Austin's Wireless Mesh Provides Free Access and Test Environment

Cisco wireless mesh network paves the way for productivity-enhancing applications and technology development by businesses, city departments, and utilities.

EXECUTIVE SUMMARY
CITY OF AUSTIN • Government • Austin, Texas • Approximately 13,000 Employees
BUSINESS CHALLENGE • Increase tax revenues to support city services • Attract new businesses to stimulate economic growth • Improve communication services, including those used for emergency response
SOLUTION • Cisco® wireless mesh network provides a test bed for technology innovation and a foundation for new data applications • Cisco 3845 Instant Communications Solution provides secure data, voice, and wireless services in case of emergency
BUSINESS RESULTS • Established a wireless testing environment for city departments and businesses to test new applications and products • Provided high-speed network access in downtown Austin, offering residents, workers, and visitors a way to conduct important business away from their offices

Business Challenge

Located in southeast Texas, the City of Austin consistently ranks as one of the top urban areas in the United States to live, work, and vacation. As a result, Austin is growing rapidly, with population growth projected at 19,000 per year. But like other cities across the United States that have experienced rapid growth, Austin faces a variety of challenges, including the need to fund additional city services to support a burgeoning population. To fulfill that need, Austin officials continually look for ways to encourage business development as a means to raise additional taxes.

To help stimulate business, the city seized on the opportunity to host the World Congress on Information Technology (WCIT), a high-profile symposium held every two years in different locations around the globe. Austin business leaders and city officials felt that the May 2006 event would showcase Austin as a technology hub and encourage economic growth. To prepare for the event, the city decided to deploy a Wi-Fi network in the city-owned Austin Convention Center and a wireless mesh network encompassing the convention center and a seven-square-block area of downtown Austin. Wireless mesh networks provide users with secure wireless roaming beyond traditional wireless LAN boundaries and can be easily deployed in areas that lack wired backhaul.

City officials envisioned the wireless mesh as an infrastructure for offering free Internet access to city residents and businesspeople—a feature that they hope will draw more people to the downtown area. They also wanted to deploy new applications that would improve and simplify communications for city offices and employees, reduce costs by enabling staff to complete more work in the field, and provide a tool for communicating during emergencies. Moreover, city and business leaders felt that the wireless mesh would provide an ideal testing ground for government and businesses to develop new applications and technologies.

> **"The wireless mesh is a critical component of our economic development strategy. It makes the city more attractive as a place for business and provides a test bed for companies developing new wireless technologies."**
> —Peter Collins, Chief Information Officer, City of Austin

Network Solution

Impressed by the reliability and performance of the Cisco Systems® equipment that it had been using in its WAN for the last several years, the City of Austin turned to Cisco® for the components and expertise necessary for its new wireless infrastructure. "We wanted an architecture that we could manage and monitor from a central location, and the Cisco solution provides an awesome level of control and manageability," says Eric Garnel, wireless technology manager for the Austin Convention Center. "Cisco also offers wonderful service and technical support. Cisco's support personnel are there when you need them." The U.S. Department of Housing and Urban Development provided partial funding.

Together, Cisco and city engineers designed a wireless infrastructure based on the Cisco Service-Oriented Network Architecture (SONA)—an architectural framework that enables organizations to maximize the value of their network services and resources. Using the Cisco SONA framework, organizations can reduce costs, extend new collaborative capabilities, improve service resiliency, and provide users with convenient access to information and services from anywhere.

The City of Austin began installing a Cisco Wi-Fi solution in the convention center with Cisco Gold Certified Partner Calence, LLC. A few months later, San Diego-based Wireless Facilities, Inc. (WFI), a Cisco Wireless ATP Partner, provided Site Surveys, RF Engineering and RF Design services for an outdoor mesh network. Upon completion, with the assistance of WFI and Cisco, Austin Energy spent four days installing the mesh nodes in the downtown area encompassing the convention center, city hall, numerous retail stores, restaurants, and businesses, parts of Zilker Park, and several existing wireless hot spots.

Completed in time for the WCIT, the new infrastructure provided more than 2100 attendees with free wireless Internet access within the 881,000-square-foot convention center and the seven-square-block mesh network coverage area. The solution allowed visitors to send and receive e-mail, access corporate networks, and stay in communication with important business colleagues and customers. A Cisco wireless IP telephony solution installed concurrently enabled attendees to make calls using wireless IP phones. Convention managers can perform maintenance and management tasks using a variety of wireless handheld devices such as Cisco wireless IP phones from the convention floor. For example, they can turn on the lights, check air conditioning, open and close doors, and monitor security cameras.

