

High Density Computing

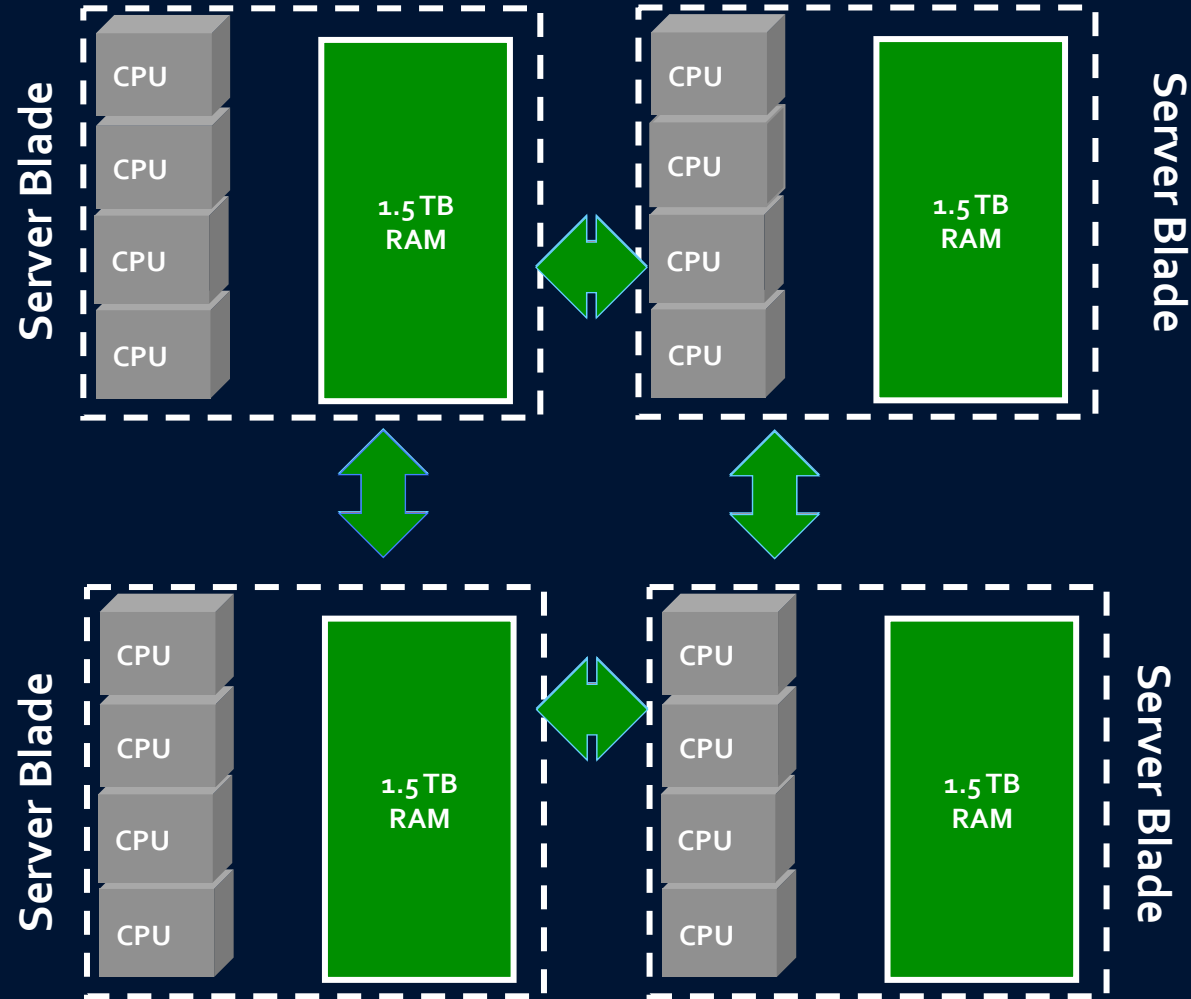
BIG DATA NO COMPROMISE

Big Data HW Platform Choices

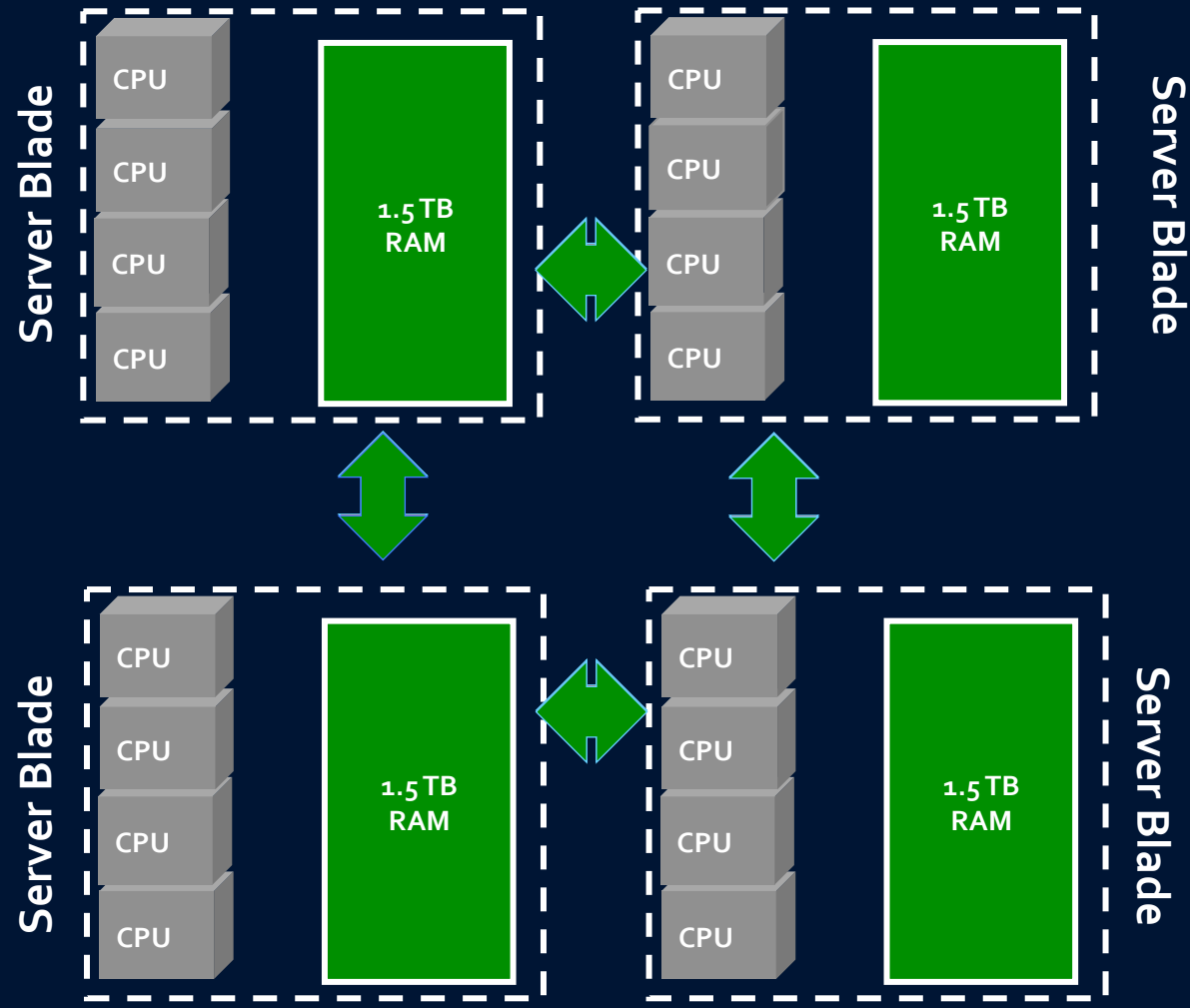
Traditional Approaches

- Scale Out Servers (Cloud / Blade Servers)
 - Chip Set - x86-based
 - OS – Standard Linux Distribution (RHEL or SUSE)
 - Scale – 4 Sockets (40-48 Core) and 1.5 TB RAM
 - Boundary – At the blade level
 - Interconnect - Network

Traditional Approaches
Scale Out
Standards Based But....



