

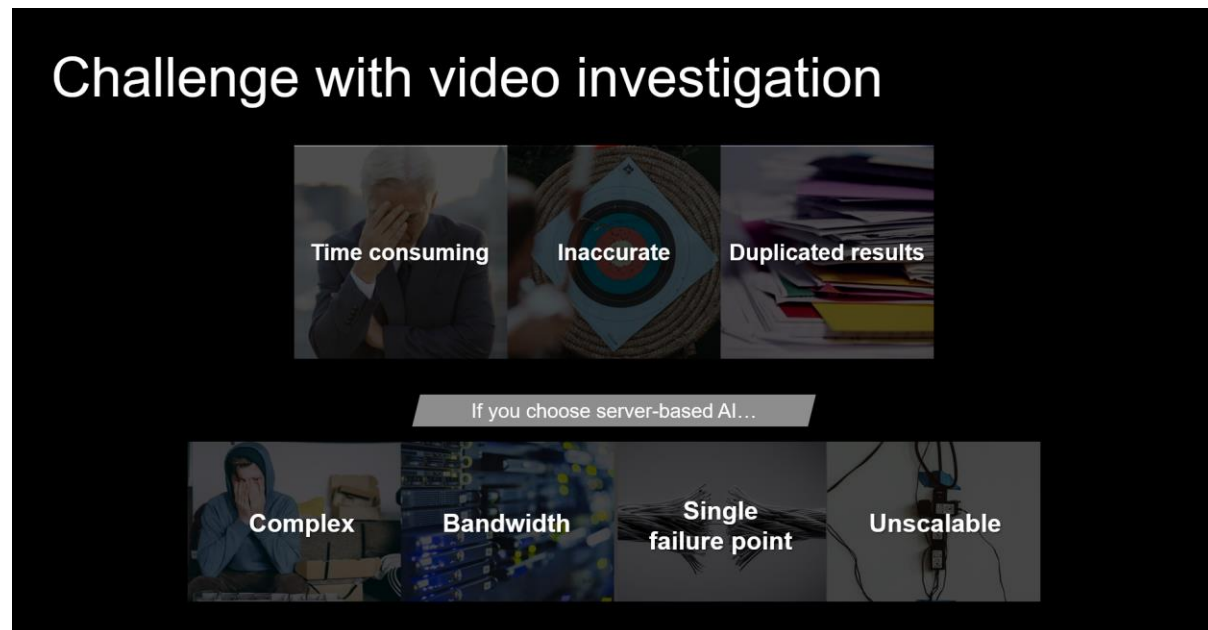
Accelerate investigation efficiency with VIVOTEK Deep Search

Highlights

- Conventional video investigation comes with drawbacks such as time consuming, labor intensive, and often inaccurate results.
- Server-based AI is a solution but beware of challenges like integration, compatibility, future upgrade and maintenance, and scalability.
- **VIVOTEK Deep Search** improves the operation efficiency of video investigation.
- AI cameras feature self-calibration, which allows the camera to learn the scene and calibrate the algorithm for optimal people and vehicle attribute extraction.
- The solution is realized on multiple platforms and allows for real-time extraction of people and vehicle attributes, which are transmitted in the form of metadata to the video platform.
- Deep Search significantly reduces human misjudgment and simplifies the work of system integrators, reducing the resources of technicians.

In recent years, the computation improvement of system-on-chip (SoC) has made Deep Learning models affordable and scalable at the device end. As a result, network surveillance cameras can now analyze complex scenes in real-time, extract people and vehicle characteristics such as color, and categorize each subject 24/7. This process, purely executed by the camera, brings actionable data to video investigation and results in the digestion of hours of videos in seconds.

The Challenge



Searching through footage across a library of hundreds of cameras is time-consuming and labor-intensive, and fatigue from hours of video search can lead to inaccuracies and misjudgment. Pixel-based search technology has been available for decades, but it often creates false-positive results such as shadows, foliage, and animals.

Of course, video analytics from independent third-party software vendors has integration with major video management platforms, but this solution brought underlying challenges.

