Ethernet Technology Summit

I/O On Demand

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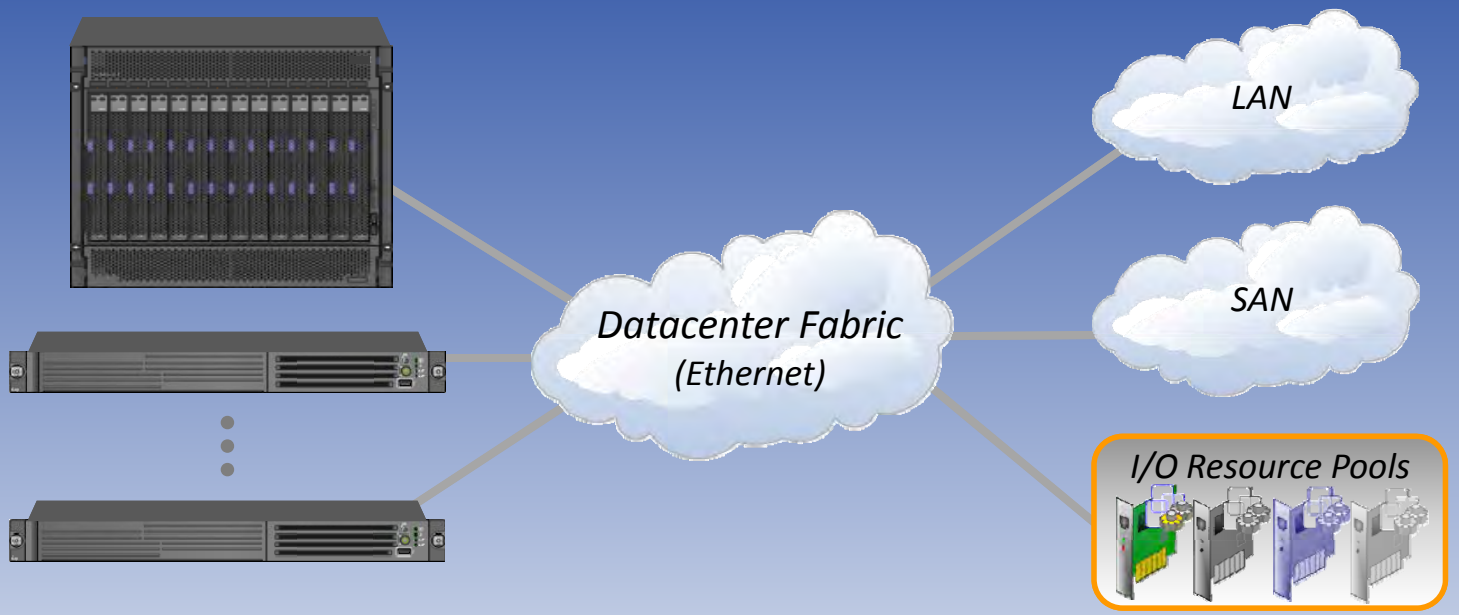
Ethernet Technology Summit

