Wireless Technology

Abstract

Almost any organization, from a business to a city government, can benefit from adopting wireless mobile computing solutions. Benefits come in ways you might expect, as in higher productivity; and in ways you might not expect, such as higher customer satisfaction. This white paper explores these topics and explains why HP is well suited to deliver wireless mobile solutions.

Introduction

Today, with over 165 million mobile professionals worldwide, organizations use wireless technologies to solve business problems and create advantages over competitors. HP solutions are enabling remote or mobile workers (such as field sales, field service, manufacturing, and logistics personnel) to access information and business applications from more places.

Mobile professionals use this new advantage to work more productively, better satisfy customers, and generate more sales. Users are finding that wireless LANs provide more flexibility to configure an office and can improve both the productivity and the collaboration of office workers. These solutions help HP customers create value for their customers and an advantage over their competitors.

Wireless solutions increase productivity

"Early results have indicated that we can strip out the delays and downtimes of the old process to successfully streamline the service delivery chain with a mobile solution. The relationship with HP, Sierra, Infowave, and AT&T has enabled us to do a lot more with the resources we already have." Toni Cramer, chief information officer, City of Bellevue

"This new technology is helping us to explore a level of service for our citizens that only a few years ago was impossible." Steve Sarkozy, Bellevue City Manager

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All of this can be accomplished in a relatively cost-effective, more secure manner. New standards-based technologies offer improved methods to authenticate and better secure devices, helping ensure that only authorized users access networks.

HP understands wireless technology and knows how to design hardware, software applications, and consulting and network management service solutions to meet business needs. The time for wireless technology has come.

Benefits of wireless technology

The widespread reliance on networking in business as well as the growth of the Internet and online services are strong testimonies to the benefits of shared data and resources. Wireless solutions advance these benefits by allowing users to access shared information, e-mail, and applications without the constraints of a wired connection. Further, wireless technology allows network managers to set up or augment networks without installing or moving wires. Almost all computing devices, including desktops, workstations, monitors, keyboards, notebooks, tablets, handhelds, and printers can be equipped to communicate wirelessly. Wireless solutions offer productivity, convenience, and cost advantages over traditional wired networks.

Wireless solutions allow many benefits, including allowing businesses to benefit from the value of their information. Wireless solutions can provide users with access to real-time information from more places in their organization. This mobility supports productivity and service opportunities not possible with wired networks. Organizations are adopting wireless solutions to improve their competitiveness.

The availability of simple-to-use, more secure, wireless solutions has created the opportunity to reduce costs and improve performance. Business problems once thought of as "business as usual" are now being solved with wireless solutions. Consider the possibilities:

Old way	Inaccurate or inadequate information for field employees and logistics and manufacturing workers, which raises costs and reduces sales and customer satisfaction
New way	Accurate, real-time information: • Field sales having accurate, latest product availability information • Field sales having the latest pricing information, sales presentations or customer/competitor intelligence • Field service technicians able to access correct or real-time information on a customer's equipment, problem, or account • Delivery personnel accessing real-time routing and customer information • Warehouse employees accessing information on stock levels, ordering rates and stock locations • Manufacturing workers accessing information showing build schedules, automation performance, and material levels

Wireless technology enables IT managers to avoiding expensive cabling and wiring costs when reconfiguring offices and relocating employees. Installing a wireless system can be fast and easy and can eliminate the need to pull cable through walls and ceilings. In many cases it is more cost-effective to install a WLAN than to install or add on to a wired network.

Old way	Rigid office environment raising IT costs, reducing productivity
New way	Flexibility—wireless networks allow workers to collaborate more and allow IT managers to deploy LANs to hard-to-wire locations

Wireless networks extend core networks, provides greater utilization of existing assets. Up-front expenses of the wireless network can be recovered in several cost saving areas; for example, dynamic environments requiring frequent moves and changes, adding network service to a new or temporary office, and adding connectivity to meeting rooms. Because managing the network and the mobile user can put strain on the existing help staff and infrastructure, HP offers affordable user, device, and infrastructure management services that put IT managers at the center.

