

Extend Video Surveillance to Branch Offices Using Your IP Network

What You Will Learn

In many enterprises, physical security departments are making a notable transition: from traditional analog and proprietary systems for video surveillance to open, digital solutions based on IP networking technologies. This transition arises from the limitations of traditional systems and the opportunities offered by IP networks for reducing costs, improving surveillance capabilities, and gaining new value from physical security operations.

In this white paper, both network and physical security managers can discover:

- Limitations of traditional video surveillance solutions, due to isolated, disparate systems that are not integrated with other network resources
- How network-based capabilities improve the efficiency and flexibility of physical security operations across an enterprise, as well as how video can be linked with other branch applications
- The Cisco® Integrated Video Surveillance Solution for the Cisco 3800 and 2800 Series Integrated Services Routers, which deliver multiple network services in branch offices and other remote sites; and the Cisco Empowered Branch framework, which unifies services at the branch office to reduce operational complexity

Challenge

Traditional video surveillance systems require their own equipment, cable plant, proprietary communications protocols, and management platforms. The closed and isolated nature of these systems presents several challenges for the enterprise:

- **Barriers to increasing value:** Proprietary video surveillance systems cannot be easily aligned with business goals, hindering the value that can be gained from the network and video infrastructure.
- **Limited opportunity to improve operational efficiency:** Physical security departments often must maintain their own IT resources to manage and troubleshoot the proprietary video surveillance systems. The enterprise cannot benefit from the efficiency and expertise of its overall IT and network operations.
- **Lack of interoperability with other systems:** The demands of more camera installations, increasing needs for video retention, and integration with access control, environmental, and other business applications require flexibility that is not typically offered by standalone video surveillance systems.
- **A single-vendor solution:** Proprietary video surveillance systems increase equipment costs while limiting the choice of components for specific sites or business needs. The results for an enterprise are higher capital and operational costs as well as limited return on system investments.

These challenges point to the need for a new type of video surveillance solution, one that is based on open and standard technologies for networks and equipment. The questions then become: Where is the best place to implement new video surveillance solutions, and how can they be implemented as a gradual migration from current systems?

The answer to these questions is provided by the capabilities of an IP-based enterprise network, which is increasing in customer adoption and popularity. According to iSuppli, an analyst firm that tracks high-tech electronic components, global video surveillance camera revenue is expected to grow at a compound annual growth rate of more than 13 percent to more than \$9 billion in 2011. Video surveillance equipment unit shipments are expected to more than double to 66 million units by 2011.

The benefits of an IP-based video surveillance solution include reduced costs, improved operational efficiencies, and increased investment values (Table 1).

Table 1. IP Video Surveillance Business Benefits

Category	Benefits
Reduced Costs	<ul style="list-style-type: none"> • Reduced capital and operational costs through integration of multiple services into network link at the remote site • Gradual migration to protect existing investments in video surveillance and physical security • Flexibility to choose the best components, from multiple vendors, for a specific site or business need
Improved Operational Efficiency	<ul style="list-style-type: none"> • Faster incident response, investigation, and resolution through more flexible access to physical security information • Improved security posture through access to live and recorded video—anywhere, any time—with a broad range of devices • New ways to use video to improve all business operations through application integration and collaboration among physical security, IT, and other business groups
Increased Investment Value	<ul style="list-style-type: none"> • Broadcast-quality, low-latency, and secure video to enhance surveillance monitoring and decision making • Support for other physical security systems and devices to enhance the value of those investments • Scalability to serve new requirements and business growth

Extending Video Surveillance to Branch Offices

Extending video surveillance to remote offices on traditional analog physical surveillance systems required local staffing, dedicated video surveillance servers and hard-wired equipment, and, in the worst cases, exporting of video files to various media for physical storage in a manual process. Contrast that to an IP-based system where the physical security system is a secure extension of the IP network, where the branch offices have remote monitoring capabilities, and where the storage is achieved with the same process as traditional network storage. Video surveillance becomes another of the branch-office services that the router supplies.

