IBM

# Exploring a significant business opportunity—the public wireless local area network.

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**e** business

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**Executive summary**

It's no small secret that today's workforce is becoming increasingly mobile. Travel requirements and offsite meetings alone account for a significant amount of time away from the office. "Dead time"—time spent waiting for a meeting, sitting at an airport, staying in hotels, lingering between conference sessions—significantly impacts productivity. Both businesses and mobile workers are actively seeking ways to reduce this dead time and use every minute more productively.

The public wireless local area network (PWLAN) presents a business opportunity for service providers and businesses wanting to help their customers become more productive when they are on the move. PWLAN "hot spots" enable workers with wireless-enabled notebook and handheld computers to access their corporate intranets, e-mail and the Internet. Hotels, airports and airlines, conference centers, enterprises and public establishments can fill an enormous gap for businesses and mobile business professionals by providing such a service. At the same time, it can enable service providers to seize a slice of the mobile services market. For businesses that want to attract more customers, and service providers that want to increase their mobile offering, the opportunity is huge.

This white paper explains what the PWLAN is and explores how companies in the travel, leisure and food industry can benefit from it. It addresses the many considerations surrounding this exciting new application of existing technology, and illustrates how the companies that capitalize on this market need can see both short- and long-term increases in revenue and customer numbers, as well as improve their image and brand.

## The future for public wireless LANs

*According to the Public Wireless LAN Access: US Market Forecasts 2002-2007 report by Analysys Research, more than 21 million Americans will be using PWLANs in 2007.[1] PWLAN services enable users to connect laptops and personal digital assistants (PDAs) to their Internet service provider or company intranet at speeds of up to 11Mbps (megabits per second).*

*"The appeal of these services means that the number of hot-spot locations in the U.S. will grow from 3,700 this year to 41,000 by 2007," said report co-author Monica Paolini. "This will in turn generate over US$3 billion in service revenues."*

*The market will develop thanks to the industry-wide adoption of the common platform based on the IEEE (Institute of Electrical and Electronics Engineers) 802.11b standard. Up to 91 million new devices in the next five years, including PDAs and laptops, will be shipped with cards already installed to access PWLAN networks.*

*The report also claims that PWLAN operators need to pursue roaming agreements with each other to minimize the cost of deploying access gateways in every possible hot-spot location. "For the market to accelerate as we expect, it's imperative for service providers to offer better location information and network detection software as part of well-presented service propositions with appropriate security and pricing," said Paolini.*

*Analysys predicts that, by 2007, the PWLAN market will equate to about 25 percent of mobile data service revenues and could steal up to 7 percent of cellular data operator revenues in the U.S.*

## The need to be connected

Today's business professionals have become accustomed to high-speed local area network (LAN) connections in their offices. LANs enable them to get the information they need and want quickly. However, the increased mobility of today's workforce creates a lot of dead time outside the office—sitting at the airport, staying at a hotel or having a cup of coffee in between meetings. During these times, workers are unable to access their essential office applications, seriously hampering their productivity. The need to stay connected to the corporate intranet is critical to increasing the productivity and effectiveness of the army of mobile professionals in today's business environment.

The need to be connected to office applications, and the increasing popularity of wireless-LAN-enabled portable computers, creates a significant business opportunity. Today, many hotels offer wired high-speed Internet connections in hotel rooms—for a price. Cybercafés, hotels and airlines offering Internet-connected computers are an option, but most mobile workers want to use their own computers, as they need to replicate data into their own devices. Mobile workers are constantly seeking out places and services that enable them to be connected and will frequent the most convenient venues.

Enter the public wireless local area network. PWLANs provide convenient high-speed access to the Internet, giving the mobile workforce the freedom to work from any public hot-spot location, at any time, with virtually any wireless-LAN- and Internet-enabled device.

PWLANs offer an attractive, customer-driven solution. For venue owners—such as hotels, franchise chains, airlines and airports—PWLANs are an opportunity to create and increase customer loyalty, encourage customers to stay onsite longer, and generate revenue through increased sales and maybe even through

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*PWLANs offer a significant revenue
opportunity for service providers
and hosting venues alike.*

*Early wireless data solutions have
been unreliable, slow and unable to
cope with large file transfers.*

charging for the service. For whoever provides the services, there is an opportunity to obtain "airtime" revenue. Responding to the needs of our increasingly mobile lifestyle, PWLANs offer a significant revenue-generating opportunity, both for the venues that host them and service providers that operate them.

