

WHITE PAPER

The Business Case for a Unified Wired and Wireless Solution

Sponsored by: HP ProCurve Networking

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Executive Summary

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HP ProCurve customer interviewed by IDC

New technology advances are often met with great enthusiasm and can lead to broad-based increases in user productivity, as was certainly the case with the widespread deployment of corporate networking in the early to mid-1990s. It is often harder to foresee the challenges introduced when organizations move into second- and third-generation deployments, in which they frequently find themselves managing a heterogeneous environment of equipment purchased at different times and often from different vendors.

Many of today's IT organizations are faced not only with the challenges of managing such a hodgepodge of legacy network infrastructure but also with the problems posed by introducing wireless networking into their environments. Too often the new wireless infrastructure does not adequately interoperate with existing wired equipment, and implementing it can introduce network instability, heighten security risks, and increase the cost and effort associated with network management.

A number of businesses are turning to unified wired and wireless (UWW) offerings to meet these requirements. UWW offerings enable a holistic approach to managing an organization's network infrastructure and promise to reduce the time and effort required for network diagnostics, troubleshooting, and day-to-day network management and maintenance tasks. Some of these offerings provide greater control for IT managers and increased capabilities for end users, for example, by simplifying the process of setting up and managing virtual LANs.

HP ProCurve provides a UWW solution designed to address the needs of businesses today. It includes a broad line of LAN core switches, LAN edge switches, WAN switches, and wireless LAN and network security devices. By bringing management tasks together under a unified network management software suite, HP ProCurve is designed to give businesses the capability to easily and seamlessly manage their entire network from a single, central console.

To determine the return on investment (ROI) associated with the implementation of an HP ProCurve UWW network solution, IDC conducted a study of eight organizations in North America; Europe, the Middle East, and Africa (EMEA); and Asia/Pacific that have successfully performed HP ProCurve UWW implementations and are running the solution in their production environments today. IDC estimates that these businesses were able to achieve a 451% ROI; a three-year (discounted) benefit of \$77,699 per 100 users; and payback on their initial investments within 11 months.

Business Challenges in Network Infrastructure Environments

IT and network managers face the challenges of meeting ongoing user needs while responding to a seemingly endless stream of new end-user requirements, all while managing to a constrained budget. These challenges are compounded by the fact that many businesses have already implemented multiple generations of IP-based networking infrastructure. They have a hodgepodge of equipment from different vendors and no common framework for managing it.

In ongoing research, including the interviews to support this study, IDC notes the following concerns expressed by IT network managers regarding their wired and wireless networks:

- ☒ **Aging infrastructure.** Many organizations are overdue to update/upgrade their network infrastructure equipment. As this infrastructure ages, it can cause a higher-than-acceptable number of network outages, and the lack of modern monitoring and management tools can limit an organization's ability to proactively identify and resolve network issues. One EMEA IT manager interviewed for this project said, "When I got here, the network was flat, there was no top-down design. You couldn't run a diagnostic to see what was going on. It was chaos on all layers."
- ☒ **High network management requirements.** Partly as a result of having aging infrastructures, many organizations spend a significant amount of time and manpower managing their networks, responding to network issues, and managing and replacing network components. Many organizations have disparate networks, further complicating the challenges of keeping and maintaining spares of different models from different vendors, of keeping skills and training up to date, and of maintaining processes associated with different types of equipment in their networks.
- ☒ **Costs of maintaining wireless infrastructure.** High network management costs are compounded by wireless infrastructure, as the tools used to manage a wired network are often separate and distinct from those used to manage a wireless network. This scenario is further complicated when additional third-party tools are thrown into the mix. Enterprise users require more streamlined, comprehensive, and integrated wired and wireless management offerings.
- ☒ **High annual maintenance and support costs.** Several organizations interviewed for this study cited that a significant portion of their budgets was being consumed by annual maintenance and support. These tasks have traditionally been accomplished using skilled network engineering staff, whose fully loaded salaries are more costly to organizations than those of other workers such as trained electricians and facilities staff. In the words of one U.S. IT manager, "Before we implemented ProCurve, a large portion of our annual networking budget, about 30–40%, was eaten up by annual maintenance and support."

