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GAI IntelliPOD & Private 5G: Revolutionizing Video Analytics and Tactical Edge Security

GAI IS AI

Prem Jadhwani
Chief Technology Officer
Government Acquisitions Inc.
Prem.Jadhwani@gov-acq.com
703-554-3827

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DISA TEM Technical Exchange Meeting

AGENDA

- GAI Overview
- GAI IntelliPOD Solution Overview
- GAI IntelliPOD Architecture and Use Cases
- Video Restoration using ProHawk
- Private 5G Architecture Overview
- Private 5G Applications and Use Cases in DoD
- Q & A

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GOVERNMENT ACQUISITIONS

At a Glance

FOUNDED

1989

FEDERAL IT

SOLUTIONS PROVIDER & TRUSTED ADVISOR

SOLVE COMPLEX

IT PROBLEMS

BEGIN & END

WITH SUPPORT FOR THE MISSION

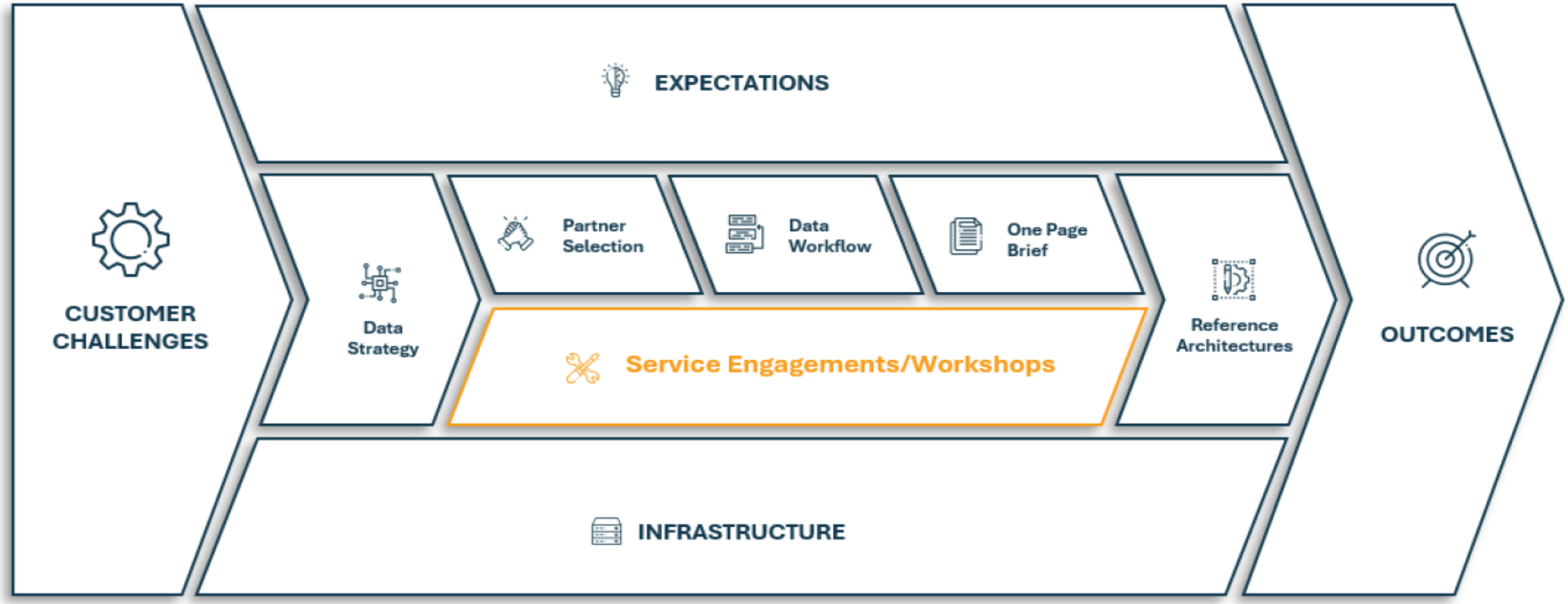
EXECUTE FLAWLESSLY

PARTNERED WITH THE BEST

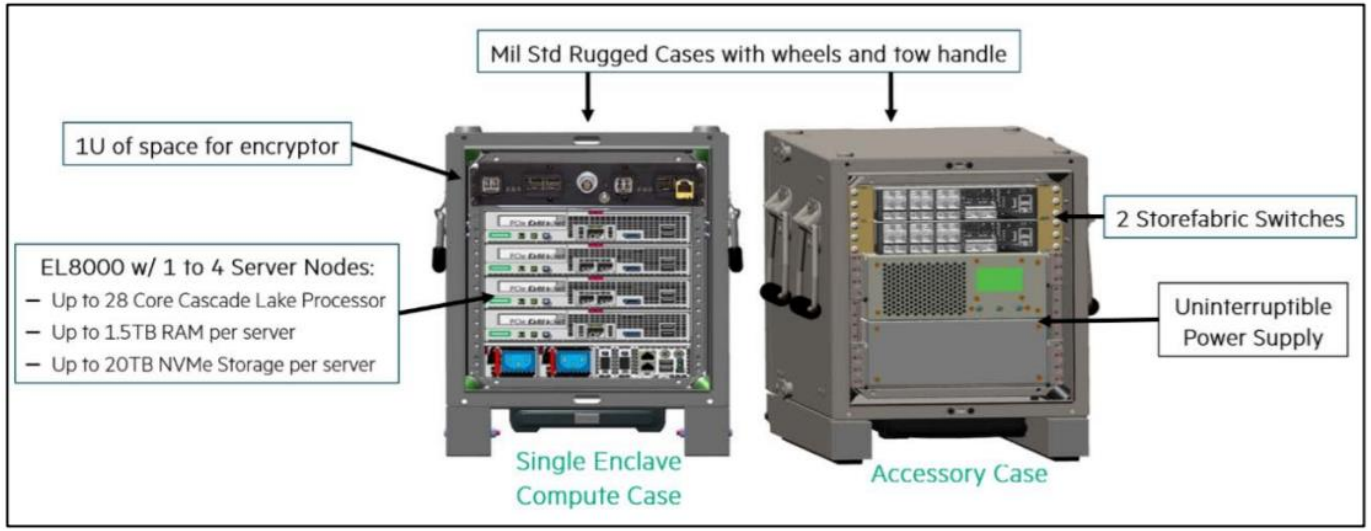
- TECHNOLOGY PARTNERS
- FEDERAL SYSTEMS INTEGRATORS
- CONSULTING PARTNERS
- ECOSYSTEM PARTNERS

MAKE ACQUISITION SIMPLE

GAI Fully Integrated Technology Stack (FITS) Methodology



Intelligent Edge

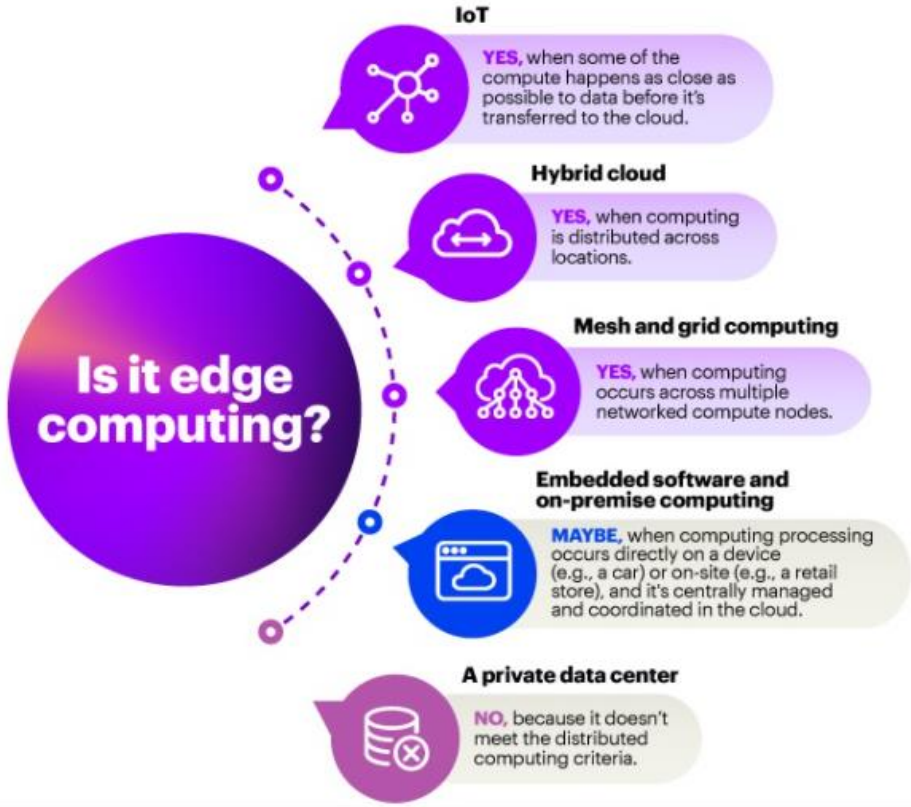


HPE Edgeline EL8000 Single Enclave edgeONE system

Hewlett Packard Enterprise

What makes edge computing different

Edge computing occurs when the computational work is done as close as possible to data sources. This can happen on a gateway or device within points in a network mesh, or in another private or public cloud.



Intelligent Edge Applications – Architectural Components

Edge solutions are especially valuable where real-time decision-making is critical, and quick response times with low latency are needed.

