



Networked Digital Video Solutions for the Retail Industry

Diminishing profit margins: a multimillion-dollar problem

Each year, inventory theft deprives retail organizations of millions of dollars. The problem is significant — and it's only getting worse. In the United States alone, retailers lost an estimated U.S. \$33.2 billion in 2001¹ as a result, primarily, of employee theft and shoplifting.

To protect themselves, most large retailers have recognized the importance of implementing video surveillance equipment — systems that, in addition to acting as a deterrent, can monitor store activity, launch alarms in the event of theft and, most importantly, track transaction exceptions that often highlight areas of loss due to poor procedural compliance or theft occurring at the checkout. March Networks digital video systems and software meet these needs fully.

¹ 2001 National Retail Survey Final Report, University of Florida, 2002

Selecting a system: a critical choice

Loss prevention professionals are under significant pressure when choosing a video surveillance system as part of their security programs. With limited budgets, they must choose systems that offer the best return on their investment. They must weigh their options carefully, and be sure their investment will accommodate their long-term needs.

Analog?

As most retailers have come to realize, traditional analog offerings do not address the full set of retail store requirements. Consisting of VCRs and multiplexers, these systems have poor video capture rates and produce low-quality video records — making transaction exceptions hard to identify. Not only are analog-tape libraries typically not well maintained, but hours of time are also required for video data searching. Since their tape records can be viewed only from store locations, analog systems make the process of gathering video evidence from other stores cumbersome and time consuming. As closed systems, they don't allow integration with a retail organization's existing information systems and, given the vulnerability of videotapes to degradation and human interference, are highly unreliable.

Digital

Digital systems overcome the weaknesses of analog systems. They eliminate the need to maintain tape libraries, enormously simplify the video archive search process, and improve the quality of captured video. More importantly, with digital systems, transaction records can be captured together with the associated video, enabling loss prevention personnel to investigate suspected incidents quickly. Using remote viewing capabilities, loss prevention managers are able to compile their reports without even visiting the store.



Large retailers need a corporate solution:
A networked digital video security solution.

Typical inventory-loss scenario:

Store locations:	1,000
Annual sales:	\$20 billion
Total annual inventory loss:	\$364 million (1.82%)
Total annual inventory loss per store:	\$364,000
Proportion related to shoplifting per store:	\$112,112 (30.8%)
Proportion related to employee theft per store:	\$167,076 (45.9%)

Source: National Retail Security Survey, 2001

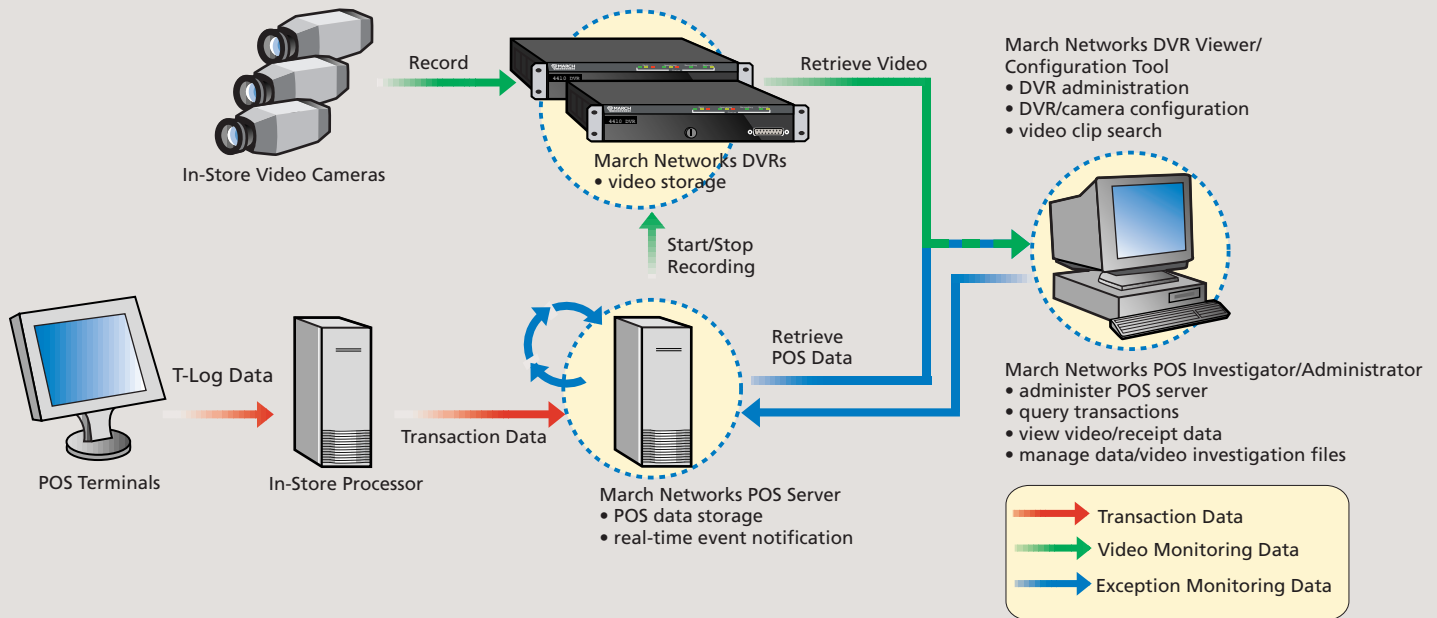
A comprehensive system: with clear benefits

