

### What's Wireless?

#### Wireless LAN Basics

A Wireless Local Area Network (WLAN) is a closely grouped system of devices that communicate via radio waves instead of wires. Wireless LANs typically augment or replace wired computer networks, providing users with more flexibility and freedom of movement within the workplace. Users can access the company intranet or even the World Wide Web from anywhere on the company campus without relying on the availability of wired cables and connections.

### Why Wireless?

**Log on from anywhere.**

**Log on from EVERYWHERE.**

If information is the lifeblood of today's business environment, then wireless networks are its heart. Wireless LANs can pump information and data to executives in the boardroom and to employees in the warehouse. A wide variety of industries have discovered the benefits a WLAN can bring—not only to daily tasks but also to the balance sheet. Among them:

- **Mobility**—Wireless LANs allow users real time access to information from anywhere in their organization, without having to find a place to connect to the network via an Ethernet connection, thereby increasing productivity.
- **Reliability**—Fewer wires and connectors translate to fewer problems for users and network administrators.
- **Ease of Installation**—Wireless LANs do not require expensive and time consuming cable installations, which is of particular benefit in difficult to wire areas.
- **Affordability**—Wireless LAN installation and costs over the life of the product can be significantly lower than those incurred with wired networks, especially in environments that require frequent moves and modifications.
- **Scalability**—Wireless LAN systems are easy to configure and rearrange to accommodate a wide variety of office settings and number of users.

### How does it work?

#### The Basic Structure of a Wireless LAN

In a typical WLAN configuration, a transceiver, or access point, connects to the wired network from a fixed location using a standard Ethernet cable. The access point receives, buffers, and transmits data between the components of the WLAN—whether laptops, printers, handheld devices, or any other wireless equipment and the wired network infrastructure. A single access point can support a small group of users and can function within a range of anywhere from 30 to several hundred feet. The access point can be installed anywhere in the facility as long as good radio coverage is maintained.

Users equipped with handheld devices or notebook computers can transmit data to the access point when within range. The wireless devices communicate with the network operating system via WLAN adapters, usually in the form of radio network interface cards (NICs), as in the case of notebook computers, ISA or PCI adapters for desktop computers, or similar devices integrated into handheld units.

### Who is Wireless?

#### Wireless LANs are popping up all over.

According to analysts at In-Stat/MDR, the wireless LAN industry will reach \$5.2 billion in sales by 2005, with significant growth potential for the future. The benefits afforded by WLANs are generating this growth and across a wide variety of industry segments. WLANs are increasingly popular in such environments as:

- **Corporate Information Systems**—Network managers can move employees, set up temporary offices, or install printers and other equipment without the cost and complexity of wires and cables. Executives can access vital company information from the boardroom through handheld devices equipped with WLAN cards.
- **Retail**—Employees can maintain real-time pricing and inventory information.
- **Travel**—Hotels and resorts can process

guest reception information, process room service orders, and track guest baggage. Car rental agencies can process car returns curbside.

- **Education**—Students and instructors can communicate anywhere on campus. WLANs eliminate the need for students to visit computer labs or dorm rooms to download assignments
- **Warehousing**—Warehouse workers can exchange vital inventory control information from the warehouse floor.
- **Health Care**—Hospital staff can deliver patient information, track pharmaceuticals, or manage assets.

### How fast is Wireless?

#### Comparing Wireless LAN to a Wired Network

The speed at which a WLAN performs depends on the type and configuration of the devices within the network. The number of users, the distance between network components, the type of WLAN system in use, and the efficiency of the wired network elements all influence the overall speed and performance of a wireless network.

Such factors also affect wired network speeds, but most commercial LANs operate at speeds from 10 megabits per second (10BaseT) to 100 Mbps (100BaseT). Wireless LAN components that use the 802.11a high data rate standard perform at speeds up to 54 Mbps, almost a five-fold increase from the performance of the 802.11b standard. Almost all mobile applications today lend themselves to deployment of an 802.11 WLAN infrastructure. Of the three main variations of 802.11, a plethora of applications and devices support the 802.11b standard, which operates in the 2.4 GHz frequency range. Although this standard is much more widely implemented than its newer sister technologies, industry experts anticipate that it won't be long before 802.11g and 802.11a exceed 802.11b in popularity.

How Secure is Wireless?

## Protecting Your Network from Intruders

By their very nature, wireless networks have the potential to provide access either on purpose or inadvertently, to any party in range of the system. This includes potential eavesdroppers or hackers outside the physical security perimeter of a network, whether they're in a parking lot, an adjacent office, or a nearby building. Although the range of wireless networks is limited, their signals can be received at distances of several hundred feet beyond the physical perimeter of a facility. In larger facilities that use multiple access points (APs) to connect wireless users to the wired networks, each AP is a potential point of entry through the firewall.

The WLAN industry recognizes that security is a significant challenge to wireless LAN growth, particularly in the commercial enterprise and government sectors. A number of security standards and tools are available today to thwart attacks on wireless networks. Industry groups, along with companies that manufacture wireless devices, are continually working together to increase the security of wireless communications.

Wireless users recognize the benefits of the technology and need to know how to protect their business-critical data. These users, as well as those who hesitate to deploy wireless technology because of security concerns, stand to benefit from understanding the security options currently available, even as the industry moves aggressively to provide even more secure protocols. By working with a wireless vendor well-versed in security issues, companies can dramatically enhance the security of its wireless communications system.

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### The Costs of Wireless

Wireless LAN deployment typically requires expenditures for the cost of access points and adapters, as well as software, installation, and a small degree of IT training. Installation and repairs are less labor-intensive, because cabling is not involved. Likewise, moves, additions, and modifications are simpler, further reducing labor costs. Because worker mobility translates to substantially increased productivity, corporate investments in WLAN equipment and software tend to deliver rapid returns

on investment, meaning more time dedicated to generating profits.

If you are interested in acquiring more information about this product or any other product in the Madison Technologies range, please don't hesitate to contact us. The more we understand your specific needs and requirements, the better the opportunity to find the right solution to "make it happen" for you.

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