Wireless systems can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to full infrastructure networks of thousands of users that enable roaming over a broad area.

Security Solutions

One of the major concerns surrounding wireless solutions is security, prompting questions such as

- Is my data safe?
- Can anyone get access to it?
- How do I ensure that only certain people can access my systems?

HP has a range of security products based on industry standards that can help make wireless solutions as secure as they need to be.

Wireless security may be separated into two basic components: authenticating wireless network users and encrypting data as it transfers between users and devices.

Authenticating users—HP products use a new security standard, 802.1x, that helps ensure that only authorized users are on the network. This new standard allows multiple authentication algorithms; and because it is an open standard, multiple vendors can innovate and offer enhancements.

Encrypting data—To date, the biggest barrier to adopting wireless has been data encryption. Existing encryption protocol, called Wireless Encryption Protocol (WEP) can be broken if a hacker devotes enough time and money. The latest HP devices use secure socket layer (SSL) encryption and a new encryption standard called Wi-Fi Protected Access 2 (WPA2), which dramatically improves the encryption algorithms and key rotations, making data much safer.

The latest HP notebooks are already equipped with the next encryption standard, Advanced Encryption Standard (AES), the same encryption standard mandated by the IEEE 802.11i security standard. This foresight not only addresses security concerns, it also allows HP computers to be useful as standards evolve, increasing the useful life of the IT investment.

HP understands that, even though people are careful, devices can sometimes be lost or stolen. Because of this, HP offers leading-edge technology and services that reduce the risk of unauthorized users accessing lost or stolen devices. HP approaches security as a continuum, with end-to-end security capabilities across all areas of corporate assets.

HP provides a comprehensive security solution:

- **Asset protection**—Proactively mitigate risk and save money by simply protecting your physical assets with solutions from HP
- **Access control**—HP offers several built-in access-control measures that will help safeguard valuable, business-critical information in case your equipment is stolen or illegal access is attempted
- **Data and OS protection**—HP offers extensive layers of security that help further safeguard your valuable data and your OS
- **Network security**— HP has key protocols and security mechanisms in place that better protect data in your networked environment to help preserve the integrity of your network—making sure your business stays your business
- **Supporting solutions and professional services**—state-of-the-art security solutions that meet the needs of your unique computing environment.

Desktop and Notebook-specific security
- Desktop and notebooks support current and future industry-standard security building blocks, including 128-bit WEP, 802.1x
- Addresses future security requirements today; designing support for future security standards

Pocket PC-specific security

- Allows enterprise customers access to device management through centralized access and deployment
- 64-bit and 128-bit WEP security offers enhanced security for an authorized connection and data transfer when connected wirelessly
- VPN software provides enhanced security when accessing information from your corporate network, VPN and WLAN connections as well as the capability to log on to remote servers
- Other security features include data and folder encryption, access control to mobile devices, and encryption of wireless communication.

Printer-specific security

- Allows enterprise customers access to device management through centralized access and deployment with HP Web Jetadmin software.
- Identifies wireless devices with HP Web Jetadmin software
- Industry-leading security building blocks supported, including: secure socket layer (SSL), WPA and WEP encryption, simple network management protocol v3 (SNMPv3)

Why choose HP for wireless?

HP offers complete wireless solutions, with a broad and deep portfolio of wireless devices such as our iPAQ handhelds, business notebooks, tablet computers, desktops, mobile printers, and print servers. [1]

HP has the expertise to connect devices in almost any environment and application. Our extensive experience enables us to manage and reduce the risk associated with implementing new technology. We understand the technologies, have the key relationships to streamline the timeline, and have the expertise to plan and manage the project efficiently and effectively. This combination leads to lower total solution costs and reduced project risk.

