CUSTOMER SUCCESS STORY

CITY OF RENTON POLICE DEPARTMENT: WIRELESS COMMUNITY NETWORK PROTECTS LIVES, ENHANCES WORK

EXECUTIVE SUMMARY

CUSTOMER NAME

- City of Renton

INDUSTRY

- Local Government

BUSINESS CHALLENGE

- Enable first responders to quickly access critical, life-saving information
- Maximize police presence in the community and increase officer productivity
- Hold operational and personnel costs steady while meeting growing service demands

NETWORK SOLUTION

- Cisco wireless networking built on standards-based Internet Protocol (IP) network infrastructure

BUSINESS VALUE

- Immediate online access to a variety of city, state, and national databases helps officers perform their duties more effectively while increasing their safety
- E-mail, data base access, and other productivity applications allow mobile employees to keep up with office work, improving morale and reducing overtime costs
- IP network foundation supports a new generation of voice-over-IP (VoIP) applications that will further reduce telecommunications expenses

Faced with the need to offer more government services with a shrinking budget, the Police Department in Renton, Washington implemented a city-wide, IP standards-based wireless network with "roving offices" in agency vehicles.

BUSINESS CHALLENGE

A thriving suburb of Seattle, Washington, the City of Renton has a population of 55,000 and growing. Renton Police Chief Garry Anderson was faced with the challenge to provide more and higher quality public safety services with dwindling city funds. A statewide initiative passed by voters in November 2001 has limited Washington State city revenue increases to 1 percent annually, but Renton's residential population has been increasing by 3 percent annually. This discrepancy, along with inflation, effectively forced the city into a structural deficit of US$2 million a year.

Anderson turned to the city's Information Services (IS) staff to enlist technology to address two critical business problems: vehicle patrol officers couldn't access information they needed at critical times, and officers were spending far too much time in the stations rather than spending time in the community.

Renton City Hall

The problems stemmed from the department's low-speed public safety communications network. Valley Communications, formed by a consortium of south King County cities, had been providing Renton with dispatch information and voice communication over an 800 MHz Motorola land mobile radio (LMR) network. Four cells covered an area that supported two dozen communities and over 200 police vehicles. Transmission speeds were limited by the slowest devices operating on the network.

"The 9600 Kbps connection works for simple, character-based dispatch communication and user-to-user notes from one officer to another," explains Ron Hansen, Network Systems Supervisor for City of Renton, "but not for much else." The radio links proved too slow to download information from the agency's advanced record management system—designed to supply vital information to police officers in the field—which the city had invested over a million dollars to implement.

Without vital information access, police officers were more vulnerable to unknown, potentially violent suspects encountered during routine traffic stops and incident responses. Officers were also forced to make daily trips to their stations to submit reports, answer e-mail, fill out timecards, and track down information.

Hansen had to find a way to provide Renton's first responders with a reliable, secure communications infrastructure that would dramatically improve their safety, effectiveness, and productivity—without increasing operational costs.

NETWORK SOLUTION

Hansen was convinced that his city could eliminate recurring telecommunications costs and better control bandwidth availability by owning and operating its own wireless network. With a sound, secure, standards-based IP network foundation, the city could manage costs and quickly incorporate new technologies instead of waiting for service providers to provide system upgrades.

The next step was to take the plan to the Renton city council. Recalls George McBride, IS Director for the City of Renton, "There really was no business case for alternative solutions three years ago." To make their case, the police chief and IS staff staged a live demonstration: an 802.11b wireless device took five seconds to download a mug shot in its first attempt; the 800 MHz device, took several minutes with four or five attempts and repeated timeouts. The striking results, along with increasing homeland security concerns, convinced council members.

"Our Cisco wireless network, backed by a secure IP network foundation, enables us to develop Web-based tools that let us redefine how we use our human resources."

—Ron Hansen, Networking Systems Supervisor, City of Renton

Now the challenge was to develop a highly available wireless system that was at least as secure as the old, dedicated LMR system. In addition, the system had to work with Novell's eDirectory services for authentication.

Hansen also needed an environmentally-hardened device that could operate 24 hours a day and withstand melting or freezing vehicle trunk temperatures. Cisco Systems® was the only company that offered a wireless device that could operate in the harsh environment of a police car trunk. "Very few companies have devices that can do that even now," Hansen says, "Cisco did its homework, researching the real-life conditions and needs of its customers."

The City of Renton IS staff also valued the company's history of supporting standards-based technologies, such as wireless, that drive the market. They knew they could count on Cisco continuing to advance and improve the technology. For example, Cisco has extended bridging standards increase reliability over longer ranges. All in all, observes McBride, "Cisco had such a compelling story—technology leadership, solid balance sheet, great technology road map, and willingness to listen—that we couldn't possibly consider any other vendor." The IS staff was able to purchase Cisco equipment off of the state contract, which saved capital expenses as well as time and staff expense, by avoiding the typical government purchasing cycles.

