

Business white paper

HP Unified Access

Unify wired and wireless access at your own pace



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Executive summary

Mobility has transformed how and when people work, and the benefits of this transformation, working anywhere, anytime have been well praised. People spend more time than ever on their mobile devices to stay connected with their professional and personal lives. As mobility becomes commonplace, enterprises like yours are finding that having the latest high-performance wireless LANs (WLANs) is essential to supporting your workers' hyper-connected habits.

This white paper explores the changing requirements for campus networks, driven by mobility and the bring your own device (BYOD) movement, as well as the increasing adoption of rich-media applications balanced against ongoing IT resource constraints. Like many other IT organizations, you may be faced with the new urgency to re-examine your strategies for providing wired and wireless LAN access. By unifying the wired and wireless access layers, you gain a new ability to meet the exploding demand for connectivity in a way that is sustainable, secure, and manageable. We will show you how you can more effectively enforce security and manage the network as a cohesive whole, rather than separate parts, by integrating the wired and wireless network at the edge.

The experts agree. "Limited IT resources, increased mobility, and reduced IT budgets are providing catalysts for the buying behavior at the edge of the network," observes Gartner. "Gartner is seeing the emergence of a unified access layer that provides wired and wireless connectivity. It must also provide consolidation of network tools while reducing the complexity of the network application services needed to provision, manage, authenticate, and even locate end users across one or multiple facilities."¹

Introduction

Campus networks must adapt to the new wireless LAN mobility requirements to support our new digital lifestyle brought about by the consumerization of IT. According to the Gartner research note, "Creating a Bring Your Own Device Policy:"² "A CIO survey conducted at Gartner Summits held in the U.S. and Europe indicated that, by 2014, 80 percent of the global workforce will be eligible to participate in a BYOD program."

Your employees are increasingly comfortable with using video and collaboration as everyday tools, and the rise of IP voice and video is fueling the need for campus networks with higher levels of network performance and availability. To deliver the quality experience users expect from voice and video, your campus network must scale significantly in terms of bandwidth, users, and services.

Today, your IT team is likely straining to adapt to the challenge of providing secure connectivity for users who are on the move; devices that talk to one another without human intervention; and workers' reliance on real-time, interactive, and cloud-based applications and services. The swift uptake of BYOD means that workers want to use their own smartphones, tablets and laptops to access corporate applications and data—from anywhere.

Advanced threats growing in sophistication and persistence every day are bombarding corporate networks, endpoints, and individuals. Using legacy architectures to provide secure access to workers who often access enterprise resources over a patchwork of wired, wireless, and remote connections—both secure and unsecure—is simply too complex and costly. And, swivel-chair management is the norm, as administrators juggle multiple disjointed management tools in an attempt to get a complete picture of the enterprise network.

¹ Gartner, "A Unified Access Layer Forces Changes to Infrastructure Thinking at the Edge of the Network," Tim Zimmerman, Mark Fabbri. March 2012

² Gartner, "Creating a Bring Your Own Device (BYOD) Policy," Michael Disabato. April 2012

Changing the rules of user access

At HP, we are changing the rules of networking with HP FlexNetwork architecture, a component of proven HP Converged Infrastructure. The FlexNetwork architecture enables networks to be open, scalable, secure, agile, and consistent from the data center, where applications are generated, to the campus and branch, where users consume them.

HP FlexCampus and FlexBranch, integral parts of HP FlexNetwork architecture, enable you to unify access to improve the user experience, strengthen security, and simplify management for your campus and branch networks. Laptops, tablets, desktops, IP phones, servers, and other endpoints can access the network and associated services, regardless of the connection method—wired or wireless. You can gain a secure, flexible, agile, and unified campus network infrastructure that meets today’s demands for easy mobility and rich-media applications.

HP Networking is a leader in Gartner’s combined wired and wireless Magic Quadrant, “Magic quadrant for Wired and Wireless LAN infrastructure,”³ which is a proof point that HP is best positioned as a leader to deliver unified approach to wired and wireless connectivity at the access layer.

Table 1.

