

Wednesday, February 11

12:40 PM – 1:00 PM

***From Network to Weapon System: AI-Enabled, Autonomous Infrastructure for Contested Military Operations***

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**Abstract:**

As artificial intelligence (AI), autonomous systems, and data-intensive mission workloads proliferate across the Department of Defense, the underlying network infrastructure must evolve from a passive transport layer into an intelligent, adaptive weapon system. In contested and distributed operational environments, mission success increasingly depends on assured connectivity, autonomous control, and resilient infrastructure that can operate with limited human intervention.

This presentation explores how AI-enabled network abstraction and agentic AI can transform military communications by enabling networks to sense, decide, and act in real time. Leveraging advanced network abstraction capabilities from Ciena, the session will examine how disaggregated optical and packet infrastructure can be unified under a software-defined control plane that dynamically aligns bandwidth, latency, and security to mission intent—whether supporting ISR, autonomous platforms, cyber defense, or joint command and control.

The discussion will further highlight the role of agentic AI in automating network operations, enabling predictive fault detection, autonomous remediation, and policy-driven orchestration across tactical edge, theater, and continental-scale environments. These capabilities are critical to reducing operator burden, accelerating decision cycles, and maintaining operational continuity under degraded or denied conditions.

Finally, the session will address the often-overlooked challenge of infrastructure survivability and manageability by examining the use of Ciena's DCOM-based out-of-band management solutions for hyperscale and defense data centers. By providing secure, physically isolated management and telemetry paths, DCOM enables resilient control of AI

and mission infrastructure even during cyber incidents, network outages, or kinetic disruptions—an essential capability as military data centers increasingly mirror hyperscale architectures.

By reframing networking as an autonomous, mission-aligned system rather than a static utility, this presentation offers a practical blueprint for how defense organizations can safely accelerate AI adoption, strengthen operational resilience, and prepare their infrastructure for the demands of multi-domain operations.