After successful pilot testing, Hansen installed wireless networks into 30 patrol, traffic, and command police vehicles. Each vehicle functions as a roving wireless network, equipped with a Renton mobile access radio (RMAR) designed by Hansen. The wireless LAN is anchored by a Cisco Aironet® 1300 Series Outdoor Access Point/Bridge that supports 802.11g 54 Mbps bandwidth. A Cisco Catalyst® 6500 Series Switch manages multiple wired and wireless devices, such as laptops, handsets, PDAs, printers, and Web cameras. A bidirectional 1-watt amplifier boosts PDA and laptop antenna signal strength, and with full repeater capability, first responders can work online away from their vehicles at distances up to 100 yards outdoors (in line of sight) depending on topology, or up to 200 feet inside buildings.

Strong security was a critical component for network success, so Hansen built in multiple levels of defense. The system's 128-bit content encryption meets Federal Information Processing Standard (FIPS) 140-2 requirements. To gain access to the public safety wireless network, users must have the right ID and password as well as the right security certificate software embedded in their PCs. Mutual client-server authentication passes through a Cisco Secure Access Control Server, and a unique, secure, third-party virtual private network (VPN) application completely hides the IP network from detection over the Internet.

Hansen also installed 32 outdoor access points and 32 indoor access points in and on city buildings and water towers, covering more than 20 square miles. Multiple virtual LAN (VLAN) and (Service Set Identifier) SSID device support were critical to the city's ability to offer Internet access to city staff and residents throughout the community while effectively isolating public safety communications.

Installation was completed in just two months using department staff. The cost of the system was $500,000—far less than neighboring jurisdictions are considering for much less comprehensive projects. But Hansen is quick to admit, "We had extraordinary support from Cisco Account Manager Ken Gary and Technical Support Engineer Jason Grant, who coordinated efforts between us and Cisco engineers."

BUSINESS VALUE

The IS staff branded their result the City of Renton Outdoor Wireless Network (CROWN). The IP-based wireless network has allowed the IS staff to do much more than deploy "desktop offices in the field." As Hansen points out, "Our Cisco wireless network, backed by a secure IP network foundation, enables us to develop Web-based tools that let us redefine how we use our human resources."

The tools include some impressive safety and productivity applications:

- Online access to the police records management system, which is in turn tied into the Washington Crime Information Center (WACIC), supplies mug shots, warrants, stolen property reports, missing person reports, rap sheets, and more in seconds
- Online crime bulletins keep officers fully apprised on major crime incidents
- Online significant incident logs replace handwritten postings in the police briefing room
- Internet access to secure Federal Bureau of Investigation (FBI) emergency management, and Washington State patrol Web sites expand officers' information resources
- Online timecard reporting replaces a time-consuming process that formerly took two entry steps and a fulltime staff member to manage. Officers now enter their reports and time sheets over the wireless network directly into the records system.

Officers appreciate the productivity applications that have changed they way they do their jobs. Renton Police Officer Bob Dreher relates how he was able to track down and arrest a suspect from his vehicle laptop by downloading a mug shot from the police records management system and then linking to a public Internet site to find the suspect's address from a phone number.

Firefighters also benefit from the city's new high speed wireless network. They now have on-scene access their incident records system and to many hazardous material sites over the Internet. Firefighter Gary Harsh appreciates the ability to investigate onsite chemical and other hazards while en route to a fire and to file reports from his "office in a truck".

Since the IS staff installed rolling networks in city service vehicles, employees such as Terry Flately of the Renton City Parks Department can use e-mail and review contracts while supervising maintenance crews, and even control or troubleshoot park irrigation systems from his laptop.

Because Hansen and his staff have built a network on a standards-based IP network foundation, the city gains significant strategic advantages without much additional cost—good news to their tax-paying citizens. “Every day we find that people are discovering new ways to use our system that we never thought of, and that’s very satisfying for us,” says Hansen.

NEXT STEPS

Hansen and his IS staff are also continuing to develop new productivity and safety applications. An upcoming project sponsored by the King County Sheriff’s Association will allow simultaneous search of 25 municipal record systems, simplifying mutual aid coordination and record checks. Pilot tests indicate that voice-activated VoIP devices worn around the neck for non-priority car-to-car or car-to-station communications could reduce recurring cell phone costs by 60 to 70 percent. Also in the works are streaming video applications using Web cams in police and fire vehicles. Hanson is also beginning talks with community partners about linking up police vehicles with Web cameras already installed in schools, hospitals, and banks.

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This customer story is based on information provided by the City of Renton, Washington, 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.

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