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Getting the right storage solution for your surveillance requirements

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The emergence of network video was welcomed with great enthusiasm in the surveillance industry. This was mainly because network video effectively put an end to the reliance on videocassettes as a storage medium for video footage. In their place, hard disc drives have been used to store all footage, be it audio or video. Hard disc drives are not unlimited in their storage capacity. This gives rise to the question of how much hard disc space is needed for a surveillance system to operate effectively.

There are several factors that need to be considered when determining the hard disc storage requirements for a surveillance system. Top of these is the number of cameras that will be installed on the system. Also important is the number of hours per day the cameras will be recording. For instance, whether the cameras will be recording constantly throughout the day or whether recording will be motion or event triggered. Other important considerations include

- Frame rate
- Compression
- Image quality
- Storage duration of recorded material

All these factors interact with one another to either increase or decrease the storage requirements in a system. For example, in a system that uses JPEG or Motion JPEG, where single files are received, the ideal storage requirements can be achieved by adjusting or manipulating the frame rate, resolution and compression.

When MPEG-4 is used, the images are received in a continuous data stream instead of individual files, and it is the bit rate that determines the necessary storage requirements, while the bit rate is in turn determined by the specific frame rate, resolution and compression, as well as the level of motion in the covered scene.

Regarding physical equipment, there are two approaches to hard disk storage. One is to have the storage attached to the actual server running the system, referred to as Direct Attached Storage, and the other is a detached storage solution where the storage is separate from the server.

Direct Attached Storage is the most common hard disk storage solution in small to medium-sized installations. As the name suggests, the hard disk is located in the same PC or application server that runs the system. The PC and the number of hard discs it can hold determine available storage space. Depending on the PC, Direct Attached Storage can offer up to 1,2 terabytes of storage space.

Detached Storage on the other hand is best suited for applications where the storage requirements exceed the limitations of Direct Attached Storage.

Detached storage solutions take one of two forms, one being Network Attached Storage, where a single dedicated storage device is connected to a (LAN) Local Area Network, offering shared storage to all clients on the network.

This type of storage solution is relatively easy to install and manage, and provides storage space greater than that offered by Direct Attached Storage. The only shortfall is that Network Attached Storage provides very limited throughput for incoming data.

The other form of Detached Storage, Storage Area Network, is a high-speed, special-purpose network for storage. It is connected to one or more servers via fibre. Users can access any one of the storage devices on the network through any of the servers. Storage Area Networks are highly scalable and can offer hundreds of terabytes worth of storage space. ●