In more than 80 percent of the worldwide branch offices today, that router is the Cisco integrated services router. The Cisco integrated services router is designed to deliver all primary communications services—voice, data, and video—for the site in a single and flexible network access platform. This flexibility can now encompass video surveillance with the Cisco Integrated Video Surveillance Solution. The inherent benefit of integrating physical security into the router becomes a tighter linkage between video surveillance and other branch-office applications that enhance efficiency and productivity. Examples of this linkage include:

- Authenticate network users to determine who has authorized access to video surveillance footage.
- Use video to see that checkout queues are too long and combine video analytics with retail software that automatically analyzes the video and increases credit card limits to speed the transactions.
- Use video surveillance footage to full advantage to accompany data transactions to determine recipients of prescription drugs dispensed in hospitals and pharmacies.
- Use the video IP phone to view video surveillance footage of building premises such as the back door, and use IP physical security electronic access control to allow entry.. With video analytics, you can extend this process to automatically call a security help desk when a specific event occurs.
- Prevent losses by theft by combining radiofrequency identification (RFID) and video surveillance to determine what item was removed and by whom.

The possibilities for efficiencies are limitless.

Video surveillance is also an example of network services defined in the Cisco Empowered Branch vision, which unifies services and capabilities to reduce complexity and help branch offices have the same capabilities as the headquarters. As a part of the Cisco Empowered Branch blueprint, the Cisco integrated services router integrates multiple network services into the router, optimizes capital expenditures and operating expenses for each site, provides technology benefits such as system interoperability, and delivers a consistent, high-quality user experience for network services.

Table 2 outlines additional benefits by specifically using Cisco integrated services routers as part of a Cisco Empowered Branch solution to deliver the IP video surveillance.

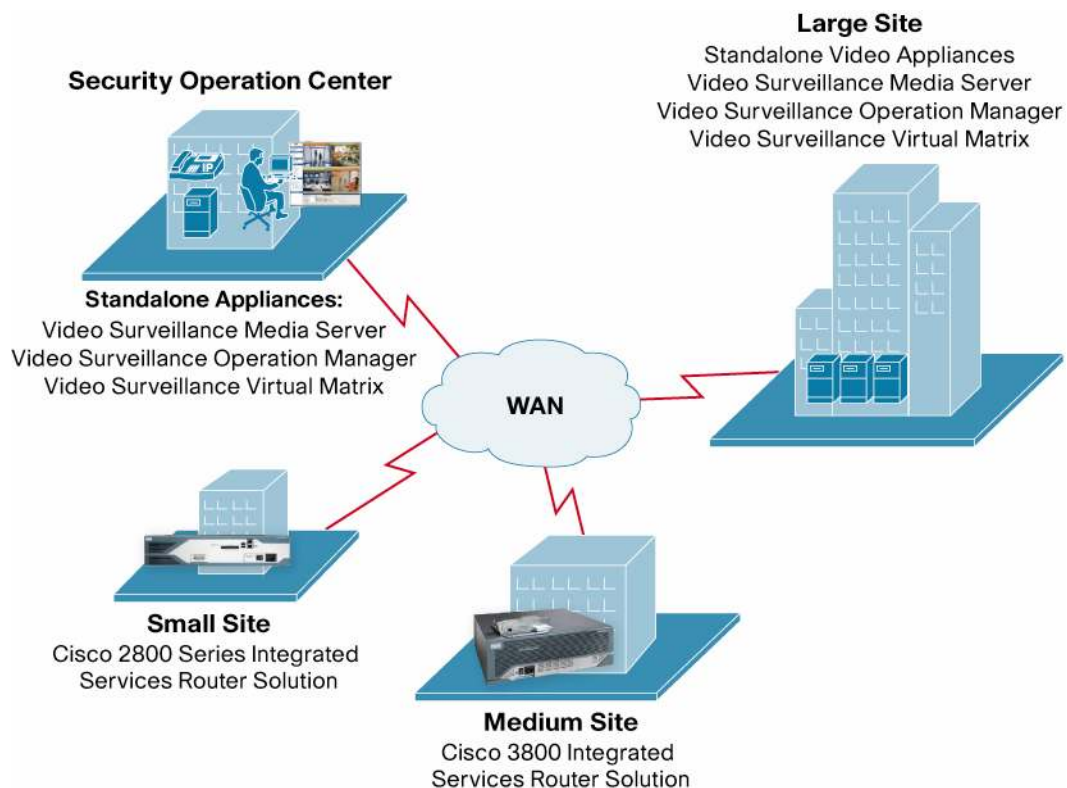
Table 2. Additional Business Benefits with Video Surveillance on the Cisco Integrated Services Router