Let's begin by exploring the PWLAN—what it is, how it works and the new business opportunities it creates.

**Where do PWLANs fit in the mobile communications market?**
Efforts by mobile operators to provide wireless data service to mobile workers have not—until now—experienced widespread commercial success. The wireless connections offered have been unreliable, slow and unable to cope with large file transfers. Also, the services have been expensive to use relative to the value they provide to end users.

Early wireless packet data networks, such as CDPD (Cellular Digital Packet Data) and Mobitex, and 2G networks, such as GSM (Global System for Mobile), have been enabling wireless access for years, but they offer low-speed connectivity and cannot cope with large e-mail files and attachments. GSM data has been hampered by the relatively high cost of the circuit-switched service and delay to establish the connection. The new 2.5G and future 3G networks promise to deliver more reliable, always-on and more user-friendly Internet access to the mobile market. Mobile operators have started their 2.5G services, but the networks are still running at slow speeds, rather than the theoretical maximum of 234kbps (kilobits per second). While this can go some way towards answering the needs of mobile workers, the slowness makes it difficult to access e-mail attachments, documents and presentations.

*Why PWLANs?*

The public wireless local area network offers a readily available, flexible, high-speed alternative to the 2.5 and 3G networks, or can complement them. However, as the name implies, it is local. Unlike the 2.5G and 3G networks that offer wide coverage, PWLAN hot spots offer coverage that is limited to a few tens of feet from any access point. Naturally, increasing the number of access points will increase the coverage area.

*Wireless LAN technology is gaining increasing popularity in the enterprise market, as more companies deploy wireless LANs internally.*

Wireless LAN technology is gaining increasing popularity in the enterprise market, with companies deploying wireless LANs for their internal use. External PC Card-type wireless LAN adapters and computers with built-in wireless LAN capabilities are becoming commonplace. A mobile worker's ability to use the same wireless LAN adapter at the office and in the public wireless LAN network is a compelling proposition, especially as the communication speeds are higher than on the 2.5G and 3G networks.

Wireless LANs are making a fast entry into office environments and more recently the travel and leisure industry, with hotels, airports, airlines, franchise chains, conference centers and others starting to think about using this technology to provide better service to their customers. Increased mobility, lower installation cost, ease of use, standardization and embedded radio technologies are the primary attributes that are driving customers to wireless LANs.

*How does it work?*

Wireless LANs transmit and receive data over the air using radio waves, enabling mobile users to communicate without cables. They provide the same functionality as wired LANs, and applications work in the same way as they would in the wired LAN. Presently, wireless LANs are becoming recognized as an integral part of the standard networking infrastructure. Most major computer vendors—including IBM—have started to embed wireless LAN technology into their notebook and handheld computers. For those computers that do not have embedded wireless LAN adapters, wireless LAN connectivity can be easily added through a PC Card or CompactFlash-type wireless LAN adapter.

*Most major computer vendors have started to embed wireless LAN technology into notebook and handheld computers.*

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Wireless LANs are now standardized and affordable. The Wireless Ethernet Compatibility Alliance (WECA) has played a key role in increasing the popularity of wireless LANs. WECA has the capability to test and certify interoperability between different vendors.

**The business opportunity**

Public wireless local area networks present a large potential business opportunity for both service providers and the businesses that want to offer high-speed Internet access to their customers. As discussed above, traditional wired connections can be inconvenient, and current options for wireless access are slow and unpredictable. The possibility of wireless, easy-to-use high-speed access to the Internet—and through it to enterprise applications and portals—would be very much welcomed by mobile users. Laying out high-speed connectivity hot spots, where people can sit down and work and have time to open up their notebook computer and use it, holds the biggest potential in the market.

