of market sectors, such as government, education, healthcare, finance, and manufacturing where competitive advantages depend on the ability to enhance productivity and increase mobility. Opportunities are not limited to these markets; in fact, new organizations have deployed HP ProCurve Networking IP Telephony solutions have reported a range of benefits that include cost savings, increased revenues, and new opportunities to drive business innovation. Even companies that had not been favorably disposed toward IP telephony now realize the advantages of introducing this technology into their own enterprises.

The ProCurve Networking by HP family of products, services and solutions — including Ethernet switches, routing switches, wireless solutions and network management applications — allows customers to build IP telephony solutions that meet current and future needs for security, performance and reliability. ProCurve IP Telephony solutions deliver connectivity at the edge of the network over an easy-to manage, standards-based infrastructure. This approach provides the robust functionality needed to support all current and future traffic and application types.

This paper explores how ProCurve Networking IP Telephony solutions can help move businesses closer to anytime, anywhere communications. It is a must-read for organizations of all sizes considering the deployment of IP telephony solutions, and provides an overview of business benefits and solution scenarios.

“The worldwide Enterprise Packet Voice Market is forecasted to grow 49percent in 2003 to \$2.03 billion. Synergy Research is forecasting this market to grow to \$6.03 billion by 2007, representing a CAGR of 31.2 percent.” - Synergy Research, November 2003

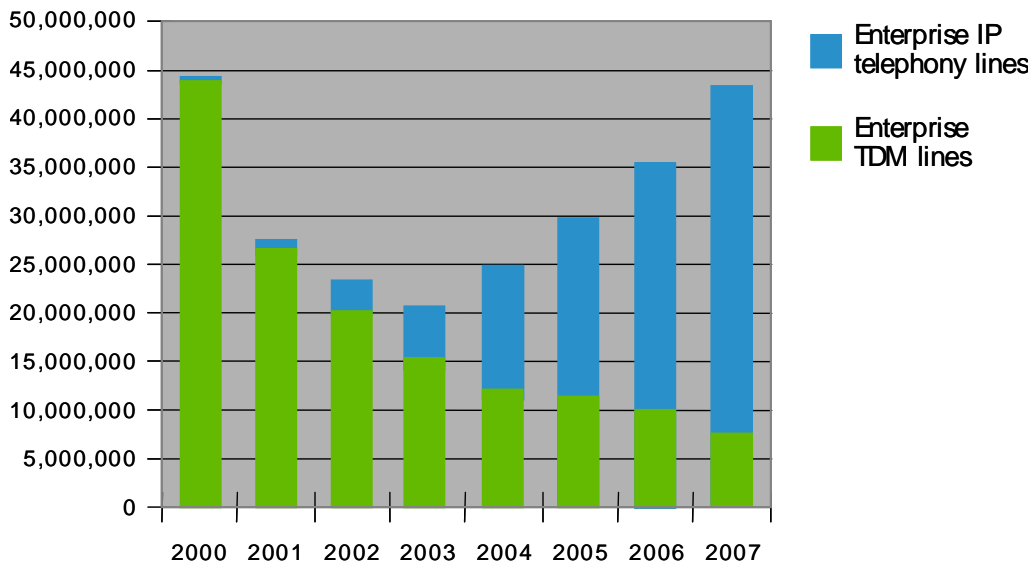


Figure 1. Enterprise Packet Voice Market

Why IP telephony?

Over the years, enterprise companies have invested heavily in multiple communication infrastructures to operate separate voice and data networks. Because these systems are often not compatible, converging them can be difficult and expensive to maintain. What is more, completely ripping out an existing infrastructure all together by bringing in an end-to-end offering from a large data provider can be costly and a waste of resources (Figure 2).



Figure 2. Challenges of IP Telephony Deployments

IP telephony allows organizations to simplify and streamline their communication systems. It is commonly used to support business environments where employees and customers are demanding access to advanced applications and new ways of collaborating across their business. IP telephony presents exciting opportunities for adding more value-added services and applications throughout the organization.

In a “greenfield” location (a facility with no existing telecommunications equipment), a company can install an ProCurve IP Telephony solution that supports integrated communication capabilities. Companies that already have an existing telecommunications system in place can continue to use the existing infrastructure and migrate to IP telephony over time at a pace that makes sense for them based on their specific business needs, blending new and legacy equipment.

