

DSD™
A Low-Bandwidth LP Application



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For Loss Prevention (LP) personnel in retail, the corporate Wide Area Network (WAN) is often considered off-limits for their use. The principal objection raised by Information Technology (IT) management is that Loss Prevention's use of the corporate WAN would consume excessive bandwidth and impinge on the performance of core-business applications.

This white paper explores this objection and demonstrates that LP's use of DSD does not consume excessive bandwidth and can safely operate on a corporate WAN.

Retailers implement a Wide Area Network (WAN) in order to support the operations of their remote retail locations. The WAN allows them to operate Point of Sale (POS) systems, collect sales data, and support time-critical applications such as debit and credit card authorizations. Typically, most of the WAN's bandwidth is dedicated to this task and, to minimize costs, there is little bandwidth available for other purposes.

LP's interest in the WAN is the ability to access its Digital Video Recorders (DVR) located in remote retail locations. Investigators can retrieve video-evidence, regional managers can inspect store operations, and technicians can monitor the health of the video-surveillance system. Most of these activities involve the transmission of video data and that is IT's chief concern. The fear is that LP's needs will overtax the WAN and reduce the performance of existing, customer-facing applications. How much of this concern is based on fact?

A single color image from a typical surveillance camera represents about 35 kilobytes (kB) of data. Streaming images from sixteen cameras would generate 560 kB per second or, in common parlance, about a 'half-meg' per second. This is a significant amount of data but insufficient to cause problems. However, it becomes problematic when two users access the same DVR concurrently. The consumed bandwidth can represent 20 to 25% of the remote location's available bandwidth. This level of usage becomes a concern for IT professionals who must ensure the WAN's overall performance.

It would appear that LP's applications demand high-bandwidth usage so, without allocating dedicated bandwidth for LP use, an existing corporate WAN cannot be spared for LP's use. Fortunately, this is not an accurate conclusion for there is an LP tool that does not have high-bandwidth requirements. DSDTM periodically monitors the health of LP's video-surveillance system with a minimal impact on the corporate WAN.

Of all tests performed by DSD, evaluating a camera's image-quality requires the most data. However, DSD needs only *one image*, per camera, to perform its tests and not a continuous stream. Assuming DSD performs its tests on a daily basis, it can determine the health of all sixteen of a DVR's cameras using **560 kB** of data *per day*.

Compare DSD's performance to a person performing the same task using a DVR's live-viewing software. Given the scenario where the software displays all sixteen cameras, and the person takes only one second to evaluate each camera, it will take sixteen seconds to perform the analysis. During that period, each camera image will update once per second so there will be 35 kB x 16 cameras x 16 seconds = **8.96 MB** of data transmitted to the live-viewing software. Clearly, DSD can do the job faster, with less data, and with far less demand on the WAN.

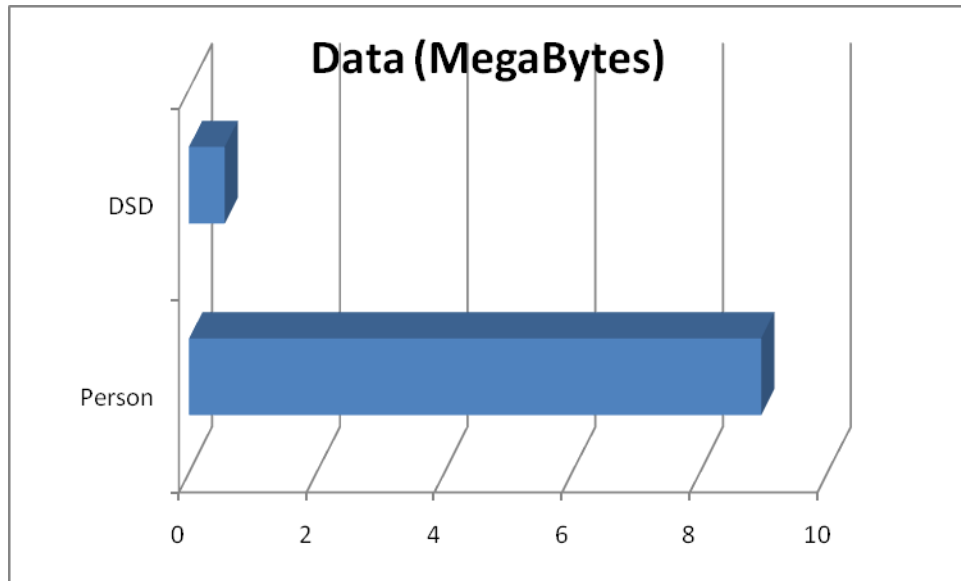


Figure 1 - Data transmitted to evaluate 16 camera images.

DSD automates the health-monitoring process and allows LP to maintain its video-surveillance system at peak performance. Most importantly for IT, DSD can do this without burdening the corporate WAN because it uses a fraction of the bandwidth required if performed manually. DSD is able to satisfy LP's need for better control and protection of its assets and IT's need for responsible usage of the corporate WAN.