DELL Technologies

# Computer vision enhances security and operational efficiency for the U.S. Department of Defense and its agencies

Defense Department agencies require fast, accurate decision-making to ensure readiness and meet the mission, from supply logistics to facility operations to infrastructure maintenance. To support these requirements, the Department of Defense (DoD) is accelerating the adoption of advanced artificial intelligence (AI) capabilities to gain insights from diverse data sources.

AI-powered computer vision applications are emerging as a key opportunity, connecting video and other data at the edge with broader centralized networks. These sophisticated systems recognize visual patterns, detect objects and analyze scenes with high accuracy, turning data – including video, images, audio, sensor readings and biometric information – into actionable intelligence.

Computer vision empowers defense agencies to improve security for personnel, equipment and infrastructure, and enhance operational efficiency through strategic, data-driven insights.

The Serviceable Addressable Computer Vision Market is estimated at $60 billion over the next 12 months. The combination of Dell and ProHawk AI, Dell's Computer Vision ISV solution, have the leading technology against this opportunity, across federal opportunities but also spanning virtually all Dell Technologies divisions and AI factory use cases.

DoD opportunities represent an important twenty percent of the serviceable addressable market and Dell/Prohawk are currently in active discussions with over twenty different federal customers and opportunities. Some of those opportunities include:

## Increase security and situational awareness

By identifying critical patterns and filtering out noise, computer vision delivers a real-time, unified picture of the operational environment – enabling rapid, informed decisions in complex situations. Applications include:

- Identifying suspicious behavior patterns to identify potential safety and security threats
- Monitoring perimeters for intrusions and unauthorized access
- Correlating visual data with other intelligence sources to create a more comprehensive understanding of the operating environment

The Dell Computer Vision Solution case addresses all the above critical customer needs, with unmatched visual clarity, real-time, enabling critical decision making at the decisive point in time. This of course results in improved decision-making and efficiency but moreover can make a fundamental difference in helping to save lives and provide an offensive overmatched capability for U.S. forces and their allies.

## Bolster supply chain resilience

Modern military readiness demands an agile, adaptive system capable of ensuring the security and timely availability of critical supplies, specialized equipment and spare parts under dynamic and challenging conditions. Computer vision logistics innovations, powered by AI, have become essential for maintaining supply chain resilience. Applications include:

- Automating inventory tracking and management using image recognition to identify and count supplies, reducing manual effort and improving efficiency
- More precisely inspecting assets moving through the facility and scanning supplies and equipment for security risks
- Assessing the condition of equipment and vehicles using visual inspections, enabling faster maintenance and repairs
- Gaining a better understanding of traffic flow to identify areas of congestion

## Improve facilities/equipment management and maintenance

The DoD faces significant installation management challenges, including $137 billion in deferred facility maintenance costs and $91 billion in environmental liabilities. These financial burdens, coupled with potential health and safety hazards, can hinder mission effectiveness. As the DoD addresses these challenges, insights from computer vision can help:

- Develop predictive maintenance models to prioritize maintenance tasks based on the severity and urgency of identified issues, optimizing resource allocation and equipment uptime
- Analyze historical imagery to track the progression of deterioration in specific areas, enabling more accurate predictions of future maintenance needs
- Analyze satellite imagery to monitor environmental conditions, identify pollution sources and track environmental impacts

## Dell Validated Design Solutions for Computer Vision

Often, the biggest challenge for organizations implementing computer vision is the length of time from planning to deployment. That's because a fit-for-purpose solution requires an ecosystem of partners handling everything from cameras and sensors to networking, compute, data, storage, software applications, analytics and security – and integrating these components and processes takes time and resources.

Dell's Validated Designs for Computer Vision is a scalable platform of integrated components, capable of hosting multiple applications from video management system and computer vision software partners for solutions extending from the edge to the core and the cloud. The solution is designed to ingest video and edge data once and apply it to multiple applications for greater efficiency and faster insights.