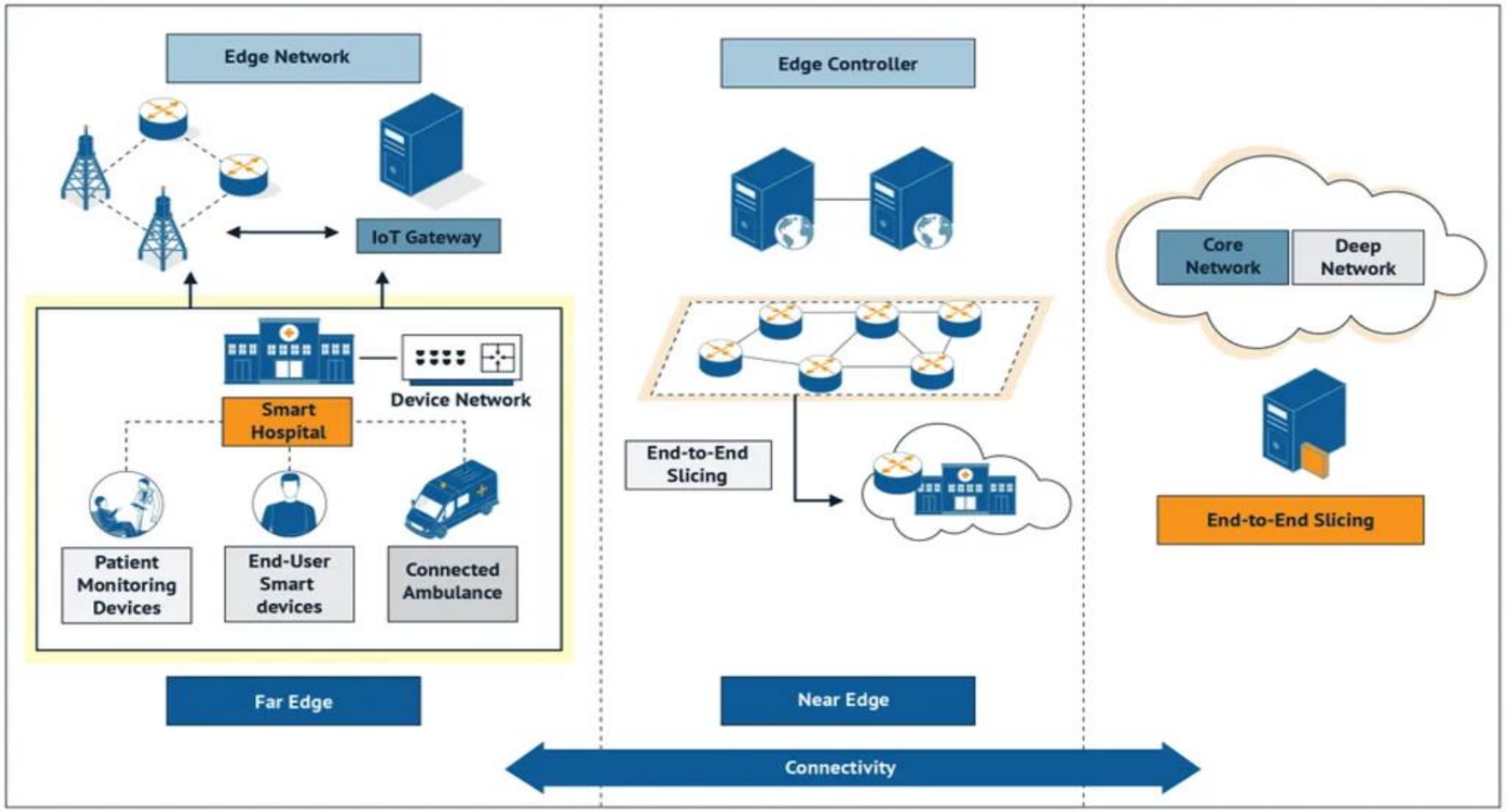
Another essential edge capability is compensating for poor or unreliable network connectivity, where systems need the ability to operate independently or off the grid. Likewise, edge computing can be the right solution when too much data is being generated, such as video surveillance, to transmit effectively to a centralized site. Finally, security or compliance concerns dictate that data should be kept and processed locally in some instances.

Edge solutions have three primary components:

1. **Localized computing:** Distributed compute and storage that brings processing closer to where needed to enable more autonomous operations.
2. **Internet of Things/IoT:** Smart devices to sense, communicate and act on information.
3. **5G and other networking:** Offers the lower latency and higher bandwidth needed to take advantage of this data.

The growing ubiquity and capacity of IoT devices, coupled with the introduction of 5G networks, has brought edge computing to an inflection point for government agencies, making it viable for an increasing number of new use cases. Specifically, 5G connectivity supports dramatically more data, including video, with lower latency for real-time decision support and action. This enables massive scaling of existing infrastructure to support a far greater number of devices, increasing the fidelity and control of these networks.

IntelliPOD for Edge AI - Smart City / Smart DoD Defense Industrial Base (DIB)



- **Threat Modeling:** Generate models to simulate potential threats to forward operating bases (FOBs) and develop countermeasures.
- **Video Analytics:** Use GenAI-enabled video restoration and analytics for real-time monitoring of surveillance feeds, enhancing detection of intrusions and suspicious activity.

IntelliPOD IVA Solution Overview

The IntelliPod Solution contains AI-based software and hardware for plug-and-play deployment. The platform includes Google-like video search, real-time Alerts, Intrusion Detection, Face Recognition, License Plate Recognition, People and Vehicle Counting, Weapon Detection for smart city applications.

It can search, monitor, alert, and analyze video with twenty AI-enabled video analytics on a single platform. Vaidio detects and alerts on objects, vehicles, behaviors, and conditions with market-leading speed and accuracy.

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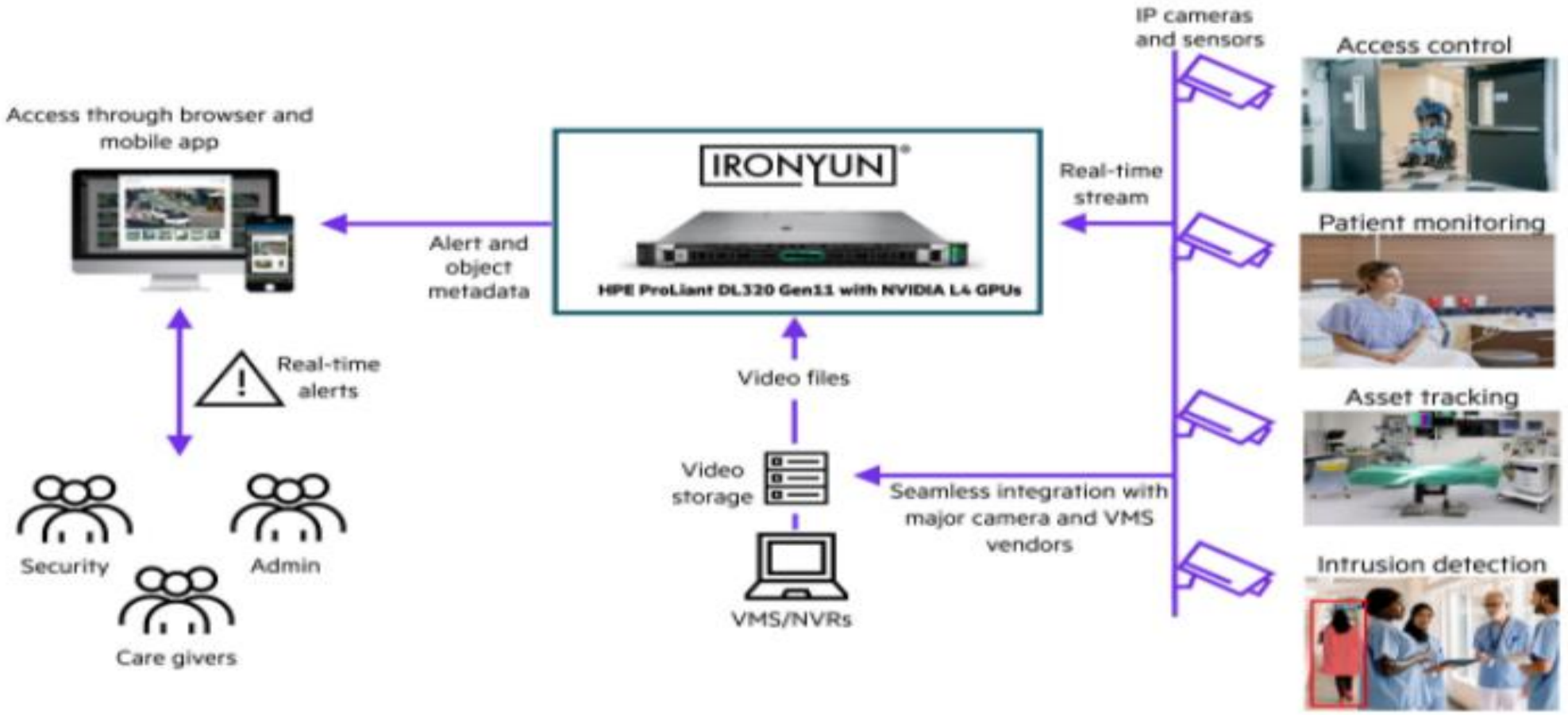
High Level Overview of IntelliPOD Solution



GAI IntelliPOD on Dell

Intelligent Pre-Trained Platform for Object Detection

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SECURITY

Use-Cases and Workloads

UiPath™ — Automated Weapon Detection & Alerting

ProHawk® — Intelligent Video Analytics

IRONYUN® — Swarm Learning

splunk> — Digital Fingerprinting & Cyber Threat Mitigation

Application Layer

EDGE ANALYTICS

Advanced Visualization & Analytics

- Data & Video Image Analytics
- Computer Vision
- Artificial Intelligence
- Machine Learning
- Natural Language Processing

Presentation Layer

ML MODEL DEV & DATA FABRIC

Virtualization, Containers & Data Fabric

- **Data Processing:** Red Hat OpenShift Data Science
- **Model Development:** Red Hat OpenShift Data Science
- **Model Deployment:** Red Hat Ansible Automation Platform

Machine Learning Layer

Red Hat OpenShift Container Management, VMware Tanzu

Container Layer

Red Hat Virtualization, RHEL, Computer Vision, RedHat Satellite

Software Layer

Physical Hardware, Network Infrastructure, Tactical Edge & Communications

Edge Network & SD-WAN: Cameras & IOT Devices, Dell Switches, Dell 5G Wireless, EMC Storage

