

Forestry Commission Develops Interoperable Statewide Radio Network

Georgia Forestry Commission uses Cisco IPICS for reliable communications with personnel throughout the state using any type of radio or a PC.

| EXECUTIVE SUMMARY |
|--|
| GEORGIA FORESTRY COMMISSION <ul style="list-style-type: none"> Public Safety 620 employees |
| BUSINESS CHALLENGE <ul style="list-style-type: none"> Protect safety and property Improve service effectiveness Reduce costs |
| NETWORK SOLUTION <ul style="list-style-type: none"> Deployed Cisco IPICS Adopted MPLS VPN managed service |
| BUSINESS RESULTS <ul style="list-style-type: none"> Increased communications reliability Eliminated US\$60,000 to \$70,000 in annual costs Enabled collaboration with other state and local agencies |

Business Challenge

Georgia Forestry Commission (GFC) provides leadership, service, and education in the protection and conservation of Georgia's forest resources. Of 620 employees, 350 are fire control personnel deployed in 129 Georgia counties. The agency, which responds to 8700 forest fires each year, has earned the best fire protection record in the southeast United States. "We depend on reliable radio communications to communicate with each other and with local fire agencies, from the ground or air," says Trey Spivey, IT director. Other state and local agencies, such as Georgia State Patrol, also rely on the GFC radio network when they are out of range of their regional radio networks.

GFC's previous radio system had several limitations. Each of the state's ten districts has a base radio station and multiple 300-MHz VHF repeaters. A separate fire-control network includes truck-mounted mobile radio systems as well as fixed base stations mounted on fire towers. Previously, radio traffic between districts traveled over leased analog circuits, costing US\$70,000 annually. "The analog circuits were noisy and unreliable, and problem resolution often took two to three days," says Spivey. When lines were down, personnel resorted to using their own push-to-talk (PTT) radios or cell phones, losing the broadcast capabilities of their radios.

The unreliable analog lines were especially problematic at night, when dispatch calls to all ten districts were forwarded to dispatchers in the Macon office. If an analog line was down, the dispatcher could not reach personnel on their radios in the affected district. The alternative, decentralized dispatch, would require purchasing an expensive radio console for each district.

Another limitation of the previous radio system was a lack of interoperability. GFC personnel using the agency's two VHS radio systems could not communicate directly with each other or with first responders from other agencies. A commander who needed to communicate with three different teams had to repeat the message on three different radio channels or else go through the dispatcher. "Relying on the dispatcher to relay communications can delay decision making when seconds count, and also can lead to misinterpretation," says Spivey. "We needed a reliable, interoperable communications system that would enable us to talk to any personnel throughout the state, at any time. We also wanted the ability to add outside agencies to the talk group on demand to respond to disasters and other emergencies."

Network Solution

After considering several radio interoperability solutions, GFC chose Cisco IPICS. “We are confident that Cisco can support us for the lifetime of the solution because of the company’s stability and financial strength,” says Spivey. “We also liked the fact that Cisco IPICS is not proprietary and will work with any vendor’s radio systems, giving us flexibility.” In addition, Cisco provides local Advanced Technology Partners for planning, deployment, and support. GFC works with Coleman Technologies, a Cisco Certified Gold Partner. “When GFC explained its business needs, we confirmed that Cisco IPICS would offer the required reliability and interoperability while providing a significant ROI,” says Ian Jones, vice president, Coleman Technologies.

To improve reliability, GFC replaced its analog circuits with a Multiprotocol Label Switching (MPLS) VPN managed service provided by the Georgia Technology Authority. The IP-based network provides the resiliency and scalability needed for large-scale incident response. In each of the ten districts, Coleman Technologies connected a Cisco integrated services router with the LMR Gateway feature set into the base station radio. The Cisco router translates the radio signal to an IP signal so it can travel across the MPLS VPN network to the destination base station radio, where it is converted back to a radio signal. Coleman Technologies used the Cisco IPICS tone control feature to control the multiple radio channels supported by each base station. “The Cisco IPICS tone control feature emulates sophisticated radio features over IP, enabling GFC to control all radio towers throughout the state from just a few locations,” says Brian Wisler, senior network engineer, Coleman Technologies.

“Turning off our analog circuits saved enough to pay for Cisco IPICS in less than three years. The clear business case enabled us to justify the investment, an important concern in government.”