## Key benefits and value

1. **Curated partner ecosystem:**
   Dell Technologies works with key partners to bring together otherwise fragmented components into a consolidated, streamlined workflow solution to lower investment risk

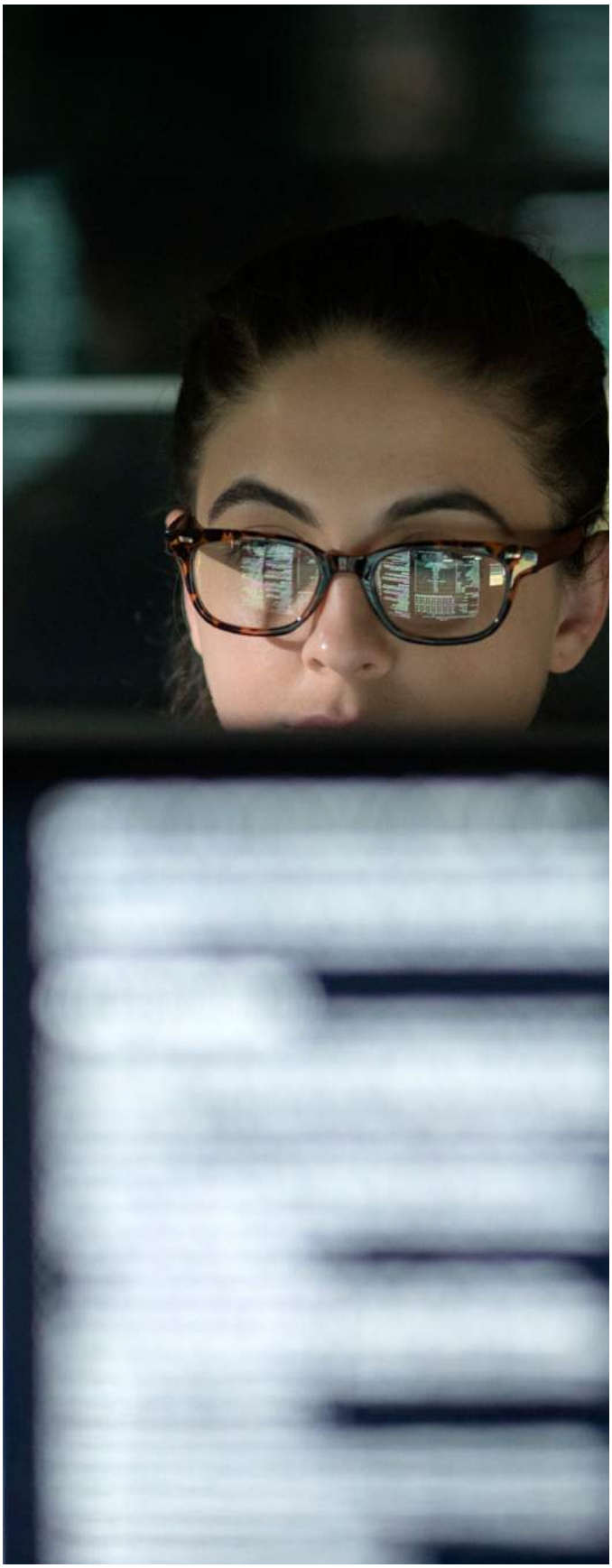
2. **Comprehensive, lab-validation test approach:**
   To help deliver a solution that works for your organization from day one, Dell Technologies aligns validation standards with our partners to test hardware and software in extreme, real-world scenarios

3. **Scalable and proven solutions:**
   Our approach decreases time to value by combining the right hardware and software from edge to core to cloud to suit your specific use case. It can also scale from point solutions to enterprise environments

4. **Dedicated global subject matter experts:**
   Maximize the value of your investment by relying on our global network of subject matter experts for guidance with infrastructure and data management, including video workloads, workflows and data governance

By partnering with Dell Technologies, organizations gain access to a comprehensive solutions portfolio and computer vision expertise. This partnership helps reduce the risk, cost, and complexity of implementation by leveraging the right mix of technologies to fit specific use case requirements.

Dell's services provide an edge-to-enterprise computer vision system, simplifying deployment with orchestration and automation.



## ProHawk AI's technology

ProHawk AI's patented technology—driven by industry-leading automated image restoration algorithms—dramatically enriches the quality of live and recorded camera streams. The processing latency is also so low that it is undetectable to the human eye. This enables faster outcomes and superior CV and AI/Analytics accuracy without the need to retrain existing AI models. Real-world environments pose real-world challenges. Rain, fog, snow, haze, dirt, sand, smoke, sun glare, light, and darkness are just some of the factors causing blind spots for CV and AI solutions. These issues render modern systems ineffective and incapable of delivering meaningful and actionable CV insights.

The ProHawk Vision application and plug-ins are on-premises AI software subscriptions that have been designed to leverage the scale-out computing, storage, and networking technologies from Dell Technologies and Intel.

## Learn more:

Discover how computer vision enables real-time situational awareness, better quality and faster insights

See how Dell Technologies advances computer vision outcomes

Watch how you can reduce risk with Dell Validated Designs for Computer Vision