Whether connecting to a sales force automation application over a wireless LAN, providing network access in a public wireless venue (hotspot), or receiving mail and messaging over a wireless WAN, HP accomplishes the goals of business.

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[1] Wireless access point required and is not included. Availability of public wireless access points limited. Wireless Internet use requires separately purchased Internet service contract.

A standard WLAN infrastructure, other Bluetooth-enabled devices, separately purchased equipment, and a service contract with a wireless airtime provider may be required for applicable wireless communication. Wireless Internet use requires a separately purchased service contract. Check with service provider for availability and coverage in your area. Not all web content available.

Wireless use requires separately purchased service contract. Access limited to coverage area of Verizon Wireless. Check with Verizon Wireless for availability and coverage in your area.

Typical environments

WLAN (wireless local area network)

With more than 30 years of wireless and mobility experience and industry leadership, HP has innovative products, industry-leading application relationships, and knowledgeable wireless and mobility business and technology consultants to help mobilize enterprise professionals for real-time access to business-critical information.

HP enterprise mobility solutions:

- Solve business issues to increase workforce productivity, create a competitive advantage, and lower costs
- Reduce the complexity and risk of deploying mobility solutions with standards-based, architectural solutions
- Help ensure end-to-end security, manageability, and reliability

PWLAN (public wireless local area network)

Increasingly, mobile workforces are fueling the growth of public wireless access. Enterprises need secure, affordable, high-speed access to the Internet, e-mail, and business-critical applications. This accelerating business demand means telecom carriers and venues that provide public wireless access can expect a major competitive advantage. Businesses should consider a PWLAN if they need to:

- Provide wireless access hotspots to customers
- Expand wide-area data networks to notebook computers and handheld devices equipped with wireless LAN connectivity
- Give mobile workers cost-effective wireless access from hotspots

Discover the HP advantage:

- HP provides a full range of global services with expertise in IT infrastructure and targeted verticals. HP can help businesses strategize the public wireless LAN opportunity, develop the implementation plan, and then build hotspot solutions that help keep their customers connected and their infrastructure investments more securely protected. HP global resources are ready to help businesses reach their potential in the public wireless LAN marketplace.
- HP has the proven wireless LAN[2] experience, award-winning mobile access devices (such as the iPAQ Pocket PC[3]), wireless printers, wireless print servers, wireless LAN products, and industry-standard servers, to help create competitive advantage in the public wireless LAN market. HP and its public wireless LAN partners offer comprehensive end-to-end solutions addressing a broad range of requirements for mobile computing environments.

WWAN (wireless wide area network)

The possibilities are wide open. HP wide-area network (WAN) products allow mobile users to wirelessly connect to e-mail, the Internet, and remote files. Using your network-ready mobile phone and similar devices, you can tap-in to mobile networks at your convenience and, in the process, redefine the meaning of freedom and productivity.

HP Broadband Wireless[4] notebooks feature fully integrated 3G WWAN, enabling convenient high-speed wireless connectivity in more places. The integrated WWAN of HP Broadband Wireless

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[4] Wireless use requires separately purchased service contract. Access limited to coverage area of Verizon Wireless. Check with Verizon Wireless for availability and coverage in your area.

notebooks is complementary to other wireless technologies like WLAN[2] and Bluetooth. You can choose the most appropriate wireless technologies for your needs, even using them concurrently, when appropriate, such as downloading a document over WWAN and printing it using a Bluetooth-enabled HP printer.

Pervasive access to data through Open Roaming

One of the emerging wireless connectivity issues occurs when users move from one network type to another. Mobile professionals are constantly on the go, moving between wired offices, wireless LAN environments, and into environments supported by wireless network carriers. When mobile users are moving from one network to another, they must:

- Stop active applications
- Reconfigure the mobile device
- Establish needed security (VPN)
- Stop inactive network connections
- Restart applications

HP's Open Roaming solution addresses these issues with:

- Seamless roaming across different enterprise networks
- Wired LAN
- 802.11b, g or wireless LAN
- Wireless Carrier Network
- Full integration, deployment, and support from HP

HP has implemented the HP Open Roaming solutions during the past 18 months for the Swedish Parliament, City of Baltimore, Constellation Energy and Guaranty Bank, among others.

