

# GREEN COVE SPRINGS POLICE DEPARTMENT

## CASE STUDY



### SMALL AND MID-SIZE COMMUNITIES IDEAL MATCH FOR 'MESH' NETWORKS



#### AFFORDABILITY: KEY TO BRINGING SECURE WIRELESS TECHNOLOGY TO SMALL-TOWN AMERICA

Today, IT security is a fundamental part of doing business for every public and private sector entity. There is the constant challenge of ensuring that sensitive or confidential data is protected from prying eyes (and ears).

Nowhere is this more important than in public safety—particularly law enforcement, and especially in small and mid-size cities in America.

Case-in-point: Green Cove Springs, Florida.

## POSITIVE COMMUNITY RELATIONS A DETERRENT TO CRIME

With 18 sworn officers and a total of 28 employees, Green Cove Springs Police Department strives to maintain an active presence on the streets, promoting positive relations with residents and visitors. Capt. Charles Jett believes that this visibility has been a deterrent to crime and technology has been the key to keeping officers in the field, rather than behind a desk in the police department.

According to Capt. Jett, the department was one of the first in northern Florida to computerize with Tandy desktop computers. Over the years it upgraded equipment as budgets permitted, and a few years ago the department purchased laptops and installed wireless mobile routers in three of its police cars.

“At the time, we didn’t have anything in the cars,” said Capt. Jett. “The officers had to come into the station to do reports on the desktop, and they might spend two or three hours a shift like that.”

That was counter to the department’s mission: the goal was to get the officers out of the department and back on the streets. Although officials viewed the acquisition of a wireless data system as a way to meet its goal, which solution was eventually chosen would depend on several factors, an important one being cost.

## MANET: EXTRAORDINARY FLEXIBILITY, RANGE

After evaluating several options, the Green Cove Springs Police Department chose a Mobile Ad Hoc Network (MANET) solution called, NovaRoam, developed by Nova Engineering.

MANET, or “mesh networking” technology, provides public safety entities with a self-forming, self-healing, secure mobile network that is also cost-effective.

These networks function without the need for an infrastructure or centralized controller. As a peer-to-peer system, each user or “node” in the system is both an endpoint for data and also a repeater. The self-forming, self-healing characteristics of the mesh network give it extraordinary flexibility and range, making it ideal for a mobile system.

One of the other advantages to MANET technology is that it typically requires less hardware than alternative solutions. The fact that each unit in the network serves as a repeater means that fewer towers are required, thus a smaller investment in infrastructure.

All of the users operating in the network combine to increase the range and improve the reliability of the network. As the users move from location to location the mesh is constantly reforming itself, and the MANET technology ensures that communication routes among all of the users are updated quickly to avoid any interruption.


The strategic positioning of fixed towers throughout the coverage area help to eliminate “dead zones,” or areas where communications would otherwise be difficult or impossible. Although the network can be completely self-contained, it is often linked to the Internet, as is the case with many public safety applications.

NovaRoam also provides exceptional communication range. Since it operates in the license-free 900 MHz frequency band, NovaRoam can communicate over several miles at burst data rates up to 1 Mbps.

Comparatively, other wireless data communications systems, such as CDPD, SMR, and LMR, provide adequate coverage but very low data throughput traditionally. Wi-Fi technology doesn’t fare much better, with its limited range and notorious vulnerability to hacking.

## SECURITY ON A BUDGET

Security, said Capt. Jett, was obviously important. “That was one of our concerns—just how secure would it be? Because the NovaRoam system is used by the military and thus proven to be very secure, we felt confident.”



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— Capt. Charles Jett,  
Green Cove Springs Police  
Department, Florida

With multiple layers of security currently offered by the product—including 128-bit AES encryption, a proprietary spread spectrum signal, and both MAC and IP address filtering—NovaRoam provides the confidence police departments need in their data communications. However, the cost factor, according to Jett, was “make or break.”

Public safety budgets are tight everywhere, but small town public safety officials face special challenges. “You just don’t have \$30,000 or \$40,000 a year to put into equipment,” said Capt. Jett, “so you have to make good choices.”

He and his colleagues felt that they were making a solid long-term investment in a product that would serve their needs for ten years or longer. What sold them on the mesh networking technology was the fact that there would be no recurring costs, no monthly charges for airtime or other services, which would produce a return-on-investment much sooner.

“That was a big selling factor,” commented Capt. Jett. “Sure, with any system you have upfront costs but with NovaRoam the initial investment is all you spend. You own it. It doesn’t cost you anything to run it every month.”

He estimated that other local law enforcement using alternative solutions have monthly activation and usage fees of several hundred dollars, adding up to thousands of dollars over the course of a year.

## PROBLEM-FREE DEPLOYMENT

Capt. Jett reported that, once the new system arrived it only took a few days for deployment. The department installed a forty-foot tall mast at headquarters, and another on the town’s water tower. The mobile routers were installed in three of the seven police vehicles.

