



New Video Recording Manager provides centralized management of video over internet protocol Distributed storage enhances reliability and performance of CCTV networks

January 2008
PI 5857 ST Goe

- ▶ Distributed storage provides optimum utilization of system resources
- ▶ Enhanced reliability thanks to built-in redundancy
- ▶ Automatic re-routing of video to storage units in the event of failure

Bosch Security Systems' new Video Recording Manager (VRM) provides centralized management and monitoring of video servers, cameras and iSCSI storage units within an IP-based CCTV network.

Bosch's VRM 1.0 significantly enhances the management of storage capacity by treating storage blocks within the system at the logical or virtual level rather than the physical level. Virtualization of storage blocks allows for complete flexibility and scalability in the allocation of storage throughout the network. Recorded video is distributed over all available iSCSI RAID units on the network, rather than recording on a single storage device directly connected to an NVR. It also provides enhanced data availability with the possibility to automatically re-route video to alternative iSCSI units in the event of an array failure. The iSCSI RAID storage units can, moreover, be located anywhere, either stacked high in a secure centralized IT-managed facility as with conventional NVRs, located in secure cupboards as distributed network-attached storage where they are less vulnerable to a single physical attack, or as direct-attached storage coupled with a Bosch video encoder/decoder.

VRM 1.0 also optimizes the use of system resources by keeping track of storage usage per camera and dynamically assigning storage capacity to devices on the basis of demand – for example, reassigning blocks from a camera using, say, only 10 per cent of its allocated capacity to a storage-hungry camera recording at a higher bit rate.

To facilitate fast searching, the new VRM provides a search database for recordings and metadata. The metadata (events, ATM or any other textual data, VCA data) is recorded with the video footage. The database also keeps track of

location of the recording blocks. If this database is lost, e.g. through data base corruption, the VRM is able to recreate all information by just reading the metadata stored.

Under control of the VRM, the encoders are able to directly store data on the iSCSI units in 1 GB blocks without routing through a server and without the need of a file system (both of which are potential causes of failure). In addition, using direct block addressing, old information is simply overwritten, not first deleted before new information can be written. This greatly improves system performance for very high bit rate recording, enabling Bosch's iSCSI disk arrays to attain 200 Mbps throughput, far exceeding the classical NVR's 70 Mbps limit.

To further enhance system integrity, VRM 1.0 can be synchronized with a second instance of VRM running in the background on another server to provide backup if the first server should fail. Even if the backup VRM server fails, each iSCSI RAID can continue to record for a further 128 GB, corresponding to about 10 camera-days (assuming a 1 Mbps camera stream).

VRM 1.0 was introduced in Q4, 2007, first as a stand-alone product to replace Bosch's VIDOS-NVR, and in Q1 of 2008 it will be available fully integrated into the Bosch VMS software platform.

Contact person for press inquiries:

Bosch Security Systems

Marijke Raaijmakers

P.O. 80002

5600 JB Eindhoven

The Netherlands

Phone: +31 40 2577185

Fax: +31 40 2577119

E-mail: marijke.raaijmakers@nl.bosch.com

www.boschsecurity.com

The Bosch Group is a leading global supplier of technology and services. In the areas of automotive and industrial technology, consumer goods, and building technology, some 260,000 associates generated sales of 43.7 billion euros in fiscal 2006. The Bosch Group comprises Robert Bosch GmbH and its roughly 300 subsidiary and regional companies in over 50 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. Bosch spends more than three billion euros each year for research and development, and in 2006 applied for over 3,000 patents worldwide. The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as "Workshop for Precision Mechanics and Electrical Engineering."

The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant up-front investments in the safeguarding of its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried

out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.

Additional information can be accessed at www.bosch.com.