Traditional Approaches
Scale Out
Standards Based But....
Network is Integral to System



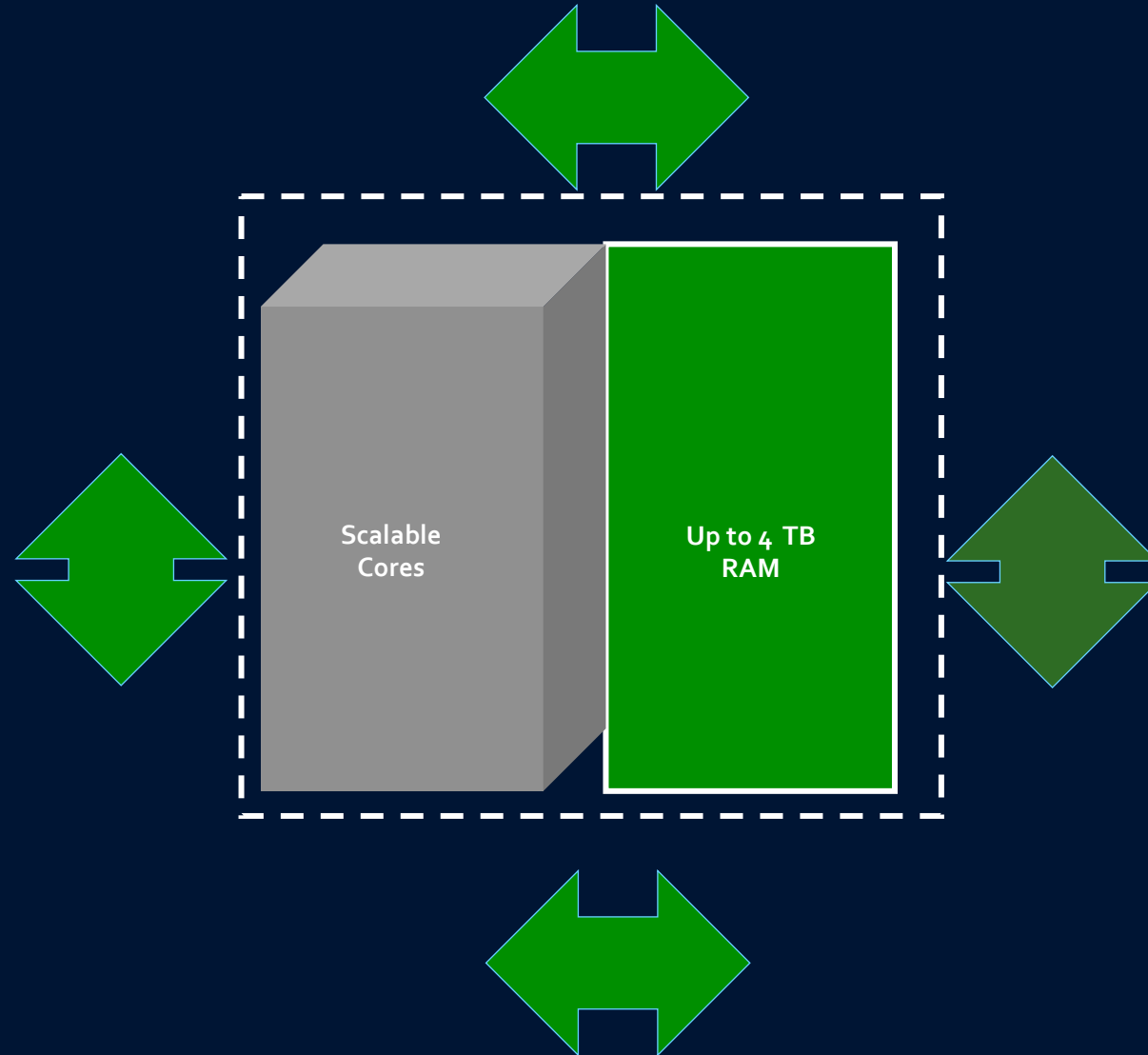
Big Data HW Platform Choices

Traditional Approaches

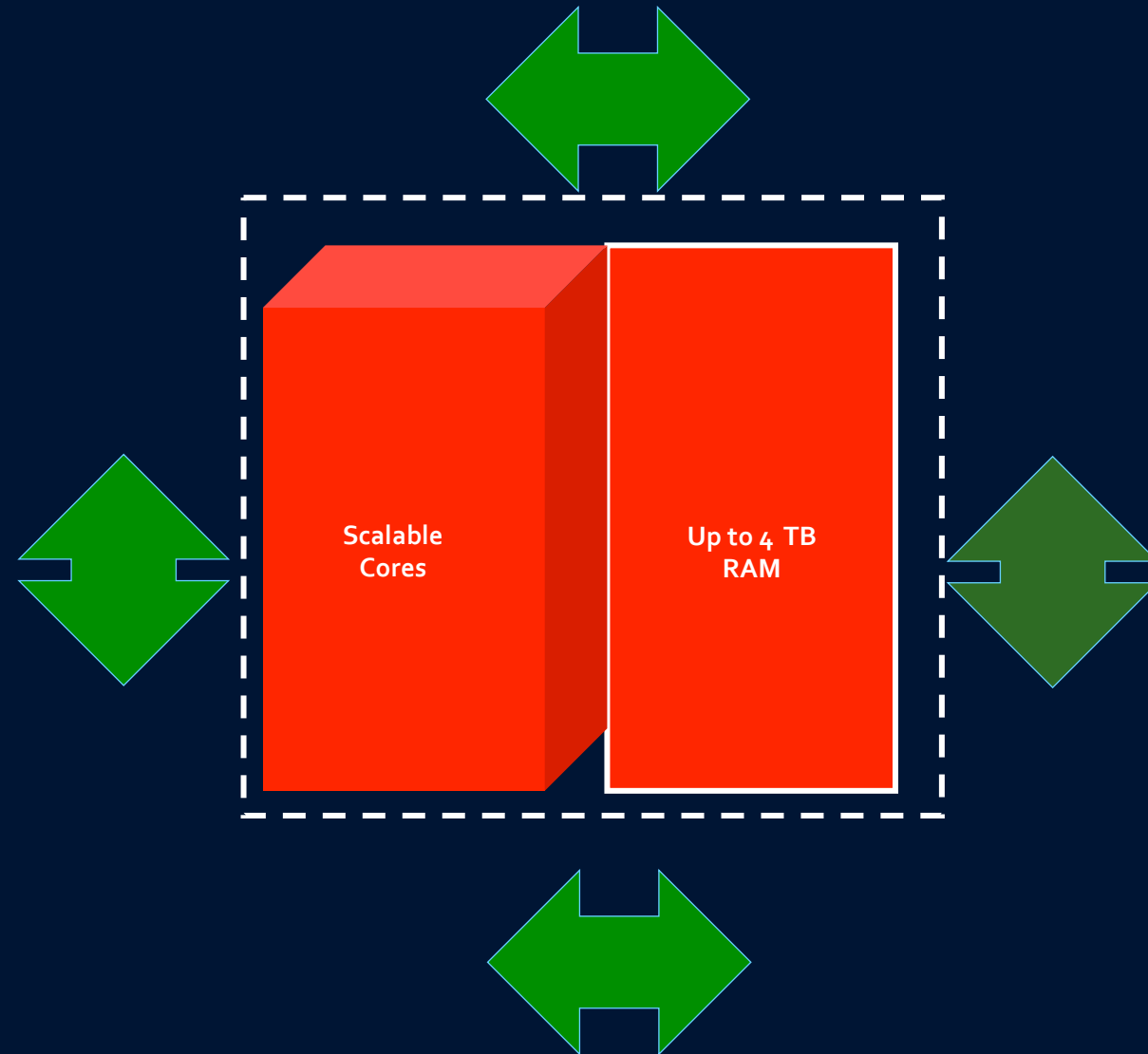
- Scale Up Servers (Derived from Unix Platforms)
 - Chip Set – Proprietary
 - OS – Proprietary (Unix)
 - Other OS options may be provided
 - Boundary – At the system level
 - Computer Backplane

**Traditional Approaches
Scale Up**

The Boundary is at the System Level But...



