Let's Get Edgy
Challenges in AI Processing for Defense and Aerospace Applications

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The Story of Cher Ami and the Lost Battalion

In battle, networks will be unreliable; Performance at the tactical edge is paramount

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The Battlefield is a Big Data and Temporal Latency Problem

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Artificial Intelligence is Redefining Global Power

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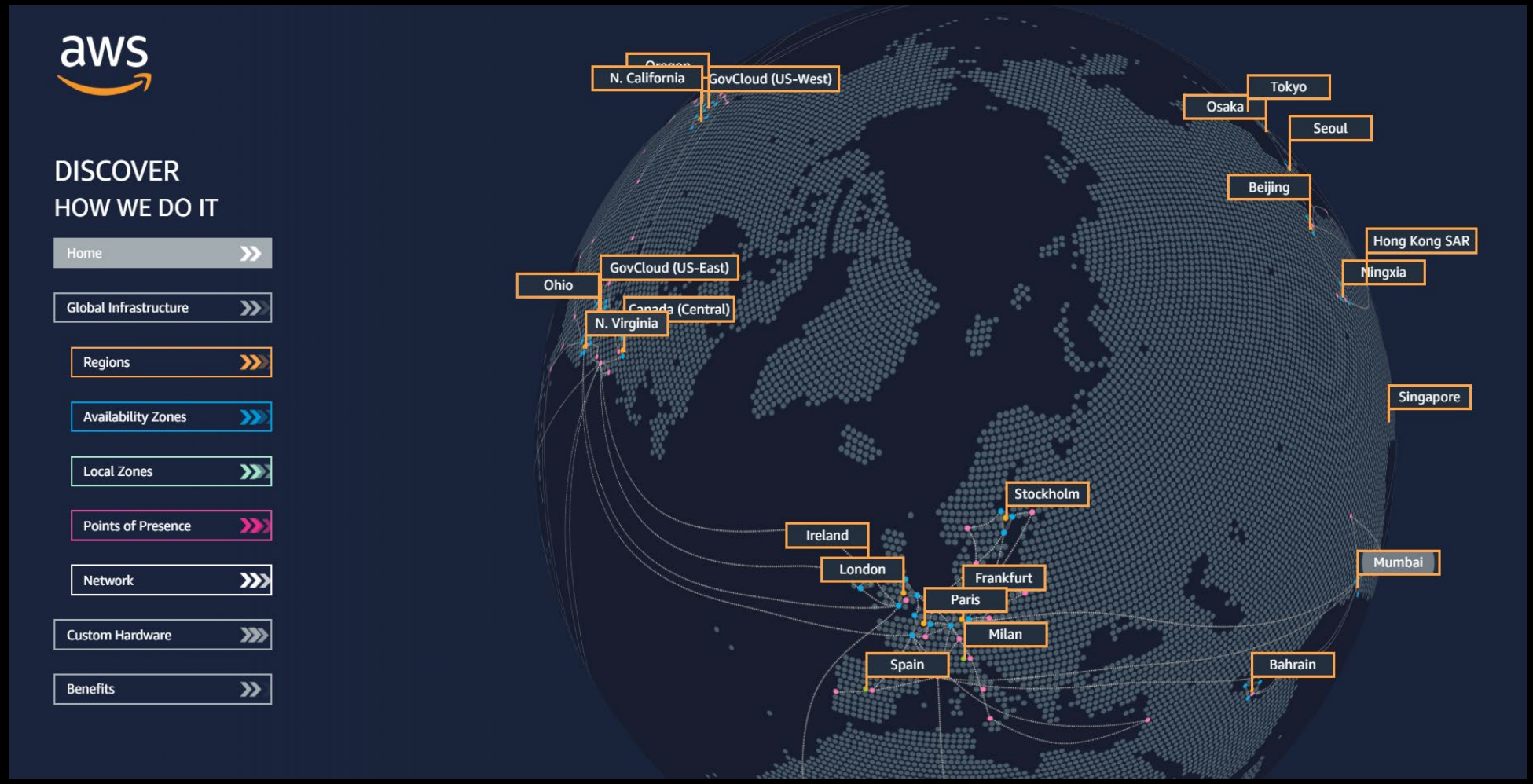
Artificial Intelligence Processing In the Commercial Environment…