*With PWLANs, users have the freedom to work from anywhere there is a wireless LAN hot spot.*

PWLANs give users the freedom to work from anywhere there is a wireless LAN hot spot using virtually any Internet- and wireless-LAN-enabled device. At airports, for example, users can connect to their company intranets from the airline lounge or from the gate area while waiting for their flights to board. At hotels and conference centers, issues such as the length of the wire and availability of the ports will no longer prevent people from remaining connected as they move throughout the facilities. As PWLAN offerings increase, customers will be drawn to places, airlines, hotels and franchises that enable them to be connected.

*Analysts estimate that by 2006, 95 percent of notebook computers will have wireless-LAN connectivity.*

Let's look at the numbers. Currently, around 20 million wireless-enabled notebook computers and PDAs are being shipped every year, and industry analysts estimate that by 2006, around 95 percent of them will have wireless-LAN connectivity.[2]

The PWLAN market is expected to boom in the near future. BWCS forecasts that there will be 114,220 hot spots using wireless LAN technology around the world by 2006, up from around 6,300 at the end of 2001.[3]

In the U.S., wireless LAN hot spots are already found in many hotels, airport lounges and coffee franchises. In Northern Europe and Scandinavia, there are multiple PWLAN providers, although most of the networks are still small-scale. IDC expects that PWLANs will represent 12 percent of the total wireless LAN revenue by 2005.[4]

*Increased mobility, lower installation costs and ease of use are among the primary attributes that are driving the move to wireless LANs.*

Across the various market segments, increased mobility, lower installation cost, ease of use, standardization and embedded radio technologies are the primary attributes that are driving the move to wireless LANs.

**Who will be implementing PWLANs?**
3G development is being led by the established telecommunications industry. But in the world of PWLAN hot spots, we meet a whole range of different players. The number of PWLAN service providers can be large, since everybody from local Internet service providers (ISPs) to major restaurant or hotel chains can act as a wireless Internet service provider (WISP). One can foresee multiple categories of WISPs, including:

*It is likely that a variety of companies will be able to offer wireless Internet service with PWLANs.*

- *Mobile operators offering PWLAN as a complementary service to 2.5G and 3G services*
- *ISPs and infrastructure operators, especially broadband asymmetrical digital subscriber line (ADSL) and cable providers*
- *Metropolitan/real estate infrastructure entities, such as housing corporations*
- *Companies that deal with visitors and travelers (such as hotels, airlines, restaurants, and service stations)*
- *Greenfield players (that is, new ISPs based on the WISP model).*

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By the end of 2000, there were 250 hot spots in Europe and 1,770 in the U.S. Cafés and restaurants were responsible for 42 percent of these hot spots, hotels for 32 percent, airports for 7 percent, conference centers for 1 percent, with other companies making up the remaining 18 percent. According to a forecast from BWCS, by 2006 there will be 115,000 hot spots worldwide, with the U.S. leading with 69,000 hotspots.[5] According to a forecast from Cahners In-Stat Group, PWLAN end-user sales of products will reach an estimated US$4.5 billion in 2005.[6]

**Who should seize the PWLAN opportunity?**

There are a number of possible PWLAN locations and a variety of business benefits for each of them. There are two principal models for implementing PWLANs: service providers (landline or mobile operators and ISPs) and businesses themselves (venues such as hotels, conference centers and restaurant chains).

*The business benefits that will accrue from offering PWLAN service will vary according to the implementation model.*

Which of these two will prevail in the market will become clear as the industry develops. There are businesses that will offer their venue to a service provider, most likely against a small compensation. There are also businesses that will build and provide the service themselves. The venue owner will install hot spots and buy high-speed Internet connections from ISPs. The benefit to venue owners is that they then can control the business model, pricing of the service and customer relationship. Providing the PWLAN service helps them to gain competitive advantage through better customer service. It also allows them to promote their own content and develop new, innovative and differentiating services. They can build on existing business models and customer services by integrating the PWLAN offering with their existing affinity system (discount structure, credit/bonus card, etc.). Some may offer monthly, hourly or daily subscriptions; in some cases, they may provide free or partially free access. In terms of implementing the PWLAN, they may want to outsource the system or buy it as a utility. They will also need to bear the buildup and operating costs. Clearly, there are a number of benefits but also an extensive number of considerations.

