



VN-Link: Virtualization Aware Networking

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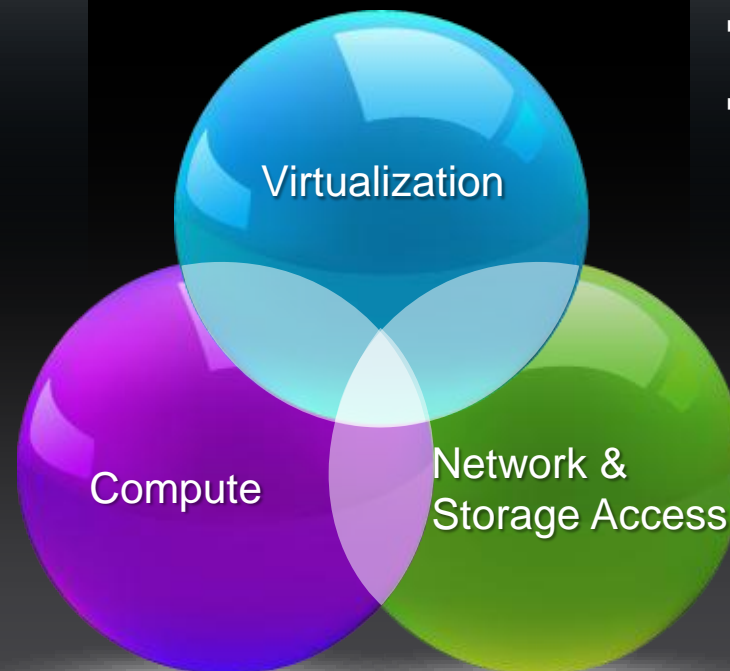
Virtualization driving convergence

Transformation

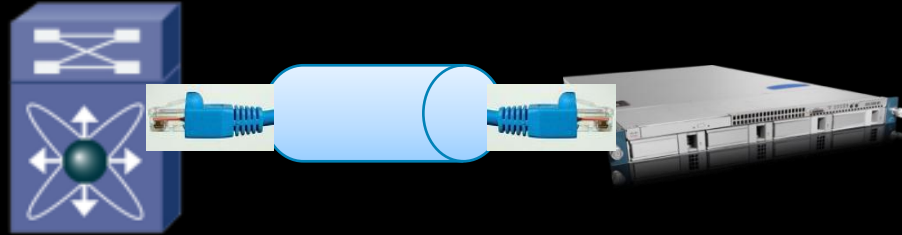
- Technology advances
- Energy efficiency
- Economic efficiency
- Dynamic business environment

Challenges

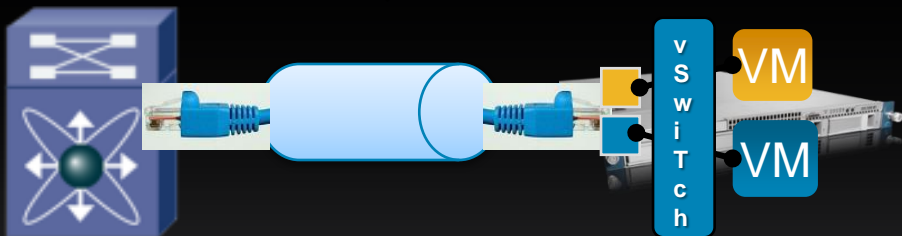
- Scalability
- Management integration
- Application migration
- Coherent policies and security