“This gave us pretty good coverage,” explained Capt. Jett. “We have a few dead spots but it helps that the cars act as repeaters. If they are in the right place, the signal will bounce from one car to the next, and that has helped to overcome the dead spots.”

## RESULTS ON THE MOVE

Capt. Jett reported that the wireless data solution has helped on several fronts. First, it moved officers out from behind desks and back into their cars.

“Now they are visible even as they are doing reports,” said Capt. Jett. “They keep a paper copy in the car, and transmit an electronic version from their laptops to headquarters.”

He explained that officers in the field can utilize various software programs stored on the laptop to connect directly to the state criminal database. If the officer stops someone the software will automatically run the tag number, determine vehicle registration, if the vehicle is stolen, and whether or not the driver is wanted.

“The data goes straight to Tallahassee,” he noted. “It’s so much more efficient than having to relay the information via radio. That saves us critical time—we can make decisions faster.”

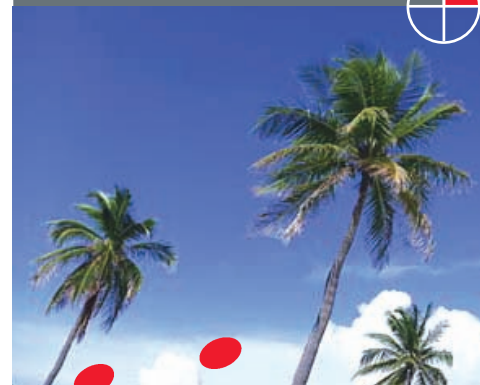
## WEATHERING THE STORMS

Capt. Jett reported that the department hasn’t had any major problems with the system. Over the course of six years of Florida’s hot and humid conditions, downpours and even hurricanes, the department experienced only one instance where one of the repeaters failed. Replacement equipment provided by NovaRoam solved the problem, and the system was up and running again.

“It was simple to switch it out,” said Capt. Jett. “There were only three wires to plug in and the job was done.”

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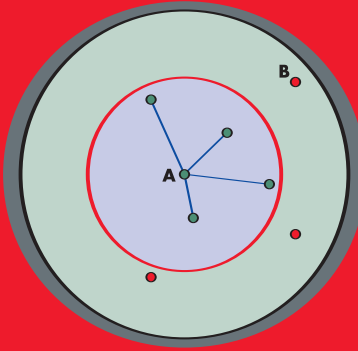
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Green Cove Springs Police  
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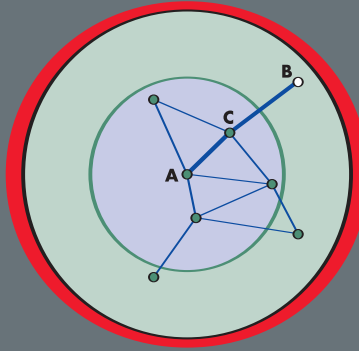
*— Capt. Charles Jett,  
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## TYPICAL WIRELESS NETWORK

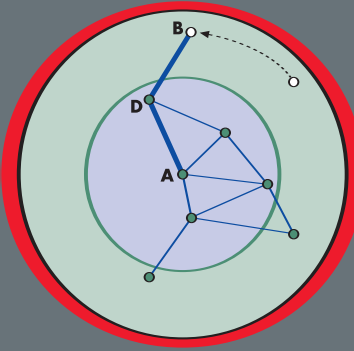


A cannot establish communications with B because B is out of A's direct communication range.

## NOVAROAM® MOBILE AD HOC NETWORK



A establishes communications with B using C as an intermediate repeater within the mesh network.



As B moves out of range of C, communications are automatically re-routed through D to maintain connectivity with A.

*With NovaRoam mesh networks, field assets in motion remain connected while each node helps strengthen and expand the network.*

### NovaRoam E Series Family



NovaRoam ED900 Mobile Router



NovaRoam EH900 Mobile Router

## TECHNOLOGY ADVANCES PUBLIC SAFETY IN SMALL TOWNS

Since the 1980s, the Green Cove Springs Police Department has been at the forefront of small town police departments in northern Florida, tapping technology as a resource to help ensure public safety. One of the department's goals states: "Continue installations of police patrol car computer upgrades; permitting data transfer via mobile computer directly to and from the field."

Even though the police department's leadership will change, Capt. Jett is confident that the department will maintain a strong emphasis on wireless technology. He already has plans to implement NovaRoam upgrades and outfit the remaining four police cars with mobile routers.

Mobile mesh routers, like the NovaRoam system in place in Green Cove Springs, provide an ideal wireless data communications solution for small and mid-size public safety operations virtually everywhere. The combination of high data throughput, security, range and affordability make mesh networking a superior choice to other wireless technologies.



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	ED900	EH900
High Speed	••	•
Long Range	•	••
Secure	•	•
Mobile Mesh	•	•
Infrastructure Dependent		
IP-based Interoperability	•	•
Rapid Deployment	•	•
Cost Effective	•	•