

**Wednesday, June 3**

11:20 am – 11:40 am

**Agentic AI, Multi-Source Fusion, and the Hidden Strain on Analytical Infrastructure**

**Antonio Ibanez**

Solutions Architect

Ocient National Security Solutions

**Abstract:**

Cyber defense practitioners routinely operate in environments where insight depends on fusing data from many sources. Traditionally, this fusion process has been driven by human analysts—who pace their queries, apply judgment to partial results, and decide when an answer is sufficient for the task at hand. Agentic AI changes that dynamic. Rather than serving as a passive assistant, an AI agent can autonomously decompose an analytical objective, explore multiple hypotheses in parallel, validate assumptions, and iteratively refine results. While this shift offers clear productivity benefits, it also introduces a new and often overlooked challenge: query and compute amplification at the backend data infrastructure layer. Agentic workflows are exploratory, iterative, and non-deterministic by design. They do not naturally account for cost, contention, or system-level constraints unless those considerations are explicitly surfaced.

This talk examines how agentic AI exposes architectural assumptions that were reasonable in human-paced analytics but fragile under autonomous, machine-paced fusion. It discusses why common mitigations—such as semantic layers, data governance, and specialized analytical engines—improve correctness and trust, but do not by themselves limit workload amplification. It also explores how fragmented analytical environments, where different systems are used for historical, real-time, geospatial, or graph analysis, can unintentionally increase agent orchestration complexity and query fan-out. Finally, the session outlines emerging architectural principles for supporting agentic workloads responsibly. The goal is not to replace human judgment, but to enable the infrastructure supporting autonomous agentic workflows to be reliable, governable, and mission-ready as analytic velocity increases.