March Networks™ Digital Video Recorders and video management software represent a complete response to the security needs of large retailers.

RETAILERS' NEED	FEATURE	BENEFIT
Detection of employee theft and shoplifting incidents	Offers high-quality video resolution with frame rates up to 30 frames per second, flexible frame rate viewing per camera, excellent storage capacity and the option of external RAID ¹ storage. Allows real-time monitoring (via fixed or pan, tilt, zoom (PTZ) cameras) of store floor, entry and exit points, and cash-counting rooms.	Immediate access to reliable, high quality recorded video — for swift investigation and resolution of theft incidents.
Deterrence of theft incidents	Real-time alarm monitoring of specific high risk incidents ensures that loss prevention or operations management are notified by pager or personal computer of suspicious transaction exceptions as they occur.	Immediate access to theft information permits timely intervention which, in turn, acts as a powerful deterrent to both shoppers and employees.
Easy search, drill down and retrieval of exception event data, including associated video and transaction receipt information	Complements a retail organization's existing POS exception reporting system, or operates as a standalone system, by providing instant access to transaction video and receipt data. Allows loss prevention personnel to set up exception event parameters and to run fast, customized queries.	Enables faster resolution of incidents and stronger theft deterrence.
Protection against fraudulent liability claims	Reliable video records can easily be sourced as evidence. Video authentication seal guarantees admissibility of evidence.	Allows retailers to evaluate video evidence, which will be admissible in a court of law, and accurately assess liability.
Systems integration with POS, EAS, and access control systems	Presents multiple opportunities for integration with retailers' existing, sophisticated security infrastructures.	Closes the gaps presented by independent systems, eliminating opportunities for employee theft.
Remote access to all store locations	A networked digital system with remote management capabilities permits access to every field location from both head and regional offices — over corporate LANs or dial-up phone lines.	Supports head office-based and field loss prevention organizations, and eliminates the reliance on store personnel to manage security equipment.

¹ Redundant array of independent disks

Digital video: a scalable system



The March Networks advanced system architecture integrates video and POS transaction data fully.

March Networks Advanced System Architecture

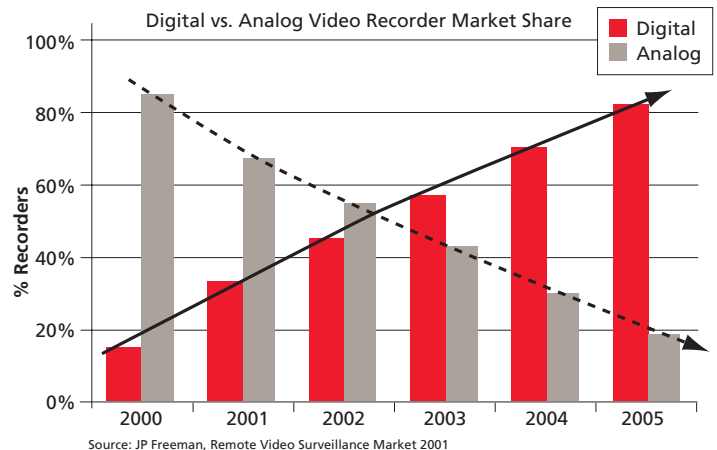
March Networks DVRs are advanced, networked video management systems that enable remote monitoring and recording over IP networks. Their built-in intelligent video management allows simultaneous video recording, monitoring and playback — permitting real-time investigation of alarm events. The DVRs can be integrated seamlessly into existing CCTV systems, and provide comprehensive functionality for security, monitoring, transaction, access control and safety applications.

