IP & Public Safety Communications

Improving Productivity with Continuous Wireless Data Connectivity

By Mark Ferguson, Padcom, Inc.

Agencies throughout the country are looking for ways to do more with less. Despite the Homeland Defense money that has been approved by Congress, relatively little has found its way to local public safety agencies, yet the demands on these agencies have increased. The question that agencies face is how to improve the safety of their citizenry without overburdening their officers. Additionally, how can agencies take advantage of new crime fighting technology without breaking the budget? The Town of Addison, Texas faced these same questions and found some creative ways of integrating new technologies into their day-to-day police activities while improving both safety and officer productivity — without negatively impacting either the budget or the requirements on their officers. This article will examine how the Town of Addison was operating previously, their process for identifying and implementing new technology to improve wireless data communication, and how the town and police force has now benefited from the new technology.

PADCOM

An police officer for the town of Addison, Texas, is connected to Dispatch and a variety of online databases through PadCom's Total Roam® package, which integrated IP-based network's with the town's existing wireless infrastructure.

Existing Communication Infrastructure

The Town of Addison is located 13 miles outside of Dallas. While primarily a residential community a number of major corporations are located there and during the day the population often exceeds 150,000. The town is 4.3 square miles and has 92 police personnel and 55 fire personnel. In regards to a communication solution Addison did not start from scratch. They had been using mobile data — a Motorola 800 MHz RD-LAP private RF network — for the police officers for a number of years. This network had provided officers with access to important applications and dispatchers and was the sole data communication link between the field, department headquarters, and public safety applications. The network allowed officers to access information about traffic violations, warrants, or updated personal information on a suspect. In spite of the benefits provided by the network it was not without its problems. Areas of the city had no coverage, there were intermittent outages, leaving officers unable to communicate with headquarters, and the network lacked the speed to take advantage of new, more bandwidth-intensive applications.

These issues impacted the police department in several ways. Getting information to officers was critical, according to Hamid Khaleghipour,

Director of Information Technology for the Town of Addison, because officers needed to know as quickly as possible whether the person they were pulling over for a traffic violation had a criminal record. "Access to the network is of life-and-death importance," says Khaleghipour. "If police officers are not able to get license information about who they've pulled over, they may find themselves in a shooting situation before they realize that they are in danger." Additionally, the town also had plans to integrate "next-generation" public safety applications, such as uploading digital video taken by police cruisers at crime scenes. However, the network did not have enough speed to handle this kind of application.

Identifying Communication Needs

Although the town had a mobile data system that provided some level of access to information, it was not the fully-integrated, user-friendly solution that was required. To be a successful solution it had to be seen as a single network — even if it was actually composed of several different networks that were integrated into a single "virtual" network. In addition, it needed to provide easy access to any of the current or planned application that the department might use. In order to achieve this, the Town of Addison police department was looking for a solution that would do the following:

Provide always-on access to the network and dispatchers. Police officers needed to be able to access the network (any one of the three networks in operation) wherever they traveled throughout the jurisdiction. This access had to be available, even if the RF network failed. Since public safety was at stake, network availability, meaning reliability and failover, were key concerns.

Easily integrate with existing and future networks. The city had invested in a private RF radio system and had supplemented it with both a public CDMA network and a private WiFi network. One of the goals was to enable seamless handoffs between these three networks to create a "single virtual network." The other goal was to be able to easily add new networks that the town might choose to utilize.

Be able to handle future applications and uses. Because the town had plans to add new applications for its officers — such as the video upload taken from crime scenes — it was essential that the solution easily incorporate high network speeds and work with any future application the agency might use.

Reduce or eliminate human intervention for use and troubleshooting. The town had a small police IT staff and could not afford to dedicate any resources to troubleshoot the solution. Additionally, the town wanted to minimize officer intervention as much as possible to allow them to focus on their job, not their wireless connection. For these reasons the solution had to be as self-maintaining as possible.

Offer implementation at a reasonable cost. As is the case with most municipalities, the town of Addison has limited budget resources. It was important that the solution was cost effective — both from a purchase and deployment perspective and in terms of ongoing resource requirements.

Creating an Interoperable and Simple Solution

Given the multiple requirements of the police department and the fact that both IP and non-IP (proprietary) networks were being used, the town underwent a search process to identify a solution that could best meet all of the needs. The hope was that a single vendor would be able to fulfill enough of the requirements to make the solution successful. During the search process the Town of Addison identified Padcom as a vendor who could meet all of the town's communication system requirements. Padcom's TotalRoam® product supported the existing RD-LAP network and was able to integrate IP-based networks with the proprietary infrastructure. More importantly, TotalRoam could enable the use of IP applications over the Motorola system, meaning that the same applications could be used over all of the networks Addison had in service. As importantly, TotalRoam had the ability to manage the network connectivity as officers moved in and out of coverage areas.

