

Growing City Uses Wireless Communications to Improve Public Safety and Services

EXECUTIVE SUMMARY

CITY OF GILROY

- Municipal Government
- California, United States
- 350 employees

BUSINESS CHALLENGE

- Support real-time traffic monitoring system to improve traffic flow
- Find more efficient way for mobile public safety vehicles to share information in the field
- Enhance public image of the city's downtown
- Provide broadband service capability for citizens in downtown

NETWORK SOLUTION

- Deployed secure, flexible outdoor wireless network to support a variety of governmental and public-facing applications

BUSINESS RESULTS

- Improved traffic flow through busy intersections and overall driving experience in the city
- Improved the ability of public safety officers to take full advantage of mobile computing capabilities
- Helped enhance the city's reputation as a forward-thinking technological community
- Provided Wi-Fi public access for citizens in selected downtown areas

City of Gilroy, California, deployed the Cisco Outdoor Wireless Solution to improve public safety and quality of life for its citizens.

Business Challenge

The City of Gilroy, California, is a mid-size community with big-city vision. Home to 50,000 residents and a wide range of businesses, the city has long relied on network technologies to improve the efficiency of government operations and provide better service and public safety to its citizens. Gilroy government agencies have used state-of-the-art wired network solutions for several years. By 2006, however, the city was embarking on several projects that required capabilities far beyond what was already in place.

First, Gilroy officials were searching for a more efficient long-term strategy for supporting mobile police officers. The city previously had deployed mobile data computers (MDCs) in public safety vehicles that allowed officers in the field to share vital information with each other and with local and state agencies. The system allowed mobile officers to access photos and Geographic Information System (GIS) aerial images and to transmit real-time video. However, the system relied on a cellular network that had network congestion and less than optimum bandwidth.

"We want to take full advantage of the in-car video capabilities of our MDCs, but the cellular technology maxes out at a shared 128 kilobits per second link," says David Chulick, director of Information Technology for the City of Gilroy. "You can imagine the time that it takes to offload video to our police department servers over that connection. In addition, we may have 27 vehicles out there sharing a 128-kbps backhaul point, so we reach limits very easily."

In addition, the city transportation engineer wanted to deploy a traffic monitoring system at three of Gilroy's busier intersections, complete with vehicle detector cameras that could be viewed remotely via a Web browser. The monitoring system would help the city better respond to increasing traffic in one of Gilroy's busier corridors—especially during the annual Garlic Festival, when the city hosts more than 150,000 visitors. However, backhauling the video traffic across the three quarters of a mile that separated the intersections from the nearest entry point to the city's wide-area network was a costly, challenging proposition.

"We would have needed to install a lot of cable infrastructure to be able to read those monitors," says Chulick, director of Information Technology for the City of Gilroy. "We had conducted an estimate previously for a similar project, and the cost of running fiber through the streets would have been close to US\$100,000."

Finally, the city government was engaged in a multipronged initiative to revitalize Gilroy's downtown, and city leaders believed that free public wireless Internet access could play an important role.

"We want to be known as an innovative city that can provide our visitors with all the benefits of technology," says Anna Jatczak, assistant city administrator. "The mayor and the city administrator

both viewed Wi-Fi as an important part of our economic development strategy for the city's downtown."

Network Solution

The City of Gilroy needed a flexible and secure wireless infrastructure that could support all of these applications, as well as other technology initiatives planned for the coming years. Manageability was also essential, as the city would own and operate the solution itself. After considering several options, city leaders chose the Cisco® Outdoor Wireless Network Solution.

The city already used Cisco network and IP voice solutions, and Gilroy IT officials had a great deal of confidence in Cisco technologies. In addition, the ability to manage the new wireless infrastructure as simply an extension of the Cisco network that was already in place was extremely attractive.

"Our network team is basically two people," says Chulick. "The flexibility that Cisco gives us and the ability to not have to learn an entirely new system to support our wireless applications was a major factor."

"I also love the monitoring tools and features of the Cisco Wireless LAN Controller," says Dwane Camp, network engineer, City of Gilroy. "It allows me to manage and configure the entire network from one central location."

In September 2006, the City of Gilroy deployed Cisco Aironet® 1500 Series Wireless Mesh Access Points at three key intersections to support the traffic monitoring system, allowing city officials to track and respond to changing traffic patterns in real time. In November 2006, the city outfitted three fire stations with mesh backhaul segments to support public safety applications. Now, when MDC-equipped vehicles are within range of a mesh backhaul segment, they can transmit and receive video over a higher bandwidth 802.11g wireless broadband connection, instead of relying on the cellular network.