A networked DVR system can be configured centrally, controlling any number of cameras across a chain of retail sites, and offering high scalability and multi-user access.

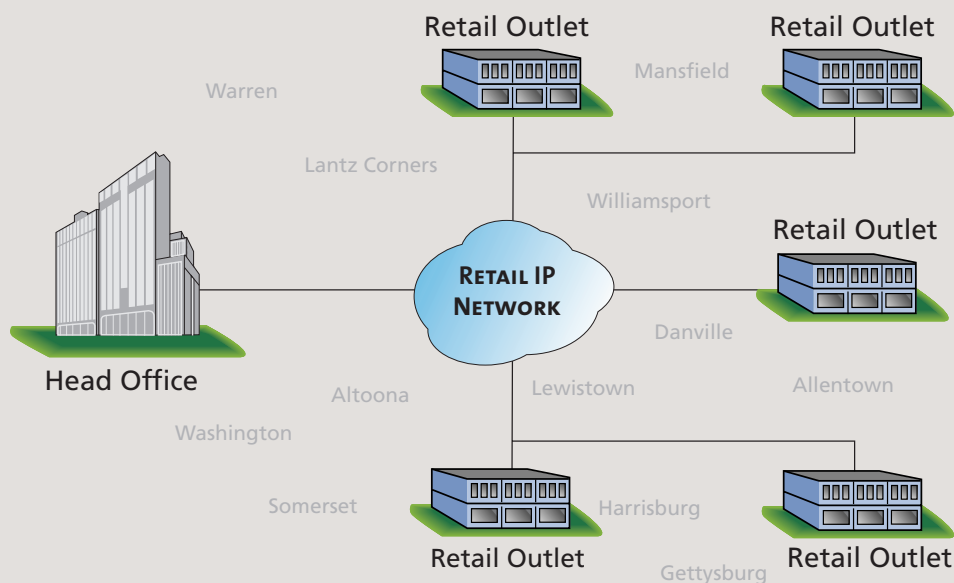
Key components of this March Networks video security solution:

- March Networks 4000 series Digital Video Recorders — networkable recording devices with up to 16 video inputs and support for audio and alarms
- March Networks DVR software — video system management tools to control the entire network of DVRs, as well as powerful user software to monitor live and recorded video
- March Networks DVR/POS software — system software which captures, stores and fuses transaction data with associated video

Installation of advanced digital systems



Networked video: for remote monitoring



A fully networked DVR system enables remote video access for retail chains.

Features of all March Networks DVRs

Manageability: remote or local configuration and management capabilities, remote software upgradeability permitting system-wide upgrades in only minutes and eliminating the need for weekly maintenance visits

Flexible storage: internal hard drives, RAID¹ solutions (via SCSI² interface), user-configurable schedules, video motion detection with sensitivity settings to ensure optimal storage efficiency, record on receipt of exception event

Programmability: comprehensive configuration per camera — including frame rate, quality settings, alarm management and recording schedules

Scalability: peer-to-peer architecture to meet growing business needs and store expansions

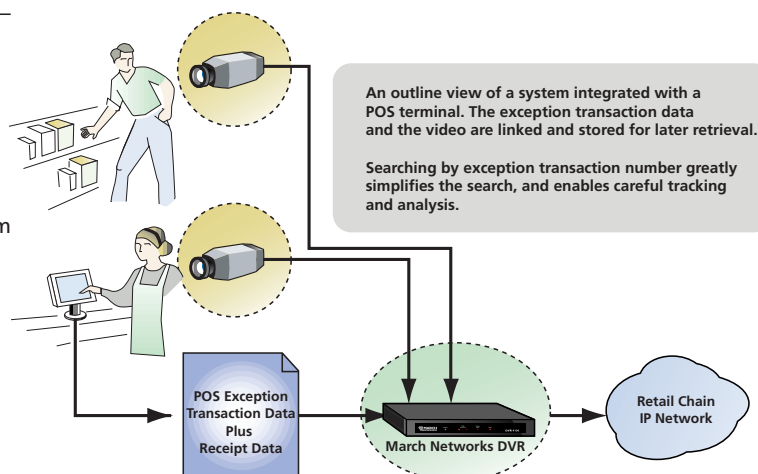
Reliability: sophisticated hardware and software watchdog functionality ensures instant notification of any system problem

Network access:

- supports Ethernet, token ring and PSTN (dial-up)
- seamlessly integrates with existing networks
- offers TCP/IP protocols and user-managed network-bandwidth limits
- simultaneously searches all devices on the network

Intelligent video processing: activity scan and event marker filtering permit precise narrowing of search to exact video clip required

Intuitive user interface: easy-to-use search and playback features, slider bars, alarm queries, configuration wizards and other features



¹ Redundant array of independent disks

² Small computer system interface

Field report: the networked advantage

A networked digital video security solution represents the wisest investment for the loss prevention departments in today's large retail stores.