The past few years have seen only modest investment in telecommunications infrastructure, but companies have shown an increasing desire to invest in IP telephony solutions. It’s been estimated that seven million voice over Internet protocol (VoIP) phones will be in circulation by 2007. Even today, more than 10 percent of all voice traffic is transmitted with VoIP technology. Infonetics estimated 2003 worldwide revenue for next-generation voice services (including VoIP) at \$1.5 billion. IDC projects a 30 percent annual growth rate for IP telephony, while Frost & Sullivan projects 42 percent annual growth through 2007.

| Year | Revenue (\$ Billion) | Revenue Growth Rate (%) |
|------|-------------------------|----------------------------|
| 2001 | 1.07 | --- |
| 2002 | 1.51 | 41.3 |
| 2003 | 2.48 | 63.8 |
| 2004 | 4.03 | 62.4 |
| 2005 | 5.82 | 44.6 |
| 2006 | 7.89 | 35.4 |
| 2007 | 10.14 | 28.6 |

Compound Annual Growth Rate (2003 – 2007): 42.2%

Note: All figures are rounded the base year is 2002.

Source: Frost & Sullivan

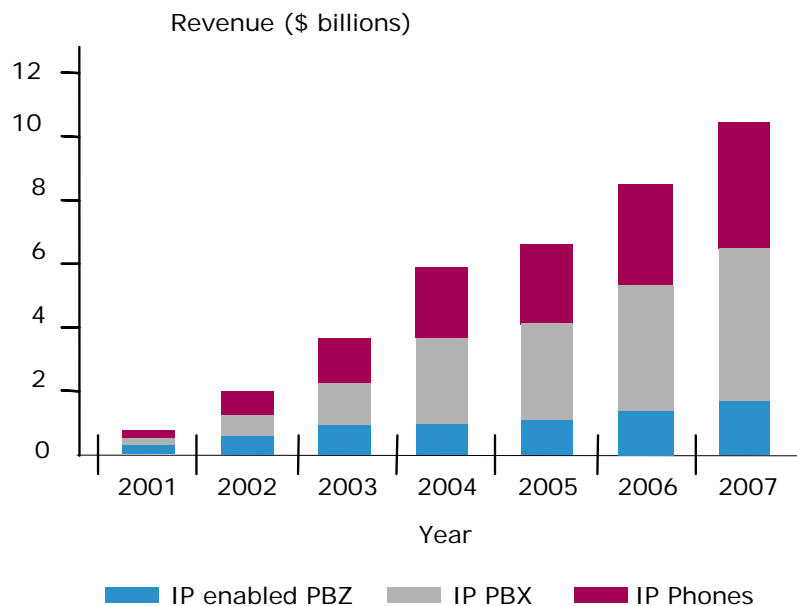


Figure 3. Total Enterprise IP Telephony Market: Revenue Forecasts (World), 2002-2007

IP Telephony Solutions: Business Benefits

In choosing an IP telephony solution, an enterprise must diligently explore the technological benefits offered by the various vendors. Just as important, an enterprise must examine the potential business benefits of IP telephony solutions, asking such questions as:

- How do I get real value and a better return on my technology investment?
- How do I make sure that I can live with not only the initial costs, but also the ongoing costs of owning and operating my infrastructure?
- Do I have freedom with – and control of – my technology investment, now and in the future?

IP telephony serves as a strategic enabler for cost savings and other factors that allow businesses to gain a competitive edge. One area in which IP telephony offers significant savings is network management and maintenance. IP telephony solutions nearly eliminate the cost of additions/moves/changes. In most organizations, there's a constant staffing churn – adding, transferring and losing employees (and contractors). It's expensive to move a phone – when a technician is required, it frequently costs upwards of \$150 per move – and on the average, each employee moves once every 12 months. With IP telephony, that cost drops to virtually zero.

With IP telephony, it's no longer necessary to support separate data (IP) and voice PBX environments. This can significantly reduce staffing and management costs. IP telephony also offers productivity gains to employees and management alike, with applications such as:

- Teleworking
- Unified messaging – collapsing voicemail and e-mail into a single application

In preparing for IP telephony, customers must address several considerations including quality of service, reliability, security, interoperability, ease of use and affordability. HP ProCurve IP Telephony solutions are designed to meet the most demanding requirements in each of these areas.

Quality of service (QoS)

Since voice traffic is in real time, things such as delay, jitter, and packet loss can adversely affect the quality of the voice or video transmission. A high-quality IP telephony solution must be properly designed, configured, and managed with QoS as a critical building block.