Solutions and relationships

A business solution combines elements of hardware, software, infrastructure, and services to meet a customer's business need. HP's experience, along with a broad and deep set of industry partners, reduces the time and risk in implementing a wireless solution. This combination helps ensure you have the best solution available.

Services

HP has extensive expertise designing and implementing solutions to help users gain a competitive advantage. HP's consulting and integration consultants use a structured methodology to assess the best solution to a customer's unique situation, emphasizing business-specific needs.

- Businesses' needs are addressed by carefully studying your unique problems, designing and piloting a solution, integrating the solution into the existing infrastructure, and managing the new network solution with flexible, cost-efficient helpdesk services.
- HP offers a deep knowledge of and access to engineering resources responsible for supporting an extensive portfolio of wireless devices including Pocket PCs, Tablet PCs, desktops, notebooks, mobile workstations, and printers.
- Strategy service helps key decision-makers understand the business potential of wireless solutions and how to determine the initiatives that will have the greatest impact on their enterprise.
- HP offers scalable solutions with industry-leading partners to address a variety of business needs. However, delivering a total solution means more than supplying all of the parts. It also means helping businesses analyze and assess their needs and then leveraging our broad expertise in technology and services to create a solution that brings business value.

Our managed solutions approach simplifies and reduces the risk of implementing a wireless solution. We integrate, manage, and support mobile solutions for your enterprise applications, as well as coordinate third-party software and service providers.

Managed technology transitions

Next generation notebooks migrating from mPCI WLAN to PClexpress minicard implementations and emerging security standards increase the useful life of the product.

Interoperability

- Solid support for mixed vendor wireless environments that are leading interoperability
  - HP endorsement and participation in the Cisco Compatibility Extensions program—the HP Compaq business notebook nc4000 was the first notebook in the industry to comply with the program
  - Standards based compatibility (for example, 802.11a, b and 802.11g)
  - Industry standard security 802.1x, AES encryption, Wi-Fi Protected Access (WPA) and WPA2 support
- Wi-Fi Certified solutions offer solid interoperability
- HP is a knowledgeable, global company, experienced in designing and implementing more secure mobile solutions
- Extensive portfolio of award-wining mobile computing devices, including mobile workstations, desktops, notebooks, handhelds, printers, and network connectivity solutions
- Experienced consulting and integration services to help enterprises design and deploy more secure mobility solutions
- Bluetooth technology
- Mobile products, including notebook PCs, tablet PCs, iPAQ Pocket PCs, Mobile Bluetooth printers
- New security solutions
- TCG Compliant notebooks[5]
- Integrated biometrics (handhelds and business notebook PCs)

Printing solutions

- HP Mobile Print Driver for Windows—Print easily to wired or wireless printers from notebooks and Tablet PCs
- HP Jetdirect ew2400—a USB wired and 802.11b/g wireless[6] print server that has WEP/WPA PSK and password protection
- HP Mobile Printing for Nokia 9300, 9300i, E60, E61, and E70 Phones—Print to wireless and networked printers with Nokia Communicator Phones

Mobile printing products
- HP DeskJet 460 series mobile printer:
  - portable printer that connects through USB 2.0 and wirelessly through Bluetooth or WiFi (802.11b or 802.11g)[6]
  - capable of photo-quality printing (up to 4800 x 1200 dpi color printing)
  - up to 450 pages printed on one battery charge
  - up to 17 pages per minute (black) and 16 pages per minute (color)
  - under 5 lbs

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[5] Trusted Computing Group, www.trustedcomputing.org
[6] Wireless performance is dependent upon physical environment and distance from access point

For more information

To learn more about HP wireless solutions and products, contact your local HP sales representative or visit our Web site at: www.hp.com/mobile