

# Coraid EtherDrive Storage Solutions for Digital Surveillance

Solution Brief

Digital surveillance is the fastest growing segment of the security industry. Fueled by the shift to higher resolution IP networked cameras, the need for longer data retention times and the reality of flat budgets, new storage solutions are required to meet the needs of digital surveillance customers. Even modest installations of 100 IP cameras can produce over 40 terabytes per month of digital images that will grow to hundreds of terabytes and even petabytes over time. Capacity growth on this scale requires a fast, scalable and simple shared storage solution that is also affordable.

## Digital Surveillance

The Digital Video Recorder (DVR) has steadily replaced tape based recording. Its sole function is the digitization, compression and storage to disk of analogue camera feeds. One issue with a DVR system is that it needs to be located near to the cameras and it does not scale efficiently as the number of cameras or the data retention requirements increase. The solution is to use Networked Video Recorder (NVR) appliances where the transmission of digital camera feeds is over IP-based Storage Area Networks with the NVR being responsible for compression and storage of video streams to disk. The NVR(s) can be located anywhere on the network and store video streams to disk using Direct Attached Storage (DAS), disk drives located in or physically attached to the NVR, or Networked Attached Storage (NAS), where the disk drives are located in a separate storage enclosure connected to the NVR(s) with Ethernet.

NVR(s) present a very different data workload compared to other Enterprise IT applications. Digital surveillance requires video data to be transmitted continuously from cameras to the NVRs and onto the disk drives. The NVR workload is constant and hence the rate of writing data to disk is constantly high, rather than periodic, as with typical IT applications. Therefore, the processing overhead for writing the video streams to disk is an important factor in the overall NVR

performance. Another challenge for surveillance users is keeping up with the pace and cost of storage growth. As NVR storage needs grow, significant effort and cost is expended configuring and reconfiguring Direct Attached Storage (DAS) and traditional Networked Attached Storage (NAS) devices. Consequently, managing and controlling the cost of storage growth is an important issue in the overall digital surveillance system.

## EtherDrive with NVR Solution

To address the challenges of streaming video performance, storage growth and cost, digital surveillance systems require a storage solution with excellent price-performance characteristics that will allow surveillance administrators to grow their storage capacity on demand. Coraid developed EtherDrive storage arrays to deliver 5-8x the price-performance advantage over other storage solutions. This design leverages the massive parallelism of Ethernet to provide exceptionally high bandwidth video write performance that can allow a NVR to handle more camera streams in a highly available RAID configuration.

EtherDrive uses a single tier storage building block to create scale-out storage ideal for high growth environments like digital surveillance. This scale-out architecture allows administrators to efficiently grow storage capacity to multiple petabytes exactly in line with user demand. EtherDrive also eliminates many



layers of storage complexity, like multi-pathing and port bonding. By eliminating complexity EtherDrive storage can be configured in less than a minute, freeing surveillance administrator's time to focus on security priorities. Finally, EtherDrive is digital surveillance software agnostic, allowing surveillance administrators the flexibility to choose best of breed surveillance software and change that software without impacting the underlying storage infrastructure.

Figure 1 illustrates Coraid EtherDrive storage as a part of a networked digital surveillance solution. In this example, running a mid-sized 300 IP camera network requires approximately 120 terabytes of usable storage capacity, assuming a resolution of 640x480 and a retention requirement of 30 days. Of course, requirements and storage capacity are dependent upon different variables such as retention period for information, frame rate, resolution, compression, and whether a continuous or motion detection capture mode is being used.

Using three Coraid EtherDrive SRX3200 storage arrays, 2TB SATA disks, and RAID 5 will deliver 126 TB of usable storage capacity. An added benefit with Ethernet SAN technology is that more capacity can be added simply by adding more EtherDrive SRX3200 storage appliances supporting the NFS/CIFS Filer.

## Conclusion

In order to provide optimum benefits, digital surveillance video security requires a reliable, scalable, and easy to use shared storage system to store video data. Coraid is redefining storage economics for digital surveillance with a new generation of Ethernet SAN storage. Coraid EtherDrive products provide a flexible tier of high performance scale-out storage, built with off-the-shelf hardware that uniquely meets the storage demands of digital surveillance environments, especially for businesses looking for ease of use and cost effectiveness.

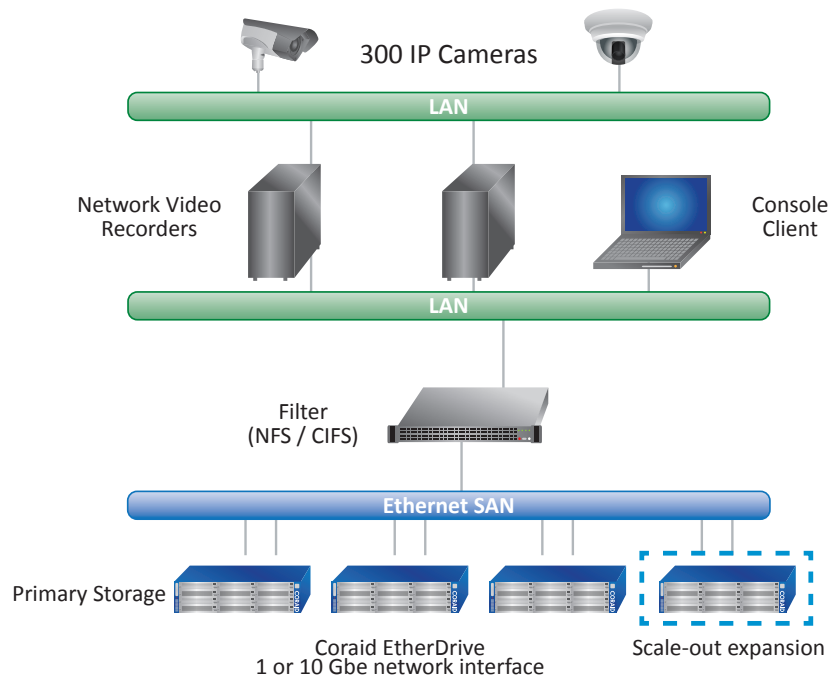


Figure 1: Networked Video Recording 300 IP Camera Architecture