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- ☒ **Need to support workforce mobility.** Mobility is no longer an afterthought for network managers; instead, it needs to be baked into the network architecture. The requirements and expectations of mobile workers, customers, and other users are now the same as those of wired workers in terms of reliability, latency, predictability, and availability of real-time data. The typical enterprise has deployed wireless as a standard (though still secondary) connectivity option, while leading-edge adopters have begun to deploy advanced mobile services such as WiFi voice. The needs of mobile users, the ubiquity of wireless devices, and the price penalty associated with dedicated upgrades are forcing enterprises to consider the deployment and management requirements of wired and wireless infrastructure concurrently.
- ☒ **Effectively securing wireless access points.** Costs associated with deploying redundant network infrastructure and management systems are a formidable challenge for organizations looking to add wireless access points in a secure manner. Point solutions typically function as overlay networks, and this type of deployment requires disparate security systems for wired and wireless infrastructure that compound management requirements and can even create opportunities for exposing security holes in the wired network infrastructure.
- ☒ **Supporting VLANs, Gigabit Ethernet, guest accounts, and other advanced network features.** As users' network needs become increasingly sophisticated, the demands on IT organizations grow correspondingly. Respondents described a variety of specific needs, including the ability to quickly set up, manage, and maintain multiple virtual LANs over their infrastructures, to support a large and rotating number of guest accounts without compromising network security, and to deploy very high-bandwidth connections directly to the desktop to support applications such as live streaming video and very large file transfers.
- ☒ **Finding a cost-effective solution to address the aforementioned issues.** The companies interviewed for this project acknowledged that they could address these issues by implementing new infrastructures from a choice of vendors; however, it was not always possible to find a single vendor that could offer products to address each of these issues with sufficient functionality in a cost-effective delivery model, especially after taking into account the required integration and management costs.

Overview of HP ProCurve Unified Wired and Wireless Solutions

The HP ProCurve network suite unifies wired and wireless networks and is designed to provide a seamless and secure unified wired and wireless mobility infrastructure. The HP ProCurve portfolio includes a broad family of wired and wireless products, including LAN switches, wireless LAN services, and WAN routers, brought together under a unified software framework that provides management and security for the wired and wireless network. Wired and wireless unification in the hardware is addressed through technology such as swappable modules and power supplies and common ASICs. Software unification is addressed through technology such as a common code base and functionality, as well as common building blocks, and technology unification is addressed by approaches such as implementation of sFlow and quality of service (QoS).

Specific HP ProCurve products include:

- ☒ **LAN core switches.** These include multilayer, high port density switches designed to provide scalable, reliable network core infrastructures. HP ProCurve offers seven separate Layer 2/3/4 switches in a variety of chassis configurations.
- ☒ **LAN edge switches.** These include multilayer, high port density switches designed to provide scalable, reliable network edge infrastructures. HP ProCurve offers 21 separate model LAN edge switches, spanning managed, unmanaged, and intelligent edge switches, in a variety of chassis, port, and bandwidth configurations.
- ☒ **WAN switches.** These include HP ProCurve WAN switches intended to provide simple, secure wide area networking while enabling edge-to-edge connectivity.
- ☒ **Wireless LAN.** HP ProCurve includes wireless LAN access, control, and management offerings targeted at businesses of any size.
- ☒ **Network security.** HP ProCurve includes network security devices and security software intended to provide a unified, holistic approach to secure, mobile multiservice networks.
- ☒ **Network management software.** HP ProCurve unified network management software solutions are designed to provide basic to advanced device-handling capabilities.

Unified Management Software

The HP ProCurve unified management software suite provides a common, consistent user interface that enables the administration of both wired and wireless networks, enhancing the efficiency and performance of administering security policies and ensuring performance. HP ProCurve unified management software offerings include:

- ☒ **HP ProCurve Manager Plus.** HP ProCurve Manager Plus is a Windows-based network management application designed to deliver robust and detailed management of HP ProCurve devices. Capabilities include configuring, updating, monitoring, and troubleshooting HP ProCurve devices. Moreover, HP ProCurve Manager Plus offers analysis of network traffic, advanced VLAN management, and centralized policy and configuration management. OpenView Network Node Manager (NNM) integration allows network administrators to monitor multivendor networks.
- ☒ **HP ProCurve Mobility Manager.** This is a plug-in module for HP ProCurve Manager Plus that provides a toolset to manage an HP ProCurve WLAN environment. Seamless integration into HP ProCurve Manager Plus enhances the efficiency of remote management of wireless equipment, while predictive RF coverage maps and the retention of information on deployed WLAN infrastructure streamline costly physical maintenance requirements.
- ☒ **HP ProCurve Identity Driven Manager.** This is a plug-in to HP ProCurve Manager Plus that dynamically applies security and performance settings based on user, device, location, time, and client system state. Access policies based on standard RADIUS authentication allow administrators to establish automatic VLAN assignments, prioritize traffic, set rate limits, and set group access policies.

