

Networked Video with the Cisco 3200 Series Mobile and Wireless Router

Government agencies such as public safety organizations, cities, and transportation authorities are looking to dramatically improve citizen safety through installing mobile and wireless video systems—for instance, in police cars, in fire trucks, in passenger busses, at traffic intersections, and along roadways.

The Cisco® 3200 Series Mobile and Wireless Router networked video solution moves intelligent functions (routing, security, quality of service [QoS], multicast, and video analytics) to the edge of the network. The result is more efficient use of bandwidth, unobstructed streaming of high-resolution camera feeds on demand, multiple agency and application use, and access of video feeds from anywhere in the network. Highlights of this solution include the following:

- IP networking allows multiple uses of the mobile and wireless network for other data/voice/video applications in addition to video applications.
- The solution extends intelligent networking to the edge of the wired or wireless network. For instance, IT management and network security policies (such as firewalls and intrusion detection and QoS policies) are extended to street surveillance cameras backhauling over a wireless mesh network.
- The solution connects and combines network traffic from multiple cameras, in conjunction with other devices (such as PC laptops, sensors, and storage devices) to the IP network in a scaleable and secure manner.
- The solution extends in-vehicle video from simple recording to real-time intelligent video communications.
- The solution provides video media services that include dual-video encoding, making it possible to transmit snapshots of suspects over almost any network (including low-bandwidth networks and networks serving over multiple clients) to different platforms—for example, to PDAs, phones, laptops.
- The solution provides video management systems, including not only in-vehicle cameras but also fixed outdoor and temporary cameras in a holistic view.
- The solution provides for layering of additional networked applications (license plate recognition, mug shots, administrative paperwork, ticketing processing).
- The solution makes on-demand coordination possible through interoperability between data, voice and video communications with other local agencies, neighboring cities, state or federal agencies.

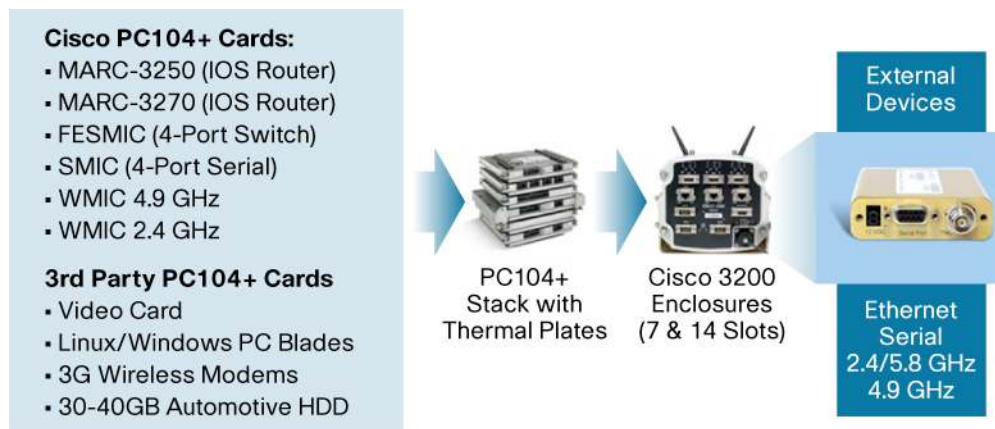
The Cisco 3200 Series—A Flexible and Modular Platform

Early on in the design process of the Cisco 3200 Series Wireless and Mobile Router (Figure 1), Cisco recognized that mobile and outdoor wireless access networks present challenges in terms of harsh temperatures and vibration, available space (pole-mount and in vehicle), and battery power. Integration of multiple devices from multiple vendors is a complex and expensive undertaking. At the same time, it is important to maximize investment protection through a modular, flexible

design. For these reasons, Cisco standardized its component design for the 3200 Series on the PC104+ form factor with extended temperature range components. It also started a partner program to stimulate third-party vendors to bring out PC104+ devices that could work in conjunction with the Cisco 3200 Series.

Today, as a result of working closely with partners many Cisco and third-party PC104+ cards are available.

Figure 1. The Cisco 3200 Series is standards based and supports both Cisco and Third Party modular features



In addition to the capabilities provided by the internal PC-104+ cards, the Cisco 3200 Series has several external Ethernet ports, serial ports, and an optional fiber interface, allowing for the connection of multiple external devices.

Networked video modularity is provided both in the hardware configuration and in standards based video software:

- The PC-104+ based video card modularly interconnects with other Cisco 3200 Series cards, to encode and decode both analog video and audio into IP based streams
- Several Cisco and third-party enclosure options are available to mount and install the Cisco 3200 Series with networked video capabilities onto light poles, traffic lights and into vehicles.
- Distributed network video management systems offer highly scalable and reliable platforms for networked video applications.
- Optional storage systems based on hard disk drives provide in-vehicle, on-location street-level storage, and distributed or centralized archival storage of video as required.