The city, which now manages the wireless mesh network with assistance from Austin Energy, will continue to provide free Internet access for upcoming conventions, differentiating the convention center from other venues that do not provide free access, says Michael Hall, convention center IT manager. "A lot of conventions are considering coming to Austin because of our use of technology and the fact that we are forward-thinking," he says.

Business Results

Besides Internet access, the wireless mesh network is providing the foundation for new services and applications that will enhance public safety and staff productivity, and help the city generate economic growth. The wireless mesh network provides convenient high-speed network access to the city's wired infrastructure for city employees, who frequently move from building to building. For example, staff can check messages, access applications and files on their desktop PCs, and file reports. Eventually, city building, safety, and health code inspectors will be able to file paperwork in the field, saving the time necessary to complete forms in their offices.

The new infrastructure also provides a field-testing environment that businesses and city departments can utilize for new application and product development. "It enables the city and technology companies to do their testing in a mix of wireless settings—residential, downtown, and recreational," says Peter Collins, Austin's chief information officer, adding that firms have requested to use the mesh for developing wireless voice over IP (VoIP) products, protocols, and a variety of wireless applications.

In addition, the network provides wireless network access and IP connectivity for the city's emergency response vehicle, a truck-size unit that uses the Cisco 3845 Instant Communications Solution (Cisco 3845) to deliver secure VoIP, Web, wireless, and land mobile radio communications. "The Cisco 3845 solution is kind of a Swiss Army Knife that allows us to quickly link with any agency responding to an emergency, whether it is police, fire, ambulance services, or the Red Cross," says Tony Williams, communications commander for Austin and Travis County, who noted that the city sent the vehicle to New Orleans to help survivors after Hurricane Katrina in 2005.

PRODUCT LIST

Routing and Switching
- Cisco 7500 Series routers
- Cisco Catalyst 6500 Series switches
- Cisco 3845 Integrated Services Router

Wireless
- Cisco Aironet 1500 Series outdoor lightweight mesh access points
- Cisco 4400 Series Wireless LAN Controllers

Voice and IP Communications
- Cisco Unified CallManager
- Cisco Unified CallManager Express
- Cisco Unified 7920 wireless IP phones
- Cisco IP Telephony

NEXT STEPS

Within the coming months, the City of Austin plans to roll out new applications that will improve city services and enable staff to complete tasks more efficiently and cost effectively. For example, one will allow Austin Energy and other utility representatives to receive customer service inquiries wirelessly, allowing them to respond more quickly. In future months, the city plans to provide wireless coverage to East Austin, enabling residents of the low-income area to receive free Internet access. In addition, the city is planning to integrate the Cisco IP Interoperability and Collaboration System with the wireless mesh network, enabling emergency and law enforcement officials to communicate via the city's disparate push-to-talk systems. The new system will simplify interagency communications, make it easier for personnel to reach each other during emergencies, and reduce the time that it takes to respond to and solve problems.

The city also plans to promote the wireless mesh network to a growing number of technology vendors. "The wireless mesh is a critical component of our economic development strategy," Collins says. "It makes the city more attractive as a place for business and provides a test bed for companies developing new wireless technologies."

Over the years, Austin has reinvented itself as a technology center, Collins says. "That is what makes this city unique," Collins says. "Our wireless mesh network has taken our use of technology to the next level by allowing us to provide free Internet access and new services, plus a technology test bed that few if any other cities have."

FOR MORE INFORMATION

To find out more about Cisco Solutions and Services, visit: http://www.cisco.com

To find out more about Cisco Government Industry Solutions, visit:
http://www.cisco.com/go/government

To find out more about Cisco Wireless Mesh Networking Solutions, visit:
http://www.cisco.com/go/wirelessmesh

To find out more about Cisco Unified Communications Solutions, visit
http://www.cisco.com/go/voice

To find out more about Cisco Service-Oriented Network Architecture (SONA), visit
http://www.cisco.com/go/sona

To find out more about Calence, LLC., visit http://www.calence.com

To find out more about Wireless Facilities, Inc., visit http://www.wfinet.com

This customer story is based on information provided by the City of Austin, Texas, and describes how that particular organization benefits from the deployment of Cisco products. Many factors may have contributed to the results and benefits described; Cisco does not guarantee comparable results elsewhere.

CISCO PROVIDES THIS PUBLICATION AS IS WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties, therefore this disclaimer may not apply to you.

Printed in USA

C36-372555-00 11/06