- ☒ **HP ProCurve Network Immunity Manager.** This is a plug-in for HP ProCurve Manager Plus that detects and automatically responds to threats, such as virus attacks, inside the network. Along with HP ProCurve Identity Driven Manager, HP ProCurve Network Immunity Manager enables dynamic application of policies without requiring IT staff involvement, allows enforcement of dynamic (not static) rules, and enables policies to be pushed out to and enforced by edge devices governing the port on which the user connects, as opposed to requiring cumbersome management from a central location.

All HP ProCurve solutions and products share the foundation of the HP ProCurve Adaptive EDGE Architecture (AEA), an approach that pushes intelligence to the edge of the network, enabling command from the center with control to the edge. This holistic approach is designed to enable enterprises to manage all of their wireless network operations consistently with one another, as well as with their wired network components. Common tools and security policies apply across both wired infrastructure and wireless infrastructure, by which HP ProCurve intends to make it easy for businesses to deploy and centrally manage a secure, flexible multiservice network and to realize greater productivity and better ROI.

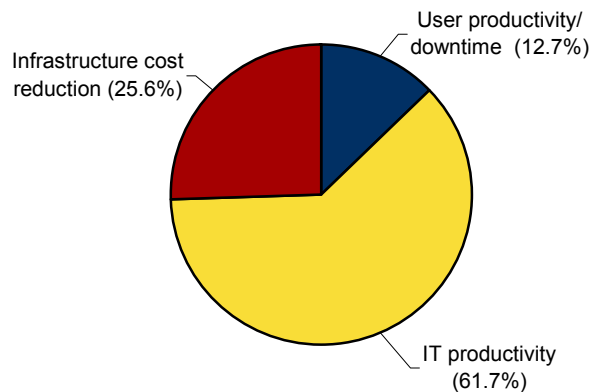
Benefits Derived from HP ProCurve Deployments

To assess the benefits of implementing an HP ProCurve UWW solution, IDC interviewed businesses that have deployed and are using HP ProCurve products in production environments. The ROI drivers identified for HP ProCurve fell into three primary areas (see Figure 1):

- ☒ IT productivity
- ☒ Infrastructure cost reduction
- ☒ User productivity/downtime

FIGURE 1

Annual Benefits of HP ProCurve Solution per 100 Users



Total = \$33,510

Source: IDC, 2008

IT Productivity

The most significant impact of the HP ProCurve UWW solution was on IT operations. Increased IT staff productivity accounted for 62% of the total value delivered. The IT managers interviewed said that centralizing and automating their network management operations allowed their IT staff to spend less time on a variety of network management areas, including:

- ☒ **Diagnosing network events.** Interviewees stated that with the unified management software, they can monitor their HP ProCurve networks centrally, identifying problems before users are even aware of them. Several respondents mentioned that their HP ProCurve networks are set up to proactively notify them of a problem before it occurs.
- ☒ **Network troubleshooting.** Once network issues are identified, they can also be managed and resolved centrally. Respondents told us that centralized management and problem resolution saves their companies the time and cost of dispatching network engineers to address the issue. One U.S. organization said, "If we didn't have this central management capability, we would have to spend almost double the amount of time we do on managing our switches."
- ☒ **Ongoing network management.** Respondents described a number of features in the integrated management software that streamlined ongoing network management, including the ability to quickly set up and manage user IDs and to publish user access rights to the wireless network through Active Directory.
- ☒ **Managing and maintaining VLANs and application networks.** Several respondents manage virtual LANs and application networks, and these interviewees credited HP ProCurve with greatly simplifying this task. "With ProCurve, you can build a new virtual network in minutes, not days," said a European IT manager. "Instead of cabling a completely new setup, you can do it logically from a software suite."
- ☒ **Implementation and rollout.** Another common theme among the respondents was how smoothly their HP ProCurve implementations and rollouts went. Most were able to perform their implementations in a matter of months, with in-house staff, requiring little or no external consulting or professional services. A respondent at one U.S. organization stated, "We replaced 2,000 access points in roughly six weeks. Once we pulled the trigger, it went amazingly well."
- ☒ **Network security.** Respondents noted the benefit of HP ProCurve's out-of-the-box security settings, which often reduced the time required to configure and secure the network. One European IT manager indicated that this saved him about a year of full-time equivalent (FTE) time.