Let's look at some of the potential PWLAN venues and the business benefits that the venue owners can gain from the deployment of a PWLAN.

*Airports and airline lounges*
PWLANs can be provided either by the airport authorities or by the individual airlines in their lounges and gate areas. While some airports and airlines already offer Internet access through computers installed in their business lounges, a PWLAN provides wireless Internet access for business travelers who want to use their own computers. It eliminates the need to search for an outlet to plug into and allows the traveler to get connected from anywhere within the lounge or gate area. Offering high-speed connectivity to travelers waiting for flights increases their productivity and allows the airline or airport authority to provide a better service to their customers.

*Improved customer satisfaction is a primary benefit to airlines and airline authorities that offer PWLAN connectivity.*

Business benefits
For airlines and airport authorities, PWLANs can result in improved passenger satisfaction. An enhanced image as a provider of high-tech services for the traveler helps to maintain a competitive edge. It can also provide additional revenue-increasing opportunities through targeted marketing and advertising. For airport authorities, a PWLAN can provide an opportunity for new concession revenues. Both could develop portals for their customers with localized content and passenger information. Through e-commerce, passengers could purchase their duty-free goods online without a need to physically go into the shops. The goods can be delivered to the departure gate, as is the practice in some U.S. airports for overseas flights.

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*For hotels, offering a PWLAN service can establish property differentiation and enhance brand value.*

*Hotels*

PWLANs in hotels offer trouble-free, high-speed connectivity from anywhere within the property. Customers can get connected in their guest rooms, in meeting rooms and in public areas such as lobbies, coffee shops and restaurants. With a PWLAN, they can work from wherever they wish. Hotels that offer this service may find an increase in business meeting bookings and a resulting increase in traffic and revenue.

Business benefits

A hotel with a PWLAN service becomes attractive to business travelers and conference organizers. The hotel can become a potential meeting venue, which will increase occupancy. Enhanced guest satisfaction and retention increases the loyalty of business customers and may help generate repeat business and maintain competitiveness. A PWLAN can also establish property differentiation and enhance brand value.

Broadband Internet access has become a "booking point" for business travelers, and implementation of a PWLAN can provide a future-proofed platform on which the hotel can offer a variety of services in the future. A localized hotel portal can provide advertising revenue, plus enhancement services such as virtual concierge and guest services. PWLANs can also provide IP (Internet Protocol) telephony for internal use and provide an infrastructure for in-room "thin client" Internet terminals.

*Convention centers*

For business conference attendees, the ability to find an answer to a business question by accessing the Internet or to link to a Web site that has presentations used at the conference is invaluable. Today most conference centers do not have any connectivity, and conference planners and attendees will be drawn to those that do. High-speed instant access to Internet and the company intranet are highly appreciated services by conference attendees.

*Convention centers that deploy a PWLAN will benefit from enhanced guest satisfaction and retention, resulting in increased revenue.*

*Café and restaurant franchises offering wireless Internet access via a PWLAN will have an edge over the competition.*

Business benefits

There are a number of cost savings and revenue increases that can result from deploying a PWLAN in a conference center. Conference rooms do not need to be wired, and PWLANs are more economical to deploy and maintain. It helps generate repeat business and distinguish centers from competitors through enhanced guest satisfaction and retention and increased loyalty of conference organizers. It establishes property differentiation while providing a flexible platform on which to provide a long-term service. Conference center portals can provide advertising revenue and an opportunity to develop and promote local content. It also provides a platform for converged services: IP telephony for internal use, electronic conference information and the online distribution of conference materials.

*Cafés and restaurant franchises*

PWLANs enable café and restaurant chains to provide high-speed Internet access to mobile professionals and consumers, both of whom will be attracted to an alternative wireless service to 2.5 and 3G networks. For both groups, it means that they have not only a local venue for PWLAN access, but a recognizable chain that they're able to go into to check their e-mail and have a snack at the same time. This can readily bring in more customers, as can the opportunity for customers to use their own computer to get online (as opposed to having to use the computer provided by a cybercafé).

