

Granbury: Modernizing Communications in the City "Where Texas History Lives"

A Tropos Networks Case Study
July, 2007

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Granbury: Modernizing Communications in the City



Scenario

- A Granbury, Texas, patrol officer pulls over a Ford Explorer at 2 a.m. on U.S. Highway 377, a popular through route to Mexico. The officer suspects that the vehicle may be stolen, and its four occupants are driving the car across the border to sell it. The officer has no way to verify his suspicions from the road. He collects names and the license plate number and allows the four to leave. Back at the station, the officer checks law enforcement databases. The Explorer was indeed stolen earlier that night and the occupants are known members of a Dallas-based auto theft ring.

- A Granbury patrolman making a late night stop suspects that one of the auto's occupants may be someone he booked the previous week. He also thinks the driver's auto license may be a fake. The patrolman uses a digital camera to snap high-resolution pictures of the driver, his license, the familiar-looking man, and some fingerprints on the auto that the officer raised with an evidence collection kit. He loads the pictures into the patrol car's laptop and sends them via Granbury's city-wide wireless network to an investigator at headquarters. The investigator confirms that the patrolman is correct on all counts. The two men are arrested on the spot.

Background

Granbury is a historic community located on the Brazos River 30 miles Southwest of Fort Worth. Nestled around Lake Granbury, the city offers a unique dichotomy of both historic attractions and present day accommodations and shopping. Its Victorian-era courthouse square is on the National Register of Historic Places and its cemetery contains the graves of Jesse James and Davy Crockett's grandson. Granbury invites visitors to visit and see "Where Texas History Lives".



Issue

Behind its 19th century façade, Granbury is a growing, dynamic 21st century community. When information systems manager Tony Tull joined the town government, his first act was to assess the town's information needs.

The assessment showed that town government operations were "disjointed," Tull reports. Departments were located in different buildings; none of the town's operations were

networked; and municipal organizations could not share data. Linking police vehicles in the field to the police headquarters database was the top priority.





"I wanted real computer power in the cars — data, photos, video and Internet access," Tull explains. That meant equipping Granbury's 10 marked police units with wireless laptop computers rather than mobile data terminals that work over a cellular digital packet network. With terminals, officers could only check for warrants, write field reports and print out traffic citations.

While researching Wi-Fi offerings, he stumbled across a case study from Tropos Networks detailing the city-wide MetroMesh Wi-Fi network in Corpus Christi, Texas. The network carries public safety, municipal, and residential Internet traffic.

Solution

Granbury earmarked $70,000 of a Homeland Security grant to buy wireless laptops for the 10 police cars, as well as for the vehicles driven by the police chief, captain, three sergeants, three investigators, and the fire marshal and health inspector. At the same time, an order was placed for two Tropos MetroMesh routers for concept testing. A veteran of the IT industry, Tull understood the value delivered by Tropos routers which combine the Wi-Fi networking industry's most sophisticated mesh routing intelligence, designed to optimize throughput in a dynamic metro-scale Wi-Fi mesh environment, with a carrier-grade hardware platform that offers peerless Wi-Fi link budgets.

In October 2004, Tull attended the Public Technology Institute's National Summit for Local Governments in Corpus Christi. The institute partnered with Corpus Christi to design and deploy that city's multi-use Wi-Fi network.

After the conference, Granbury initiated a project to deploy 40 Tropos 5210 routers for an extensive of test on a network covering half the city's nine square miles.

- The Tropos virtual network infrastructure allows many different user communities using a metro-scale Wi-Fi mesh network to have its own private network, address space, class of service and security settings on a single infrastructure. Police, fire and public works each can have their own network which can be administered separately, with different access and security policies. The same network also can be open for public access without compromising security.

- The rugged 5210 router is NRTL certified for outdoor installation. A trade-level city worker using a single tool can mount the router on an external structure such as a building or lamppost in under 15 minutes.

In September 2005, Granbury installed 100 Tropos 5210 routers on city streetlights to create a Wi-Fi mesh that spans all of Granbury, except for a few industrial areas.



The Tropos 5210 Outdoor MetroMesh Router

Results

"I estimated that equipping police vehicles with laptops would save Granbury $70,000," Tull says. After eight months of access to in-vehicle data lookup, report writing and other information tools, the police department turned back to the city $78,000 in monies allocated for salary and overtime. As a direct result of the dramatic drop in overtime, the department has reduced its budget for the current fiscal year by $100,000.

The network is also being used for a variety of other applications. Building inspectors in the field are able to connect to the centralized permitting system remotely, helping speed up the inspection process for construction and development projects without increasing staffing. City buildings are being connected to the network to cut internet access charges, and public safety employees can remotely access video cameras covering City Hall and the City Services building.

In addition, the city recognized a need to provide broadband services to residents and visitors due to the lack of broadband service availability in the area. Now , residents and visitors to Granbury can use the Wi-Fi network for internet access with day use passes for $9.95 or a monthly subscription for $19.95.



What's Ahead

Next up for Granbury is wireless automated meter reading and laptop-equipped fire apparatus.

- By combining intelligent digital meters with the MetroMesh network, the city can read meters automatically several times a day, instead of sending personnel into the field once a month. Besides lower costs, benefits include higher accuracy and added efficiency.

"When we combine automated meter reading with a SCADA (supervisory control and data acquisition) system," Tull says, "we can look at water consumption totals by day, check which pumps are losing water, repair them quickly, and ultimately, lower rates."

- In the public safety arena, Granbury will use laptops to improve emergency communications. The headquarters command team can use a visual intelligence system such as Pictometry to plan the response, site the field command and measure hose distance and send en route vehicles data on any chemicals that a business or warehouse stores. First responders can check the type of chemicals a business or warehouse stores, inspect building and roof layouts, and locate ingress and egress points.

Summary

A city-wide Tropos Metro-Mesh network links municipal departments in Granbury, Texas to each other and to information that allows them to operate more efficiently in the field. The same network supplies Granbury residents with Internet access at half the cost of DSL or cable-modem service.

"The wireless network will enable Granbury to do a number of things," Tull says. "For example, the city's health, electric and building inspectors can use wireless laptops to issue permits on site, saving time for developers and residents and speeding up permit fee collection."

555 Del Rey Avenue • Sunnyvale, Ca 94085
phone 408.331.6800 • fax 408.331.6801
www.tropos.com • sales@tropos.com

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