In a number of situations, respondents have been able to actually reduce the FTE headcount required to manage and maintain their networks, redeploying staff to more strategic and productive tasks. Perhaps the most dramatic example of this type of staff redeployment came from an EMEA IT manager who said, "When I arrived, there were almost five people involved in the network, and they were all spending their time fixing problems. Now, after implementing ProCurve, I have one, and the others are on more strategic projects."

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Respondents also discussed the fact that they can more easily install and manage their networking equipment after implementing HP ProCurve. They stated that installing new equipment in their networks requires fewer staff hours, and in cases where equipment does need to be changed out, they can use facilities staff and electricians rather than skilled IT network engineers who have a higher labor rate.

Infrastructure Cost Reduction

Infrastructure cost reduction amounted to 26% of the primary benefit. This reduction was due to a combination of factors, including:

- ☒ **Purchase cost of the equipment.** Each of the respondents mentioned that a large consideration was the lower purchase cost of HP ProCurve equipment compared with the costs of competitive offerings. "There's no question I spent less on ProCurve equipment than I would have with another vendor," said a U.S. IT manager. "HP was able to meet our technology needs with their switches and at a much better price point." Other respondents estimated that the price of HP ProCurve is about half that of solutions from other leading providers.
- ☒ **Zero maintenance and support costs.** Another factor respondents cited as being very attractive is the zero-cost lifetime warranty that comes with much of HP ProCurve's equipment. This warranty support includes firmware updates and bug fixes. Organizations not only were able to free up the portion of their IT budgets that would otherwise have been tagged for this expense but also were saved the time and hassle of dealing with support paperwork.
- ☒ **Consolidation of switches.** Several respondents were able to consolidate their network infrastructures with their HP ProCurve implementations. One U.S. university was able to remove 80% of the LAN switches installed in its dorms when it made the move to HP ProCurve.
- ☒ **Facilities savings due to reduced physical footprint.** One EMEA respondent was able to consolidate the square footage required for network equipment from four cabinets with his previous equipment to two with his new HP ProCurve equipment, a 50% savings. In the words of the IT manager, "Any square foot you can save is energy you save [and a] place for new kits and defers buildout costs in the future."
- ☒ **Power and cooling cost savings.** By consolidating switches, respondents also noted that they were able to realize power and cooling cost savings. One European IT manager estimated that he had achieved an 80% cost savings in power consumption.

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User Productivity/Downtime

Respondents described a dramatic decrease in network downtime after implementing HP ProCurve, resulting in an increase in user productivity. The IDC ROI model estimates that this improvement drives 13% of the overall benefit. "So far we have had no downtime with ProCurve," said a European IT manager. "With our old network, we would have had about two downtime incidents per week with our switches."

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HP ProCurve is designed to provide the same consistent user experience accessing network resources over wired and wireless technology. HP ProCurve's intent is to deliver one unified network independent of the technology used to access it.