Traditional Approaches Scale Up
The Boundary is at the System Level But...
The System is Proprietary

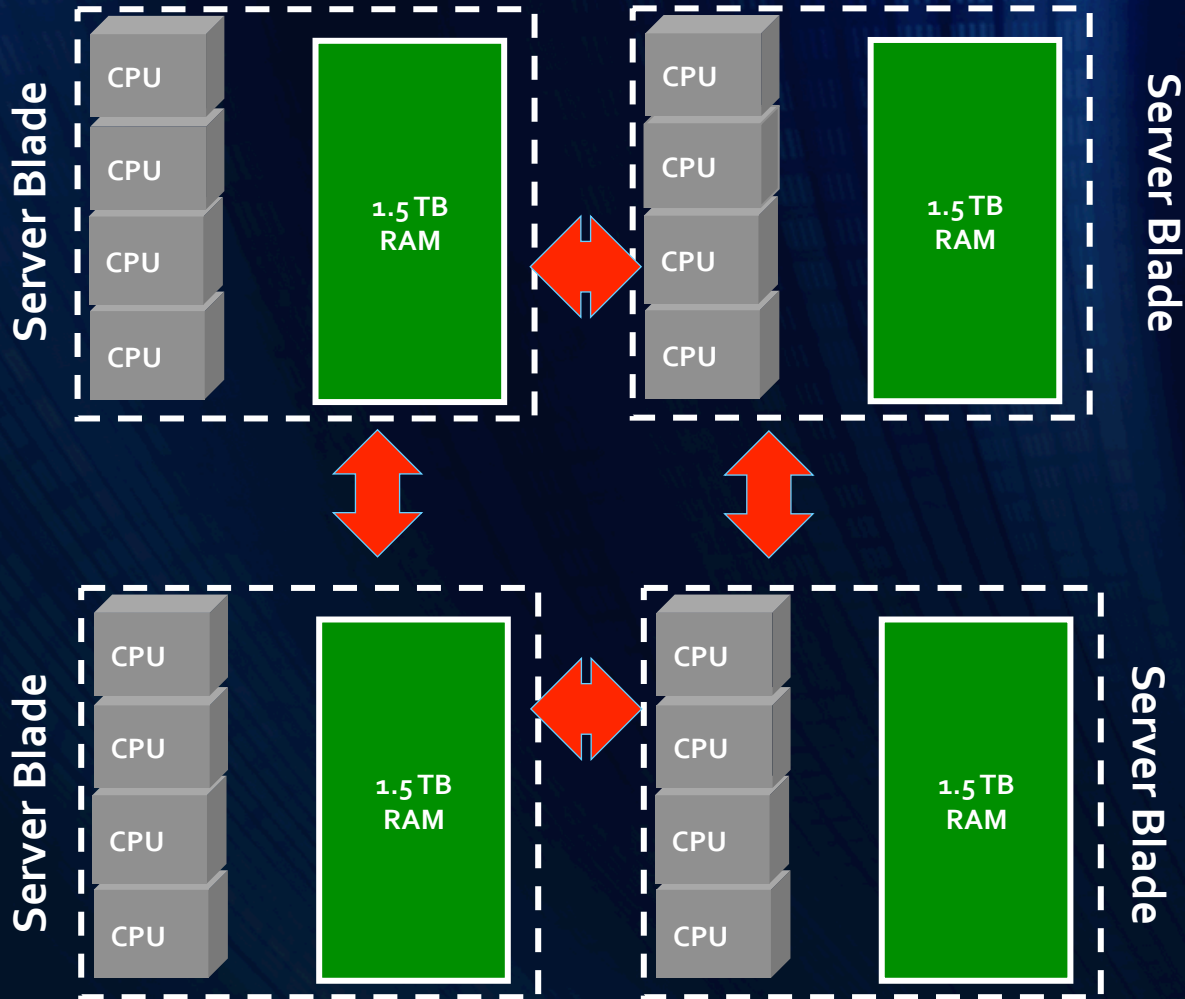


Big Data HW Platform Choices

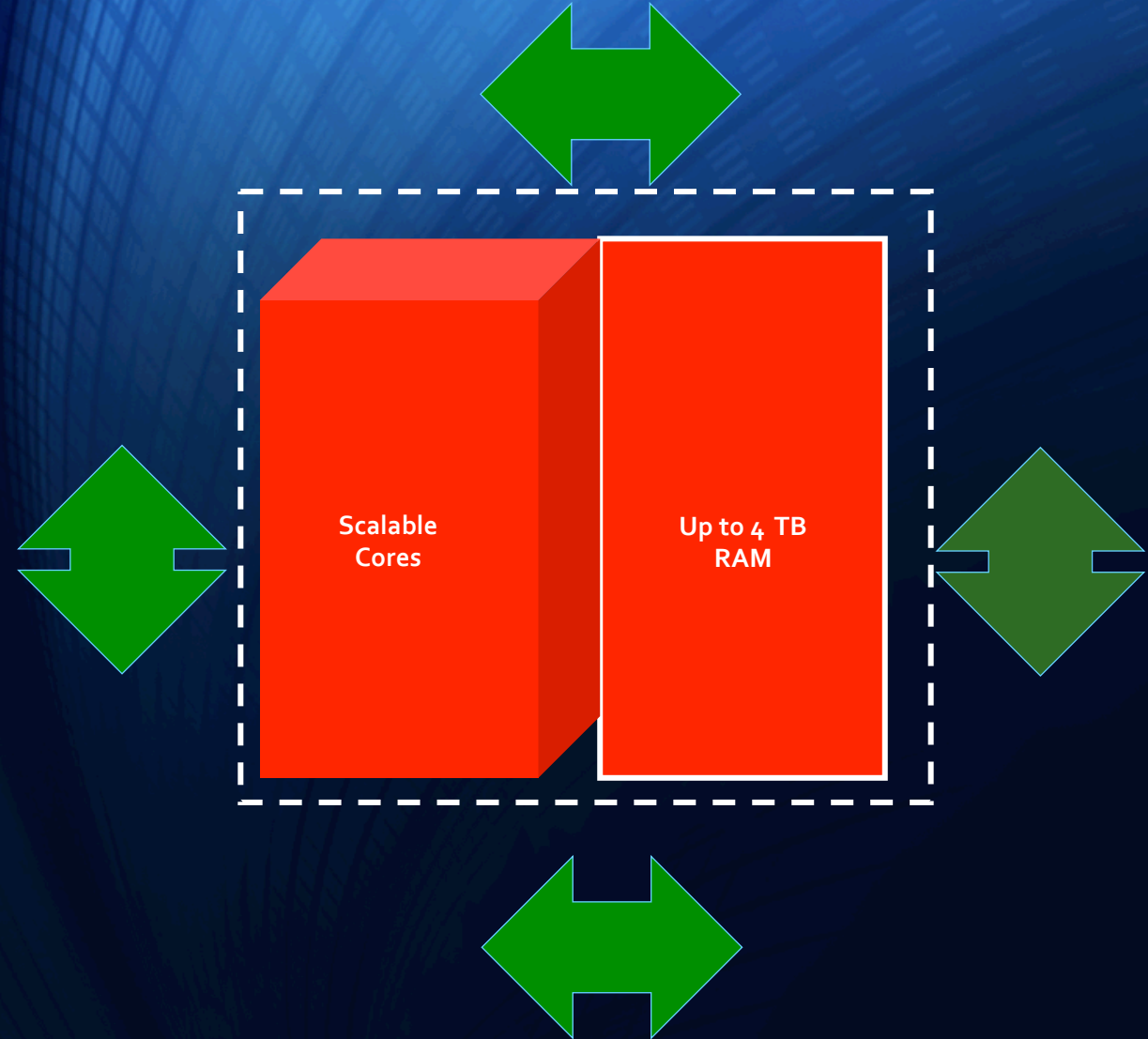
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- **Scale Up Servers (Derived from Unix Platforms)**
 - Chip Set – Proprietary
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 - Scale – 4096 Core and 64TB RAM
 - Boundary – At the system level
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Traditional Approaches Scale Out
Standards Based But....Network Is Integral to the
Processing Environment



Traditional Approaches Scale Up
Network is External to the Processing Environment But...
System is Proprietary



