

# Edge AI For Field Intelligence

Powered by Gryf: Smarter Surveillance, Deeper Insights, Faster Decisions

## Executive Summary

A defense organization sought a modern, portable way to provide frontline personnel with rapid access to actionable intelligence in environments where connectivity is limited or unavailable. Inspired by the concept of physical playing cards historically used in military operations to visually identify known bad actors, the organization pursued a secure, digital alternative capable of real-time analysis at the edge.

The resulting solution enables soldiers to use facial recognition to **identify persons of interest, assess spoken interactions, and generate structured intelligence insights directly in the field** without dependence on centralized data centers or continuous network access.

## Challenges

Operational teams working at checkpoints and in forward positions faced growing information demands but decreasing access to reliable networks. Personnel needed a way to quickly determine whether individuals were friendly, unknown, or potentially hostile, based on visual and verbal cues. Traditional systems relied on backhaul to centralized servers, introducing delays and risk. The challenge was to deliver advanced AI/ML analytics—computer vision, speech processing, and text generation—in a compact, ruggedized form factor suitable for tactical deployment.

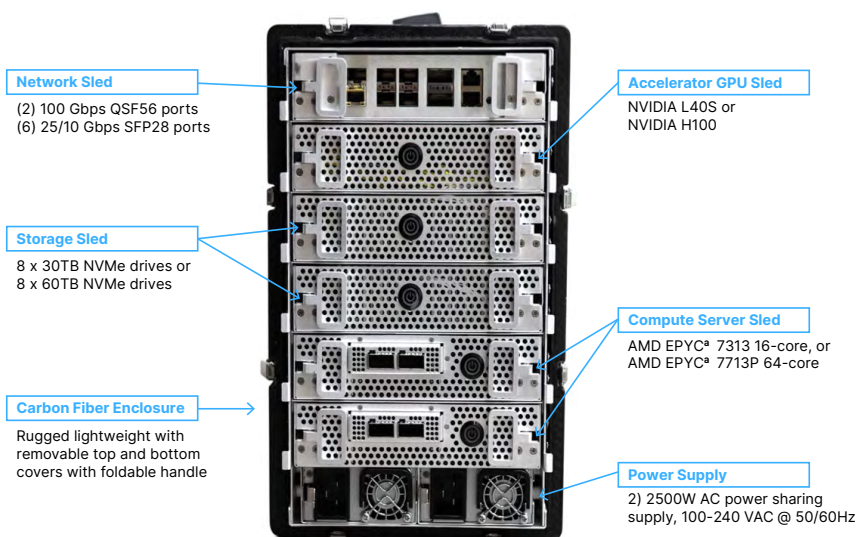


## Solution

The organization deployed Gryf, a portable suitcase-sized AI supercomputer co-designed by GigaIO and SourceCode, capable of running computer vision and speech analytics workloads locally. The system analyzes facial imagery to compare against locally stored reference datasets and evaluates spoken language to detect patterns of interest. It also produces structured summaries and alerts that help operators make fast, informed decisions.

The design emphasizes autonomy: all processing occurs at the edge, enabling full operation in disconnected or bandwidth-constrained environments. The solution can be rapidly deployed, operated by non-specialists, and integrated into existing checkpoint or surveillance workflows without disrupting mission tempo.

### Example AI/ML Configuration



## Results

The solution delivered advanced intelligence capabilities in a highly portable form, improving situational awareness in disconnected environments. Key outcomes included:

- | **Real-time alerts** from video and audio analysis
- | **Rapid identification of friendlies versus known bad actors** at tactical checkpoints
- | **Actionable intelligence** for every soldier, not just centralized analysts

By operating fully at the edge, the system reduced reliance on remote systems and enabled continuous intelligence gathering in rugged field environments.

## Why Gryf?



### PORTABLE ON-PREM PROCESSING:

A self-contained unit bringing AI and HPC to the edge, reducing reliance on centralized or cloud-based workflows.

### SECURE BY DESIGN:

Keeps sensitive operational data on site, reducing exposure in low-connectivity environments.

### RUGGED IN TRANSIT:

Built to travel securely and operate efficiently in remote environments where traditional infrastructure is limited.

### FIELD-READY CONFIGURABILITY:

Tailor storage, CPU, and GPU configurations to match site-specific requirements.

### DATA OFFLOAD SIMPLICITY:

Modular storage sleds allow teams to remove and transport data easily without interrupting ongoing work.

### POWER EFFICIENCY:

Ideal for settings with limited power availability — run only the resources you need, when you need them.

### SCALABLE ARCHITECTURE:

Connect up to five Gryf units for datacenter-scale compute at the edge.

### ECOSYSTEM INTEGRATION:

Leverage a growing ecosystem of industry-leading partners and open sled architecture for future-proof deployments.