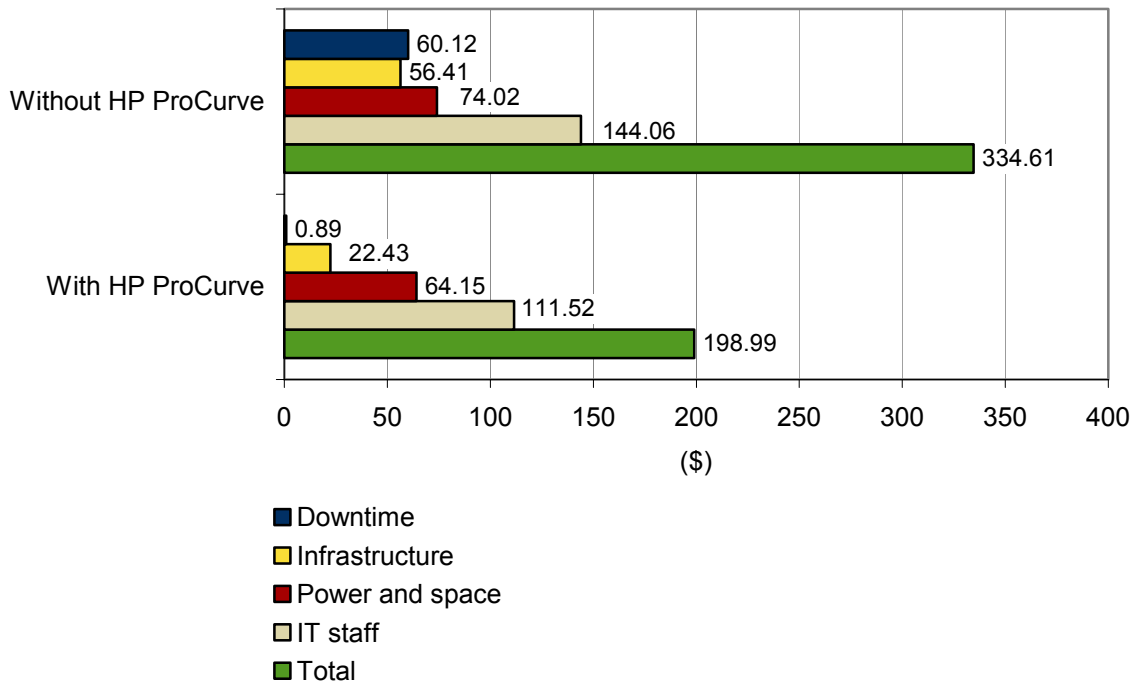
HP ProCurve can enhance disaster recovery/business continuity in the case of natural disasters or fires. With an offsite datacenter managed over HP ProCurve, network-critical data can be securely managed, ensuring business continuity. Further, HP ProCurve's ability to handle dynamic policy application down to the individual port level can also help minimize downtime and maximize user uptime.

Optimizing the Networking Environment

The net result of deploying an integrated HP ProCurve UWW solution was found to be the ability to optimize the networking environment, lowering the cost of providing wired and wireless networking services while improving the quality of those services. While the specific results vary by metrics such as network size, applications supported, network topology, and mix of wired/wireless infrastructure in the networking environments, IDC estimates that the companies in this study averaged annual networking costs of \$334 per user with separate wired and wireless networks. With an integrated HP ProCurve UWW solution, they averaged \$199 in annual costs per user (see Figure 2).

FIGURE 2

Annual Networking Costs per User



Source: IDC, 2008

Reductions in networking costs per user include:

- ☒ **Downtime.** This includes the lost user productivity from network downtime events as well as security incursions.
- ☒ **Infrastructure costs.** This includes the costs of purchasing and maintaining networking hardware and software.
- ☒ **Power and space.** This includes the cost per kWh for power and HVAC, as well as the cost per square foot of leasing commercial datacenter space.
- ☒ **IT staff.** This represents savings in the IT staff required to directly support networking hardware and end users.

ROI Analysis

Survey Demographics

IDC based its ROI analysis on interviews with eight organizations that are using HP ProCurve in production deployments that have been running for a sufficient period of time to provide perspective on how the product has affected their bottom lines. The organizations interviewed are located in North America, EMEA, and Asia/Pacific and represent medium-sized to large businesses with an average of 13,275 users; over 1,500 access points; and nearly 600 networking devices (see Table 1). The interviews explored the companies' business initiatives and assessed the benefits and costs associated with implementing HP ProCurve UWW networks.

These interviews were supplemented by information from IDC's Business Value Database with data collected from over 3,000 companies in 43 countries and over 25 industries. The information from the IDC Business Value Database was used to validate these interviews and to extrapolate the business value drivers to a general business audience.

TABLE 1

Study Demographics

Metric	Value
Users	13,275
Access points	1,574
Networking devices	595
Geographies	North America, EMEA, Asia/Pacific
Industries	Education, research, business services

Source: IDC, 2008

Results of ROI Analysis

The bottom-line analysis that all companies should perform when considering changing out or upgrading their network infrastructures is whether the cost-saving benefits of the upgraded infrastructures will outweigh the costs associated with implementing the new infrastructures. In this study, IDC estimates that organizations that implemented the HP ProCurve solution were able to realize a 451% return on their initial investments; a three-year (discounted) benefit of \$77,699 per 100 users; and a payback period of 11 months (see Table 2).