One the greatest benefits of the Padcom solution became apparent before any contracts were even signed. The Addison police force wanted to know more about the actual network coverage throughout the community. Specifically they wanted to know when one network was dropped and another was picked up. Prior to the sale Padcom wrote and installed a custom application that showed a second-by-second report about network availability. This type of customer service demonstrated Padcom's willingness to work with a customer to find a solution that best addresses a customer's issues. "You sometimes don't even get that kind of service after you sign a contract," said Khaleghipour. "Padcom's willingness to do that for us showed me the kind of excellent support I would receive when I became a customer."

After evaluation, TotalRoam was chosen as the solution of choice. A significantly less expensive solution from both a purchase and resource perspective, TotalRoam was able to meet one of the town's important criteria of finding the most cost effective solution. With a perpetual use license Addison only has to pay an annual maintenance fee, which includes upgrades so the town will always have the latest release of TotalRoam software. In addition to the purchase price, the town does not have to dedicate a resource to manage the solution — once the software was installed and configured on the mobile computers it did not require an internal management resource. As an added benefit, the TotalRoam software is enabling Khaleghipour to manage public network access costs by routing applications over specific networks. Applications that are not bandwidth-intensive are being used over the RD-LAP network, thereby limiting the use of the public wide area network to applications that requires higher transport speed.

Benefiting from Continuous Network Connectivity

The Padcom connectivity solution provided real value for the Town of Addison for its IT staff, dispatchers, and officers in the field. Much of the benefit came in the way of increased productivi-

ty through time savings in handling reports, checking criminal records, and accessing databases. The improved coverage and throughput allows officers in the field to directly access information without having to request that dispatchers make the queries. This allows dispatchers to focus their time and energies on other functions without impacting officers in the field. The fact that TotalRoam manages the switching between networks also benefits both the IT department and officers because no manual intervention or network troubleshooting is required.

A second benefit derived from the Padcom solution was the ability for the town to continue its use of the Motorola private radio network. Because TotalRoam works with both IP and non-IP networks, the seamless switching was able to manage public to private network transitions, even with IP-based applications. This meant that the town could rely on its trusted network and continue to utilize its investment without impacting the ability to provide its officers with newer technology.

While there are quantifiable benefits associated with the TotalRoam implementation (visit www.padcomusa.com/success-stories.shtml for a complete Addison ROI case study) the greatest benefit to the town goes far beyond the financial aspects. Overall public safety, including the safety of officers, has been greatly enhanced. The redundancy and failover capabilities created by TotalRoam means that officers have access to vital law enforcement applications and to dispatchers — even if one network fails. Officers always have a wireless connection to police headquarters, regardless of where their cruisers are.

The benefit of this continuous connectivity is that response times have been cut; officers are able to respond to calls and crime scenes even more quickly. Because officers can access important information such as criminal databases, they are better able to respond properly to emergencies. And because they have always-on access to the agency's data network, they can always reach dispatchers in instances in which they require backup -instances that can literally be life-and-death situations.

A Solution for the Present - and the Future

The Town of Addison identified five requirements for a wireless data solution. Their goal was to identify a solution that could achieve as many of these requirements as possible in a single platform. With TotalRoam they are now able to meet all of their requirements and have implemented a solution that addresses integration, "hands-off" use, and reasonable cost in an easy-to-install and use platform.

Always-on availability to the Police network has helped make Addison citizens and the police themselves feel safer and the organization is now seen as a best practice among other enforcement agencies. Officers can now respond more quickly to calls and the police department is looking at new applications that can further enhance safety and productivity, using high-speed networks. According to Khaleghipour "our response times are faster, and our residents and police officers are safer. In the past, if officers needed help and couldn't access the wireless network, they couldn't get the help they needed. Now they have the backup they need exactly when they need it." For the Town of Addison police department it is now difficult to imagine public safety work without continuous connectivity to the wireless data network.

Mark Ferguson is Marketing Director at Padcom, Inc., an established leader in providing mobile workers and devices with seamless and secure connectivity across different wireless networks. Research conducted by the Case Study Forum was used in writing this article. For a white paper identifying specific ROI metrics for the Town of Addison visit www.padcomusa.com or call 888-PAD-COM2 (888-723-2662).

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