I/O Resource Pools



Driver 1

Virtualization

Mobile VMs and Apps

Variable I/O needs

Driver 2

Ethernet Everywhere

10/40 GbE server ports

CEE capabilities

Driver 3

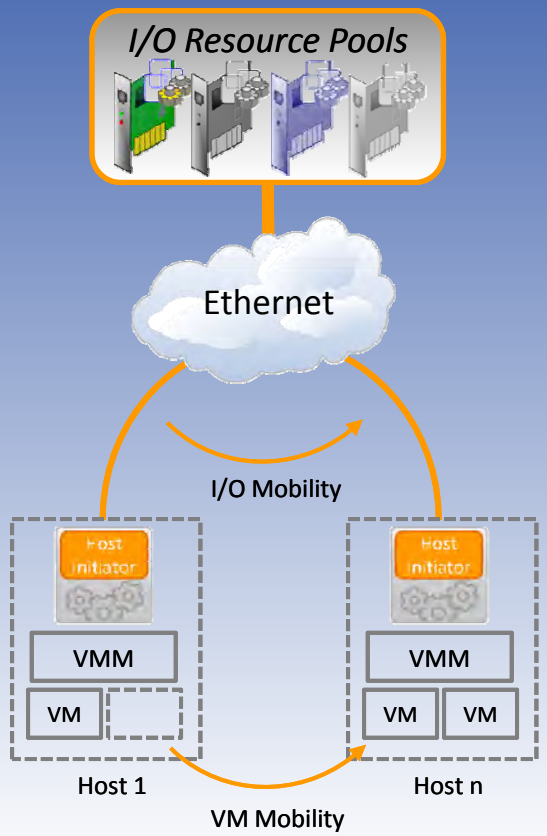
Fabric Computing

Disaggregation

Efficiency

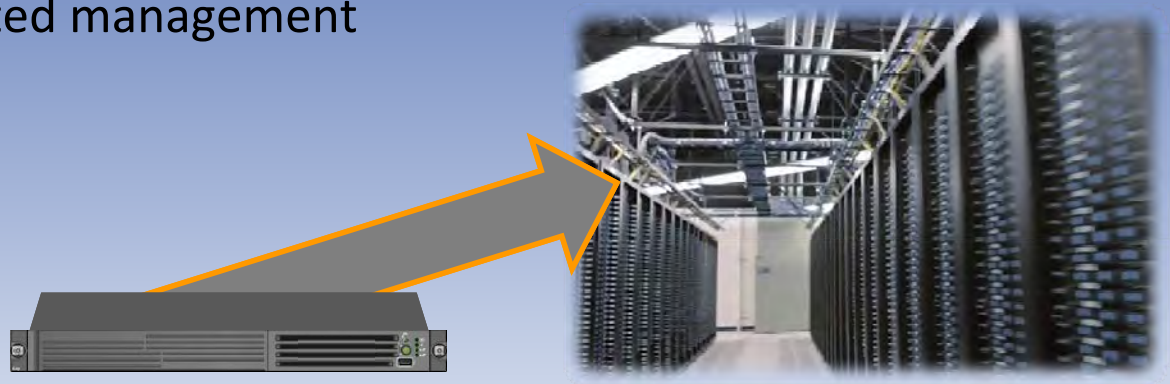
Benefits of Pooling I/O Resources

- Standardized, simplified compute and network platforms
- More applications and VMs become mobile
- Redundant resources available throughout the datacenter
- Enhanced efficiency
- Increased adoption of 10-40G Ethernet



IOV Platform Requirements

- Wide base of supported resources using native software
- Flexible, scalable architecture
- Standards-based
- Integrated management