… fails to translate to the tactical edge

Tactical Edge Environments

Lack of External Networks to access cloud computing resources

Harsh Environments with unstable temperatures, altitude, shock, humidity

Limited Power provided by generators, batteries, vehicles etc.

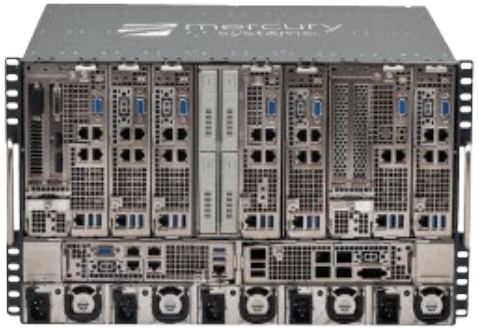
Space and Weight Limitations require compact compute solutions

Lifecycle of 10 years or more to reduce obsolescence upgrade cost

Mission Critical Safety and Security where reliability, and protection of assets matter most

Hardware that Delivers at the Tactical Edge

Common composable data center architecture from cloud to edge



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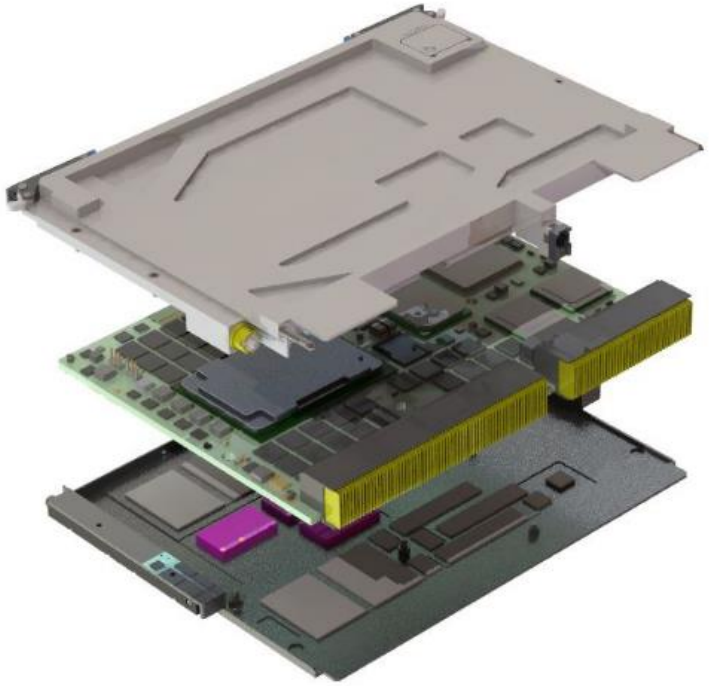
Anatomy of a Rugged, Secure Embedded Subsystem



SOSA™
Sensor Open Systems Architecture

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Mercury Ecosystem Examples

Cascade Lake High Density Server HDS6605

- Xeon SP – 1.5 TFLOPS via 22 cores
- 96/192/384 GB DDR4
- 100GbE/EDR IB data plane

PCI Express Switching SFM6126

- 10GbE Control Plane Switch
- PCIe Gen3 Expansion Plane Switch
- 2x XMC Mezzanine Sites

I/O Module IOM-400

- Low Latency Wideband I/O
- 24 TX/RX or 12 Duplex 10Gb Fiber
- Rotated Fiber Optics for VITA 66