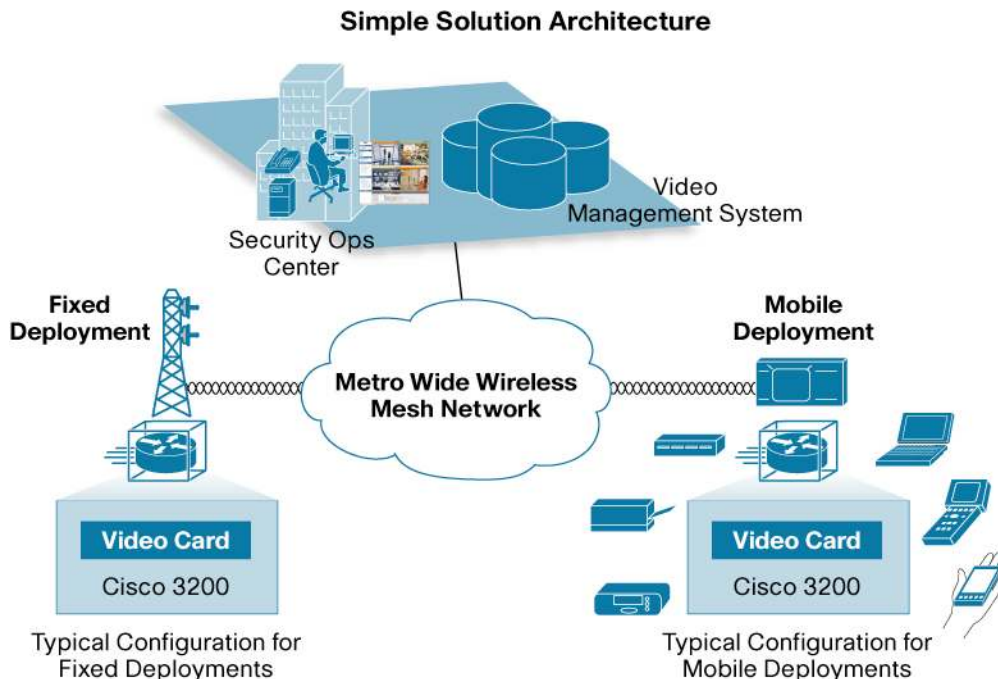
Simple Solution Architecture

Networked video components located in the Cisco 3200 Series are typically used in a video management architecture, configured and controlled by a video management system (such as the Cisco Video Surveillance Media Services from Cisco) located within an operations center (Figure 2). The video management system takes care of the archiving of video and audio streams and provides multiple viewing options to pick up streams in real time and/or archived streams from any place in the network by multiple users and devices.

The video management system might be located in one central location, although typically it will be distributed across the network to prevent overloading the wireless network with high-bandwidth

video streams. Typically, the Cisco 3200 Series will be equipped with a Single Board Computer blade and disk drive loaded with video management system software, which records the video streams within the vehicle.

Figure 2. Networked Video Solution Architecture



The Cisco 3200 Series video components are compatible with all the major video management industry systems and provide enhanced value through their rugged, small footprint and utilization of end-to-end Cisco network security and routing capabilities, including the ability to use multiple wired and wireless network types in fixed and mobile configurations.

Ecosystem of Application Partners

Cisco is continuously extending an ecosystem of video surveillance application partners in order to provide total solutions for key deployment scenarios, such as police cars, passenger buses, and traffic intersections. These deployment scenarios differ widely—for instance, in terms of operator graphical user interfaces, sensor integration, chain of evidence custody, and other requirements.

Solution Highlights

Overall benefits of the networked video solutions with the Cisco 3200 Series routers include:

- Secure wired and wireless video networks for reducing deployment costs
- Layering of multiple wireless technologies such as 4.9-GHz, 5 GHz, 802.11, and cellular
- Transparent roaming between wireless technologies for vehicles in motion
- Advanced video and audio compression and streaming
- Integrated video storage (network video recorder)
- Efficient use of network bandwidth
- Intelligent, rules-based, automated analysis of video local to the activity

- Efficient dissemination of video and alerts for immediate response
- Portable, quickly deployable, shock and environmentally hardened solution
- Flexible and scalable solution for a wide range of large-scale network applications, including homeland security, public sector, and transportation
- Integration with leading video management and archiving solutions

For More Information

For more information about the Cisco 3200 Series Wireless and Mobile Router, visit <http://www.cisco.com/go/3200> or contact your local account representative.

You also can visit the following additional resources:

Cisco 3200 Series Wireless and Mobile Router Data Sheets:

http://www.cisco.com/en/US/prod/collateral/routers/ps272/product_data_sheet0900aecd800fe973.html

Cisco 3270 Rugged Router Data Sheet:

http://www.cisco.com/en/US/prod/collateral/routers/ps272/ps6990/product_data_sheet0900aecd804c207b.html

Cisco 3230 Series Rugged Enclosure:

http://www.cisco.com/en/US/prod/collateral/routers/ps272/product_data_sheet0900aecd8028e3a7.html

Cisco 3200 Series Quick Selling Reference:

http://www.cisco.com/en/US/products/hw/routers/ps272/products_technical_reference_book09186a008018e628.html



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