

High-Speed Video & Image Search, Analysis, and Storage

Finding Needles in Video Haystacks with NerVve and StorNext 5

Intelligence and Defense analysts are asked to perform their tasks with speed and accuracy, but their ability to discover items of interest is hindered by the overload of motion imagery—which is exploding beyond what anyone imagined a decade ago. In the intelligence community, it's not uncommon to have analysts constantly monitoring a wall of full motion video screens.

Surveillance video and motion imagery—including both Infrared and Electro Optical data—collected from remotely piloted vehicles (RPVs), unmanned aerial vehicles (UAVs), and other sensor platforms can scale up to a petabyte in a single collection. And the video surveillance is not limited to aerial footage—analysts also comb through video captured from CCTV and street cameras; in some cases, crowd-sourced civilian footage captured on smart phones is also collected and analyzed. Today, many analysts painstakingly inspect video frames, annotating events and objects of interest—an expensive manual process which does not scale to the massive influx of captured motion imagery.

AUTOMATED ANALYSIS OF CAPTURED MOTION IMAGERY

NerVve Technologies NVSS is a high-speed video and image search solution that operates on top of Quantum's high-performance StorNext® 5 Scale-out Storage and Archive. NerVve's solution was created to address requirements of agencies seeking to exploit massive amounts of unstructured data, such as video, images, and other 2-dimensional raster data. Analysts can use NerVve's Search-By-Example methodology to automate searches of vast repositories for content that matches defined images of interest, at very high speed: 1 hour of video can be searched in 5 seconds—24 hours of video in just 2 minutes.

REAL-TIME AND FORENSIC SEARCH OF VIDEO AND IMAGE ARCHIVES

The NerVve and StorNext solution can process real-time video or previously captured content to generate a high-speed, searchable, and compact representation of the data. Any number of video analysts can initiate searches simultaneously—either by an easy-to-use interface, or via programmatic API—to search each frame to detect items of interest, enabling automatic extraction and alerts of relevant items. The NerVve and StorNext solution gives analysts the ability to find those needles in the haystack in a matter of seconds versus days.



We are looking through way too much video and are missing the needles in the haystack.

- Common complaint of those working with FMV content

NERVVE & STORNEXT SOLUTION

- **Automated search** for vast collections of full motion video and images
- **Extremely fast search**—1 hour of video in 5 seconds
- **Search-By-Example** methodology
- **Real-time** and **forensic** search
- **Ranked, easy-to-read** search results
- **Cost-effective archives** to preserve data for future forensics
- **High-performance** storage infrastructure that scales to petabytes
- **API** to integrate into existing systems
- **COTS** (Commercial Off-the-Shelf)

Figure 1. Quantum Mission Information Workflow for Video and Image Search with NerVve NVSS



AUTOMATING DISCOVERY & ALERTS OF RELEVANT INFORMATION

NerVve search results are presented as ranked search results—and NerVve NVSS can also trigger alerts, obviating the need for analysts to manually watch the system. The NerVve NVSS search workflows can be saved and rerun as necessary, or added to a completely automated review process. NerVve ranked search results include the geospatial coordinates as well as the time, frame, and file info. And minimal training is required—most analysts can be operational with NerVve NVSS in less than 30 minutes. NerVve can easily search video and images stored on high-speed StorNext primary disk as well as video that has been tiered to other types of storage in the StorNext tiered archive, such as low-latency object storage and tape.

PRESERVE MOTION IMAGERY FOR FUTURE FORENSIC ANALYSIS

Sometimes, captured motion imagery is even more valuable forensically, in the future, in response to some future event. StorNext 5 offers a policy-based, tiered archive that enables you to match the cost of the storage to the value of the data—so that agencies can leverage the economics of tiering to reduce the overall cost of the video archive. StorNext 5 archive options include petascale, low-latency Lattus™ Object Storage, and cost-effective, tape-based StorNext AEL Archives—both with the power of StorNext policy-based data tiering.

To learn more, please visit us at quantum.com/StorNext or email scaleoutstorage@quantum.com.

NERVVE VISUAL SEARCH SOLUTION (NVSS)

NerVve was developed to address the core needs of organizations seeking to understand and search the content of large amounts of video and images. The solution detects anything the user wants to find within images and video at very high speeds, enabling users to quickly reduce the amount of useless video and imagery and identify only pertinent data. NerVve's Search-By-Example methodology allows the user to quickly crop out snapshots of things they want to find in an easy-to-use interface, and then automatically search vast repositories of video and images for that content.

STORNEXT SCALE-OUT STORAGE & ARCHIVE

StorNext Scale-out Storage and Archive solutions are found at the center of the most demanding ISR workflows in Defense and Intelligence. The StorNext 5 File System is designed for applications that operate on large sets of extremely large files—for mission owners that require fast capture and shared access to critical ISR data in order to enable a common operational picture. And StorNext 5 offers a cost-effective tiered archive, so that agencies can match the type (and cost!) of the storage to the needs of the data.

ABOUT QUANTUM

Quantum is a leading expert in scale-out storage, archive and data protection, providing solutions for sharing, preserving and accessing digital assets over the entire data lifecycle. From small businesses to major enterprises, more than 100,000 customers have trusted Quantum to address their most demanding data workflow challenges. With Quantum, customers can Be Certain™ they have the end-to-end storage foundation to maximize the value of their data by making it accessible whenever and wherever needed, retaining it indefinitely and reducing total cost and complexity. See how at www.quantum.com/customerstories.

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SB00070A-v02 Apr 2014