According to Robert Blackwood, vice-president of Loss Prevention Specialists – Prevention Strategies Group of Orlando, Florida, there is a range of digital video systems available; however, a centralized networked system brings full power to a well-recognized loss prevention challenge.

"We've seen significant use of digital systems in exception reporting. When these systems are not properly managed through a network environment, efficiencies are difficult to realize. For example, a central analyst can better regulate and monitor through a centralized system than focused 'hot spot' attention by field personnel."

A common result for a decentralized system is inconsistent use of surveillance tools, he adds. "For example, if cash refunds were an issue, a store might assess the company's average refund rate. Say it was 10 percent, the retail chain's analyst might opt to investigate cashiers with return rates of 15 percent, which might push that specific follow-up."

Without this kind of global management, field personnel in one store might dig too deeply, and others not deeply enough, he says. Network access to loss prevention data per store is therefore critical.

What's more, research shows that 70 percent of retailers don't want their field personnel doing administrative work, Blackwood says.

"A networked solution is one way to pull that work back to a centralized 'drill down' resource."

When choosing a DVR system, retailers should opt for a provider that understands the retail business, Blackwood says, to ensure that the system is properly applied.

"March Networks' ability to interface with loss prevention departments to implement a networked DVR system is a pretty significant advantage. We've seen a number of stores install digital CCTV systems with a view to eventually networking, but never reaching implementation. It's been a challenge to get a store's loss prevention and IS (Information Systems) departments to agree. March Networks is in a really good position to help facilitate and implement these systems."

"A networked DVR solution ensures the intimate involvement of corporate loss prevention analysts in security investigations, freeing loss prevention field personnel from administrative matters and ensuring their consistent, holistic management of the retail organization's loss prevention program."

- Robert Blackwood,
vice-president and senior consultant, Loss Prevention
Specialists – Prevention Strategies Group, Orlando, Florida

March Networks has consulted closely with loss prevention specialists in North America to understand the unique security needs of the retail industry, and has applied its expertise in systems integration and digital video technology to deliver a networked digital video security solution that responds to those requirements. Its partnerships with global network and security integrators ensure that customers receive the most complete video surveillance security solutions available today.

Digital video: admissibility of evidence

Loss prevention personnel are now armed with a more integrated and comprehensive trail of evidence with the incorporation of March Networks digital video systems.

In the past, investigations were hampered by incomplete evidence. While the actual loss, such as a theft, and its timing were often apparent, proof that a particular individual was involved has been difficult to establish.

With a picture of the culprit clearly linked to the loss, along with the date, time and location, comprehensive evidence is now readily available.

The video clip, or "one good picture", is in most cases compelling enough to encourage early resolution of the incident and avoid a protracted judicial process. However, on occasion, the evidence must be used in a court of law, and the admissibility of digital video becomes an important factor in the prosecution's case.

While there are no laws directly governing the use of digital images in a prosecution case, guidelines recommended by legal and scientific experts are available in both the U.S.¹ and the U.K.²

March Networks DVRs incorporate the following important methods for establishing authenticity:

- An audit log, which cannot be modified or deleted, records all access to DVR files
- Compliance with Standard Operating Procedures³ (SOPs) ensures the required chain of custody
- The original version of the stored video is safeguarded on the DVR
- The units are tamper-resistant and password-protected
- Each frame is time and date stamped
- A video security seal⁴ provides an instant check of the authenticity of stored clips



**March Networks
Video Security Seal**

Original images are stored on the DVR, but there are a number of common tools available for downloading, printing, or saving of these video records in standard formats.

Video snapshots (see illustration) can be extracted as JPEG files, while video clips can be extracted as AVI files.

Electronic files can simply be attached to e-mails or downloaded to read-only media, such as a CD-ROM, for easy and timely distribution to corporate investigators or law enforcement agencies.