Network Layer

DELL Technologies — NVIDIA — **Dell XR 4000** — WEKA — run:ai — Red Hat

Infrastructure Layer

FROM THE DATA CENTER TO THE FAR EDGE

IntelliPOD Intelligent Video Analytics on HPE

Intelligent Pre-Trained Platform for Object Detection

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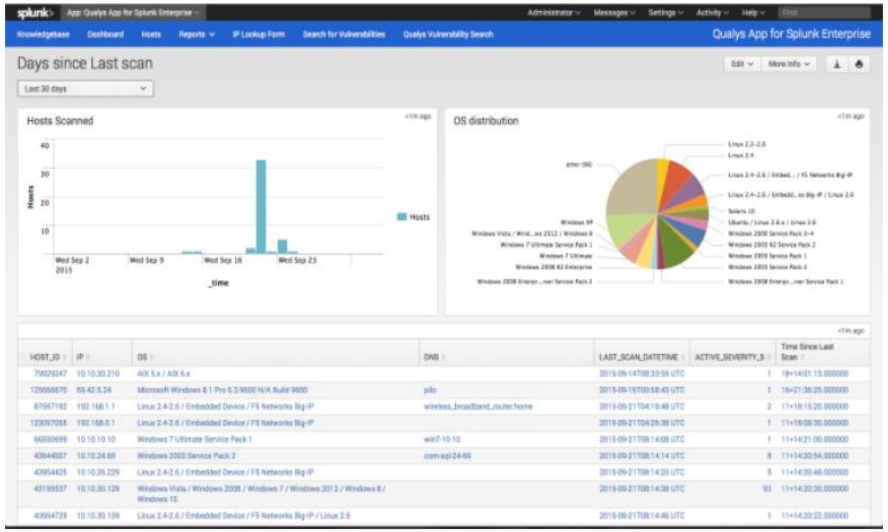
SECURITY

Use-Cases and Workloads	UiPath™ Automated Weapon Detection & Alerting; IRONYUN® Intelligent Video Analytics; ProHawk Swarm Learning; elastic Digital Fingerprinting & Cyber Threat Mitigation	Application Layer
Advanced Visualization & Analytics	**ANALYTICS**: Data & Video Image Analytics; Computer Vision; Artificial Intelligence; Machine Learning; Natural Language Processing	Presentation Layer
Virtualization, Containers & Data Fabric	**DATA FABRIC**: **Data Processing & Pipeline** HPE MLDM; **Model Development & Training** HPE MLDE, TensorFlow; **Model Deployment & Monitoring** HPE MLIS	Machine Learning Layer
	RedHat OpenShift Container Platform, Nutanix, Nvidia NIMs	Container Layer
Physical Hardware, Network Infrastructure, Tactical Edge & Communications	RedHat Virtualization, IronYun Vaidio Platform, Run.AI	Software Layer
	Juniper Edge Network & SD-WAN: Cameras & IOT Devices, Aruba TOR Switches, HPE 5G Core Athonet Wireless	Network Layer
	Hewlett Packard Enterprise; NVIDIA; **HPE Edgeline 8K System**; WEKA; run:ai; Red Hat	Infrastructure Layer

FROM THE DATA CENTER TO THE FAR EDGE

Automatic Weapon Detection using AI/ML



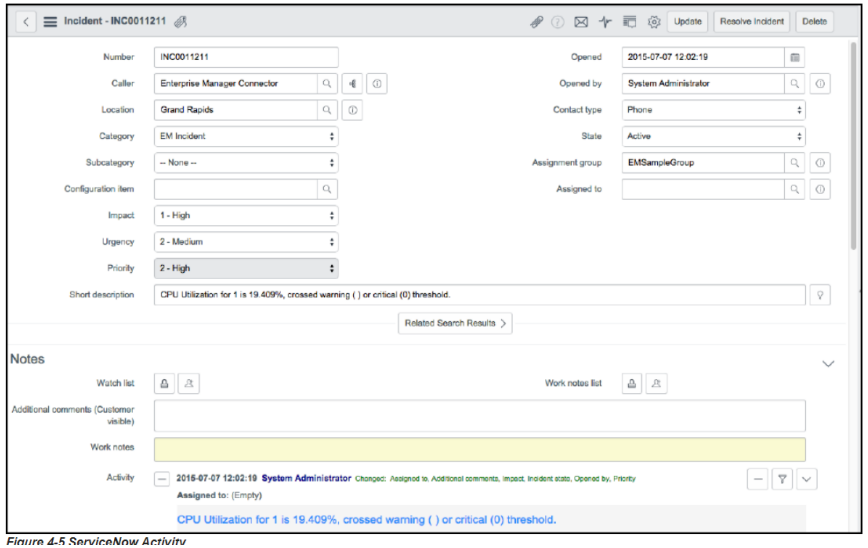


Figure 4-5 ServiceNow Activity

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IntelliPOD

Accelerating computer vision deployments in data centers and at the edge.

Empowering organizations with seamless video restoration capabilities.

From threat detection to real-time surveillance and analytics, we're enabling critical insights and applications.

Dedicated DNA. Mission Mindset.

Smart Cities

VAIDIO BY IRONYUN

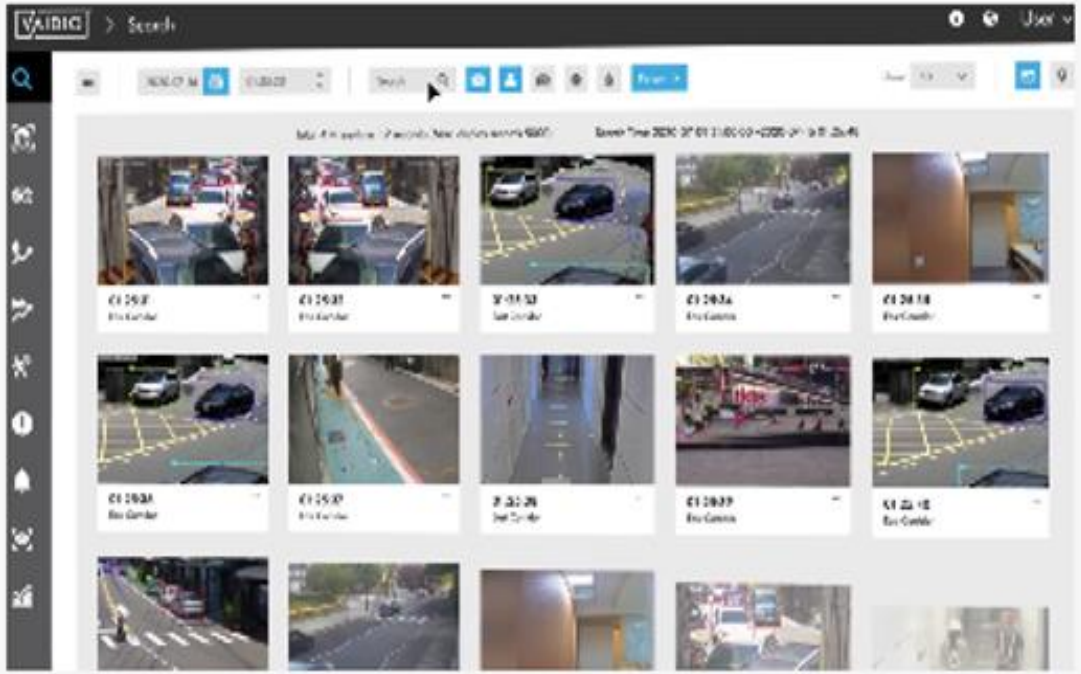
UiPath

splunk>

servicenow

IntelliPOD IVA Video Search and Intrusion Detection

Video Search



Intrusion Detection

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IntelliPOD IVA Weapon & Fire Detection

Weapon Detection

Smoke & Fire Detection

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IntelliPOD – Intrusion Detection (Person)

Intrusion Detection_Person

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IntelliPOD – Multiple Use Cases for Defense Industrial Base Security

People

- Intrusion detection
- Face recognition
- Age and gender
- Counting
- Cross camera tracking
- Crowd monitoring
- Face mask
- Fall
- Identity verification
- Loitering
- Near moving truck
- Object left behind
- Occupancy
- On cellphone
- PPE
- Temperature
- Wrong direction

Vehicle

- License Plate Recognition
- Abnormal speed
- Counting
- Illegal parking
- 100 Vehicle Makes
- 1000 Vehicle Models
- Parking management
- Wrong direction

Specialized

- Active weapon
- QR code, barcode, OCR
- Scene Change
- Smoke and fire

IoT & VMS Integration

- Audio gunshot sensor
- CO2 sensor
- Humidity sensor
- Panic button
- Text processor
- Vape sensor
- 28 VMSs

All platform capabilities support Real Time, Forensic Video Search, and Video Data Analytics

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IronYun Vaidio 8.0 2024 - Key Features

Comprehensive offering
Vaidio offers over 30 à la carte video analytics, including intrusion detection, facial recognition, license plate recognition, vehicle make/model recognition, smoke, fire, weapon, object, PPE, and more.

Proprietary AI
Powered by proprietary AI evolved over multiple generations, Vaidio ensures superior accuracy, alert speed, functionality, and cost efficiency.

Seamless compatibility
Vaidio works with any ONVIF-compliant IP camera and is integrated with all market-leading video management systems.

Versatile deployment
Equipped with Kubernetes compatibility, Vaidio can be deployed on-prem, on public or private cloud, at the edge, or in hybrid environments.

Scalable
Vaidio adapts to your needs, whether you have 1 or 1,000 cameras, and enables real-time monitoring, forensic video search, and business intelligence applications.

Flexible acquisition
Vaidio can be purchased upfront or as subscription-based software-as-a-service.

Kubernetes integration
Vaidio 8.0 integrates its Linux core with Kubernetes, enhancing compute efficiency and scalability while minimizing operational costs by orchestrating containers across master, worker, and microservices nodes, optimizing resource utilization for efficient manageability and scalability.

Analytics virtualization
In Vaidio 8.0, microservices and a patent-pending virtualization layer allow cameras to share GPU resources, boosting the number of cameras each GPU can support. This lowers the overall solution cost.