<p>Multiple services, single device</p>	<ul style="list-style-type: none"> • Cisco technologies and convergence expertise to help maximize the return on investments in IP-based video surveillance solutions • Compatibility with other network services used at each site through integration of video surveillance components within the router • Simplified deployment and control of new applications and security capabilities • Minimal training required for physical security staff because the solution can be supported by the enterprise network and IT staff • High reliability and availability from a proven device that is engineered to deliver the vital communications of a site
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Solution

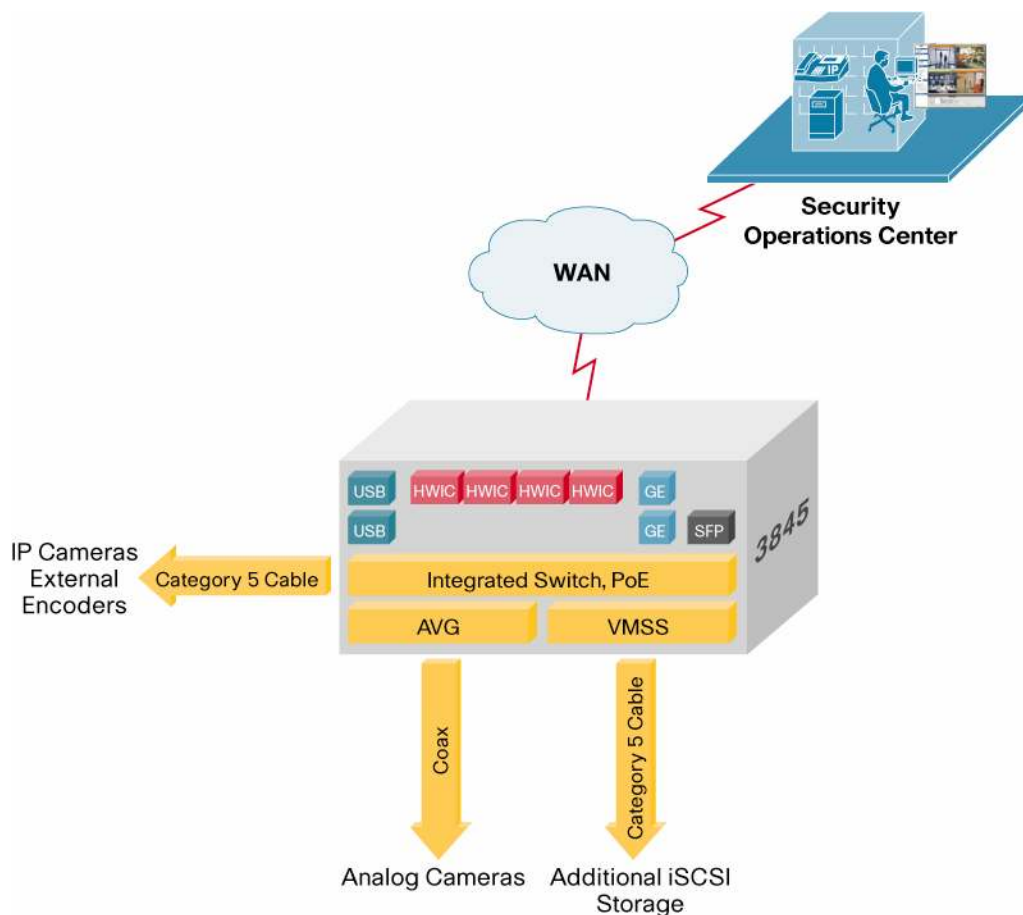
The Cisco Integrated Video Surveillance Solution provides a cost-effective way to deploy globally accessible video monitoring of physical security from remote sites (Figure 1). As part of an open network, video can also become a source of information for other safety, security, and business applications.