Datacenter Evolution



VIRTUALIZATION



Impossible to View
or Apply Network Policy
to Locally Switched Traffic

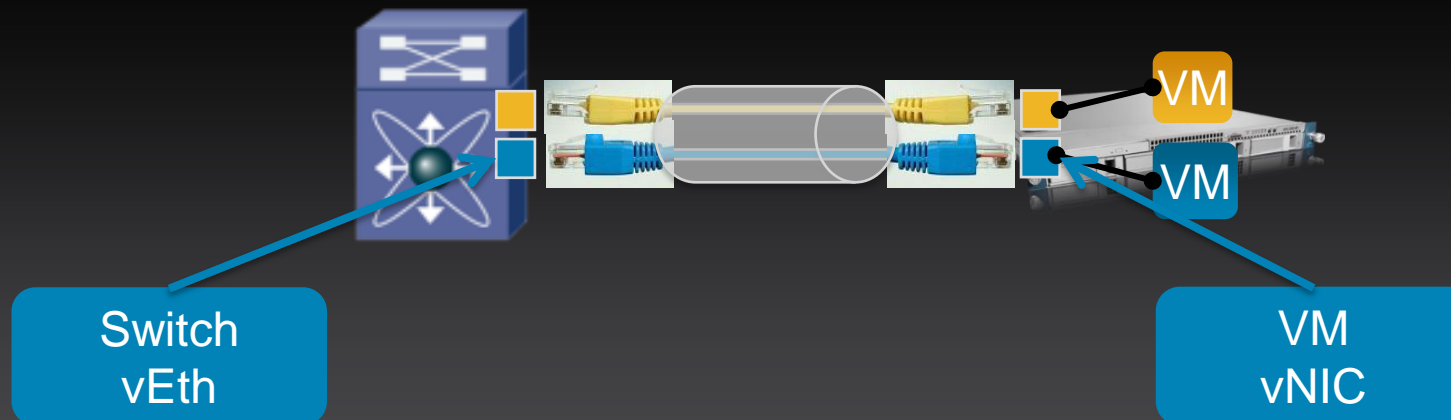
vMotion Moves VMs Across
Physical Ports - the Network
Policy Should Follow

Need Shared Nomenclature
Between Network Admin
and Server Admin

- Difficult to correlate network back to virtual machines
- **Scaling** globally depends on maintaining transparency while also providing operational consistency

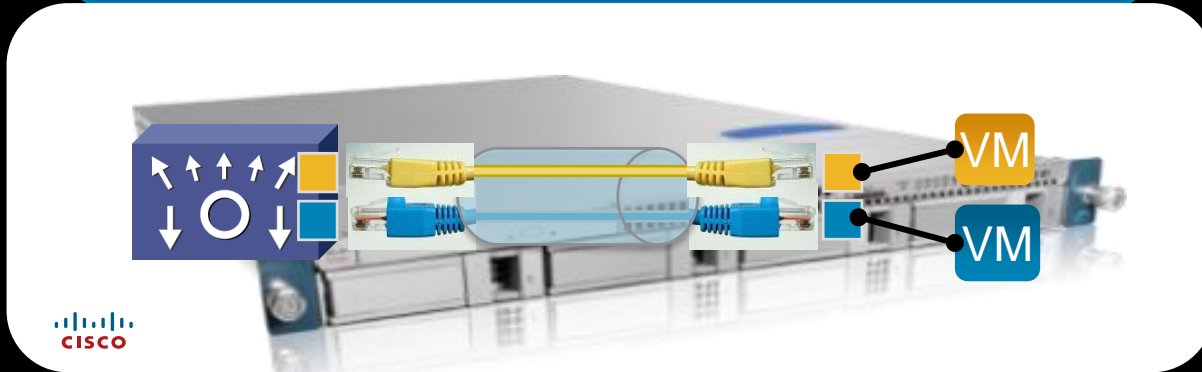
VN-Link

- A virtual network link between the switch and the VM
- Extends the network to the virtualization layer
- Enables:
 - Policy-Based VM Connectivity
 - Mobility of Network & Security Properties
 - Non-Disruptive Operational Model