Business benefits

The ability to attract more customers is a benefit to any franchise. So are enhanced customer satisfaction, an edge over competitors and an established property differentiation. There are other opportunities for revenue generation— in addition to an increase in customer stay, the franchise can offer e-commerce opportunities, targeted advertising and localized content. Once handheld devices infiltrate the consumer market, the opportunities will be truly enormous, ranging from simple Web browsing to new applications such as music downloads.

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*Shopping centers*

Like in cafés and restaurants, consumers and business people will be drawn to high-speed access to the Internet and an alternative wireless service to 2.5 and 3G networks. Shoppers will be drawn to the opportunity to complete a multitude of tasks in one outing—eat, shop and surf. Shopping centers that have already experimented by offering PWLAN as a free service have successfully brought in more customers.

Business benefits

*PWLANs can help shopping centers establish a high-tech image, enhancing their brand.*

PWLANs can establish property differentiation and help the venue to enhance the brand by establishing a high-tech image. Attracting more customers and enhancing customer satisfaction helps ensure a competitive edge. Like in other venues, PWLANs provide an opportunity for advertising revenue, e-commerce initiatives and localized content. They also open the door for location-based services that have high potential for new, sophisticated e-commerce services.

*PWLANs inside enterprises*

Many companies are currently installing PWLANs to provide wireless Internet access and, through it, intranet access for their visitors, contractors and business partners. As PWLANs are implemented outside the enterprise firewall, they provide users with Internet access but at the same time help protect the company's internal network. PWLANs in this instance are usually owned and operated by the enterprise.

*PWLANs implemented outside a company's firewall can provide users with Internet access without jeopardizing the company's internal network.*

Business benefits

Providing full network connectivity helps ensure that visitors are able to conduct work-related tasks (and even have access to local services, such as printing) while away from the office. A PWLAN inside the company premises helps to protect the company's own intranet network. It gives the enterprise an enhanced image as one that provides innovative, high-tech services for its visitors. It also provides an excellent opportunity for promotional materials distribution and company downloads through a customer or business partner portal interface.

*Public establishments*

Libraries, schools, universities and other public establishments can offer wireless Internet access to their visitors and students. In these cases, the PWLANs are mostly owned and operated by the establishment. Since the PWLAN is implemented outside the firewall with access control in place, the establishment's own internal network is not accessible to outside users. This helps protect its infrastructure and allows it to maintain control over usage.

*Putting PWLANs in public areas allows public establishments to provide localized content.*

Business benefits

PWLANs can be installed for a lower cost than wired local area networks and have significantly lowered cost of maintenance. Offering wireless Internet access to visitors and students can enhance the establishment's image and attract more visitors. Putting PWLANs in public areas provides the establishment with an opportunity to provide localized content, which can promote both the establishment and the community in which it resides.

**The role of service providers**

Service providers, or operators, have a significant role to play and an opportunity to capitalize on the PWLAN situations. With the exception of some companies and venue owners that will choose to build their own infrastructure, operators will be required to help businesses deploy their PWLANs. PWLANs come with significant business and revenue opportunities. In Europe, many operators are partnering with venue organizations (such as hotels, airlines and conference centers) to install PWLAN hot spots. In these cases, the service provider owns the customer relationship and the service. Let's look at some of the players in this market:

*Many service providers are partnering with venue organizations to install PWLAN hot spots.*

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*Traditional landline-based service providers (SPs)*, in most cases, are also ISPs. They are looking to enter into the PWLAN market as a way to increase average revenue per user and maintain a strong customer relationship. SPs have the benefit of having existing customer relationships on which to build, in addition to a well-positioned, strong brand. They may be in a better position to absorb the buildup costs, since they own the access lines. However, they are dependent on venue partnerships and will need to compensate them accordingly. Their ability to deploy PWLANs quickly should grant them a high number of subscribers.