Phase 1: unify	Phase 2: permeate	Phase 3: accelerate
<i>Unify wired and wireless networks</i>	<i>Wireless connectivity permeates the workplace</i>	<i>Accelerate the access layer whether wired or wireless</i>
<ul style="list-style-type: none"> • Integrated controller blades • Single-pane-of-glass management • Dual 802.11n radio, 3-spatial access points • Unified security and policy • BYOD support • Unified network monitoring 	<ul style="list-style-type: none"> • Unified software solution • Wireless radio reliability and performance 	<ul style="list-style-type: none"> • Automation with HP Virtual Application Network • Software-defined networking • Sentinel for IPS controller integration • Mobile Aware Switching Fabric • Virtual Unified Services

A phased approach to unified access

Our aim is to provide you with an evolutionary three-phased approach to unify network access to improve the user experience, strengthen security, and simplify management. In the first phase, you begin by unifying your wired and wireless access networks. In the second phase, wireless connectivity becomes pervasive on the corporate campus, especially with the rise of BYOD. In the third phase, you focus on accelerating the access layer, whether wired or wireless. (See table 1). Our phased approach helps protect your existing investments and minimizes disruption along the way.

Phase 1: Unify wired and wireless networks

Unifying access to wired and wireless networks brings together these once-separate networks in a seamless fashion. Unifying access improves the user experience and lowers capital and operational expenses.

We give you the freedom to choose from a broad portfolio of networking solutions that fit your individual business needs. We deliver the following capabilities to unify the wired and wireless LAN access layer:

- **Wired Switches with integrated wireless controllers:** We offer seamless integration of 802.11n WLAN controller modules with HP modular switching platforms, such as HP 10500, 7500, 8200, and 5400 Switch Series. If you have a multivendor wireless network, we recommend dedicated mobility controllers, for example, the HP MSM720 and MSM760 Controllers.

³ Gartner, “Magic Quadrant for the Wired and Wireless LAN Access Infrastructure,” Tim Zimmerman, Mark Fabbi. June 2012. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings. Gartner research publications consist of the opinions of Gartner’s research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

- **Single-pane-of-glass management:** HP Intelligent Management Center (IMC) is the cornerstone of our unified wired and wireless network environment. It is a single management platform that simplifies and automates the management of increasingly complex wired and wireless networks. IMC also provides comprehensive management for multivendor networks with a full suite of network access control capabilities to support BYOD.
- **Unified security and policy:** Unifying access control with HP strengthens security in a world where users are constantly moving. Permissions are associated with a user's identity, so the appropriate security policies are applied—no matter where the user goes. IT has a consistent method to provide BYOD and guest access, user authentication, policy enforcement, and user management, whether users connect over wired or wireless networks. Unifying access control also reduces the number of network tools and the complexity and cost of the network application services needed to provision, manage, and authenticate users across one or multiple enterprises.

Analysts agree: According to Gartner: "It is no longer acceptable to have two different network management applications or differing guest access applications, especially if the solution is being provided by the same vendor. Unifying network service applications reduces complexity by providing a single display and reduces costs associated with redundant solutions."¹

- **Complete BYOD support:** BYOD is a clear hit with workers, but IT isn't always equally enthusiastic about supporting it on the network. Our BYOD solution simplifies the challenge of protecting company-used and personally owned mobile devices by leveraging technologies in IMC and the network infrastructure. Your administrators can specify the network access rules, policies, and endpoint health posture requirements to meet your organization's policies as well as industry compliance requirements. IT can manage BYOD devices across the full cycle, including onboarding, provisioning, and monitoring, from within the same tool. Network security and performance policies for BYOD and company-owned mobile devices can be dynamically provisioned based on user, device, location, and endpoint security health.

Today with HP, you can deploy hardware platforms in the access layer with integrated functionality that deliver unified wired and wireless LAN connectivity, including guest access, single-pane-of-glass management, consistent security and policy enforcement. This integration enables a consistent user experience while minimizing capital and operational expenditures.

- **OpenFlow-enabled infrastructure:** Software-defined networking is in its early stages of adoption. Customer can lay the foundation for enabling a software-defined network by ensuring that their infrastructure devices are SDN-capable. OpenFlow is the leading standard for enabling software-defined networking and provides an open, programmable interface to network switches, routers and other devices.