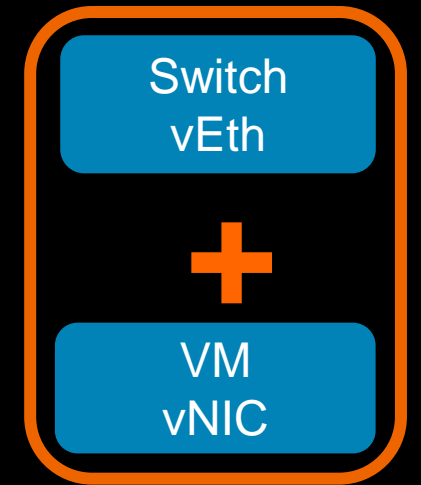
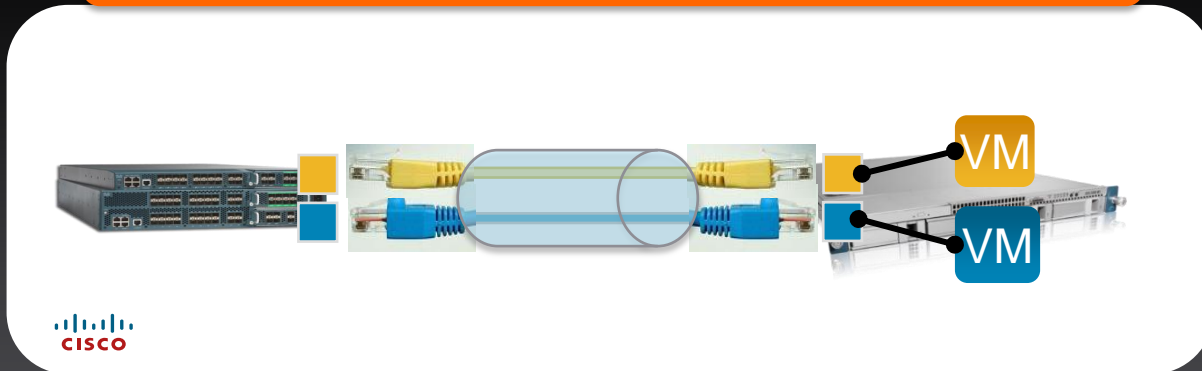


The scope of the VN-Link

Software Hypervisor Switching



External Hardware Switching



VN-Link

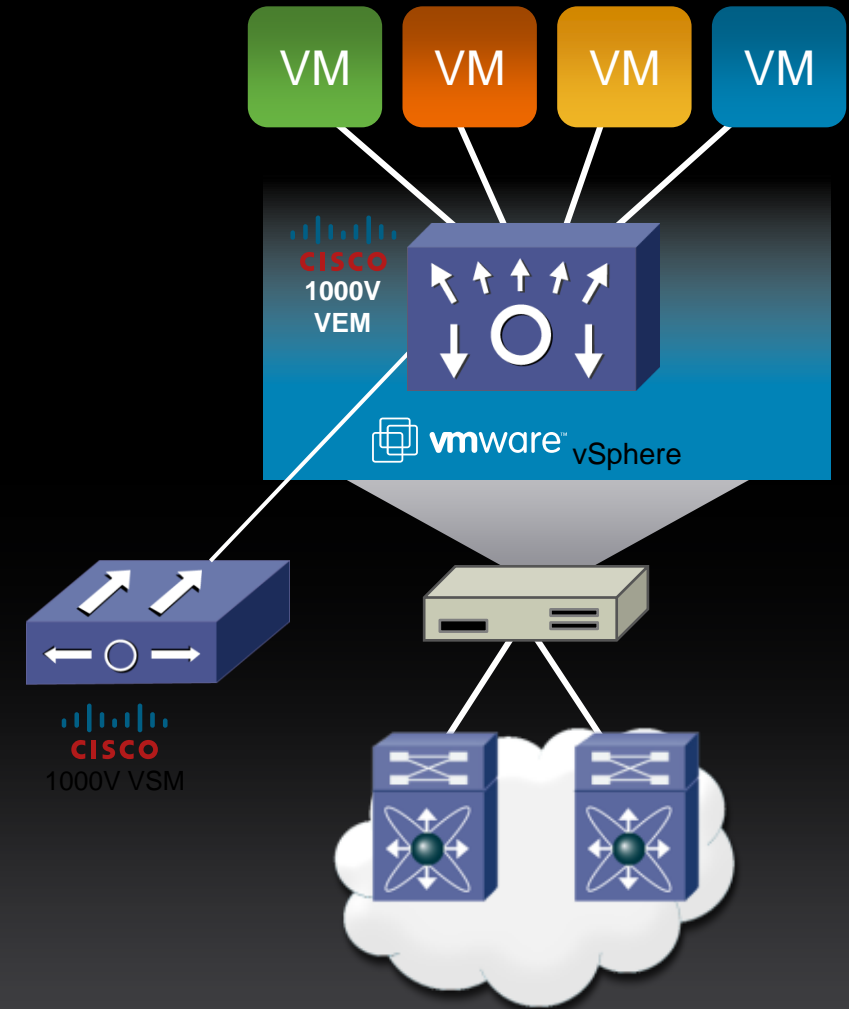
Network Interface
Virtualization
Technology

