

County Improves Service Effectiveness and Incident Response with “Push-to-Talk Everywhere”

With Cisco IPICS, Boulder County personnel can participate in radio talk groups using IP phones, PC clients, or cell phones, enhancing communications interoperability and incident response.

EXECUTIVE SUMMARY
<p>BOULDER COUNTY</p> <ul style="list-style-type: none"> • State and Local Government • 280,000 residents; 1,600 employees <p>BUSINESS CHALLENGE</p> <ul style="list-style-type: none"> • Improve service effectiveness • Enhance safety of personnel and citizens • Enable countywide collaboration
<p>NETWORK SOLUTION</p> <ul style="list-style-type: none"> • Deployed IP-based communications system that provides comprehensive interoperability, allowing participants to use radio systems, IP phones, cell phones, or PCs • Used existing Cisco network infrastructure
<p>BUSINESS RESULTS</p> <ul style="list-style-type: none"> • Improved effectiveness of SWAT (Special Weapons and Tactics) and bomb squad operations • Increased value of existing radio and IP infrastructure • Enabled communications interoperability with any agency

Business Challenge

Boulder County, Colorado has a population of 280,000, served by 1600 county employees. Effective, efficient communication among personnel in the field and in offices is essential for all county departments, and especially for the Sheriff’s Office, whose staff of 400 is responsible for all search-and-rescue missions and includes a SWAT (Special Weapons and Tactics) team and bomb squad.

“Since 2001, Boulder County has been engaged in a formal effort to break down departmental silos of communication and information to become more efficient and effective,” says Drew Depler, IT customer support manager. All county departments use very high frequency (VHF) radio systems and can tune into each other’s frequencies in mutual-aid situations. Nevertheless, the inherent limitations of radio communications impeded service effectiveness and public safety. For example,

deputies who patrol certain areas of the 752-square-mile mountainous county can occasionally find themselves without radio reception. Personnel who work in buildings with concrete walls need to leave their desks and walk to designated areas with radio reception to participate in talk groups.

To improve service effectiveness and public safety, Boulder County executives wanted to extend the reach of the radio network to other devices, including IP phones, cell phones, and PCs with client software. This would require comprehensive communications interoperability, not just radio interoperability. “Our vision was ‘push-to-talk everywhere,’” says Chuck Pringle, division chief for the Boulder County Sheriff’s Office.

The county also wanted to help ensure communications interoperability with surrounding counties and Colorado state agencies, which use different types of radio systems. “The competition for frequency spectrum has become fierce, but we did not want to settle for sharing radio frequencies with other agencies because that approach can result in interference,” says Pringle.

“Cisco IPICS enables us to capitalize on our existing investment in IP infrastructure to be more efficient and effective in delivering public services. Neither additional manpower nor any other technology that we have seen could deliver the same benefits.”

—Chuck Pringle, Division Chief, Sheriff’s Office, Boulder County, Colorado

Network Solution

Boulder County is meeting its goals with Cisco® IP Interoperability and Collaboration System (IPICS). Based on proven IP standards, Cisco IPICS enables Boulder County to set up virtual talk groups that participants can join using a VHF radio system, any other radio system, cell phone, IP phone, public switched telephone network (PSTN) phone, or PC with Cisco Push-to-Talk (PTT) Management Center (PMC) Client software. “The other solutions that we looked at provided land-mobile radio interoperability only,” says Depler. “By providing comprehensive communications interoperability, Cisco IPICS gives us much more flexibility.”

Boulder County engaged ISC, a Cisco Certified Gold Partner, for planning and support. “Cisco IPICS is a cost-effective solution for Boulder County’s communications needs because it capitalizes on the existing investment in Cisco network infrastructure,” says Josh Mariea, account manager with ISC. Working in partnership with ISC, Cisco Advanced Services deployed Cisco IPICS in just two weeks, installing the server in the Boulder County Courthouse data center.

Personnel in buildings with concrete walls no longer need to walk to designated areas with radio reception. Instead, they can join talk groups from their desks, using either their Cisco Unified IP phone or Cisco PMC Client software. The Sheriff’s Office is also installing Cisco PMC Client software on deputies’ in-vehicle mobile data terminals (MDTs), giving them all the functionality of a radio.

The county’s SWAT teams use Cisco IPICS to extend situational awareness to other commanders for communications that occur during facilitated negotiations involving hostage situations and threats with potential for escalation. Unlike in the past where hostage negotiators had no way to keep the SWAT teams informed when they were tapped directly into the phone line of a suspect during negotiations, Cisco IPICS now easily allows these communications to be distributed directly to one or more tactical communications channels that the SWAT teams and field commanders are monitoring in listen only mode.

