Enhancing **Airport Customer Service**  
and Revenue with the Cisco Mobile Office Solution

**Introduction**

Today’s airports are facing a major customer service problem. Most airports were struggling with frequent flight delays as a result of aging air traffic control systems and logistical problems with airplanes on the ground. These delays translated into longer wait times for travelers and more disgruntled passengers. Now, with tighter security measures in place, delays are even more common. According to the Bureau of Transportation Statistics, more than 1,180,000 flight delays were reported at U.S. airports in 2001. These delays are an inconvenience to leisure travelers, but they present a serious problem for business travelers and their employers.

The National Business Travel Association reports that airline delays alone cost corporations $800 million in lost time in 2000. And 63 percent of business travelers told IDC that the hassle and delays of business travel were making them less effective on the job. With these business travelers representing an estimated two-thirds of airline revenue, it is difficult at best for airport operators to improve the overall airport experience for these passengers. One of the easiest, most cost-effective ways to accomplish this is to offer business travelers high-speed Internet access in boarding gates, lounges, and food courts. Technologies such as wired or wireless LAN (WLAN) “hotspots” transform airport waiting areas into a productive, value-added working environment for business travelers, and create new revenue streams for the airports themselves.

**An Increasingly Mobile Workforce**

Business professionals are more mobile than ever before. IDC estimates that corporate professionals average more than 280 million business trips each year. A 2001 report by the Travel Industry Association of America estimates that one-third of all business travelers take five or more business trips per year, and 36 percent of all business trips include air transportation.

As workers spend more time on the road, their employers are increasingly equipping them with tools to be productive while traveling. Companies both large and small are adopting mobile access technologies such as wireless-enabled laptops and virtual private networks (VPNs) to keep their mobile employees connected to company data and applications while they are away from the office. Cahners In-Stat estimates that 80 percent of all business travelers use VPN technology on the road. These mobile professionals—and their employers—increasingly consider high-speed Internet accessibility when choosing airlines and transit routes.
Recognizing this growing trend, operators of airports and other venues that cater to mobile professionals are increasingly deploying Internet connectivity solutions to provide the reliable, high-speed access that these workers demand. In-Stat/MDR estimates that Internet hotspots are now available at 12,000 airports, hotels, and other public venues worldwide, a fivefold increase in just the last two years. In all, In-Stat/MDR predicts that the number of worldwide Internet hotspots will reach nearly 56,000 by 2004, and grow to more than 113,000 by 2006.

However, although forward-looking airport operators increasingly view these solutions as a key component of their overall service commitment to business travelers, it is not enough to simply provide network access points. Connectivity solutions must deliver the performance, reliability, and security to support business-class network applications.

**Furthering Business Goals**

Airports that use the Cisco Mobile Office: On the Road solution to extend high-speed Internet access to traveling professionals can realize many benefits, including:

- **Improved passenger satisfaction**—By providing travelers with the ability to access high-speed Internet and company intranet services from a gating area or food court, airport operators can transform their business into a more versatile, integrated part of the mobile professional’s life away from the office.
- **Increased passenger loyalty**—Mobile professionals and their corporate travel departments have greater choice when selecting travel routes and itineraries than ever before. By adopting a Cisco Mobile Office solution, airports, airlines, and retailers can differentiate themselves as technology and customer service leaders.
- **Web-enabled marketing**—Customer-facing access solutions give airport retailers a powerful new channel for marketing and promotional activities. Airport operators can customize hotspot home pages to include information, promotions, and special offers from airport retailers, restaurants, and other partners.
- **New revenue streams**—Airport operators can generate new revenue streams with fee-for-service Internet access. Using Cisco Building Broadband Service Manager (BBSM) technology, airports can easily offer tiered service levels to meet a range of passenger needs, from basic data service to high-bandwidth multimedia communications. Airport operators can even enhance the Cisco Mobile Office solution by deploying Web-enabled electronic billboards in high-traffic areas and selling advertising space.
- **Foundation for other IT systems**—A high-speed Internet access solution can also serve as a platform for supporting and enhancing an airport’s internal processes. The Cisco Mobile Office solution is robust enough to support voice and video traffic, and wirelessly extend airport applications to mobile security, maintenance, and operations staff. If a surveillance camera picked up a suspicious person in a gate area, for example, security personnel could transmit camera images in real time to wireless-enabled personal digital assistants (PDAs) of the security officers closest to that gate.