Big Data HW Platform Choices

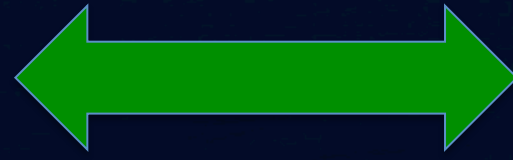
High Density Computing

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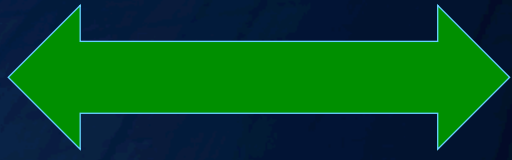
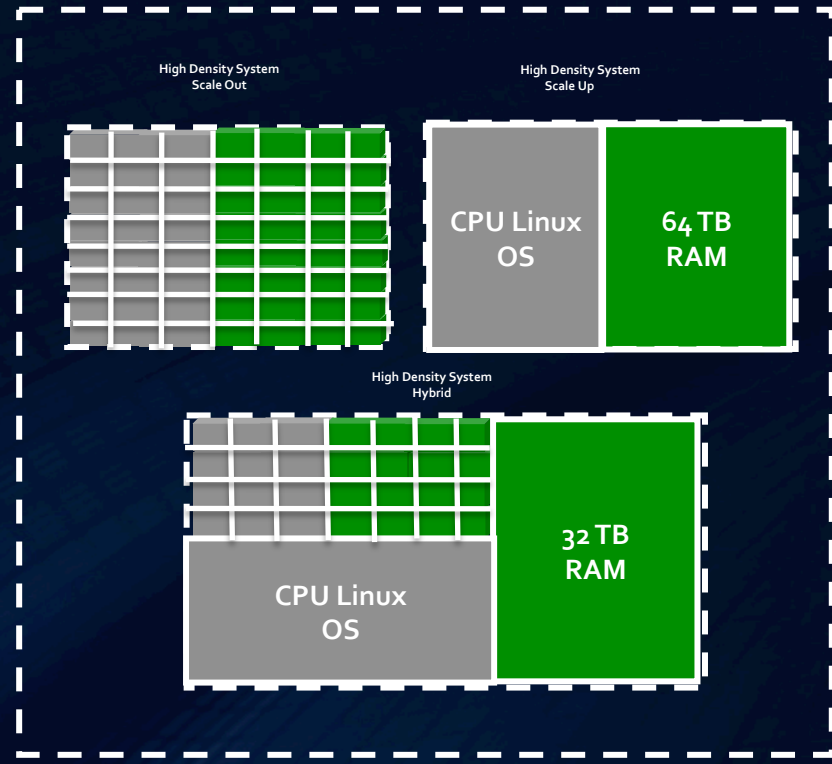
The ABC's of High Density Computing

- **Affinity**
 - The ability to locate resources in close proximity
- **Boundaries**
 - A fixed border that requires data and applications to transmit from the compute to the networking / IO domains
- **Connectivity**
 - The topology used to connect compute resources
 - Tightly Coupled – uses high speed computer backplane technology
 - Loosely Coupled – uses networking topologies
- **Domains**
 - Architectural sections of the overall system
 - Compute Domain
 - Communication / IO Domain





High Density Compute Environment



High Density Computing

High Density Computing

- **There is Choice in “Big Data” Compute Platforms**
 - Traditional Approaches
 - High Density Systems
- **Applications can Exceed Traditional Approaches**
 - If you have one of these come speak with us
- **FedCentric Technologies solves difficult problems with High Density Platforms**
 - Big Data No Compromise
 - Talk with us about the USPS use case



Big Data SW Platform Choices

Memory Centric DataBase
(MCDB) Toolkit

- **MCDB**
 - Uses Existing Oracle Code
 - Provides an order(s) of magnitude increase in performance
 - USPS Use Case
 - Went from 2500 to 3.5 million inserts per second ingest rate.
 - Processes 24 hours of data in < 2 hours
 - Enabled Revenue Protection on the entire mail stream
 - Provides <200 msec response times to all queries

High Density Computing

Data Moves At Computer Speeds

Volume

SQL Objects

Disruptive Technology

Velocity

Structured

Architectural Flexibility

No SQL

Variety

Value

Scale Out

Unstructured

No Boundaries at the Blade Level

Application Compatibility
With Existing Systems

Scale UP

64 TB RAM

Hybrid

In Memory Capable

Standard Operating Systems

Orders Of Magnitude
Application Speedup

4096 Core

Commodity-based Hardware

High Density Computing

Data Moves At Computer Speeds

64 TB RAM

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Application Compatibility With Existing Systems

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Orders Of Magnitude Application Speedup

1996 Core

Commodity-based Hardware

Experience Leadership Results