**PWLANs provide mobile operators with the opportunity to offload high-bandwidth traffic.**

*Mobile operators* are looking to offer PWLANs as a complementary service to their 2.5G and 3G services and to fight competition from other WISPs (see below). A PWLAN also provides them with the opportunity to offload high-bandwidth traffic from their 2.5G and 3G networks. Mobile operators will also be able to build off existing customer relationships and integrate service payments into their existing mobile-phone-billing system. While most mobile operators are well-positioned in the market with a strong brand and an interest in providing a PWLAN service, some mobile operators may be in a weaker position to absorb the buildup costs. They, like SPs, will need to compensate venue partners and will need a high number of subscribers to be successful.

*Independent wireless Internet service providers* will compete with established SPs and mobile operators for wireless data. Like the previous two providers, WISPs will own the customer relationship and share revenue with venue partners. Smaller startup WISPS are typically looking for their venue partners to share some of the buildup costs. Venue partners can recover their investment through revenue sharing over time. For a WISP to become successful, it needs to have a high number of subscribers and will have to secure exclusive agreements with venue partners.

## The importance of the business model

Now that we have looked into some of the potential business benefits of the PWLAN and have seen how it might fit into your business, let's explore further the importance of the business model. The business model is the primary success factor for PWLAN service. Whether it is a service provider or a business that offers this service to the public, the company must be able to cover the buildup and operating costs. Different business models are developing for providing this new and innovative way of delivering high-speed Internet access. The service providers tend to recover their buildup and operating costs through subscription fees. The businesses and franchise chains can offset some of these costs from the business benefits that they gain by offering this service, such as an increased number of customers, higher customer loyalty, better customer service, and a high-tech brand image.

A variety of subscription, billing and access options are available for your business model, but to design the most appropriate business model, there are a number of additional considerations. It is essential that your business strategy include why you're deploying a PWLAN and what your objectives are. If you're a venue, do you simply want more people through your doors? Do you want a PWLAN to provide an additional revenue stream? How could you develop brand-enhancing services, such as portals? If you're a service provider, where will you deploy hot spots? How will you share revenue with venues? What kind of subscriptions will you offer?

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***Monthly subscriptions allow users
PWLAN connectivity from wherever
the provider has hot spots.***

Let's explore some of the business model possibilities.

*Subscription options*
*Monthly subscription* means that the user pays a flat rate and can use the service at any time on any of the hot spots owned by the business or service provider offering the service. Today, many service providers propose to their users PWLAN service with monthly subscriptions that permit connectivity from wherever they have the hot spots—mostly airports and hotels. The issue with this approach is that, if the user goes outside the provider's range, he will have to purchase another PWLAN subscription.

*Location- and time-based subscriptions* provide pay-per-visit access, enabling users with no preexisting subscriber relationship to buy connectivity on the spot when it's needed (at hotels, cafés, airports, etc.). The ability to buy access on the spot, such as when checking into a hotel, has an appeal to users. Access can be controlled, for example, by providing users with a temporary user ID and password. Payments can be integrated into existing billing systems (for example, in hotel bills). With this approach, users do not have to worry about whether or not they are in a particular service provider's PWLAN hot spot.

*Access options*
*Free or partially free access* allows users to access predetermined sites for free, with a fee required for unlimited Internet access. Even with free access, the user may need to register so that the business or service provider can control the access.

**Affinity-relationship-based access gives users the opportunity to benefit from different discount schemes.**

**The different business model options offer a variety of ways for companies to seize the PWLAN business opportunity.**

*Discounted or affinity-relationship-based access* creates the opportunity for users to benefit from different discount schemes—for example, their access fee or access rights may vary based on different affinity schemas, such as a frequent flier card. There might also be multitiered service; for example, free access for gold card members, reduced-fee access for silver card members and full-fee access for others. The PWLAN access control needs to be integrated into a system that contains the affinity data and enables a tiered service.

*Billing options*
*Credit card billing* may eliminate the need for additional billing methods. It enables users to purchase connection time over the Web.

*Smart-card-based authentication,* such as that currently offered by Nokia with its operator wireless LAN, allows convenient integration of payment to the mobile operators using a GSM SIM (Subscriber Identity Module) card. This means that the customer will receive only one bill from their mobile operator, containing charges for both mobile voice calls and PWLAN data.

**Putting the business models into practice**
So how can the different options come together? Here are a few tangible, working examples of how companies are seizing the PWLAN business opportunity.