**Cisco Mobile Office: On the Road Solution**

The Cisco Mobile Office: On the Road solution enables airports, airlines, and airport-based retailers to easily extend wired and wireless Internet access to their customers, while delivering the security and performance that mobile professionals demand.
The technologies that enable the Cisco Mobile Office: On the Road solution include:

- **Intelligent core network routing and switching**—A high-speed Internet access solution must be built upon a reliable, high-performance network infrastructure. By building public access solutions on robust access routers and switches, airports can deliver business-class speed, functionality, and quality of service (QoS) to support the full range of internal and passenger-facing applications.

- **Broadband Internet service**—Airport operators must select a service provider to deliver high-speed Internet access usually via T1 or T3 connections. In some cases, service providers can even deploy and manage the entire solution. Airport operators should make sure that the service provider’s network is built on a sound network foundation. If an Internet solution delivers poor quality or unreliable service, it can undermine all the potential benefits of the deployment.

- **Wired access**—Airports and airport-based retailers can deploy DSL and cable routing platforms to cost-effectively deliver high-speed wired Internet connectivity to multi-unit buildings. Airports and retailers operating in older buildings can use technologies such as Cisco Long-Reach Ethernet (LRE) to deliver high-speed Internet service over ordinary telephone wires—eliminating the need for a costly upgrade of the wired infrastructure.

- **Wireless LANs**—Wireless radio access points serve as the link between mobile professionals and the airport’s wired network and ISP. Access points deployed in boarding gates, meeting rooms, lounges, and food courts work with wireless client adapters in user laptops to deliver Internet connectivity at speeds comparable to a wired office network.

- **Broadband services management (BBSM) gateways**—These software platforms function as a “toll gate” between ISPs and mobile professionals in the airport. They enable mobile professionals to access all the wired and wireless services of a venue from a standard Web browser, and handle all tracking and billing of users.

- **The Cisco Mobile Office Marketing Program**—Airports and airport-based businesses can benefit from the Cisco name and reputation for superior networking technology, and take advantage of Cisco co-marketing programs to promote their high-speed Internet solution and attract business travelers.

- **Partnerships**—Technology alone is not enough to deliver a comprehensive mobile solution. That is why Cisco Mobile Office: On the Road is backed by leading service providers, solution integrators, application service providers, and other enabling technology partners. These industry leaders have partnered with Cisco to build a comprehensive infrastructure of equipment and services that enables broadband connections in hotels, airports, convention centers, and other public places.

**Cisco Mobile Office: On the Road Solutions and Requirements**

Wired and wireless broadband Internet access technologies are the primary components of the Cisco Mobile Office: On the Road solution for airports. Airports also need to ensure that any public access solution is built on a network foundation that can deliver the performance, security, and manageability to support business-class Internet services.
Network Connectivity

Providing a reliable, high-performance Internet access solution begins with the airport's core network infrastructure. Cisco access routers can connect the airport’s wired network with the Internet, and effectively manage and distribute network service to all users and applications running on the system.

A mobile office solution for airports requires the bandwidth to support potentially hundreds of business travelers. Airport operators should consider multiple T1 lines or a T3 Internet connection, and a robust access router. The Cisco 3700 Series Multiservice Access Router or Cisco 7300 Series Router provide the maximum bandwidth and scalability to support large numbers of users and full-service voice and video applications. These routers are optimized for large populations of users, and can support an airport's internal network and security applications, as well as the passenger-facing connectivity solution.

Intelligent Switching

To ensure optimal performance for both internal systems and public access solutions, the airport network should incorporate intelligent QoS technology to prioritize and control data traffic and enhance performance across the network. Cisco Catalyst® switches provide a highly manageable, flexible solution for meeting evolving user needs. Cisco Catalyst 3550, 4500, and 6500 series switches provide multilayer switching, advanced QoS features, and high-performance voice and video services.

WLANs

Wireless access points communicate with passengers' wirelessly enabled laptops or PDAs, and serve as the link between passengers and the airport’s wired network and Internet service provider (ISP). A single wireless access point can cover several hundred feet of open space, enabling airports to support hundreds of users with a relatively small WLAN investment.