HP offers the industry's broadest and most complete support for OpenFlow and has more than 15 million OpenFlow-enabled ports in the marketplace.

Phase 2: Wireless connectivity permeates

As more workers use tablets, laptops and other mobile devices, they expect Wi-Fi to be everywhere in the office, not just in conference rooms and common areas. They depend on steady, reliable Wi-Fi access for access to applications, collaboration tools, and phone calls. As the WLAN permeates through your headquarters, branch offices, and warehouses, you need a solution that is simple, scalable and secure.

- **Scalability:** Your WLAN needs to scale as workers' reliance on mobile grows. With stackable fixed-port switches such as the HP 2920 Series Switches, you can expand your infrastructure to accommodate mobile and rich-media apps in a pay-as-you-grow model. When installed at the edge of the network, these stackable fixed-port switches provide your users with seamless connectivity, no matter whether they're using company-issued devices or their personally owned device.

• **Role-based access and centralized policy enforcement:** Identity-based access ensures that the appropriate security and policies are applied consistently, whether the user connects through a wired or wireless LAN. Advanced QoS ensures that users have the optimal experience, even when using time-sensitive voice, video, and other rich-media applications. The access control solution of HP IMC provides network-access control, policy enforcement, and quarantining to ensure the security of the network infrastructure. With it, you can be assured that the endpoints accessing your wired or wireless network are in compliance with your policies and are safe. In addition, IMC gives your administrators visibility into user behavior. With the HP IMC User Behavior Analysis (UBA) service module, your administrators can audit user behavior for website access and activity by email sender or receiver addresses, database access and operations, file transfers, and more.

Phase 3: Accelerate the access layer, whether wired or wireless

Integration with HP Virtual Application Networks: Finally, IT can build and deploy networks to fit the needs of different applications and services, regardless of the underlying physical network. HP Virtual Application Networks, part of the HP FlexNetwork architecture, provides a virtualized view of your network—one that is abstracted from the physical equipment. A rigid physical enterprise network is transformed into a programmable and application-aware virtual network. IT gains a virtual control plane across campus and other domains within your environment. That means your network administrators can provide wireless access as the primary form of connectivity, and wired as needed.

Software-defined network (SDN) technologies promise to reinvigorate networks with new levels of flexibility and pave the way for innovation. SDN is defined by the ability to apply business logic to network behavior in a dynamic fabric.

We've integrated SDN open technologies, including OpenFlow into HP Virtual Application Networks (VANs) to enable businesses to create a scalable, agile, and secure network that empowers IT staff and streamlines operations. Your administrators can focus on connecting users to business applications and on the quality of experience, rather than on the details of configuring the network, device by device. HP Virtual Application Networks deliver dynamic and rapid deployment of cloud applications and increases IT efficiency with services orchestration. You'll see greater business agility and a more scalable network service.

You can be assured of security with HP VANs. Our latest innovation in security is the Sentinel security application for HP VANs SDN Controller. Sentinel is able to stop threats before they reach your network. Sentinel security can be deployed across a campus or data center network to protect you from over 700,000 malicious malware, spyware, and botnet threats.

Our Mobile-Aware Switching Fabric provides a more efficient way of processing wireless data, such as tunnel termination and policy enforcement. Meanwhile, our Virtual Unified Services supports applications running on virtual machines, and run along with IMC or as standalone. These unified applications may be running on a controller today but are not optimal to integrate into the switching fabric, which is data plane-focused.

At HP, we're continuously improving our solutions. Plans for future releases include campus-wide VAN automation and administration with SLA monitoring, global policy management, highly granular access-based threat management, and agile provisioning.

Today's solution: HP integrates functionality to unify access at the campus edge

We offer a comprehensive portfolio of campus access technologies that allow businesses to deliver high-performance, reliable network services to growing numbers of mobile users—and meet their expectations for BYOD, unified communications, and rich-media applications. With a focus on simplicity, scalability, and security, the HP Unified Wired and Wireless Access solution delivers a clear advantage over standalone wired or WLAN solutions.