After the success of the earlier deployments, Gilroy further expanded its wireless coverage in March 2007 by covering several blocks in the heart of the city's downtown with wireless Internet access, available free of charge to local business owners, residents, shoppers, and tourists.

Business Results

Today, the City of Gilroy has outdoor wireless coverage at key points throughout the city, and the solution has been a major success. From a public safety standpoint alone, the outdoor wireless solution is helping improve the effectiveness of city officers and the safety of Gilroy citizens. Although the solution today is limited only to those vehicles traveling in range of one of the system's access points, the added bandwidth and capabilities are already making a difference. Mobile officers using the system can offload video from their cars and have it analyzed much more quickly, improving their productivity. The system also allows them to stay in the field longer, instead of having to return to the station every time they need to offload video or information. Officers in the field also have faster, more comprehensive access to a broad range of essential state and local resources.

"Our officers can take advantage of state databases and pull down photos while they are in the field," says Chulick. "You try doing that on a shared 128-kbps line, and it is going to be difficult. Our fire department also benefits. If we have a three-alarm fire, they can pull down GIS aerial images

to help with command structure and staging. Those images are 60-Megabyte files. There is just no way that they would be able to do that over the cellular network.”

The traffic monitoring system has also allowed city officials to deliver on their promise to continually strive to improve the lives of Gilroy citizens in significant ways.

“Our transportation section can now view traffic in real time and identify areas where we are experiencing problems,” says Camp. “They can adjust the signals to fine tune traffic flow as needed, which is a real improvement in customer service to the community.”

“Our population triples each year during the Garlic Festival, so you can imagine how many cars we have traveling through the city,” adds Chulick. “The solution allows us to adjust signals in real time to deal with that and offset any backups that occur.”

PRODUCT LIST
<p>Routing and Switching</p> <ul style="list-style-type: none"> • Cisco Catalyst® 3560 Series Switches • Cisco Catalyst 6500 Series Switch • Cisco Integrated Services Routers
<p>Security and VPN</p> <ul style="list-style-type: none"> • Cisco Security Monitoring Analysis & Response System • Cisco PIX® 500 Series Security Appliance • CiscoSecure Access Control Server • Cisco ASA 5500 Series Adaptive Security Appliance • Cisco Security Agent
<p>Voice and IP Communications</p> <ul style="list-style-type: none"> • Cisco Unified CallManager • Cisco Unity Voice Mail • Cisco Unified IP Phone 7900 Series • Cisco Unified Wireless IP Phone 7920 Series
<p>Wireless</p> <ul style="list-style-type: none"> • Cisco 4400 Series Wireless LAN Controller • Cisco Aironet 1100 Series Wireless Access Points • Cisco Aironet 1500 Series Wireless Access Points

In addition, by linking the vehicle monitoring system via the wireless mesh network, the city was able to deploy the entire solution for one-fifth of the cost of laying new fiber—a savings of US\$80,000.

The downtown public Internet access has been well received by citizens, shoppers, and tourists. The number of users continues to grow, and city officials believe the solution is already helping to stimulate commerce and excitement downtown. The downtown wireless network—as well as the mesh segments at the fire stations—is also now being used by mobile city workers, including city inspectors, street maintenance employees, fire marshals, and others. All of these employees can now securely connect with city applications while working away from the office, improving their productivity and allowing them to devote more time to city business and less time traveling to and from the office.

“We have a number of inspectors and other mobile employees who collect information in the field,” says Chulick. “If they need to offload their resources or reference some information to perform the service in which they are engaged, they do not have to drive all the way back to City Hall. Instead, they can just go to any of our wireless backhaul locations.”

Next Steps

Based on the success of the outdoor wireless solution, the City of Gilroy will be expanding the wireless mesh network throughout 2007. The city plans to add several more traffic monitoring sites and public safety mesh backhaul segments, as well as expand the free Internet access downtown. By late 2007, city leaders expect to have more than 30 wireless mesh access points deployed. City leaders are also continuing to look at new wireless initiatives, such as equipping employees with wireless IP phones that will take advantage of the mesh network, and expanding wireless data access for mobile employees. Now that the outdoor wireless network is in place, the City of Gilroy also has a foundation that can support a broad range of other applications for mobile workers, emergency responders, and citizens in the future.

For More Information

To find out more about the Cisco Outdoor Wireless Network solution, visit:

<http://www.cisco.com/go/outdoorwireless>.

To find out more about Local Government solutions, visit: www.cisco.com/go/localgov.

To find out more about Public Safety solutions, visit: www.cisco.com/go/publicsafety.

To find out more about the City of Gilroy, visit: <http://www.ci.gilroy.ca.us/>.



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