ProCurve Networking provides provisioning, traffic control services, and prioritization policies that work together to maintain the health of the network. These and other standards-based QoS features manage traffic effectively and ensure that high-priority data types receive the bandwidth they need, when they need it. QoS ensures that voice traffic always has priority, no matter what else might be on the network.

Reliability

High availability is a critical concern for enterprises of any size. Customers should review the reliability of local area network (LAN)-based solutions versus traditional telephony systems while making the transition to IP telephony and ensure that there is adequate network redundancy, with no single point of failure.

ProCurve Networking delivers reliability and legendary HP quality. This ensures fault-tolerant designs, the highest levels of product integration, and hot-swappable components. In addition to a lifetime warranty, ProCurve's worldwide service and support teams are available 24x7. HP ProCurve Networking phone support (during business hours) and Web support (all the time) are included in the purchase price of the product.

Security

To ensure proper security for voice and data transmissions, customers should add voice virtual local area network (VLAN) encryption that does not affect voice quality. In addition, customers should deploy security technology that adds protection and prevents denial of service attacks, which could bring down a network.

ProCurve solutions provide for secure voice and data at every point of the network and within applications. ProCurve and Mitel together provide a rich combination of client and management level security, attack resiliency, and other security tools. ProCurve solutions are comprehensive, easy to manage, and are built on industry standards to ensure the highest security in the industry.

Interoperability

Interoperability allows customers to choose the products that best fit their needs and design an end-to-end standards-based solution. Such an approach safeguards the customer's investment so that future products and applications can be integrated into an existing network.

HP ProCurve has made significant investments in ensuring interoperable, open industry standards-based solutions. ProCurve networking products are interoperable, based upon standards such as 802.3af power over Ethernet (PoE). With industry-standard components, ProCurve products are ready for all types of traffic. Recent Tolly Group testing shows ProCurve multi-service networks deliver voice quality with Mitel on par or better than single-vendor solutions.

Ease of use

ProCurve network management tools allow companies to seamlessly manage converged voice, video, and data traffic, making use of embedded "examine and inform" intelligence. Users can discover, configure, monitor, and troubleshoot ProCurve devices, taking advantage of features such as configuration management, VLAN management, in-depth traffic monitoring, group and policy management, and automated software updates. In addition, the Mitel Networks 3300 IP Telephony network includes a complete, browser-based management application to control the

operation and management of all the Mitel telecommunications equipment. And all Mitel telephones offer Mitel's award winning interface, incorporating the richest available telephony feature set with embedded management and tools.

The benefits of this network management approach are clear: more efficient operations throughout the network, reduced costs, better utilization of assets, and increased productivity.

Affordability

IP telephony makes it possible to reduce administrative and management complexity and expense, lower overall network infrastructure costs, and cut the price of application integration. Intelligence is no longer tied into the PBX but to the client-server architecture — an end-user phone becomes plug-and-play.

An IP telephony solution from ProCurve and Mitel Networks offers a superior return on investments, offering high performance and no-compromise functionality at affordable prices. The ProCurve Networking Adaptive EDGE Architecture™ is designed to interoperate with existing network elements and industry-leading IP telephony vendors. This maximizes the return on your current infrastructure and lets companies adapt easily to future needs. Consistent upgrades – coupled with the industry's only lifetime warranty – help to extend the life of products and IP telephony solutions. Moreover, Mitel telephony products are completely scalable to seamlessly support any need, and the requirements of future standards, without forklift replacement.

ProCurve Networking IP Telephony Solution Overview

The end-to-end IP telephony solution shown here uses ProCurve switches and routers in conjunction with the Mitel Networks 3300 IP telephony network (Figure 4).