VN-Link Products – Nexus 1000

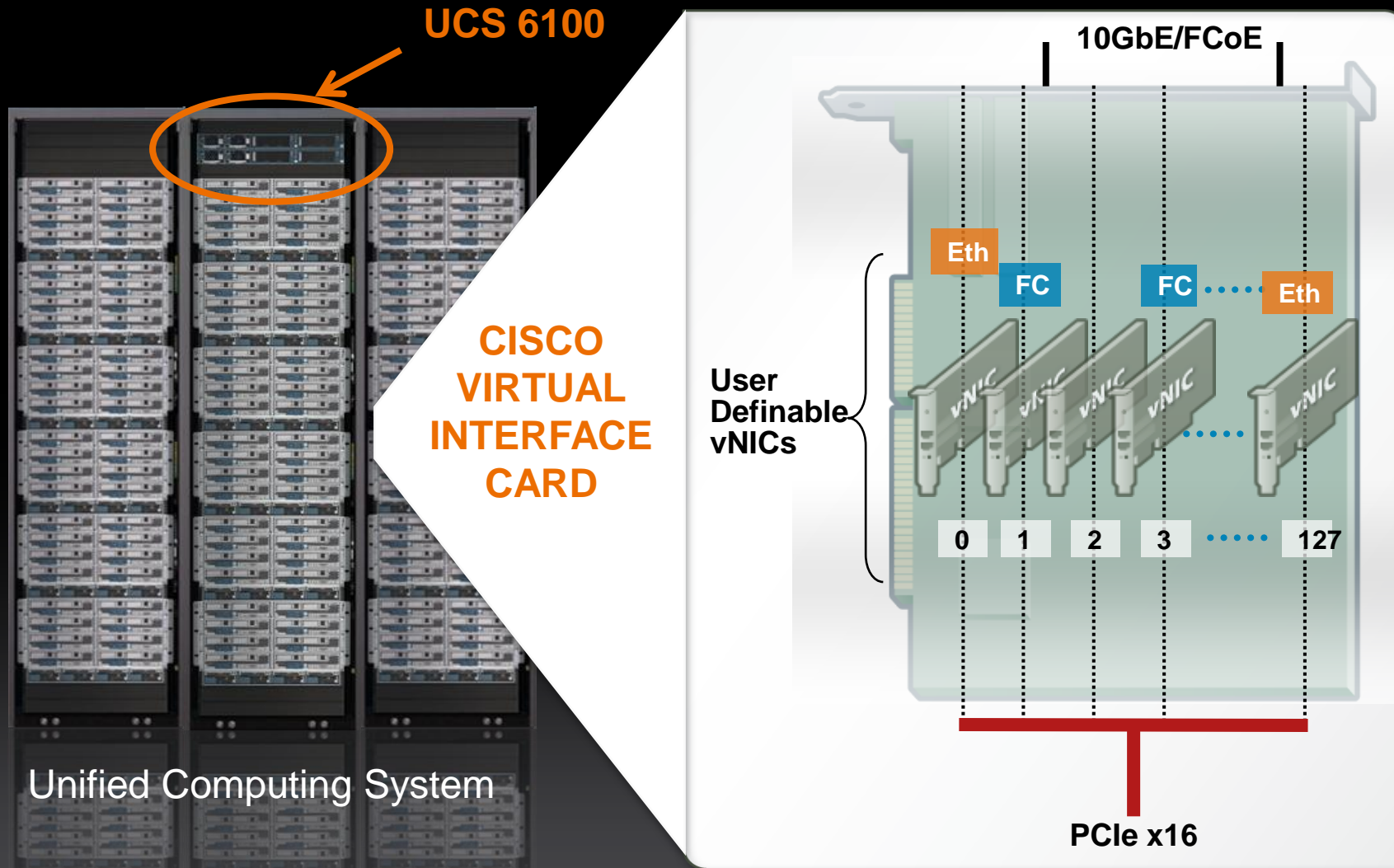
- Industry's most advanced software switch for VMware vSphere
- Built on Cisco NX-OS
- Compatible with all switches
- Compatible with all servers on the VMware Hardware Compatibility List
- Winner of VMWorld Best in Show 2008 and Cisco Most Innovative Product of 2009



