CASE STUDY

KLAS GOVERNMENT

VOYAGER

Scalable edge compute for the tactical edge on the move

Overview

Computing required to model and disseminate operational data, e.g. layered maps, full-motion video, and other compute-intensive applications such as artificial intelligence (AI), is limited to centralized 19" rack servers in the tactical operation center (TOC).

Challenges

- Delayed time to action
- Inaccessibility in DDIL environments
- Outdated intelligence

Solution

With Voyager scalable compute, reduce C2 lag and accelerate time to action. Gain mission advantage and autonomy with compute assisted decision making at the tactical edge.

Benefits

Support an increasingly dynamic and mobile networked battlefield with scalable and portable computing that can move with the point of action at the tactical edge.

Executive Summary

The raw ingredient for modern military operations is data. However, data has no value unless troops can quickly infer intelligence from it. This means data has to be transformed as close to real-time as possible into information that enables effective decision-making and operations at the point where it matters most: the Tactical Edge.

Today's method of intelligence sharing involves transporting data from the tactical edge to a central computing hub in a forward operations base, processing that data, and then disseminating the acquired intelligence. With limited or unreliable network connectivity, access to the centralized computing hub is a critical weakness at the Tactical Edge. Improving decision making means removing variables. Delivering robust compute to the edge removes the variable of unreliable networks and allows for faster decision making through compute decentralization.

Distributing compute to the Tactical Edge

A simple means of overcoming the challenge of timely access to intelligence is to push computing to the Tactical Edge. The result is that the data is acted upon locally in real-time, with outcomes producing actionable information for forward operations.

Typically, standalone compute modules as part of a manpack have a primary objective of sensing, storing, processing, and transforming data into actions locally. A key benefit to this approach is that each endpoint operates independently and with a degree of autonomy.

A secondary objective of the manpack compute module is to act as a data bridge by sharing information about outcomes and insights with a larger compute platform within a region or in proximity of several manpacks, such as a vehicle. From here, the intelligence gathered is collated, stored, acted upon, and transmitted back for sharing with base operations when the time arises in a DDIL-connected environment.

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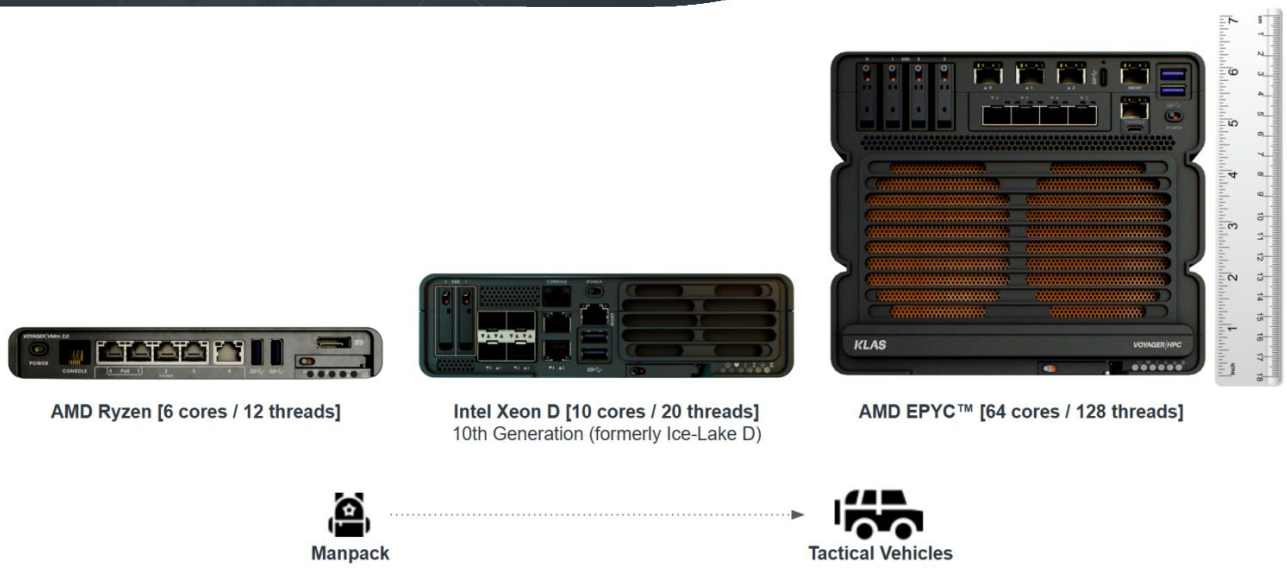

Figure: The Voyager suite of scalable tactical edge compute modules,
with the Voyager chassis range easily deploy multiple compute modules as a holistic compute platform.

Right-sizing compute for the Tactical Edge

Traditionally, when selecting a computing platform, the choice is based on maximizing computing cores and RAM without taking into consideration the environmental constraints e.g. power at the Tactical Edge and the applications that run there. A more cost-effective approach is to select a computing platform with an open architecture that offers the flexibility to be right-sized to fit any mission need.

Two examples of deployment use cases of computing at the distributed edge are:

- ❏ Basic operations e.g. data comms
- ❏ Advanced operations e.g. data inference, require a GPU.

Selecting an open-architecture compute platform with expansion capabilities to add storage, and GPU provides the flexibility to serve both use cases. Aside from the cost savings of right-sizing computing, a further advantage is that the base computing and expansion modules e.g. GPUs are transferable and can serve future mission requirements.

TrueTactical™ compute for the Tactical Edge

In a world where computing will be highly distributed, a new rugged standard is required. At Klas, we call this TrueTactical. TrueTactical means being portable and designed to withstand shock and vibration on the move.

More importantly, TrueTactical implies the compute will continue to process at 100% performance during long periods in extremely hot environments, as experienced throughout the day on foot or in a vehicle.

Voyager from Klas is the only computing platform built to meet TrueTactical standards. It is easily right-sized to scale to any mission compute requirement, from manpacks to vehicles. With expansion modules of storage and GPU, and vehicle chassis mounts, Voyager delivers the flexibility to serve intelligence where it makes the difference: the Tactical Edge on the move.

Conclusion - Accelerate C2ISR convergence at the edge

Gain mission advantage with Klas' scalable, rugged computing and solve complex operational problems with key benefits of:

- Operational Resilience in Contested Environments
- Optimized Bandwidth Utilization
- Scalability to Match Mission Demands
- Empowerment of Advanced AI Technologies
- Enhanced Situational Awareness
- Reduced Energy Consumption and Improved Mobility
- Strengthened Cybersecurity

Accelerate C2ISR convergence at the edge:
www.klasgroup.com/c2isr-convergence

Klas scalable compute modules:
www.klasgroup.com/government/products/#compute

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