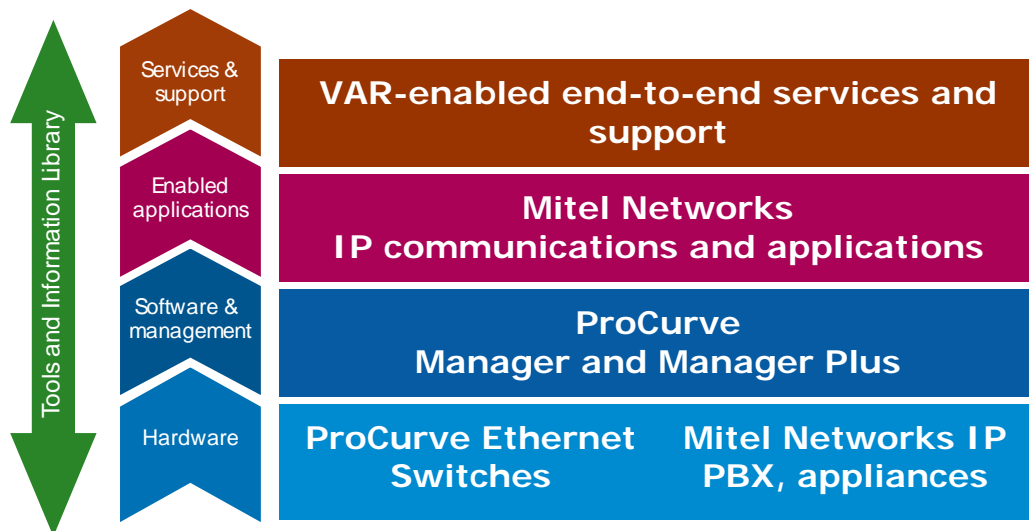


Figure 4. ProCurve IP Telephony Infrastructure Solution framework

The ProCurve switches and routers provide QoS, interoperability, voice and data security, redundant PoE power, and other essential features. The Mitel Networks IP telephony network provides such features as enhanced call control, embedded voice mail, automatic call distribution, automatic route selection, PDA phone, web phone, videoconferencing, converged applications, and "plug-and-work" teleworking.