TABLE 2

ROI Summary per 100 Users

Category	Value
Three-year (discounted) benefit	\$77,699
Three-year (discounted) investment	\$14,090
Net present value	\$63,609
Return on investment (ROI)	451%
Payback period (months)	11
Discount rate	12%

Source: IDC, 2008

IDC's ROI Methodology

For this ROI project, IDC worked with HP ProCurve to determine the interview process and guide. HP ProCurve provided the names of the companies to interview.

IDC uses a three-step methodology for conducting ROI analysis:

1. **Measure the benefits.** In this study, the benefits come from the following areas:
 - ❑ **IT infrastructure cost reduction** — direct costs that include IT staff labor reduction, hardware cost reductions (for purchase and deployment of incremental network infrastructure components), and reduction in service and support licensing cost reductions.
 - ❑ **IT productivity increases** — time savings from more efficient IT operations, which enable the reallocation of IT staff time from support tasks (network troubleshooting and maintenance) to higher-value activities such as supporting new business applications or technology initiatives.
 - ❑ **End-user productivity increases** — increases resulting from the decrease in network downtime due to fewer downtime incidents and improved mean time to resolution (MTTR).

2. **Ascertain the investment** made in the purchase and implementation of the solution and the associated training and maintenance costs. To get an accurate assessment of the investment in deploying HP ProCurve, IDC asked for the deployment, setup, upgrade, and maintenance costs, as well as the total cost of the services and training. This investment included the loaded costs of any incremental staff required.
3. **Calculate the payback period and ROI** for the deployed solution by conducting a depreciated cash flow analysis of the benefits and investments over a three-year period. From the results of the interviews, IDC was able to calculate the average payback period and rate of return from investing in the HP ProCurve UWW solution, as well as the net present value of the savings. IDC bases its calculations on a number of assumptions:
 - ❑ IDC uses a 12% discount rate in the ROI analysis to account for risk and to ensure a conservative analysis.
 - ❑ Because IT solutions require a deployment period, the full benefits of the solutions are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

Note on Exchange Rates

The organizations interviewed for this study came from a variety of regions around the world. All investments and benefits were gathered in their local currency and then changed into U.S. dollars at current exchange rates. All figures used in this document are provided in U.S. dollars.

IDC Analysis: Challenges and Opportunities

Among the challenges and opportunities that HP ProCurve faces with respect to its UWW solutions are the following:

- ☒ **Educating the market on the availability of the HP ProCurve UWW solution.** With the current generation of HP ProCurve technology having been rolled out only over the past year, customers interviewed for this study described how it has been only recently that HP ProCurve has really emerged as a true alternative for companies looking for a unified network management solution. HP ProCurve may not be top of mind for many businesses when they are considering vendors for UWW technology; thus, HP ProCurve will need to continue its market education efforts to strengthen its brand name in unified wired and wireless networking solutions.
- ☒ **Integrating cutting-edge technologies.** Customers interviewed for this study indicated that while their HP ProCurve equipment handled all of the functionality they required, other solutions they looked at had greater levels of features and functionality, albeit at higher price points. While the advanced networking features included in HP ProCurve can likely address the majority of most companies' needs, to address the broadest possible market opportunity, HP ProCurve may need to bring out additional products with a greater set of features (perhaps at higher price points). IDC will be watching for HP ProCurve to enable newer applications such as location tracking and WiFi voice while layering in an ever-expanding list of security functions.

Conclusion

Businesses are under increasing pressure to deliver fully functional wired and wireless networks and high levels of network performance and uptime, and to do so while managing to tight budget constraints. Unified wired and wireless offerings such as those from HP ProCurve provide businesses with the ability to implement end-to-end network infrastructures, all managed centrally from a single management console and with an attractive ROI.

In a study of eight organizations that have implemented HP ProCurve in their production environments, IDC not only found that these organizations were pleased with the technical and user benefits of their HP ProCurve UWW environments but also estimated that they were able to achieve an ROI of 451%. As one U.S. respondent stated, "When we were evaluating vendors, we did a separate technical and financial analysis, and ProCurve came up as our first recommendation in each case."

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