Cisco Aironet® 1100 Series access points can support the full range of 802.11b or 802.11a wireless devices. However, airport operators who wish to support both 802.11b and 802.11a wireless services with a single access point may want to consider more scalable Cisco Aironet 1200 Series access points.

In both cases, WLANs based on Cisco Aironet wireless access points use strong network authentication and encryption technologies to make it nearly impossible for unauthorized users to access wireless data.

WLAN Security

In the early days of WLANs, wireless technology was more vulnerable to security breaches than its developers had anticipated, and unauthorized users were able to intercept and decode wireless data transmissions. To respond to this vulnerability, industry technology consortiums, technology leaders such as Cisco, and even the U.S. government worked together to strengthen security algorithms and develop wireless standards that could meet the security demands of business users. Today, organizations deploying WLANs can employ strong user and network mutual-authentication schemes and complex dynamic encryption to protect WLANs. These network security enhancements make it nearly impossible to eavesdrop on communications or gain unauthorized access to an organization’s networks.

Cisco Systems, Inc.
All contents are Copyright © 2003 Cisco Systems, Inc. All rights reserved. Important Notices and Privacy Statement.
As with any part of the IT infrastructure, network security must be properly configured and managed to be effective. However, with proper management processes in place, today's data security technologies enable organizations to deploy wireless implementations with confidence.

**Wired Connectivity**

Cisco offers numerous solutions that enable airports to deliver high-speed wired Internet services to passengers over Ethernet cable, coaxial, and even over ordinary telephone wire.

**Cisco LRE**

Airports can face steep barriers to retrofitting terminals for wired broadband Internet access. For operators of older facilities, the cost of upgrading the wired infrastructure with Category 5 Ethernet cable can be prohibitive. Cisco LRE technologies enable operators of these facilities to deliver high-speed Internet service to passengers over ordinary telephone wires. Cisco LRE supports analog phone service and high-speed data services over a single Category 3 telephone wire, enabling even older facilities to be outfitted with secure, high-speed Internet solutions.

The suite of Cisco LRE technologies includes the Cisco Catalyst 2950 LRE Series Switch, Cisco 500 Series LRE customer-premises-equipment (CPE) devices, and Cisco LRE 48 Series POTS splitters to segment normal private-branch-exchange (PBX) phone traffic.

**Data over Cable**

The Cisco uBR Family of universal broadband routers delivers high-speed Internet access over cable to multiunit buildings. Operators of airport food courts and lounges can use Cisco uBR technology to provide passengers with reliable, high-performance wired connectivity at guest tables, and can even support business-class features such as voice-over-IP services.

**Managing the Public Access Solution**

Airports and retailers need a way to provision and track passenger usage of the high-speed Internet solution. Cisco BBSM Version 5.2 platform software can handle all accounting, authorization, reporting, policy, and management functions that enable airports and airport businesses to accurately track usage and bill users. For users, the solution offers features such as automated online activation, limited free access, tiered service levels, and easy, automatically operational access. Cisco BBSM also allows businesses to configure their customer-facing Internet gateway to deliver customized content and promotional and marketing materials.

**Security for Public Internet Access Solutions**

Thanks to the rise of VPNs, airports deploying Internet access solutions do not actually need to provide customers with a secure Internet connection. Using VPNs, security is managed almost entirely by the mobile professionals and their employers.

VPN connections use IP Security (IPSec) encryption technology to segregate all data traveling between the mobile user and the company network, ensuring that business resources are protected from any unauthorized access—even over the public Internet. All data between users and their company networks are encrypted, making it virtually impossible for unauthorized users to gain access, even over a wireless, open-air connection.
Segregating Public Traffic from the Venue Business Network

For airports offering a mobile office solution, the primary security concern is ensuring that public data traffic is locked out of the airport’s own network and applications. The easiest way for airports to protect their networks is through virtual LANs (VLANs) that segment a single network into smaller, isolated networks and prevent traffic from one VLAN from intruding into another. Cisco routing and switching platforms for medium and large venues provide native support for VLANs, and airports deploying Cisco Mobile Office solutions can easily implement this important network protection technology.