1. Complexity and compatibility
The interest of in-depth software integration and update of vendors does not always align. Users risk using older software versions no longer supported by one vendor or a one-time integration with no updates. Furthermore, the integration is usually not done through standard protocol such as ONVIF, so any API changes could break the integration.
2. Total cost of ownership (TCO)
Software requires servers to run on, this implementation increases the explicit and implicit of total-cost-of-ownership (TCO). Explicit TCO includes dedicated server, higher switch bandwidth for data flow, and precious rackspace. Implicit TCO includes the design labor cost for a sustainable network architecture.
3. Single failure point and scalability challenge
Server-based analytics is often centralized, during a server failure or maintenance, user lost the AI functionality. Furthermore, unlike surveillance cameras, server-based AI must scale by server as a unit, in cases where the


user does not require a full server resource, they often end up with idle computing resources.

The Solution

VIVOTEK, a leading provider of AI surveillance technology, has taken on the challenge to improve the operation efficiency of video investigation with a unified solution realized on multiple platforms. The result is **Deep Search**, a powerful function available on their Linux-based ND-series network video recorder (NVR), VAST Security Station (video management system), and VORTEX (video surveillance-as-a-service).


Turn hours into seconds

Value of VIVOTEK Deep Search



Turn hours into seconds

Screening through footage is a mental-fatigue, eye-soring, daunting task. VIVOTEK Deep Search improves your operation efficiency with automated investigation.



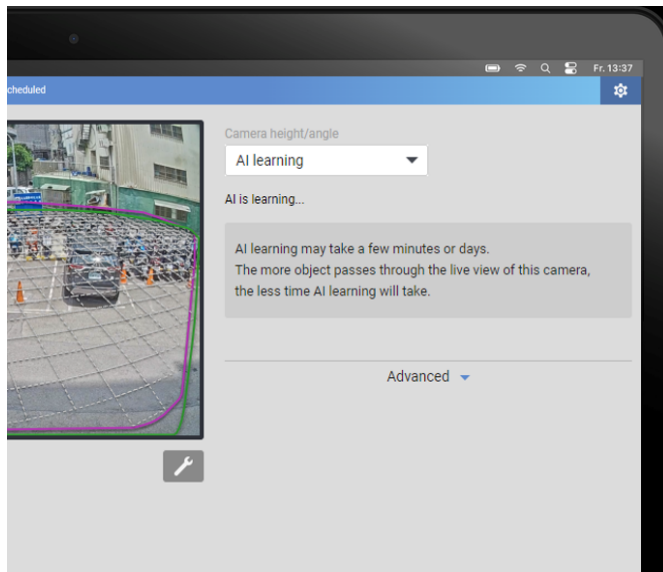
Search made simple

No perspective correction or analytics settings on the camera. No plugin or module installation on the system. With VIVOTEK AI solution, simply connect and go.

Deep Search starts with **Vision Object Analytics**, an edge-centric camera video analytics that extracts people and vehicle attributes in real-time. These attributes are transmitted in the form of metadata to the video platform. During video investigation, the user selects the desired attributes, and the system simply searches through the metadata, without looking into the images. This is a significant improvement in search speed, reducing the time it takes to search for the desired footage from hours to seconds.

However, the challenge did not end there. Searching for all people wearing red tops through seventy cameras could still yield hundreds of results, making it difficult for the user to process. To improve this, VIVOTEK has correlated the search results between different cameras and locations. With one simple click on an image, the

system finds the similar looking person from all cameras, making search simple and intuitive.



Search made simple

VIVOTEK's AI implementation ensures minimal interference from the customer. There is no need for manual camera calibration or measuring of camera position, and no extra software to install. The self-calibration feature allows the camera to learn the scene and calibrate the algorithm for the optimal people and vehicle analytics result. The AI camera starts self-calibration the moment it is powered on and relearns the scene if the

field-of-view changes.

With VIVOTEK's network video recorder and video management system, metadata from Vision Object Analytics instantly flows through the system. There is no need for plugin or module installation in the system. The NVR and VMS are built natively to support metadata from Vision Object Analytics out-of-the-box, keeping simplicity at its core. There are no analytics modules or plugins, just connect and go.

We will improve your operation efficiency

In summary, **Deep Search** is a significant improvement in video investigation. It reduces search time, significantly reduces human misjudgment, and simplifies the work of system integrators, reducing the resources of technicians. In the era of AI, VIVOTEK is committed to providing powerful and practical AI surveillance technology to improve operation efficiency.

About VIVOTEK



VIVOTEK Inc. was founded in February 2000. The Company markets VIVOTEK solutions worldwide and has become a leading brand in global security surveillance. To fulfill its global strategic footprint, VIVOTEK is committed to building an ecosystem for the IP surveillance industry and looks forward to long term collaboration and growth with all partners in our shared pursuit of a safe and secure society.