—Trey Spivey, IT Director, Georgia Forestry Commission

Each district office manages its local radio system using Cisco IPICS Push-to-Talk Management Center (PMC) client software, which works on any network-connected PC. The central office can operate all remote radio systems using the Cisco IPICS Administration Console. “If a dispatcher cannot come into the district office, other personnel can manage talk groups from a PC in another location or from home, using the Cisco IPICS PMC client over a VPN connection,” says Spivey. Approximately 200 field personnel use Cisco IPICS PMC software on their ruggedized laptops, enabling them to participate in or monitor channels without a radio.

Business Benefits

Reliable Communications, for Greater Safety

Cisco IPICS and the MPLS VPN enable highly reliable communications, giving agency personnel the confidence that they have dependable radio communications. “A highly reliable, interoperable communications system is a very high priority for the GFC,” says Spivey. “Cisco IPICS enhances situational awareness, which is of paramount concern because employees’ and citizens’ lives are at stake. A highly available radio system enables us to be sure that our first responders know where they are going, receive the resources they need to respond effectively, and return safely.”

Improved Interagency Collaboration

Cisco IPICS enables GFC to fulfill its charter to be a logistical stronghold for the state’s emergency plan. When GFC collaborates with other agencies in incident response, dispatchers can quickly set

up a virtual talk group that personnel can join using their various radio systems or Cisco PMC clients. "When the talk group is activated, broadcasts from each of GFC's two radio systems are automatically relayed across both networks, enabling two-way communication," says Jones. "This arrangement avoids the need to manually set up two radios side-by-side or have a dispatcher verbally relay what each party is saying." Spivey adds, "Virtual talk groups take only a minute or two to create on Cisco IPICS, and they avoid the overloading that can occur on mutual aid channels."

PRODUCT LIST

Routing and Switching

- Cisco 2821 Integrated Services Routers with LMR Feature Set

Voice and IP Communications

- Cisco IPICS
- Cisco Unified CallManager
- Cisco Push-to-Talk Management Center (PMC) software

Return on Investment

By replacing its analog leased lines with an MPLS VPN, GFC has eliminated \$60,000 to \$70,000 in annual costs, a sum the agency had paid for 14 years. "Turning off our analog circuits saved enough to pay for Cisco IPICS in less than three years," says Spivey. "The clear business case enabled us to justify the investment, an important concern in government."

Improved Policy Compliance

GFC has established separate channels for different types of communication: mobile to mobile, mobile to base, and mobile to air. "Cisco IPICS gives us systemwide visibility into channel usage to ensure standard operating procedures are followed," says Spivey.

Next Steps

GFC plans to begin using the Cisco IPICS Policy Engine to enable people to join talk groups using their cell phones or public switched telephone network (PSTN) phones. Cisco IPICS also gives GFC the flexibility to adopt regional or centralized dispatch as it makes sense. The agency plans to gradually transform the role of dispatchers from relaying messages to managing resources.

"Dispatchers provide the most value when they know where everybody is and get them to where they need to be," says Spivey. "Cisco IPICS supports redefining the role of the dispatcher because it enables them to spend less time simply relaying communications between people with incompatible devices." Another plan for the GFC is to adopt voice over IP, sending voice traffic over the same reliable MPLS VPN now used for radio and data.

"Cisco IPICS is a solid foundation for interoperable communications of all types throughout the state," Spivey concludes. "If someone needs to talk to someone in the furthest reaches of the state, I can meet their need in two minutes."



Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Europe Headquarters
Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: +31 0 800 020 0791
Fax: +31 0 20 357 1100

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

CCVP, the Cisco logo, and the Cisco Square Bridge logo are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn is a service mark of Cisco Systems, Inc.; and Access Registrar, Aironet, BPX, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Enterprise/Solver, EtherChannel, EtherFast, EtherSwitch, Fast Step, Follow Me Browsing, FormShare, GigaDrive, HomeLink, Internet Quotient, IOS, iPhone, IP/TV, iQ Expertise, the iQ logo, iQ Net Readiness Scorecard, iQuick Study, LightStream, Linksys, MeetingPlace, MGX, Networking Academy, Network Registrar, Packet, PIX, ProConnect, ScriptShare, SMARTnet, StackWise, The Fastest Way to Increase Your Internet Quotient, and TransPath are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0705R)