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Bosch Video over IP CCTV

Product Brief



- View, record and playback video
- Flexibility to transmit anything anywhere to anyone over IP
- Efficiency by recording at the edge
- Digital recording for convenience and responsiveness
- Uninterrupted recording during scheduled and unscheduled network downtime
- Scalable, manageable systems
- MPEG-4 and MPEG-2 video

IP-based CCTV is not that different from regular analog CCTV, it just uses words and acronyms more familiar to the average IT department, like Mbps, QoS and pixels, firewalls and ports, database mirroring and Windows 2003 Server.

There are still four key components:

- Image capture
- Image transmission
- Storage
- Video management

The difference is that analog cameras and miles of heavy coax cable are being superseded by IP cameras on the wired and wireless network and the Internet. VCRs and DVRs are being substituted by racks of hard disks attached in some way to the network that benefit from the economies of scale. And static security rooms with monitor walls and fixed operator workstations are being replaced by networked CCTV keyboards, monitors and PCs. In the IP CCTV world, wherever the network reaches, you can distribute your infrastructure – IP cameras or video encoders, network video recorders (NVRs) and workstations.

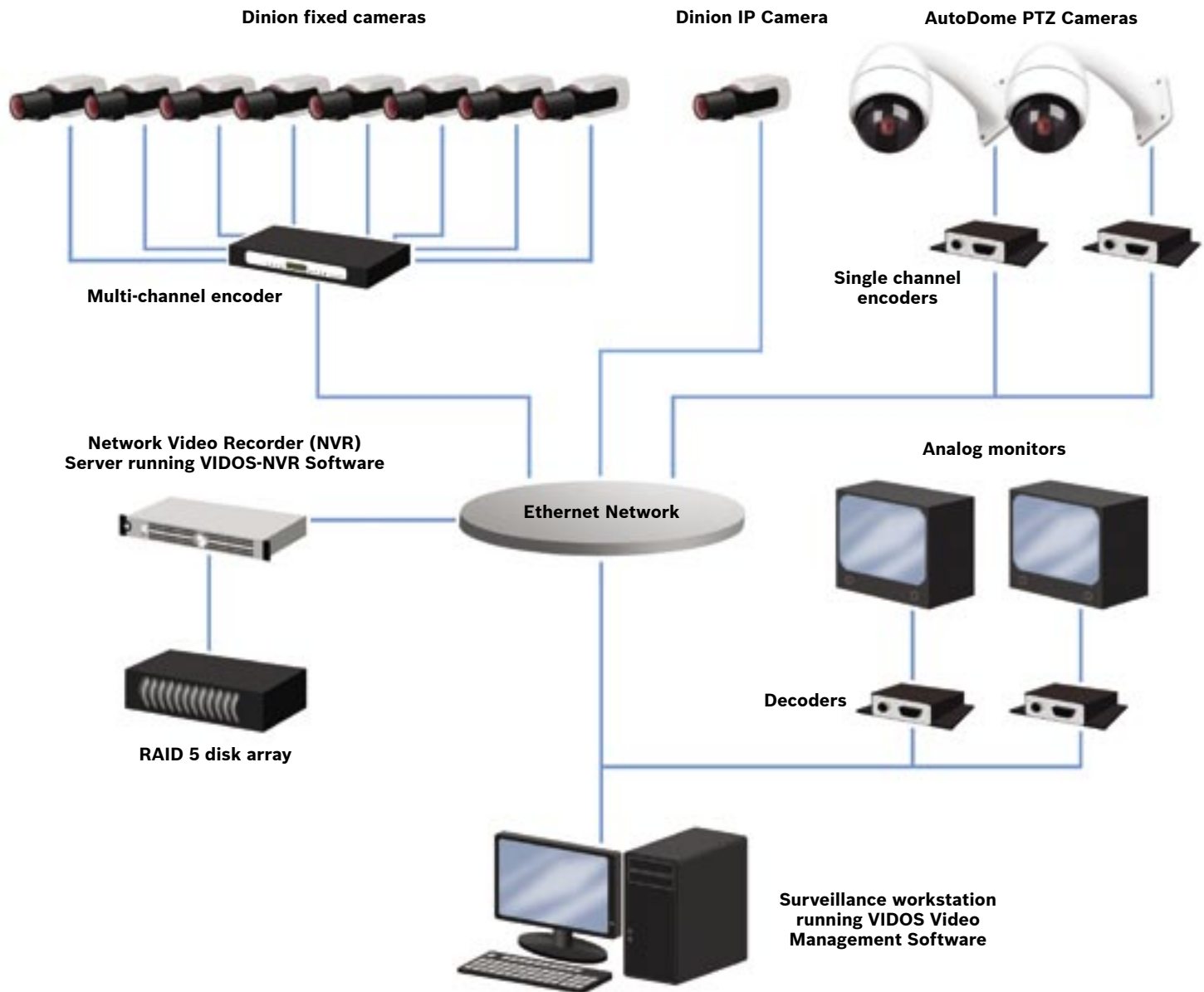
Analog CCTV	IP CCTV
Analog camera	IP camera / encoder
Analog matrix switcher	IP network switch
VCR / DVR	NVR
Coax	CAT-5
TV Lines	CIF Resolution
Multiplexed images per sec	Kilobits per second
CCTV keyboard	CCTV keyboard or PC

Translating between the two worlds

The only remaining piece of the puzzle is the infamous switch. The current choice is usually an analog matrix switch because it is reliable and functionally rich. Recently, CCTV has become dependent on the IP network switch and video management software to perform the switching function. **The network is the switch.**

IP CCTV – A New Age

The transition to an IP-based CCTV system is fueled by several different needs. Organizations wish to further centralize their operations centers, which means that cameras are getting further and further away. Only LANs and WANs reach that far. In new constructions, it is estimated that between 50-60% of costs can be saved by laying down CAT-5 cables. It is simpler and more economical than laying thick bundles of coax, fiber, audio wires, PTZ control wires, alarm input wires, relay output wires and power cables. And, when combined with Power over Ethernet, the savings are even greater. It is also far more maintainable and flexible since it is multi-functional.