Figure 1. Cisco Integrated Video Surveillance Solution Supports Local and Centralized Surveillance Monitoring over Enterprise Network



The Cisco Integrated Video Surveillance Solution combines, on a single platform, the primary functions of an analog video gateway, a video management system, video switching, and inline power for the connected IP cameras and encoders. Integrating video switching functions in the platform reduces the complexity and lowers the cost of deploying video surveillance capabilities while also providing the flexibility to design video applications that are customized to unique requirements (Figure 2).

Figure 2. Cisco Integrated Services Router Platform Integrates Video Surveillance on Single Network Access Device for Remote Sites



Solution Components

The following components are included in a Cisco Integrated Video Surveillance Solution:

- Cisco 3800 or 2800 Series Integrated Services Routers
- Cisco IP Video Surveillance 16-Port Analog Video Gateway (AVG) Network Module
- Cisco Video Management and Storage System (VMSS) Network Module
- Cisco Video Surveillance Operations Manager
- Cisco Video Surveillance Media Server

The Cisco 3800 or 2800 Series Integrated Services Routers are the cornerstone of the Cisco Empowered Branch solution. It provides the platform to combine data, voice, video, and wireless networking services into a single, secure platform for branch offices and other remote locations. Integration reduces the number of devices as well as the training and network expertise needed at the site. This platform also integrates the Cisco network modules that manage local video surveillance applications and video storage. For more information about the specific components for the Cisco Integrated Video Surveillance Solution, visit <http://www.cisco.com/go/isrvideo/>.

The Network as the Platform Reinvents Safety and Security

The Cisco Connected Physical Security Solutions portfolio delivers end-to-end integrated solutions to better protect people, information, and assets. The network as the platform reinvents safety and security across the entire lifecycle of safety and security, including response, prevention, deterrence, and detection. Because the network as the platform and Cisco Connected Physical Security Solutions bring together integrated intelligent applications, video surveillance and monitoring can now be tightly integrated with physical access control, together with IT and network security, video analytics, command and control, unified communications, and other third-party applications that use standard products, open application programming interfaces (APIs), protocols, and network services. As a result, customers and partners have increased operational flexibility, new capabilities, lower costs, and lower risk.

In addition to the Cisco Empowered Branch architecture for the branch office, which defines branch-office service integration, the Cisco Integrated Video Surveillance Solution is also a part of the Cisco Connected Physical Security Solutions Architecture, which uses the intelligent network as the platform for integrating diverse enterprise physical security and other applications into a single network and access device. This architecture supports the convergence of diverse applications such as security management and event correlation, access control, wired and wireless network connectivity, and unified communications and interoperability (refer to Figure 3).

Figure 3. Network as Platform Reinvents Safety and Security



Why Cisco?

As a global company and operator of one of the largest enterprise networks in the world, Cisco has become a trusted adviser to our customers as they evolve their own networks. In developing our video surveillance solutions, we have applied the insights gained from operating network-based physical security solutions to protect our more than 200 corporate locations worldwide.

Cisco engineers offer vast experience in digital video, including video surveillance. They understand how to use the power of an IP network to deliver innovative, standards-based video

surveillance capabilities that enhance security, foster multigroup collaboration, and better align with an organization's overall goals.

For More Information

For details about Cisco IP video surveillance on Cisco integrated services routers, visit <http://www.cisco.com/go/isrvideo/>. For more information about the Cisco solutions for video surveillance, visit <http://www.cisco.com/physicalsecurity>.

Information about the company's vision for the Cisco Empowered Branch is available at: <http://www.cisco.com/go/empoweredbranch>.

You will also find useful information in the following white papers:

- Cisco Systems IP Network-Centric Video Surveillance:
http://www.cisco.com/en/US/prod/collateral/vpndevc/ps6918/ps6921/ps6938/prod_white_paper0900aecd804a3e89_ps6937_Products_White_Paper.html
- Empowered Branch: Make Your Branch Office as Productive as Headquarters:
http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns477/ns296/white_paper_c1_1_456525.html



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