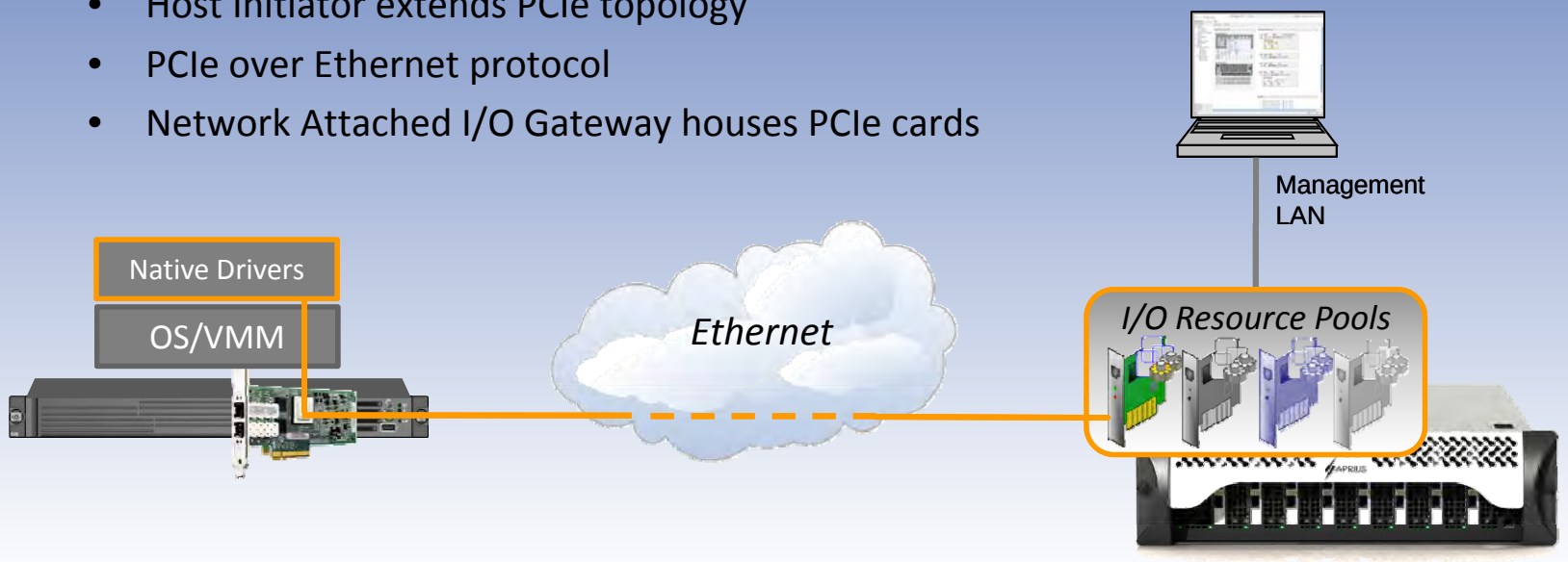


Wide array of PCIe based devices
Native PCI software model
IO Virtualization

Scalability of Ethernet
High performance transport

System Architecture

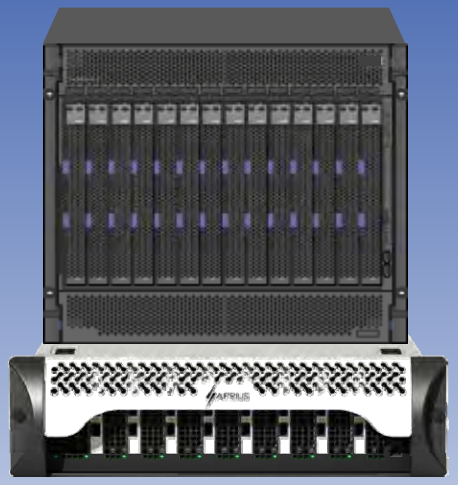
- Software
  - Native drivers run within OS or VMM
  - Unified management view, standard interfaces
- Hardware
  - Host Initiator extends PCIe topology
  - PCIe over Ethernet protocol
  - Network Attached I/O Gateway houses PCIe cards