Complete system showing encoders and decoders, NVR storage and surveillance workstation with monitors



Video quality in the digital age has developed just as rapidly as consumer digital cameras. In CCTV, IP cameras and encoders use very powerful, broadcast-quality MPEG-2 and the more efficient MPEG-4 compression algorithms to achieve a very high quality picture.

Reliability is an attribute that distinguishes one IP solution from another. If all your video traverses the network and you lose connectivity then you need the ability to buffer the video near the camera until the network becomes available again, then you can catch up on what you missed and it will seem like the network was never down. This simple but unique and powerful concept, Automatic Network Replenishment, comes to you from Bosch (patent pending).

Bosch Video Over IP

Bosch's comprehensive IP CCTV portfolio covers every aspect – image capture and transmission, storage and video management.

IP Cameras, Encoders and Decoders

As the bridge between analog fixed and PTZ CCTV cameras and the network, the encoders (video servers) create streams of digital video that can be viewed using VIDOS Video Management Software, a Web browser or another decoder for viewing on a monitor.

Encoder selection criteria include bandwidth-efficient MPEG-4 or broadcast-quality MPEG-2 recording at the edge or just streaming, Automatic Network Replenishment for network outage protection, wireless or wired Ethernet and whether the encoder is serving one camera or many. You may also elect to have dual streaming.

The most popular units are the MPEG-4 devices – VIP X1 and VIP X2 – as one/two channel encoders and their decoding counterpart, VIP XD, which can present a quad view on a composite video or VGA monitor. For multi-channel units with storage and ANR, the VideoJet 8004 and VideoJet 8008 are ideal. For large installations the 160 channel VideoJet XPro with blade video servers in a 7U rack is perfect.

An IP camera is a conventional analog camera with an embedded encoder so that it directly generates an IP video stream – the Dinion^{XF} Day/Night IP is such a camera.

Storage

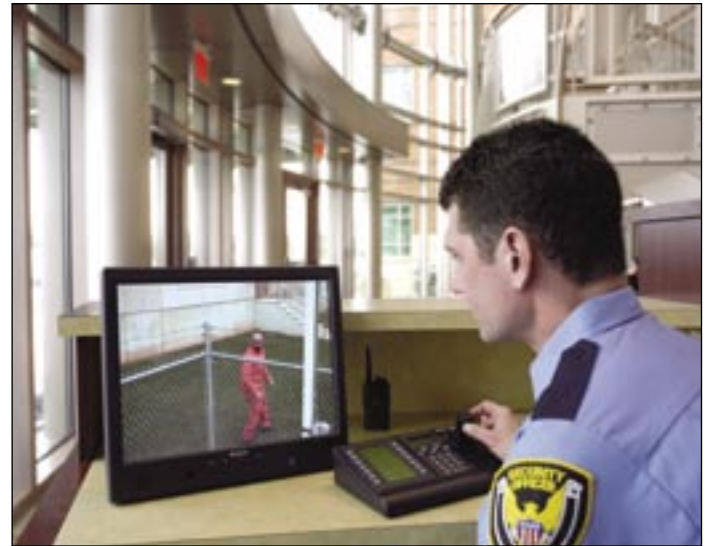
Network Video Recording Bosch's VIDOS-NVR software provides a long-term storage and retrieval solution for video and audio. Storage has three key components; VIDOS-NVR management software, an NVR server platform and RAID 5 storage.



VIDOS-NVR receives MPEG-4 and MPEG-2 video from Bosch Video over IP encoders. Because VIDOS-NVR is IP-based it is fundamentally different from conventional DVRs and VCRs. They can be securely positioned anywhere on the network because they are not tied to the coax. This simplification in cabling and IT's increasing role in system management are major drivers in the adoption of IP video. VIDOS-NVR and the commercial-class redundant power supply NVR server running the robust Windows 2003 Server guarantee optimum performance and reliability, and is available preconfigured. Each NVR server streams IP video to one or more RAID disk arrays for storage ranging up to 6 TB in capacity.

IP Video Management

Security and surveillance operators use the VIDOS PC-based software to manage their world. Custom site maps instantly correlate cameras to their physical location. Users can switch cameras to special video windows on the PC monitor, or onto one of many hardware analog/VGA monitors. They can manage alarms and relays and control PTZ cameras while monitoring the health of encoders, decoders and NVRs.



VIDOS PC interface and IntuiKey operator

Finally, the operator can choose between a PC keyboard and mouse or Bosch's IntuiKey CCTV keyboard – a simple yet effective and very robust interface.

The VIDOS video management system is available both on a single PC or as a true client-server version when larger installations demand the highest level of maintainability and functionality.

For more information on the IP CCTV portfolio, visit www.boschsecurity.us or contact Bosch at 800.289.0096.