Generative AI
Vaidio 8.0 will include proprietary generative AI for natural language video search, new application models, and an expansive new object vocabulary. This keeps Vaidio at the vanguard of Vision AI, boosting security, new operational applications, and enhanced business value.

Floating analytics licenses
Vaidio 8.0's Floating Analytics Licenses enable flexible redeployment across cameras, enhancing operational efficiency by dynamically allocating analytics applications based on demand or schedule. This feature sets Vaidio apart from most of the camera-based analytics and fixed analytic alternatives.

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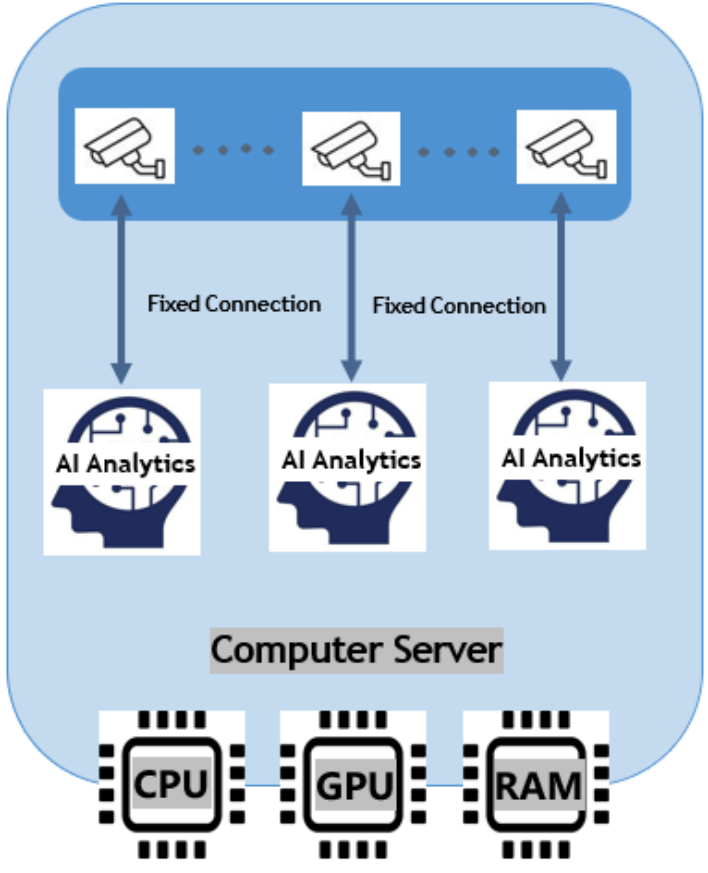
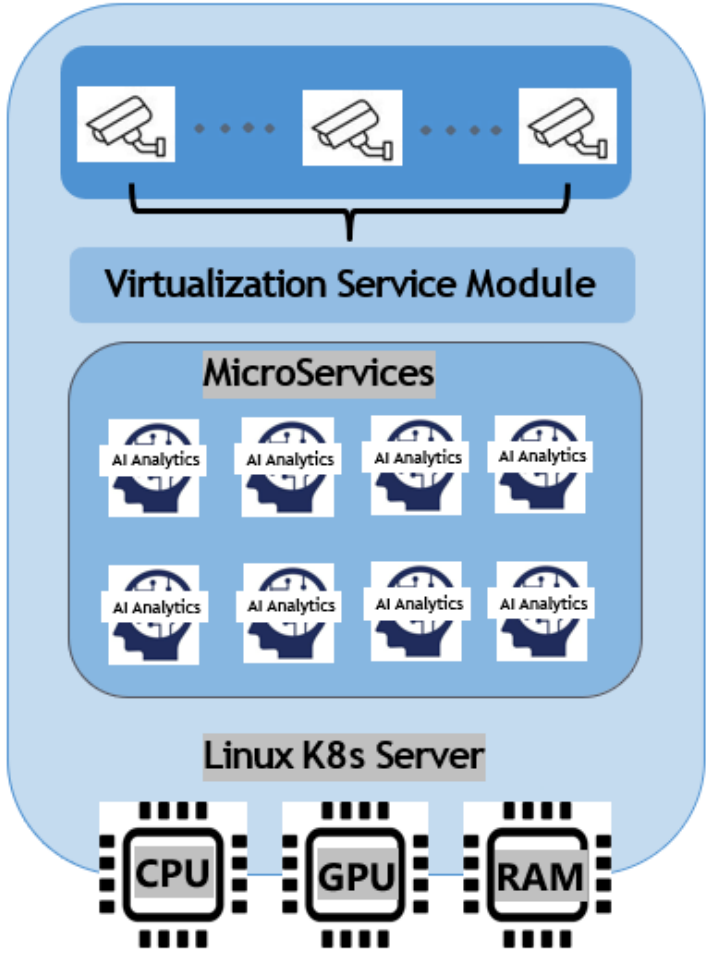
VIRTUALIZATION OF AI ANALYTICS



Legacy Analytics Architecture



Virtual Analytics Architecture

Benefits of Virtualization

- Reduced Capex and Opex costs
- Minimized or eliminated downtime
- Increased productivity and efficiency
- Faster provisioning of AI analytics
- Sharing of HW & SW resources
- Double the number of cameras per server

Applications of GAI IntelliPOD solution

Perimeter Security and Intrusion Detection

Scenario: Protecting military bases, forward operating bases (FOBs), and critical infrastructure from unauthorized intrusions.

Application: GAI IntelliPOD can continuously monitor perimeters in real-time, detecting and alerting on any unauthorized vehicles, personnel, or objects that breach secured areas. With AI-driven video analytics, it can distinguish between harmless wildlife and potential threats, reducing false alarms and ensuring rapid response to genuine security breaches.

Force Protection and Operational Safety

Scenario: Enhancing force protection during sensitive operations or in combat zones.

Application: IntelliPOD can monitor live video feeds from drones, vehicle-mounted cameras, or static surveillance points to detect suspicious behaviors or anomalies in operational environments. This enables commanders to make informed decisions quickly, ensuring the safety of personnel and assets in real-time.

Training and Simulation Enhancement

Scenario: Improving the effectiveness of military training programs and combat simulations.

Application: By analyzing video feeds from training exercises, IntelliPOD can provide detailed feedback on trainee performance, identify areas for improvement, and simulate various threat scenarios. The platform's ability to analyze behaviors and conditions in video enables more realistic and effective training, better preparing troops for real-world operations.

Applications of GAI IntelliPOD solution within DoD

Vehicle and Convoy Security

Scenario: Safeguarding military convoys and patrols in hostile environments.

Application: IntelliPOD can be integrated with vehicle-mounted cameras to monitor surrounding areas for threats such as IEDs, suspicious vehicles, or unusual behavior along convoy routes. The platform's rapid detection and alerting capabilities allow for immediate countermeasures, enhancing the safety of troops on the move.

Base Operations and Logistics Efficiency

Scenario: Streamlining base operations and enhancing logistical support.

Application: IntelliPOD's ability to monitor and analyze video from across a base can optimize traffic flow, manage supply chain logistics, and ensure compliance with safety protocols. For instance, it can detect and alert on potential hazards in loading docks or monitor vehicle movements to improve fuel efficiency and reduce downtime.

Counterintelligence and Threat Monitoring

Scenario: Preventing espionage and monitoring for insider threats.

Application: IntelliPOD can analyze video feeds for patterns of behavior that may indicate insider threats or espionage activities, such as unauthorized access to restricted areas or unusual interactions between personnel. The platform's advanced analytics can support counterintelligence efforts by providing early warnings of potential security breaches.

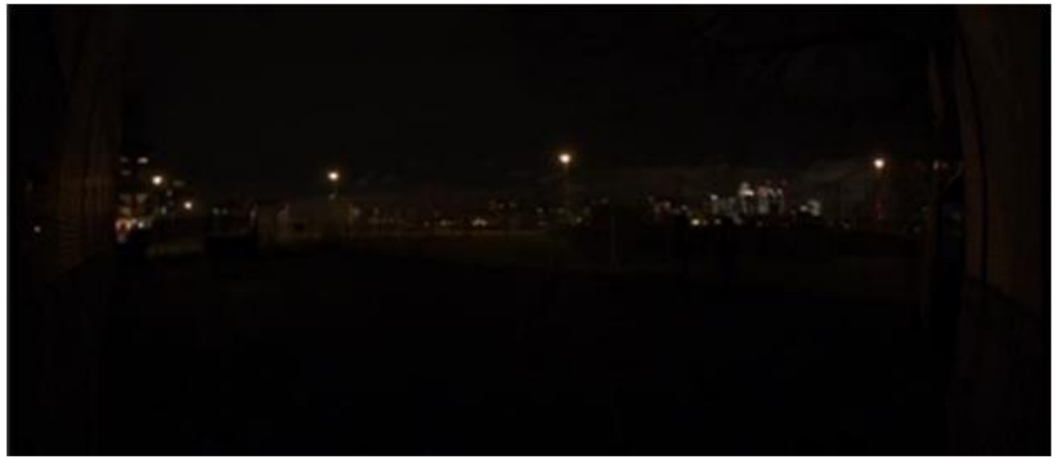
Using ProHawk Vision Plugin for Low Quality Video Restoration

Powered by NVIDIA GPUs, ProHawk Vision can quickly fix low-quality video in as little as 3 milliseconds, resulting in output that is undetectable to the human eye. The ProHawk Vision Restoration Plugin automatically analyzes every frame of the video, identifies the real-world conditions caused by low light, weather, particulate matter, and lighting affecting each frame, and applies the appropriate controls to the ProHawk Vision Restoration algorithms to restore the frame and reverse any degradation. The mathematical model used for each pixel is based on quantitative measurements, enabling the ProHawk Vision Restoration Plugin to eliminate the environmental effects captured by the video sensors.