- **High-performance, scalable wireless to support today's and tomorrow's mobile devices:** We provide a portfolio of high-performance mobility solutions, including dual 802.11n 450 Mbps access points with 3-stream technology. HP MultiService Mobility (MSM) access points and MSM wireless controllers deliver the wired-like performance needed to support today's mobile workers, who rely heavily on smartphones, tablets, and laptops.
- **Self-optimizing WLAN performance:** It's easier than ever to deliver the Wi-Fi experience that your workers expect today. HP's Wi-Fi Clear Connect software automatically monitors and tunes the performance of your WLAN and adjusts to the frequently changing RF conditions present in your environment. RF conditions change quickly, especially when other devices sharing the same frequency band are in use. HP's radio resource management technology automatically assigns and tunes the transmission power levels and RF channels on APs to optimize the system-wide performance and reliability of your WLAN. You don't need to worry about dead spots or if an AP or radio fails either. Wi-Fi Clear Connect software is available on many HP WLAN solutions, including the HP 10500/7500 20G Unified Wired-WLAN Module.
- **Single-pane-of-glass management:** HP IMC delivers unified and consistent management for all network components, including wireless and wired networks. IMC delivers single-pane-of-glass management for the full HP portfolio and more than 6,000 devices from 220 manufacturers. In addition, access control, application performance management, and in the future, management of HP VAN in the campus, come as modular features that can be added into IMC, further extending its rich capabilities.
- **Greater visibility into network performance:** sFlow provides clear visibility into the usage and active routes of both wired and wireless connections, and integrated support for sFlow across HP Networking portfolio means higher performance and a more cost-effective solution. HP sFlow gives administrators insight into metrics, such as top talkers, top applications, and network connections, on wired and wireless networks. Network monitoring and troubleshooting is simplified with a unified access layer, and support for sFlow is essential for gaining visibility into the unified network.
- **HP RF Planner:** You can use HP RF Planner to accurately model WLAN coverage by factoring in variables, such as physical features, building materials, and WLAN equipment characteristics. Using this software, your network architects can ensure that your 802.11n network is optimized for the dense environments that are common to support the growing numbers of mobile workers and tablets.
- **Energy-efficiency for greater savings:** HP solutions allow you to optimize power for your campus networks, thus delivering ongoing savings. HP switches, including HP 5400, 3800, 2920, and 2620 Switch Series, support Energy-Efficient Ethernet (EEE). Also known as IEEE 802.1az, EEE optimizes switches' power usage by reducing power to switch ports when they are not transmitting or receiving. Depending on traffic patterns and idle periods, power savings can be fairly substantial.
- **Convenient Power over Ethernet:** As organizations add WLAN capacity to meet workers' mobility needs, they typically deploy more Power over Ethernet (PoE), so that access points, IP phones and cameras can be placed wherever they are needed without requiring nearby power—just the wired Ethernet connection. PoE and PoE+ are supported by a broad range of HP switches, providing greater convenience and cost efficiency.
- **Enterprise-class reliability and lifetime warranty:** While most businesses have paid close attention to the availability and reliability of their core networks, the campus network is often considered to be less critical. But mobility makes the resiliency of the campus network more important than ever. If a wired switch fails, the attached access points could lose connectivity, potentially cutting off network services to hundreds of users.

HP access switches are prepared to meet high levels of reliability. Our switches are designed with redundant and hot-swappable power supplies, modules, and fans to ensure continuous network operations. And, all HP Networking switches that are part of the HP Unified Wired and Wireless solution are backed by the HP lifetime warranty with next-business-day advance replacement.

Take the step toward unification

Mobility needs are rising fast, and now is the time to prepare your network for unified wireless and wired access. With HP solutions, you can take a phased approach by providing wireless and wired access as needed. With HP, you can choose the migration path that's right for your business, whether that means integrating WLAN controllers into access switches or leveraging dedicated mobility controllers. Either way, our high-performance WLAN solutions, integrated with an extensive switching, routing, and security portfolio, enable businesses to meet the demand for an evolving mix of wired and wireless network services while lowering capital and operational expenses.

By choosing HP Networking solutions, you can meet the exploding demand for Wi-Fi access, with the freedom to choose an architecture that fits your business needs today and tomorrow. HP delivers unified wired and wireless LAN access layer with single network management, monitoring and security application providing single-pane-of-glass management. With HP, you can unify your access networks at your own pace, and count on simplified, scalable, and secure solutions.

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