Cisco Mobile Office Network Blueprints

Figure 1 represents a Cisco Mobile Office: On the Road solution for an airport.

Figure 1  Cisco Mobile Office: On the Road Deployment Blueprint—Airport

The Cisco Mobile Office Marketing Program

Airports and airport businesses can join the Cisco Mobile Office: On the Road marketing program to increase visibility of their mobile office deployments. When an airport joins the program and displays the Cisco Powered Mobile Office logo, traveling professionals know that connectivity services include a trusted partner with a long-standing reputation for superior network reliability and performance.

Airport operators also benefit from worldwide Cisco Mobile Office joint marketing programs and inclusion in Cisco’s Hotspot Locator tool, a free, Web-based service used by traveling professionals around the world. The Cisco Hotspot Locator tool, delivered through the Cisco Web site, enables traveling workers to find venues with wired or wireless high-speed Internet connectivity around the globe, and create customizable itineraries. Organizations that join the Cisco Mobile Office: On the Road marketing program are automatically included in this tool, which can be accessed by mobile professionals at www.cisco.com/go/hotspots.
Cisco Systems® is building alliances around the world with a wide range of airports, hotels, convention centers, and other public venues, with a shared vision to create transparent, high-speed Internet access in public spaces for mobile professionals. Currently, more than 1500 locations around the globe offer high-speed Internet access to mobile professionals through the Cisco Mobile Office: On the Road marketing program. For more information or to fill out a membership application, visit http://www.cisco.com/en/US/netsol/ns110/ns175/ns176/ns315/net_value_proposition0900aecd8007898b.html.

**Cisco Service and Support**

Airport operators deploying the Cisco Mobile Office: On the Road solution can be confident that Cisco will stand by its solutions long after the initial deployment. Cisco offers its industry-leading Technical Assistance Center (TAC) and Cisco SMARTnet® services to ensure that Cisco products operate efficiently, remain highly available, and benefit from the most up-to-date system software.

Cisco TAC provides award-winning technical support services, both online and over the phone. Airport IT staff can receive global support from expert Cisco technicians 24 hours a day.

Cisco SMARTnet support offers leading-edge services to extend and enhance the operational lifetime of Cisco networking devices. In addition to included Cisco TAC access, Cisco SMARTnet services include Cisco IOS® Software updates and upgrades, advance hardware replacement, and registered access to an array of online tools and technical assistance via Cisco.com.

**Cisco Financing Options**

In addition to technical support, Cisco also offers an array of financing options to help smaller organizations. As a wholly owned subsidiary of Cisco Systems, Inc., Cisco Systems Capital® Corporation specializes in financing networks and network components. Cisco Systems Capital works closely with a company’s Cisco account manager, reseller, or channel partner to offer innovative, flexible financial services at competitive rates. Its global coverage and commitment to customer success has made Cisco Systems Capital one of the fastest-growing finance companies in the world. For more information on Cisco Financing Options, visit http://www.cisco.com/en/US/ordering/or6/or7/o39/ordering_finance_solution_programs_list.html

**Conclusion**

As corporate professionals become more mobile, remote connectivity options will play a larger role in determining travel choices. By taking advantage of Cisco Mobile Office: On the Road solutions, airports, airlines, and airport-based retailers can deliver convenient, high-performance network access to enhance revenue and more effectively serve this critical market.

Looking ahead, public access solutions built on Cisco network technology will also provide a more versatile foundation for supporting the security and operational technology requirements of the future. Whether integrating internal airport applications or deploying converged voice and video services for passengers and airport employees, airports can rely on scalable, standards-based Cisco networks to meet evolving needs.
Only Cisco Offers an End-to-End Solution

Mobile office solutions for airports can incorporate multiple LAN infrastructures and network technologies, including LRE, Ethernet, wireless, and cable. Only Cisco offers an integrated solution that incorporates all these offerings, and only Cisco can guarantee superior end-to-end network security and performance. Working closely with Cisco and its network of premier partners, service providers, and systems integrators, airports can build Internet access solutions that transform the passenger experience and help assure the loyalty of traveling professionals.

For more information about the Cisco Mobile Office: On the Road solution, contact your Cisco representative or visit: www.cisco.com/go/ontheroad.