For an airline, PWLAN access can be integrated into its frequent flier service. However, as customers may be reluctant to pay a monthly subscription fee for a service they won't necessarily be using consistently, the airline could also offer usage-based PWLAN access. For instance, the service could be free for gold customers, US$2 per day for silver customers and US$4 per 24-hour use for other customers.

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The actual implementations vary, but, for example, when users walk into an airline's lounge or gate area and check in with the receptionist, they will receive a temporary user ID and password for PWLAN access. The charge rate is based on each user's frequent flier level as described above. The registration can also be automated, whereby users are given free access to a Web site from which they can purchase a 24-hour temporary user ID and password using their credit cards.

If venue owners or franchise chains set up the service by themselves, they can control the business model and set the cost for the service. They can provide PWLAN access free to their customers, or the access could be tied up with a specified purchase.

Service stations, for example, could offer PWLAN service for traveling business professionals as a convenient way to connect to their home base and integrate the billing with their existing credit card system. Customers who use the gas company's credit card could be granted significantly cheaper access costs, and charges would automatically be billed to their credit card.

**Other considerations for implementing PWLANs**

*Various policies and systems must be in place when implementing a PWLAN to ensure service continuity and a high level of customer service.*

There are a number of considerations for implementing a PWLAN. It's not as simple as merely setting up wireless LAN access points—you need an access control system and the network infrastructure underneath. While, as discussed, the benefits of a PWLAN can be far-reaching for your business, you need to have a number of policies and systems in place to support service continuity, clarity and a high level of customer service.

*National regulations*

Although the frequency band used by wireless LANs is license-free in most countries, there are some national restrictions that limit the use of these radio frequencies. In some countries, a license may be needed to operate a public service. Since the regulations are still changing, please check the latest country regulations with your local IBM Networking Services contact.

*Security*

PWLANs are, by their very name, public. How will you protect the network? What security measures will you need to put in place? How do you safeguard against service interception and disruption? How do you educate your business users on correct security measures without making them lose confidence in the quality of service?

*Choosing the right model*

Is a PWLAN a real opportunity for your business? How will you determine the appropriate business model? What are your users' priorities—a fast connection; the ability to surf the Web, use e-mail and receive large e-mail attachments; or the ability to download files?

**Assessing your users' priorities will help you choose the best business model for PWLAN implementation.**

*Choosing the right billing strategy*

What is the right billing strategy? Should you offer a free service or a daily, weekly or monthly subscription? What will be the most profitable over time? How will you protect against credit card fraud?

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*One of the most crucial components
of successful PWLAN deployment
is backend support.*

*Seamless, steadfast backend support*

Backend support is one of the most crucial components of PWLAN deployment. Access control and customer care are essential—how do you know, and respond, when part of your network is down? If users forget their user ID and password, how do they retrieve them? If a user tries logging on but hasn't paid the monthly subscription, how is this information conveyed and what is the fastest resolution?

*What else?*

As PWLANs multiply and their usage increases, portals and applications will become key differentiators, as will content, streaming media (voice and video), scalability and 24x7 operation. What options are right for your business and which will generate the most revenue and benefits?

**Delivering end-to-end PWLAN solutions—the IBM offering**

There are a number of ways to deploy a PWLAN. A hotel chain that wants to install hot spots into multiple locations may require a third-party provider to negotiate the service provider partnership, design the system, provide project management and dispatch technicians to install and test it. A franchise chain could work with a new startup WISP. A leading airline may ask a service provider to respond to a request for proposal. A global company may want to implement PWLANs across all its worldwide branches. Whereas one company will want to run its PWLAN itself, others will use a service provider or outsource it.

**Highlights**

*IBM provides companies with a customized, end-to-end PWLAN deployment solution.*

*The number-one enterprise network builder, IBM can integrate a PWLAN into a service provider's or company's existing network infrastructure.*

IBM Networking Services helps businesses, service providers and Internet service providers design and deploy PWLAN systems and the associated add-on services in a fast, cost-effective way. The IBM PWLAN offering is designed to provide companies with a customized, end-to-end solution that encompasses building partnerships between venues and operators, devising a business strategy and model, and establishing all the necessary support elements, such as customer care, billing and access control.