ProHawk Government Acquisitions

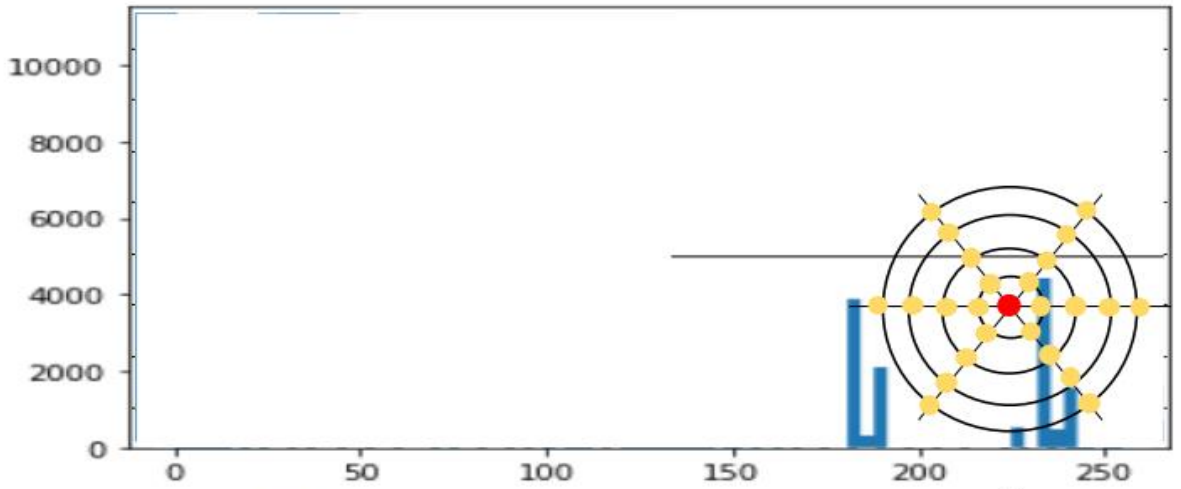
Expanding Pixel-by-Pixel *Restoration* using Artificial and Augmented Intelligence to restore the actual initial image

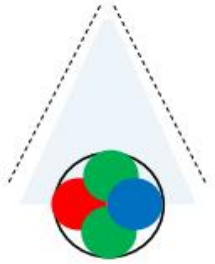
ProHawk



http://tiny.cc/prohawk1

http://tiny.cc/prohawk2

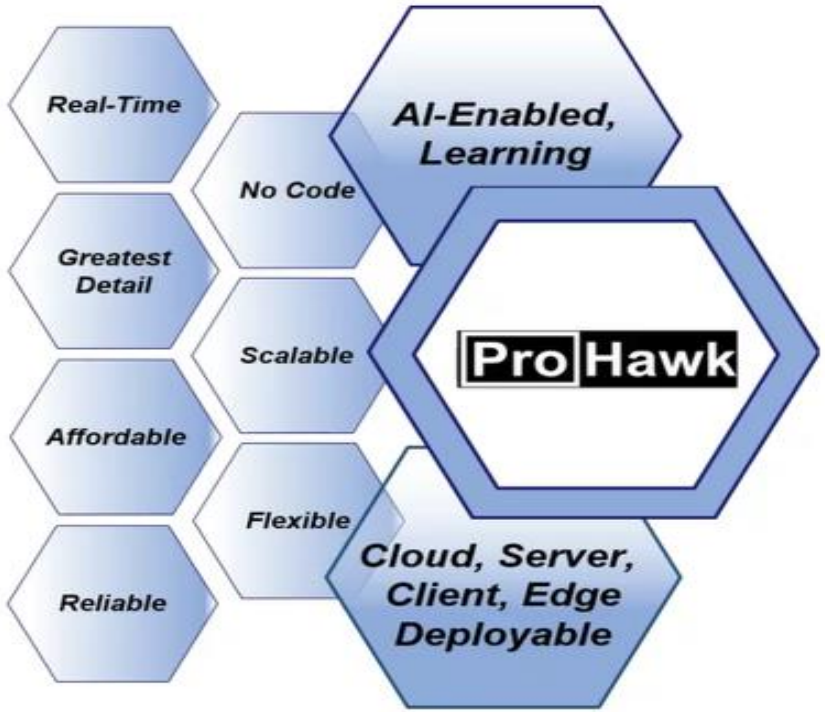




Using ProHawk Vision Plugin for Low Quality Video Restoration

Multiple Sustainable Competitive Advantages

ProHawk



Real-Time Clarity	Superior resolution, pixel-by-pixel Three millisecond/real-time processing
Easily Implementable	No-code, plug & play, TRL9 Industry standard interfaces
Proven & Patented	World class customers (SpaceX, Boeing, DHS, others) 4 issued patents, 3 additional in process
Deployable Anywhere	Deployable at the edge, client, server or cloud Unlimited end customers/use cases
Team/Execution Abilities	NVIDIA, HPE, IronYun Partnerships TD Synnex, Carahsoft, GAI, Others for Distribution

ProHawk

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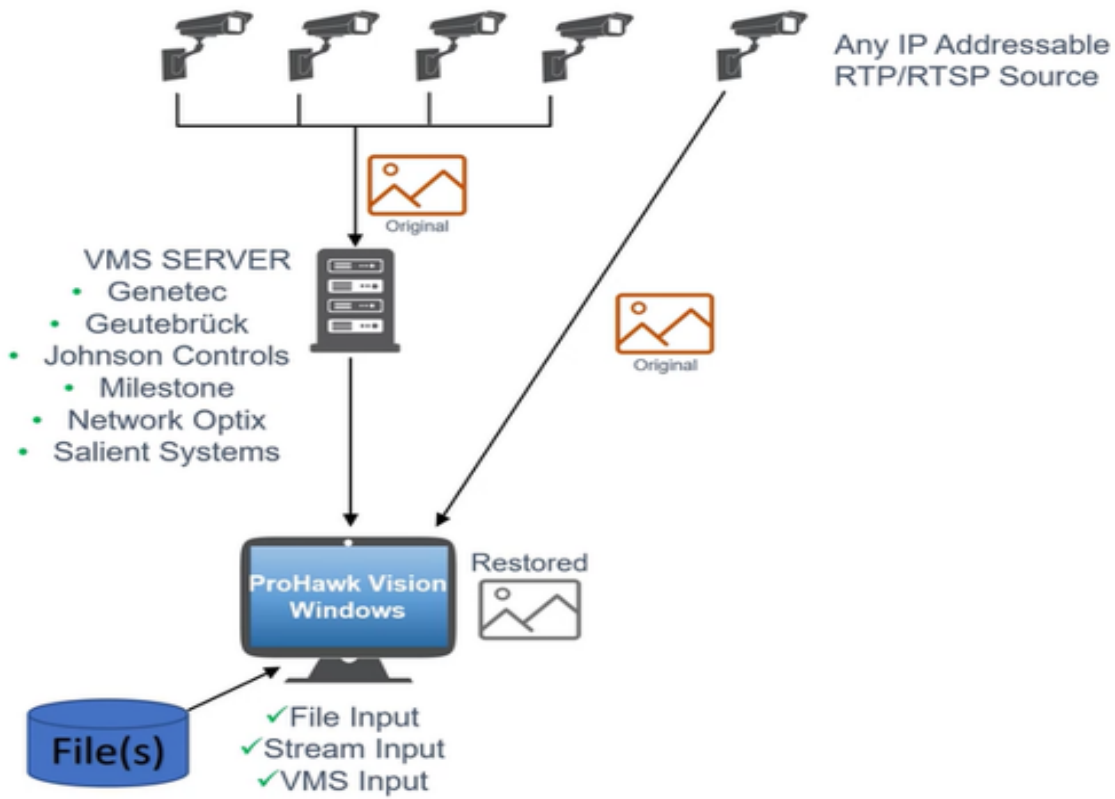
ProHawk Vision v6 Deployment Model



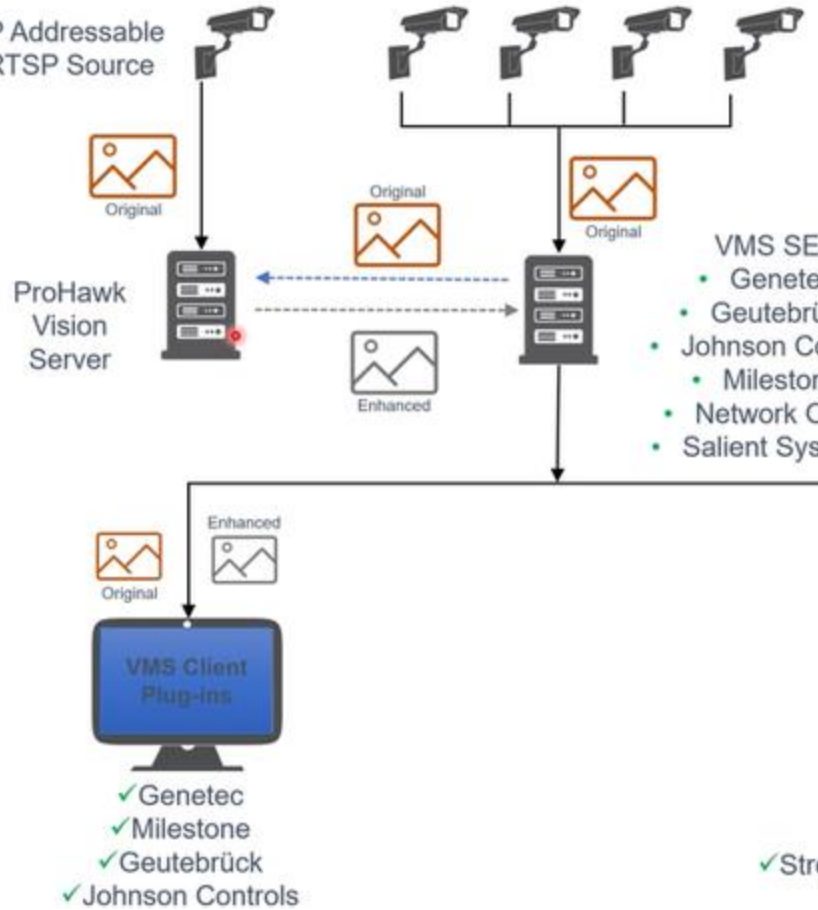
ProHawk Vision Server v6 Deployment Model