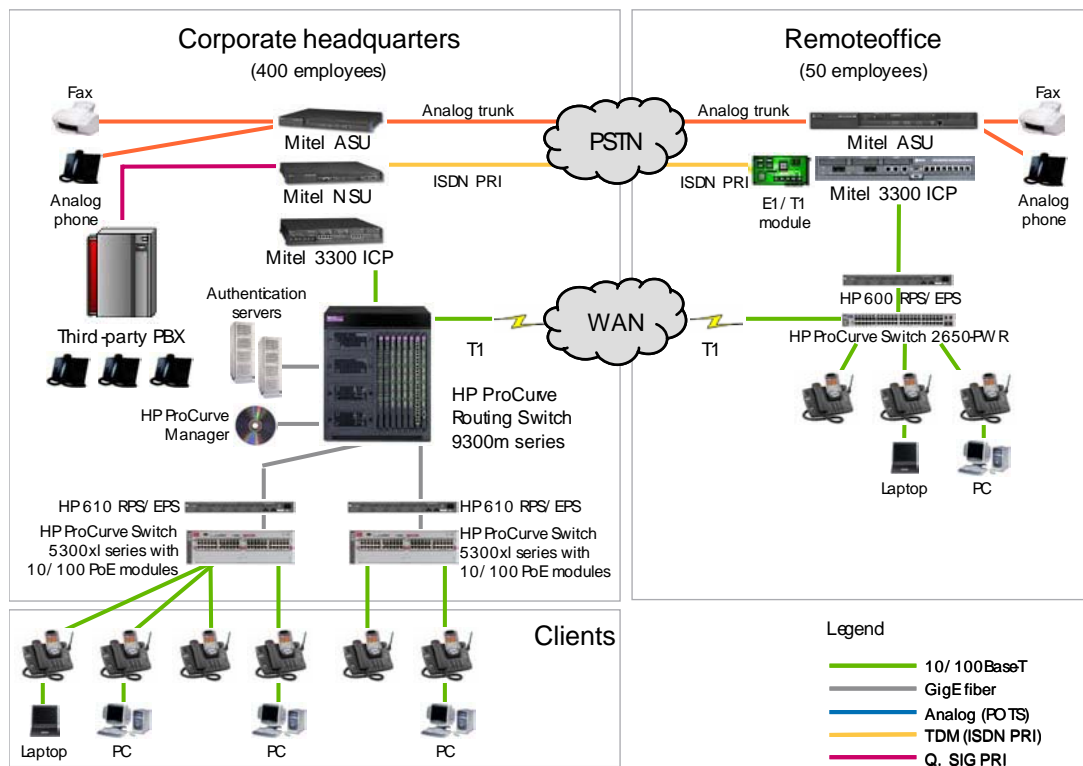


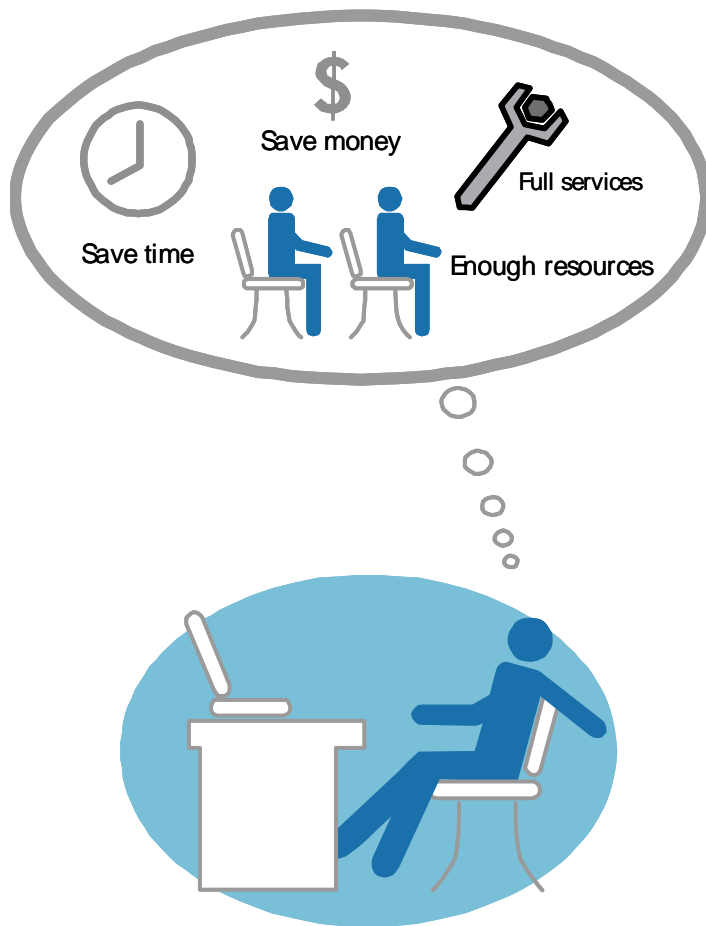
Figure 5. ProCurve IP Telephony Solution Sample Topology

ProCurve and Mitel Networks Strategic Partnership

ProCurve and Mitel Networks have formed a strategic partnership aimed at delivering world-class IP telephony solutions. The teaming of ProCurve – the number three enterprise-switch provider – and Mitel Networks – the number two IP-PBX provider, and a pioneer in IP telephony – offers a best-of-breed, end-to-end IP telephony solution that encompasses components, services, and support. This partnership draws upon over 50 years of combined experience in the networking and telephony markets, blending the two companies' expertise in Ethernet IP infrastructure and voice products. The resulting enterprise class solutions deliver the power of voice, data, and video to users wherever and whenever they need it – at an affordable price.

ProCurve IP Telephony Deployment Scenarios

Many different types of organizations have begun to realize benefits from deploying an end-to-end, best-of-breed IP solution that is interoperable with existing infrastructure. Such an approach is offered by ProCurve Networking and Mitel Networks whose complete IP solution is easy to deploy, interoperable with existing infrastructures and available with a full suite of services for ongoing support (Figure 6).



S

Figure 6. Benefits of deploying an ProCurve IP Telephony solution

Let's look at how this technology is paying dividends in such diverse sectors as government, education, healthcare, finance, and manufacturing.

Example Implementations

Government

Municipalities and other governmental entities tend to have multiple departments and locations running on disparate – and often incompatible – technology infrastructures. This can, and often does, pose significant maintenance and support challenges.

The adoption of IP telephony creates a single virtual telephony environment for various departments spread throughout the city – or country. By unifying voice and data technology infrastructures, maintenance and support are greatly simplified. Furthermore, a single network can provide virtually every city employee with traditional telephone services as caller ID, call forwarding, voice mail, and advanced directory service – plus advanced IP telephone capabilities such as auto attendant, “follow me” messaging, message forwarding to off-system users, and centralized directory integration.

Education

Traditionally paper-based, school districts are turning to enhanced IP telephony systems to replace tedious handwritten tasks. Attendance, hall passes, scheduling, and some security features are integrated into applications that help save time and money while simplifying the administrative process.

Universities can also leverage the flexibility of ProCurve IP Telephony solutions to help drive revenue to offset additional infrastructure costs. By deploying IP phones into dormitory rooms throughout the campus, a university can derive advertising revenue from a host of locally supported student service businesses ranging from pizza delivery shops, bookstores, and more.