IBM can provide end-to-end consulting, architecture, implementation and maintenance services for a PWLAN; design and build the most appropriate multivendor solution for customer environments; and help ensure data and network security. IBM can supply a host of additional solutions that go beyond mere connectivity to the Internet. These range from those that are needed to run the PWLAN, such as different authentication and billing models, credit card handling, self-service customer care, Web sites, and network and usage management, to solutions that provide content to the users, such as portals and voice- and video-streaming solutions. PWLANs from IBM allow service providers, enterprises and franchise chains to offer their customers a fast and cost-effective way to get connected.

### Why IBM?

IBM is a credible industry leader that has vast experience in large-scale network design and deployment. IBM is the number-one enterprise network builder with significantly higher market share than its competitors. IBM expertise in building information technology (IT) and network infrastructure enables it to integrate a PWLAN into a service provider's or company's existing network infrastructure. IBM also understands the limitations of wireless LAN technology and knows the various aspects of deploying PWLANs. IBM has years of proven experience on network and IT security.

**Exploring a significant business opportunity—
the public wireless local area network.**
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**Highlights**

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The people of IBM Global Services can help you build your business model, and design and build value-add services. Our extensive experience in project management and logistics for large-scale rollouts, maintenance and customer care enables delivery of an end-to-end solution. IBM will work with you to devise the best strategy, model and system that will provide the potential for optimum return on investment. Compared with the price of rolling out a 3G system, the cost of deploying a PWLAN is significantly lower and can stand the test of time.

### Conclusion

The opportunity in the market is obvious. The mobile market is on the rise, and the mobile workforce is both needing and seeking opportunities to get connected. Hotels, airports and airlines, franchise chains, conference centers and other businesses and venues can benefit from the PWLAN opportunity. But it's important that companies consider all the implications of implementing a PWLAN, verifying the crucial combination of a business strategy and model with billing, access control and customer care systems in place. IBM expertise and experience in this area help ensure that bases are covered—from partnerships with providers to the business model, from backend support services to maintenance, from strategy to deployment. The opportunity is here. Now all you have to do is seize it.

*IBM expertise and experience can help ensure that all the bases are covered for a successful PWLAN deployment.*

### For more information

For more information, please visit:

**ibm.com**/services

**IBM**

**About the author**

Jyrki (Jeri) Korkki, global solution manager, is responsible for the worldwide wireless e-business services development for IBM Networking Services. Mr. Korkki joined IBM in 1972 as a telecommunications engineer with practical experience in early cellular telephone system design and military aviation communications. In addition to 30 years of networking experience, he was also the technical lead of the task force that created the IBM internal e-business architecture. Drawing on the extensive knowledge gained from this assignment and working in the capacity as senior consultant to IBM customers, Mr. Korkki has contributed to multiple large e-business transformation engagements. Mr. Korkki also helps develop and teach courses on networking and wireless solutions. After starting his career in his native Finland, Mr. Korkki worked in multiple IBM locations, including the IBM La Gaude research facility in France, several U.S. locations and the IBM EMEA (Europe/Middle East/Africa) education facility in La Hulpe, Belgium. Mr. Korkki currently is based in the IBM European headquarters in Paris, France.

Footnotes

1  Paolini, Monica. 2001. *Public Wireless LAN Access:
   A Threat to Mobile Operators*. Analysys, ISBN
   1 903648 20 3.

2  *Wireless LANs and the threat to mobile revenues*.
   BWCS Ltd., ISBN 1 903758 07 6.

3  *Id.*

4  Bakkers, Jan Hein, Evelien Wiggers and
   Pim Bilderbeek. 2002. *Serving the Road Warrior:
   Western European Visitor-Based Network Forecast
   and Analysis, 2001-2006*. IDC.

5  *Wireless LANs and the threat to mobile revenues*.
   BWCS Ltd., ISBN 1 903758 07 6.

6  Paulo, Gemma and Mike Wolf. 2000. Cahners
   *In-Stat Information: Enterprise Wireless LAN Market
   Analysis.* Cahners In-Stat Group.