DVR Video Snapshot

POS Cashier-15 fps: Retail Store
Transaction #520221



352x288 pixels-zoom level: 100% (352x288)
Time of snapshot: 22/10/02 5:09:33 PM

¹ Scientific Working Group on Imaging Technologies (SWGIT) – June 8, 1999. *Definitions and Guidelines for the Use of Imaging Technologies in the Criminal Justice System.*

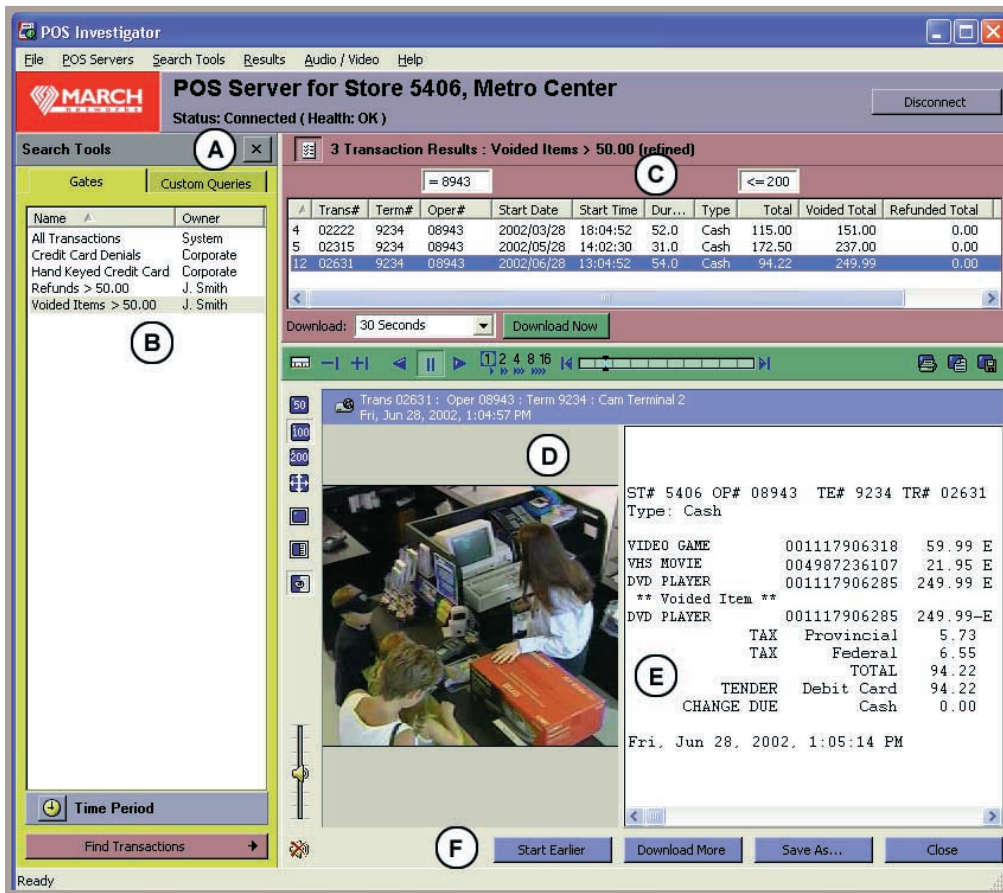
² House of Lords, Select Committee Science and Technology – Fifth Report, February 3, 1998. *Digital Images As Evidence.*

³ March Networks – October 2000. *Demonstrating Consistency of Evidence.*

⁴ Using SHA (Secure Hash Algorithm) of Digital Signature Standard [U.S. FIPS PUB 180-1, 1995]

Security investigations: instant retrieval and analysis

The March Networks DVR/POS Investigator software delivers loss prevention managers and investigators a comprehensive tool for the rapid analysis and detection of employee fraud.



- Legend**
- A – Search by time/date and transaction
 - B – Display predefined or custom queries
 - C – Analyze query results
 - D – View associated video
 - E – Show transaction receipt
 - F – Manage and store video and transaction data

The DVR/POS software suite expands the video functionality of our DVR products to specifically address the needs of loss prevention. It provides loss prevention managers with the ability to determine, capture and store exception data, perform queries, and display the associated video and receipt data.

- Search by transaction information, and view associated video and receipt data
- Store video and transaction data for permanent archiving on any networked recording device, such as CD-ROM, DAT tape, network drive, or on VHS tape.

From any corporate network location — in-store, regional or head office — loss prevention managers and investigators can:

- Trigger activity on receipt of specific transactions
- Receive notification in real-time of user-specified transactions

March Networks is uniquely positioned to provide complete video security solutions to address the million dollar losses facing retailers.

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