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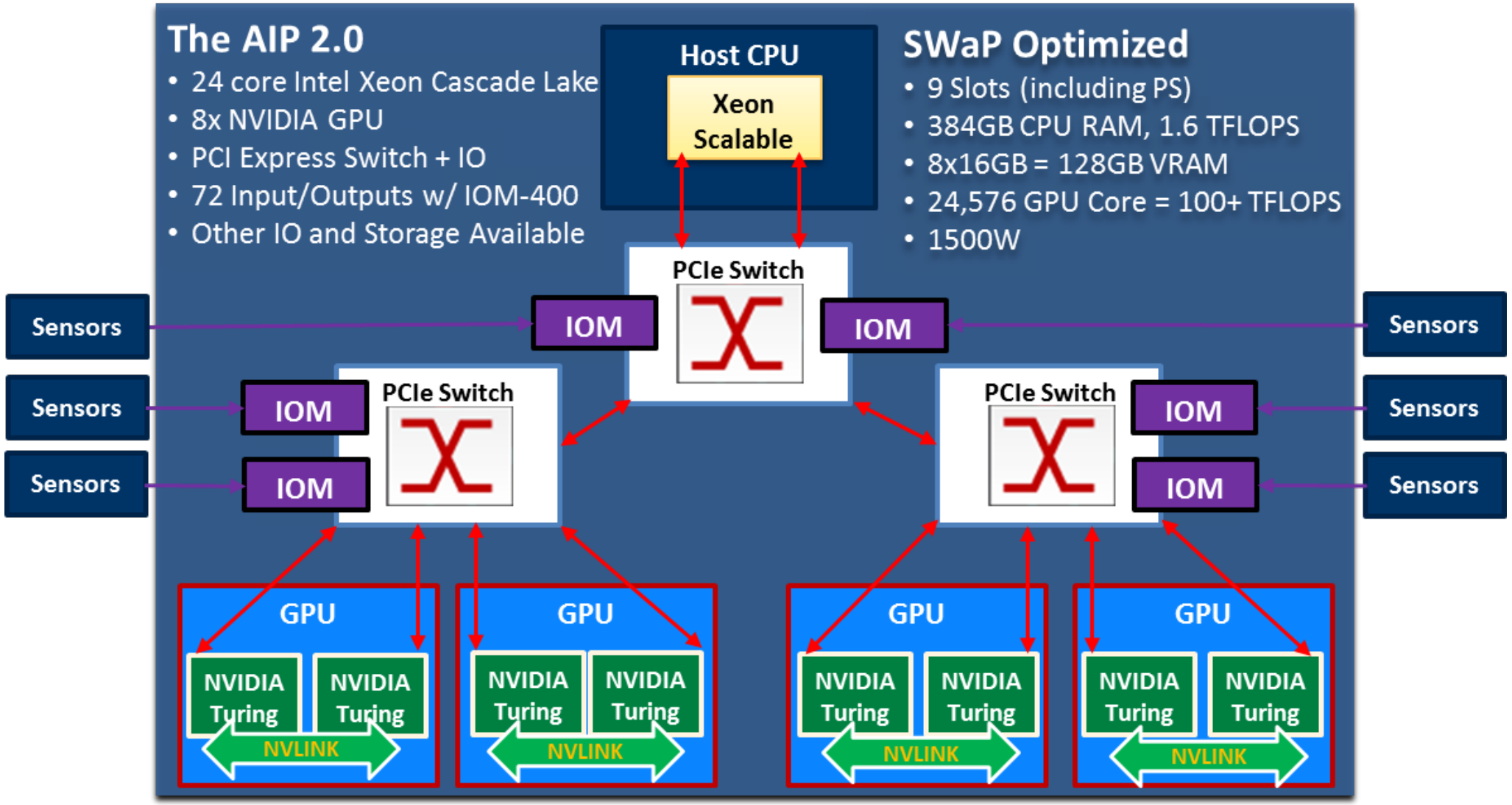
Composable OpenVPX AI Processing Capability



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“I know not with what weapons
World War III will be fought.”

-- Albert Einstein

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