ProHawk Vision Server

- ✓ Server handles the management and processing of ***n*** parallel channels of video depending on the underlying hardware capacity
- ✓ Connects to any RTP/RTSP source (camera, media server feed, VMS feed)
- ✓ Allows for republication of enhanced stream back out as an IP camera source

VMS Plug-ins

- ✓ Plug-ins appear in the VMS UI
- ✓ Plug-ins integrates into VMS server
- ✓ Allows for control from VMS user's GUI



Browser Client

- ✓ Management Console
- ✓ Operators Console
- ✓ Any Platform

ProHawk

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ProHawk AI transforms offensive/defensive capabilities immediately

ProHawk

- Extended range of current sensors 24/7 through all battlefield/environmental obstacles
- Counter Class 1-3 UAS and provide operators 24/7 detection and identification of objects of interest

- Detect & Identify ROVs, other underwater anomalies at extended ranges
- See *out, down, or through* overcoming fog/glare/turbidity/low light/particulates

- Connect to pilot visuals real-time to s with extended range/impediment visibility
- Enable forensic analysis of ordinance impact damage, maintenance at significantly lower costs

- See through environmental impediments (pollution, others) from LEO for real-time object detection
- Detect anomalies in space at extended ranges, visually identify objects faster

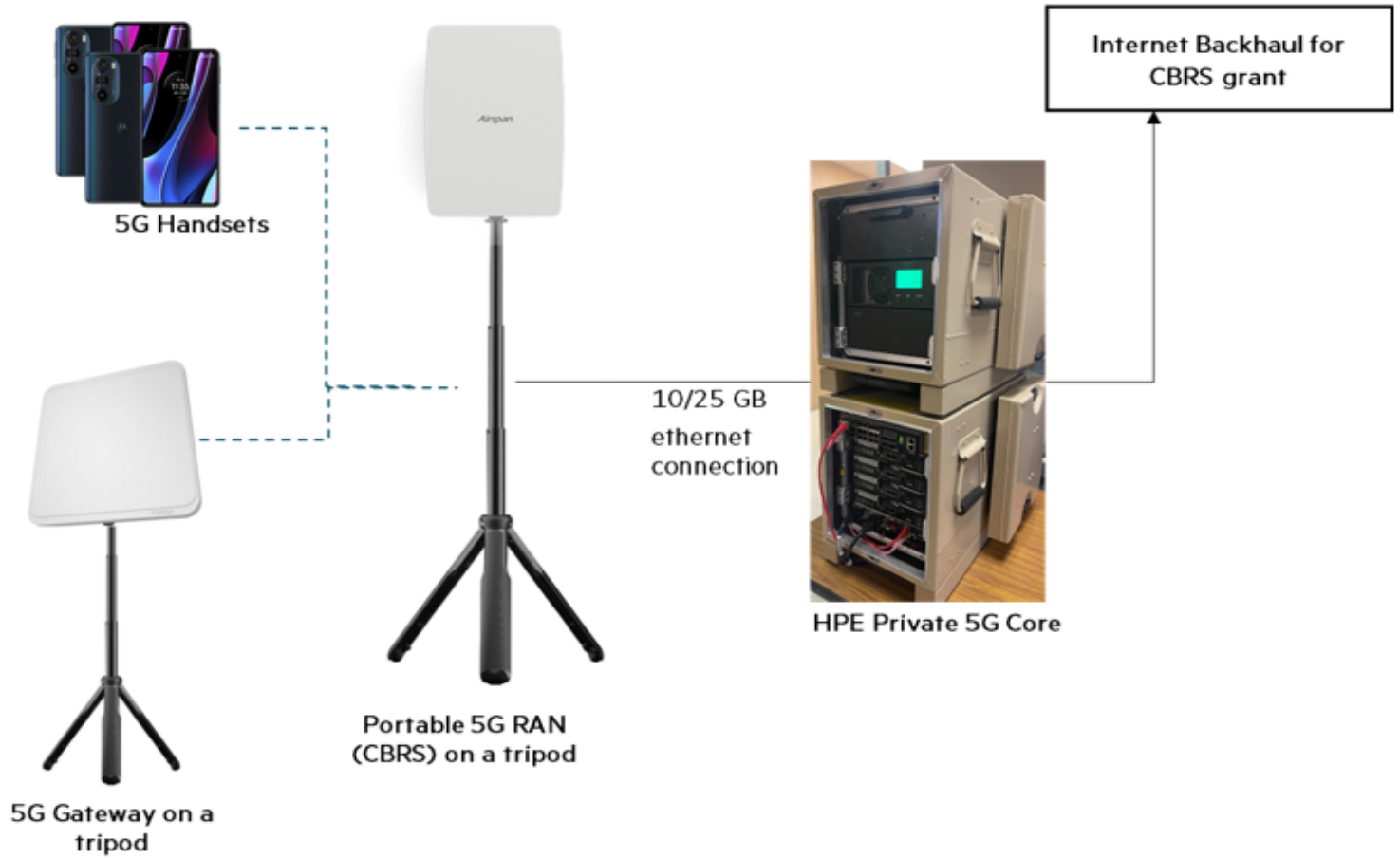
Private 5G Core Stack for Communications

5G transportable production systems (HPE 5G Core Stack (CS) product in-a-box) for DoD base (USA) in Hawaii.

The solution is integrated into Ultralife Rugged Cases to be mobile/deployable and air droppable, with a custom high-capacity UPS.

The system includes

- EL8000 in Ultralife case
- UPS in Ultralife case Optional
- An outdoor RAN AS2900
- BEC CPE (5G gateway) customer provided
- 5G Handsets customer provided
- Physical SIM cards
- Ruggedized case for the EL 8K



Private 5G Core Stack for Communications

HPE EL8000 RUGGED PRIVATE 5G-IN-A-BOX

Mil Std 810H Half Width/6U Rugged Cases with wheels and tow handles

HPE Storefabric SN2010M Switch:
- 18 ports SFP28 (up to 25GbE)
- 4 ports QSFP28 (up to 100GbE)

Management / Application Server with:
- 32 Core Ice Lake Processor, 384GB RAM, 12TB NVMe Storage, 2p SFP28

5G SA Core - 3 Server Cluster each with:
- 24 Core Ice Lake Processors, 384GB RAM, 6TB NVMe Storage, 2p SFP28
- Two Integrated 10GbE Chassis Switches
- -40C to + 55C Operating Temperature

Chassis:
- 2 x 10GbE Chassis Switches; iLO5
- -40C to + 55C Operating Temperature

Compute Case
~ 103lbs total

HPE's "5G-in-a-box" packaged in a Mil Spec 810H certified rugged case with a rugged Uninterruptible Power Supply can deploy into harsh environments to provide high speed communications at the tactical edge.

GAI HPE Private 5G Solution – DoD Use Cases

- Smart Warehouses
- Smart Depots
- Smart Camps/Posts/Station
- Predictive Maintenance
- Augmented/Virtual Reality
- Supply Chain Visibility/Optimization
- Healthier work environments
- Digital Twin
- Edge Security Solution

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Private 5G Core Stack for Communications

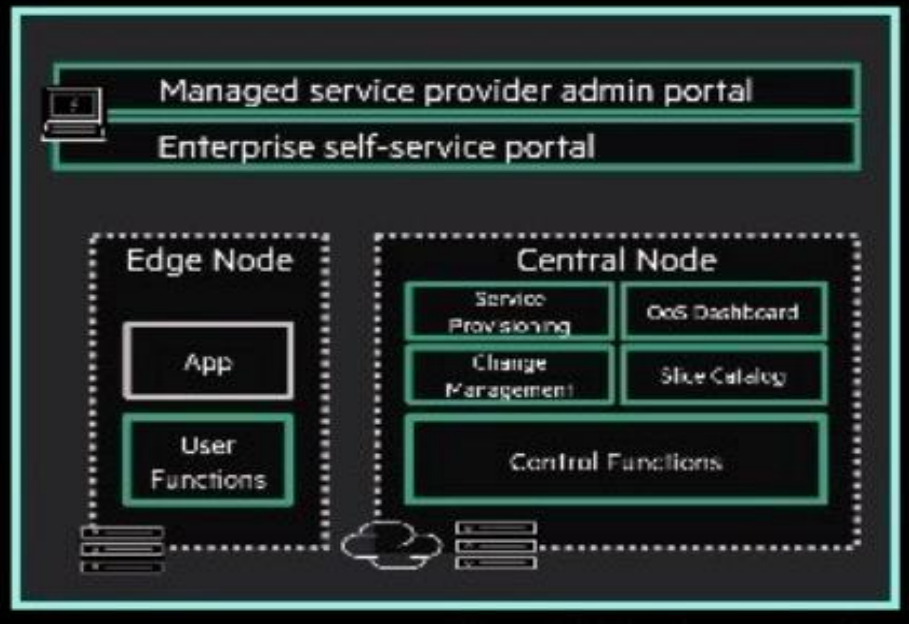
HPE 5G Core Stack - Private

A full turn-key mobile core, cloud-native, open and agile

Aruba pre-integrated

HPE GreenLake enabled

Priced by consumption



- **Quick to deploy and run**
  Anywhere you need: In-a-Box, On-a-Cloud or Distributed.
- **Easy to operate**
  Enterprise self-service + Service-Provider central admin
  End-to-end automation, Slice Catalogue, orchestration, assurance, and closed-loop automation
- **Flexible, extendible, scalable**
  Cloud-native stateless micro-services scalability.
  DevOps agile lifecycle management, and CI/CD incremental change automations.
  Extendible with functions from ecosystem vendors
- **Complete Enterprise connectivity**
  Across Wi-Fi and Private 5G
- **Priced by consumption**
  with HPE GreenLake solution as a service

Private 5G Core Stack for Communications

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5G IN A BOX

Autonomous networking at the edge

- No surrounding infrastructure to depend on
- Minimal footprint
- Military priority services (i.e., push-to-talk)
- Highly secure with HPE Silicon root of trust