Business Results

“Government agencies constantly look for resources to improve service levels without necessarily spending more money,” says Pringle. “Cisco IPICS enables us to capitalize on our existing investment in IP infrastructure to be more efficient and effective in delivering public services. Neither additional manpower nor any other technology that we have seen could deliver the same benefits.”

Productivity has improved, as well, because personnel in the justice department and dispatch center can now monitor or participate in radio channels from anywhere in the building instead of the few areas with radio reception.

Cisco IPICS is also providing a greater return on investment from Boulder County's existing Cisco network. One reason is that the county can now afford to provide radio capabilities in even its smallest substations. Instead of purchasing an expensive radio console, the county can simply install Cisco PMC Client software on any PC.

“The other solutions that we looked at provided land-mobile radio interoperability only. Cisco IPICS gives us much more flexibility because it enables comprehensive communications interoperability using any device.”

—Drew Depler, IT Customer Support Manager, Boulder County, Colorado

Next Steps

“Cisco IPICS gives us the flexibility to use our imagination to enhance communications,” says Pringle. Plans include the following:

- Communications interoperability with other agencies and jurisdictions: Cisco IPICS has the capability to enable the county to use its VHF radios to interoperate with 700-MHz, 800-MHz, and other types of radios used by the State of Colorado and other jurisdictions. Communications interoperability will facilitate interagency collaboration.
- Enhanced communications among the county's four public safety answering points (PSAPs): In the new Boulder County communications center, Cisco IPICS will link the emergency operations manager to dispatchers in different PSAPs, so that they can communicate without the delays of dialing, improving emergency response. In addition, when a wireless emergency call needs to be transferred to another PSAP, both dispatchers can stay on the line to help ensure that the caller is successfully transferred.
- Enhanced citizen service in government offices: The Boulder County Civil Records department plans to install Cisco PMC software on clerks' PCs. Clerks will be able to activate a transmit-only channel with a single click so that back-office supervisors can monitor communications if a visitor is upset or acting in a threatening fashion that might require intervention.
- Delivering multi-channel content to in-vehicle MDTs: Deputies currently use Cisco PMC Client software on their in-vehicle mobile data terminals. The county is planning other MDT applications that will complement the Cisco PMC Client software by further increasing situational awareness. Ideas include pushing maps of flood inundation zones or forest-fire areas superimposed with major traffic-control points. The county also has plans to push images and information that will increase situational awareness, such as flood inundation zones or a map of a forest-fire area superimposed with major traffic-control points.
- Extending the reach of the radio network to areas without coverage: Today, Cisco IPICS enables personnel in areas without radio coverage to join virtual talk groups using their cell phones. The county also has plans to deploy a mobile command vehicle equipped with Cisco IPICS and a Cisco mobile access router with a satellite interface. This will enable mobile crews to establish communications in any location with a view of the sky.

- One-click activation of predefined policy: The county plans to use Cisco IPICS Policy Engine to define notification policies for events such as flooding of county buildings, and then activate those policies with a single click. Notification methods can include email, pager notification, and Short Message Service (SMS). The county expects that SMS notification will be especially useful when teams need secure communications or radio silence.
- Enhanced safety: Deputies sometimes lose communication on their portable radios, compromising their own safety and citizen safety. With Cisco IPICS, officers will be able to use their cell phones to dial into Cisco IPICS and then enter a user ID and password to join the appropriate channel or virtual talk group without time-consuming menu navigation.
- Enhanced use of the National Incident Management System (NIMS) and Incident Command System (ICS): Boulder County is also investigating using Cisco IPICS for establishing and enforcing NIMS/ICS rules and policies as required by the Homeland Security guidelines. "With Cisco IPICS, members of the various ESFs [emergency service functions] can collaborate without leaving their offices," says Pringle. "ESF personnel are often more effective in their own offices because they know the location of written materials and other resources."

Pringle concludes, "Cisco IPICS not only meets Boulder County's immediate needs for communications interoperability, it also gives us a platform to think of creative new ways to improve service effectiveness and public safety. It provides a solution for problems that we have yet to think of."

PRODUCT LIST	
Routing and Switching	
• Cisco Catalyst 6500, 3750, and 3560 Switches	
• Cisco 2600, 2800, 3700, and 3800 Routers	
Voice and IP Communications	
• Cisco IPICS	
• Cisco PMC Client Software	
• Cisco IPICS Policy Engine	
• Cisco Unified Communications Manager (formerly Cisco Unified CallManager)	
• Cisco MeetingPlace Express	
• Cisco Unified Contact Center Express	
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• Cisco 1200 and 1300 Series Aironet Wireless Access Points	



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