

# A New Vision for DoD with AI-Powered Video Intelligence

## Challenges

- Inflexible legacy infrastructure preventing integration of innovative new technology
- Lack of approved resources
- Lengthy training and set up associated with adopting new technology

## Results

- Open-source, flexible environment for AI and machine learning
- Automated ingestion and inference on large volumes of data
- On-premise solution deployed in days and training completed within hours
- Improved developer productivity

*ViON<sup>®</sup> partnered with NVIDIA<sup>®</sup> and Pure Storage to deliver an open-source, flexible infrastructure that would allow this DoD agency to quickly and seamlessly adopt AI and machine learning tools to enable Intelligent Video Analytics (IVA).*

## Business Problems

Though investments in artificial intelligence have long been viewed as a mission-critical priority in the public sector, it's remained in the exploratory phase of adoption in many federal government organizations.

The Department of Defense (DoD) began developing AI programs to support video and imagery operations to identify key personnel, vehicles, and armament. It recognized that video feeds already generate more data than any other source in the world, a number expected to grow globally by 2020 to about 1 billion. Without AI and machine learning automating and accelerating analytics, gathering video analytics is impossible given the extensive files of video data generated daily.

However, AI programs faced a barrier within an organization of the DoD that needed this technology – the organization housed rigid and proprietary infrastructure, limiting its ability to incorporate new tools like AI. The complexity of the algorithms and the sensitive nature of the operation required cleared AI specialists, which were limited.

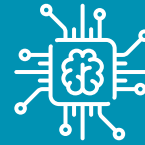
## Solution: Storage Managed Services

NVIDIA, Pure Storage, and ViON partnered to provide the DoD agency with an AI ready infrastructure that enabled automated ingestion, training, and inference on data from hundreds of video feeds. The architecture is based on AIRI™ - the industry's first converged infrastructure solution for AI, built on NVIDIA DGX-1 and Pure Storage FlashBlade. The DGX-1 AI supercomputer is a state-of-the-art integrated system for machine learning and AI development, integrating eight of the world's fastest data center accelerators. The NVIDIA Tesla® V100 Tensor Core GPU delivers the massive compute power necessary to tackle machine learning training. With its integrated, pre-optimized AI software stack, DGX-1 streamlines workflows for developers and researchers to start their AI projects. Pure Storage FlashBlade delivered the high-performance, high IOPS storage to ensure every GPU in the DGX-1 is constantly fed with data. The AIRI architecture is interconnected with a high-speed, low latency network fabric based on the fastest Ethernet switching in the market. ViON supplied hosting, integration and installation services.

## Results: Turnkey Integration of IVA Tools

The AIRI infrastructure allowed the DoD organization to quickly and securely deploy new AI and machine learning tools in a rapidly changing environment. The end-to-end solution, equipped with software, libraries, and algorithms, was deployed on-premises and live within a matter of days. The AIRI Scaling Toolkit allowed the customer to begin running the first multi-GPU training within hours, slashing training time from weeks to minutes.

The AIRI platform provides a system capable of quickly ingesting large data sets of video, audio, images and unstructured text for deep learning. Within the platform, the NVIDIA DGX-1 enables applications that can now perform rapid analysis in near real-time.



## Poised for the Future: AI as a Core Component of Ongoing DoD Operations

In February 2019, the White House launched the American AI Initiative, marking a decisive shift for federal agencies in their approach to AI. As a result, agencies were directed to prioritize AI investments in areas such as research and development, data models, and computing resources.

Computing power, networking and storage are the foundational elements that empower the incredible work of AI. Unless these elements move forward at the same rate in a flexible environment, the process will be off balance and innovation will be restricted.

With AIRI, the organization within the DoD now has the core platform necessary to onboard an ever-evolving landscape of AI capabilities in a secure, rapid, and repeatable manner.



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### About ViON

ViON Corporation is a cloud service provider with over 38 years' experience designing and delivering enterprise data center solutions for government agencies and commercial businesses. The company provides a large portfolio of IT as-a-Service, including infrastructure, multi-cloud and artificial intelligence (AI) solutions. Focused on supporting the customer's IT modernization requirements, ViON's Enterprise Cloud is changing cloud management for the market, providing a streamlined platform to audit and control technology in an evolving multi-cloud world. The ViON Marketplace™ allows customers to research, compare, procure and manage a full range Everything as-a-Service solutions from leading manufacturers via a single portal. ViON delivers an outstanding customer experience at every step with professional and managed services, backed by highly-trained, cleared resources. A veteran-owned company based in Herndon, Virginia, the company has field offices throughout the U.S. ([www.vion.com](http://www.vion.com)).