A Complete 5G core in a box

HPE Edgeline EL8000
Converged Edge System

Ultralife EL8000-MCS
6U MilSpec Rugged enclosure
21.2 x 22.1 x 43.2 cm
Commercial Airline Carry On

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Private 5G Core Stack for Communications

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AUTONOMOUS NETWORKING AT TACTICAL LEVEL

United States

Self-contained system
Minimal footprint
Military priority services (i.e., PTT)

"5G in a box"

- **HPE 5G Core Stack** on **HPE Edgeline EL8000 Converged Edge System**
- Scales down as low as a few users
- HPE Silicon root secure trust arch.
- Single pane of glass OA&M (Operations, Administration and Maintenance)

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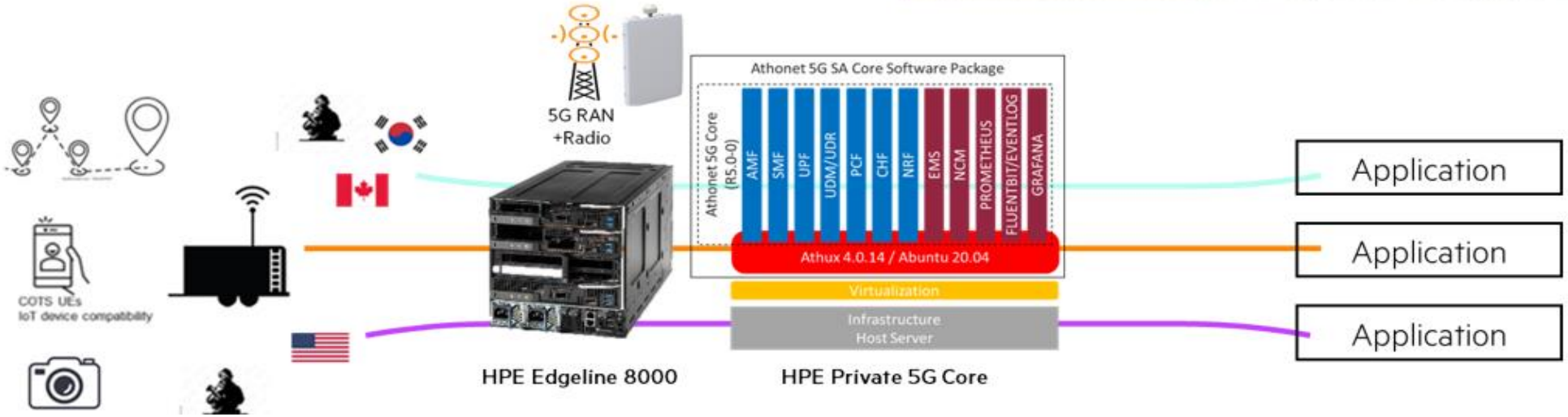
Private 5G – Communications between US Army & Coalition Froces

Multiple DoD teams can use the same 5G system with different data networks. A 5G system can create different data networks with access to different applications as required for different teams to work together.



Private 5G in a Box for Digital Twins – IOT / Sensor Root Cause Analysis & Real Time Simulation

- 5G transportable production systems (HPE 5G Core Stack (CS) product in-a-box) for DoD base.
- Real-Time Simulation: Provides real-time simulations of physical environments to enable predictive maintenance, performance optimization, and scenario testing.
- Data Integration: Integrates IoT data streams from connected devices and sensors over a secure Private 5G network for low-latency, high-speed data transmission.

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GAI TSG Innovation Lab

Available Hardware / Demos

GAI AI Innovation Lab is now available for POCs and Workshops

Servers	Storage	Software
DGX A100 – 80GB	VAST Data	Kamiwaza
Dell R-series (7)	Dell Unity	Certara
HPE DL-series (2)	Dell PowerScale	Rancher Harvester
SuperMicro Grace Hopper	Dell PowerStore	VMware
Dell VxRail	HPE EL8000	HPE Private 5G
Dell XE8545 – 4xA100 80Gb GPU		

GAI AI Market Research Workshop

From Science Fiction to Reality: Enhancing Mission Outcomes with Generative AI and LLMs

Although large language models (LLMs) and AI platforms offer significant value, they often lack agency-specific information that holds invaluable insights capable of enhancing their capabilities. To address this gap, agencies need to train LLMs using their proprietary data. However, this task presents challenges for government agencies bound by strict security and privacy mandates. Finding a balance between accessing the benefits of LLMs and complying with security and privacy regulations is crucial for their successful implementation in the public sector.

This 1-hour webinar, "From Science Fiction to Reality: Enhancing Mission Outcomes with Generative AI and LLMs in the Public Sector," aims to provide public sector agencies with a comprehensive understanding of the potential, applications, and challenges associated with Generative AI and Large Language Models (LLMs). The webinar will explore the role of these cutting-edge technologies in enhancing government services, promoting data-driven decision-making, and improving mission outcomes. The session will begin with an introduction to Generative AI and LLMs, explaining their fundamental concepts and how they differ from traditional AI approaches. We will delve into real-world examples of Generative AI applications within the public sector, showcasing the benefits and challenges of their implementation. The webinar will also focus on the technical aspects of LLMs, breaking down the components and architecture of these models in an accessible manner. We will address ethical considerations, ensuring that participants are aware of potential biases and understand how to navigate the responsible use of AI technology in government settings. The webinar will conclude by examining the future of Generative AI and LLMs in the public sector, including emerging trends and potential developments.

Presentation Topics:

- A high-level overview of the fundamentals of generative AI
- Real-world applications of Generative AI & Large Language Models (LLMs) in the public sector
- Benefits and challenges of using Generative AI in government agencies.
- Best practices for securely integrating enterprise data with LLMs.
- Identifying potential risks associated with Generative AI and LLMs
- Strategies for mitigating risks and building robust AI systems.
- Showcase successful implementations of Generative AI and LLMs in public sector projects.
- Emerging trends and advancements in Generative AI and LLMs
- GAI Proven Methodology for AI Optimized Agency

Learning Outcomes:

- Understand the concepts of Generative AI and Large Language Models (LLMs) and their relevance in the public sector context.
- Identify real-world use cases of Generative AI and LLMs within government agencies, enabling them to explore similar applications in their respective domains.
- Gain insights into the ethical considerations and potential biases associated with AI technology, particularly in the context of LLMs, ensuring responsible AI adoption.
- Learn about challenges and risks related to Generative AI and LLMs, and strategies to address and mitigate them effectively.
- Acquire best practices for implementing Generative AI and LLMs in government settings, promoting effective collaboration and knowledge-sharing.
- Be familiar with successful case studies of AI implementation in public sector projects, offering valuable lessons and practical insights.
- Develop a forward-looking perspective on the future of Generative AI and LLMs in the public sector, enabling participants to prepare for upcoming trends and advancements in AI technology.
- Learn how Government Acquisitions Inc. (GAI) can help your agency get started on Generative AI / LLM Journey.

Target Audience:

- Agency Senior Leadership, Chief Data Officers, Data Scientists, Data Center Staff, IT Department, Decision Makers, Policy, Framework and Compliance Staff, Data Analytics Staff, AI Center of Excellence Staff, Program Manages, Contracting Staff etc.

7 Layers of Technology Stack

IMPORTANT ENABLERS DESIGNED FOR ULTIMATE AI VISUALIZATION

For More Information Contact :
(513) 721-8700 or sales@gov-acq.com.
Or visit our website at: http://gov-acq.com/

Whitepapers & One Page Briefs on Smart City & GAI IntelliPOD

GAI IS AI #GAIisAI

Hewlett Packard Enterprise | NVIDIA

Solution brief

Check if the document is available in the language of your choice.

SAFEGUARDING OUR CITIES WITH ADVANCED VISION ANALYTICS

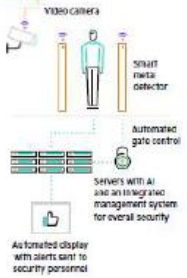
Intelligent video analytics at the edge with HPE and NVIDIA®

Together, HPE and NVIDIA provide state and local government organizations with near real-time AI-driven safety using advanced vision analytics solutions

Advantages of advanced vision analytics in state and local government:

- Speeds reaction times for safety and security scenarios
- Drives better decision making
- Helps to improve public safety and security
- Helps to provide a safe environment across a city or region including public buildings, venues, and roadways
- Enables a holistic approach incorporating technologies such as smart metal detectors with video to non-invasively detect concealed weapons at entry points, automate responses and maintain central monitoring (see figure below)

End-to-end AI-driven safety architecture:



AI-DRIVEN SAFETY FOR STATE AND LOCAL GOVERNMENT

Smart technologies help cities and towns improve residents' safety and security in a variety of ways. By weaving advanced technology into the fabric of cities themselves, state and local governments can better protect the people they serve from potential dangers including gun violence, criminal activity, and emergency situations.

Video in particular is a critical tool for improving safety in smart cities. Video cameras can be used in a variety of ways to help protect residents from harm while enabling faster responses from city services.

Video alone, however, is limited. To be truly effective, video must be combined with real-time intelligence using the proper workflows and integration with technologies such as smart metal detectors, thermal imaging, access control and location tracking. This type of integrated security along with AI-driven vision analytics helps to identify potential dangers.

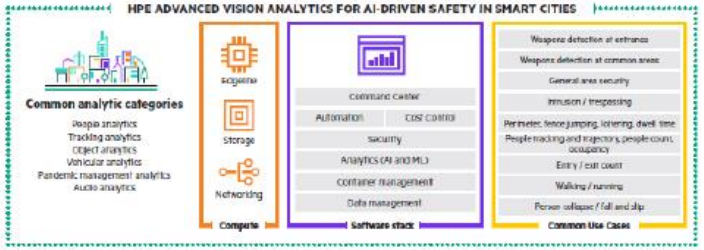
The goal is to not only detect potential threats (including somebody carrying concealed weapon or potential suspect or somebody trespassing) but to have a system that can help streamline response while being proactive to help prevent future threats from transpiring.