Healthcare

The healthcare industry depends on innovation to provide the best possible service to its ultimate customer, the patient. ProCurve has helped create tools that give doctors, nurses, pharmacists, and medical staff access to scheduling, medical records, and lab results through IP phones or other mobile devices, such as PDAs or tablet PCs.

A converged data and voice network allows healthcare providers to access, manipulate, and archive voice, text, and displayed information in ways that help cut costs and enhance productivity. For example, after a patient visit, doctors can link verbal dictation to patient records for immediate updates. Invoices can be submitted using voice technology, saving doctors and other hospital staff time and reducing administration expenses.

Finance

By combining multiple network infrastructures into a single IP-based network, financial institutions can consolidate disparate infrastructures and reduce communications costs. At the same time, those savings can be transferred back to customers in the form of more competitive products such as Internet banking and bill pay, and offering value-added services such as wealth management and online trading and trade monitoring. Using IP telephony solutions, banks can move all channels into the branch, reducing manual cash handling by tellers, and providing an additional delivery mechanism for enhanced customer service. The result: simpler operations, lower maintenance and support costs, and greater agility.

Manufacturing

The manufacturing industry is using IP telephony to speed up time to market and to balance supply and demand. The technology lowers the risk of unpredictable demand, uncertain availability, and fluctuating prices for direct materials by speeding up the communication process between distributors and suppliers. Industries like automotive, retail, pharmaceuticals, and high-tech are realizing dramatic improvements in inventory, service levels, supply and demand variability, and distribution channels through converged voice/data systems. Manufacturing organizations also realize savings in long-distance rates and can leverage multiple mobile communication and productivity solutions. Instead of expensive PBX equipment at every office site, centralized IP telephony solutions provide cost-effective central management and support.

IP Telephony Solution Services

ProCurve Networking and Mitel Networks are working together to deliver solutions that leverage LAN connectivity in voice communication systems. To ensure proper deployment of this type of solution, we recommend that you have a certified ProCurve Elite Reseller or Mitel Network Solutions Provider assess and design the right ProCurve IP Telephony solution to fit your needs. A selected number of ProCurve Elite Reseller and Mitel Network Solutions Provider are trained in ProCurve IP Telephony solutions and offer services designed to integrate your new solution into your existing network.

With a ProCurve Elite Partner or Mitel Network Solutions Provider, you are assured of having a partner and advisor that you can depend on and trust to deliver a best-in-class solution that will effectively address your IT requirements and ultimately, your business needs. ProCurve Elite Partners and Mitel Network Solutions Providers are committed to excellence, quality and integrity.

Summary

ProCurve switches and routers are designed from the ground up to support cost-effective IP telephony solutions. There are no other products in the industry that can match their performance, flexibility, features and affordability at the edge of the network.

By reducing complexity, improving security, ensuring reliability, and providing future flexibility, ProCurve offers a superior infrastructure with a maximum return on your IT investment (RoIT). What is more, because ProCurve products are interoperable – supporting cross-compatible, open industry standards – a company's investment is protected against obsolescence. New technologies can be implemented today and in the future without necessitating complete product replacements.

Creating solutions that reduce complexities and are easy to use is a core component of the ProCurve strategy. Quality is never compromised. With industry-leading simplicity, customers deploying ProCurve solutions do not require custom network designs and expensive consulting contracts.

The strategic partnership of ProCurve and Mitel offers an end-to-end, best-of-breed solution with a commitment to industry standards and interoperability. Together, ProCurve and Mitel offer customers an integrated IP telephony solution that has been proven among the industry's best for voice quality, reliability, scalability, and ease of use, with complete world-class end-to-end service and support. Bringing together industry-leading IP switching infrastructure and industry-leading IP telephony products, ProCurve and Mitel Networks enable customers to make the right choice for their business needs.

For more information

To learn more about HP ProCurve Networking solutions, contact your local HP sales representative or visit our Web site at: www.procurve.com.

To learn more about HP ProCurve wireless site assessment and installation services, go to: www.hp.com/go/procurveservices.

For a list of the HP ProCurve Elite Resellers and Mitel Network Solutions Providers that sell and deliver HP ProCurve IP Telephony solutions near you, go to: www.procurve.com.

To find out more about
ProCurve Networking
products and solutions,
visit our web site at

www.procurve.com



© 2005 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

4AA0-1807ENW, 08/2005