Datacenter Usage Models

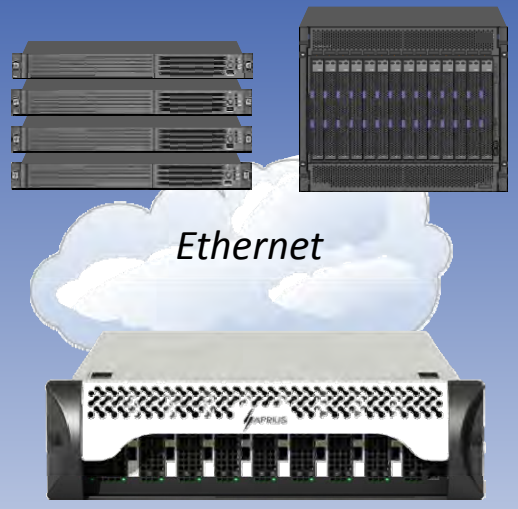
Server Attached Rack

- LAN/SAN/DAS Convergence
- Closely coupled resources



Server Attached Blade

- Chassis I/O expansion
- Increased application of blades

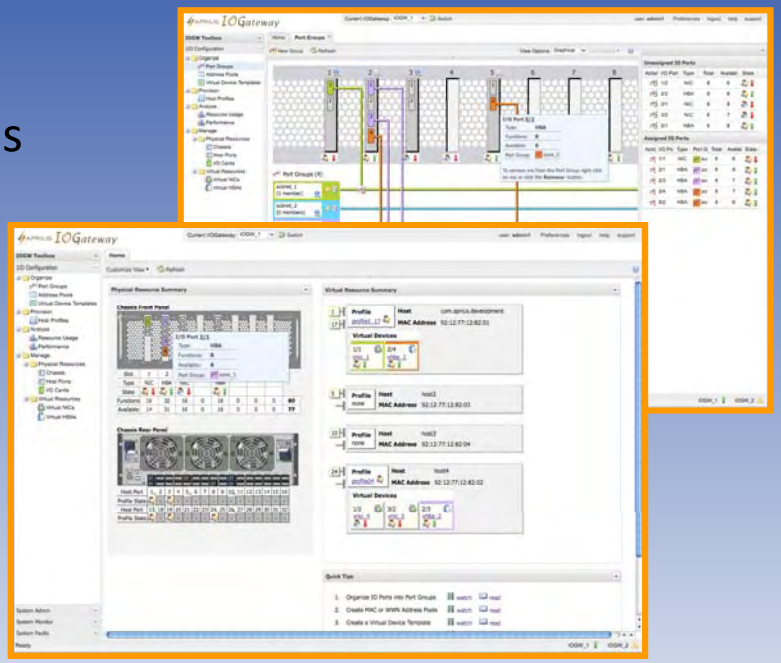


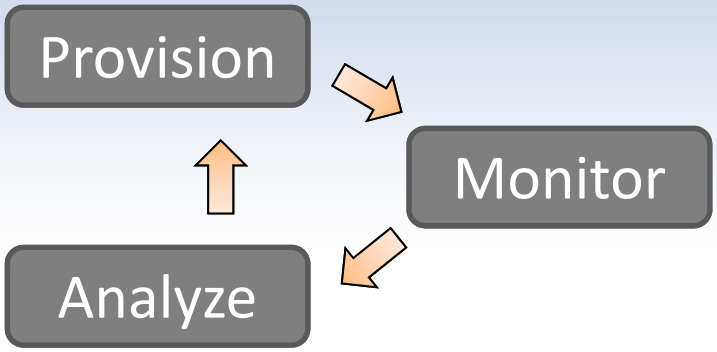
Fabric Attached Rack/Blade

- Scalability
- Mobility

I/O Management

- Software provisioning is essential
- Consistent with virtualization practices
  - Host I/O Profiles
  - Dynamic provisioning
  - Statistics, logs
  - Performance analysis
- Management Interfaces
  - Standards-based
  - Clean CLI and API for automation





Summary

Virtualization is here to stay.
Mobile applications with dynamic I/O requirements.

Ethernet is finally providing a scalable, unified fabric.
Consistent connectivity across datacenter resources.

I/O Resource Pools enable an efficient architecture.
Resources available to applications across the converged fabric, on demand.

Thank You

- **Peter Kirkpatrick, Aprius Founder and Chief Architect**

  Peter has broad experience in research and product development of high speed communication systems. At Intel, within the Digital Enterprise Group, he performed path finding work in server systems architecture utilizing next generation computer bus protocols, high bandwidth system interconnects and adaptive electronic filtering. Prior to this, at Intel and Lightlogic, he designed and produced innovative 10Gb/s system interfaces for the enterprise data communications market. Peter attended the University of Colorado in Boulder, earning a MSEE in 1999 in Electrical and Computer Engineering. He has been awarded 14 US patents and published peer-reviewed papers in diverse fields. Contact Peter at peter.kirkpatrick@aprius.com.

- **About Aprius**

  Aprius is a venture-backed Silicon Valley company developing systems that provide virtualized I/O resources to virtualized servers 'on-demand'. Aprius systems greatly simplify the use of I/O for virtualized servers, enabling connectivity to a wide range of resources while accelerating the provisioning, management and mobility of I/O resources. For additional information, Aprius may be contacted at info@aprius.com or www.aprius.com.