For example, an AI-driven security system can identify a concealed weapon, disable entry points and notify law enforcement while simultaneously routing traffic around the danger. By shortening the time to action, these intelligent systems can potentially prevent situations from becoming more serious.

Today's government agencies face challenges in finding ways to coordinate the integration of all the disparate systems needed for this type of 24/7 AI-driven safety. Key areas for the next advancement in smart-city technology requiring near real-time actionable intelligence include video, powerful edge infrastructure and video analytics.

Solution brief

HPE ADVANCED VISION ANALYTICS FOR AI-DRIVEN SAFETY IN SMART CITIES



Advantages of HPE and NVIDIA for AI-driven safety at the edge

- Combines enterprise-class IT at the edge with an application framework, set of developer tools, and partner ecosystem
- Delivers accelerated analytics at the edge for AI-powered smart spaces
- Integrates operational technology, visual data and AI to improve operational efficiency and safety
- Provides datacenter-class security and systems management

Looking for an as-a-service offering?

Consider **HPE GreenLake edge-to-cloud platform** and get the convenience and pay as you go flexibility of the public cloud with the privacy, performance, and control of your own environment.

Make the right purchase decision. Contact our preseles specialists.

Chat now (sales)

Call now

Share now

Get updates

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POWERFUL ANALYTICS AT THE EDGE FOR ENHANCED SAFETY

HPE meets the needs of real-time automated AI-driven safety for state and local government through powerful and flexible edge computing. Advanced vision analytics from HPE is a comprehensive answer to the safety needs of modern cities and regions. Advanced vision analytics from HPE can be used for guns/weapons detection, sound analytics, and first-alert notifications. Easy integration with third party systems results in a more holistic security solution.

NVIDIA Metropolis

Advanced vision analytics from HPE also benefits from the powerful GPU computation of NVIDIA Metropolis, an extensive ecosystem of AI solutions for deployment of real-time safety measures. By applying AI to video data, NVIDIA Metropolis quickly identifies potential threats while also helping with operational efficiencies such as smart lighting and parking management. Together, HPE and NVIDIA provide time-critical insights at the edge to improve outcomes and minimize risks.

HPE Edgeline Converged Edge Systems

Advanced vision analytics from HPE runs on HPE Edgeline powered by NVIDIA GPU-accelerated processing, bringing uncompromised enterprise-class IT systems from the data center out to the edge. The compact, ruggedized form factor is engineered for the harsh operating conditions found at the edge, ensuring that datacenter-level compute and management technologies are available in public spaces, in parking lots and government buildings. With HPE Edgeline, you gain:

- Unprecedented edge compute on open, standards-based architecture
- World-class manageability and security
- Integrated enterprise IT capabilities and operational technology (control systems, data acquisition systems, and industrial networks)

By moving to a distributed converged edge-compute model with HPE Edgeline, smart cities outfitted with AI-driven safety can expect real-time, local decision-making to support immediate action, autonomous operations, and world-class security and compliance at all times with minimal management overhead.

Advanced vision analytics at the edge

Computing at the edge with HPE enables government agencies to process data quickly, enhance data security, and generate real-time insights from video cameras whenever and wherever needed. By using AI, we help reduce the time it takes for large pools of data to be analyzed and processed. Machine learning at the edge helps to analyze video in near real time to provide time-critical information to first responders and law enforcement as events are unfolding.

Comprehensive services portfolio

No matter where you are in your digital transformation journey, you can count on HPE Pointnext Services to provide the expertise you need, when and where you need it. Our Digital Next Advisory approach can help you identify, prioritize, and implement the right transformation initiatives to deploy an intelligent AI-driven safety system, get real-time insights from all your data, and modernize your IT to enable new opportunities.

SCHEDULE A CONSULTATION

Contact us to discover how HPE and NVIDIA can help you power the edge to enhance safety and security for your citizens. Schedule a complementary consultation at:

hpe.com/us/en/solutions/psdc-main

Government Acquisitions

GAI IntelliPOD: Intelligent AI Based Portable Object Detection Edge Solution

ADDRESSING KEY CHALLENGES

Computer vision-based video analytics solutions tackle several critical challenges faced by organizations. These challenges include manual video monitoring, manual forensic video search, reliance on human operators, inefficient incident response, and the inability to extract valuable insights from video footage. By leveraging advanced algorithms, computer vision solutions can automate video analysis, detect anomalies, track objects or individuals, perform facial recognition, and extract valuable metadata, empowering organizations with real-time intelligence, accelerated video search capabilities, and rich business intelligence data, enhancing overall security, safety, and operational efficiency.

CHARACTERISTICS AND BENEFITS OF APPLICABLE SOLUTIONS

Effective computer vision-based video analytics solutions possess several key characteristics that make them invaluable to organizations. These include high accuracy in object detection, robust tracking capabilities, real-time alerting and notifications, scalability to handle large camera deployments, integration with existing VMS systems, open compatibility with various camera types and brands, forensic incident investigation capabilities, and the ability to mine large amounts of video data and/or hundreds, thousands, or tens of thousands of cameras for business intelligence data. By employing such solutions, agencies can achieve benefits such as improved security, reduced operational costs, enhanced situational awareness, proactive threat prevention, and optimized resource allocation.

SOLUTION OVERVIEW

GAI IntelliPOD solution delivers next-generation artificial intelligence to monitor and analyze real-time and recorded video. Using this platform, customers can search, monitor, alert, and analyze video with twenty AI-enabled video analytics on a single platform. It detects and alerts on objects, vehicles, behaviors, and conditions with market-leading speed and accuracy. It adds layers of superhuman intelligence to existing camera and video infrastructure to deliver safety, security, and operational efficiencies. This solution delivers faster processing, faster alerting, and more analytics per stream using fewer resources than alternatives, lowering overall solution costs.

GAI IntelliPOD solution offers dozens of advanced AI video analytics functions to bring intelligence and accuracy to existing camera and video infrastructures. GAI's deep learning data models have been trained and deployed on HPE Edgeline 8000 converged edge appliance to provide automated object detection for dangerous weapons. As soon a weapon is taken out, the high-resolution camera auto detects the incident with a high degree of confidence based on the supervised learning models. It automatically sets off a workflow in real time with all the details such as the location, time, date, and URL. This alert automatically triggers an unattended bot which logs this incident and public safety personnel is automatically notified that there is an emergency that needs to be addressed immediately.

COMPANY OVERVIEW

Government Acquisitions, Inc. (GAI), a HUBZone certified small business, brings over 30 years of dedication to Federal mission success, and a performance culture to power real innovation. Dedication is in our DNA, Mission is our Mindset.

HUBZone | ISO 9001:2015 | CMMI | NIST SP 800-171 | Open Certified

Website: https://gov-acq.com E-mail: sales@gov-acq.com Phone: 513.639.2297

AI Literacy Training for DoD Staff

Learn More

Hands-On Practical Approach To Generative AI and Machine Learning

This hands-on course in generative AI and machine learning equips professionals with key skills, including understanding generative AI principles, mastering machine learning techniques, addressing model challenges, and navigating ethical considerations. Participants gain practical skills for effective implementation in the DoD and federal mission areas.

AI For Project Managers and Human Resources

This course integrates AI into DoD project management and HR practices, emphasizing ethical use, practical applications, and strategy development. Designed for project and program managers, as well as HR professionals, it provides hands-on learning for immediate application in project management roles.

Featured Course

Learn More

Responsible AI for Decision Makers and Agency Contracting Officers

This course is focused on the ethical, trustworthy, and responsible implementation of AI within the government agencies. It covers AI fundamentals, practical DoD use cases, generative AI technologies and large language models and delves into ethical considerations, risk management, bias and legal issues related to AI. This course aims to equip DoD personnel with the knowledge of the new AI technologies, tools, applications, and the associated risks to help make informed, ethical decisions in the acquisition, procurement and deployment of AI technologies and solutions in the military operations.

Fundamentals of AI and Machine Learning, Applications, Challenges

- Real world applications of AI and how AI is transforming the world around us.
- Common AI terminologies: AI and ML definitions, history, current state, goals, types of models.
- Describe Artificial Intelligence workloads and considerations.
- Steps to creating a data science pipeline (Fetching Data, Training the Model, Inferencing)
- Applied Computer Vision and natural language processing (NLP)
- Alignment of AI Solutions with DoD AI Principles including Responsible, Equitable, Traceable, Reliable, Governable.
- Importance of Labeling data for AI and how to scale data for AI.
- Overview of Supervised, Unsupervised learning and Reinforcement Learning.
- Adversarial AI / Attacks on AI & How to Overcome them
- Detecting and Preventing Model Hallucinations & Model Drift
- Responsible AI & Removing AI Model Bias
- Installing Guardrails on Generative AI and LLMs
- NIST RMF & ISO Standards for Generative AI
- AI Governance and Privacy Measures
- Fusion of RPA/Intelligent Automation with AI
- Generative Adversarial Networks or GANs — technologies that can create visual and multimedia artifacts from both imagery and textual input data.
- Transformer-based models — technologies such as Generative Pre-Trained (GPT) language models that can use information gathered on the Internet to create textual content.
- Overview of High-Performance Compute (HPC) and GPUs, high-density racks, liquid cooling etc.
- Examples of Commercial AI / HPC solutions – Nvidia, Dell, HPE, H2O.AI, Deepgram.AI, Alteryx etc.

HOW CAN
GAI TEAM HELP?

- Deeper dive Market Research & Ideation Workshops
- Technology Evaluation and Vetting
- Proof of Concept in the RPA/AI/ML Lab
- Full Stack Solution Sizing and Deployment
- Augmenting your Automation & AI Capabilities
- Talent Management, Workforce Development
- Augmenting DoD Workforce with AI Literacy

Government Acquisitions

Prem Jadhwani
Chief Technology Officer
Government Acquisitions Inc.
Prem.Jadhwani@gov-acq.com
703-554-3827

Dan Glover
Inside Account Executive (DoD)
Government Acquisitions Inc.
Dan.Glover@gov-acq.com
513-562-2043

Dedication is in our DNA

Mission is our Mindset