Nexus 1010



VN-Link Products – UCS 6100 & VIC



- VIC allows a single physical PCIe device to be virtualized into multiple different PCIe devices
- Virtual Interfaces can be Ethernet NICs or Fibre Channel HBAs
- Provides true traffic segregation in hardware without need for VLANs or QinQ tags
- Driven to standards through IEEE 802.1Qbh working group

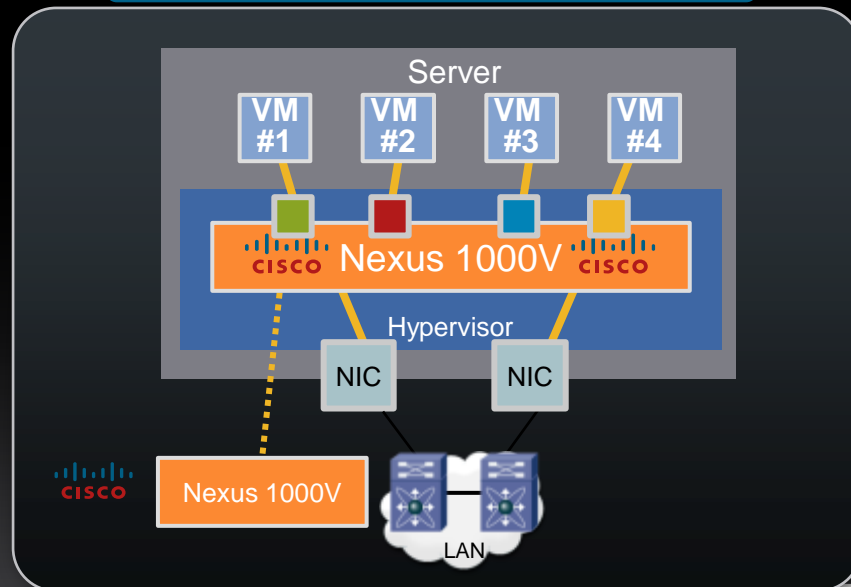
Unified Computing System

VN-Link: complementary options

Software Hypervisor Switching

Dense VMs environment
Advanced feature set
Flexibility

Tagless (802.1Q)



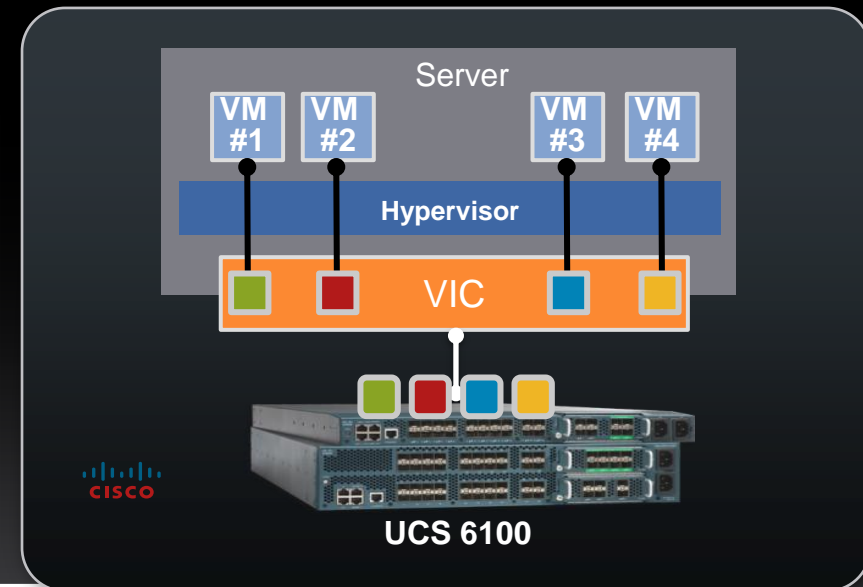
Policy-Based
VM Connectivity

Mobility of Network and
Security Properties

External Hardware Switching

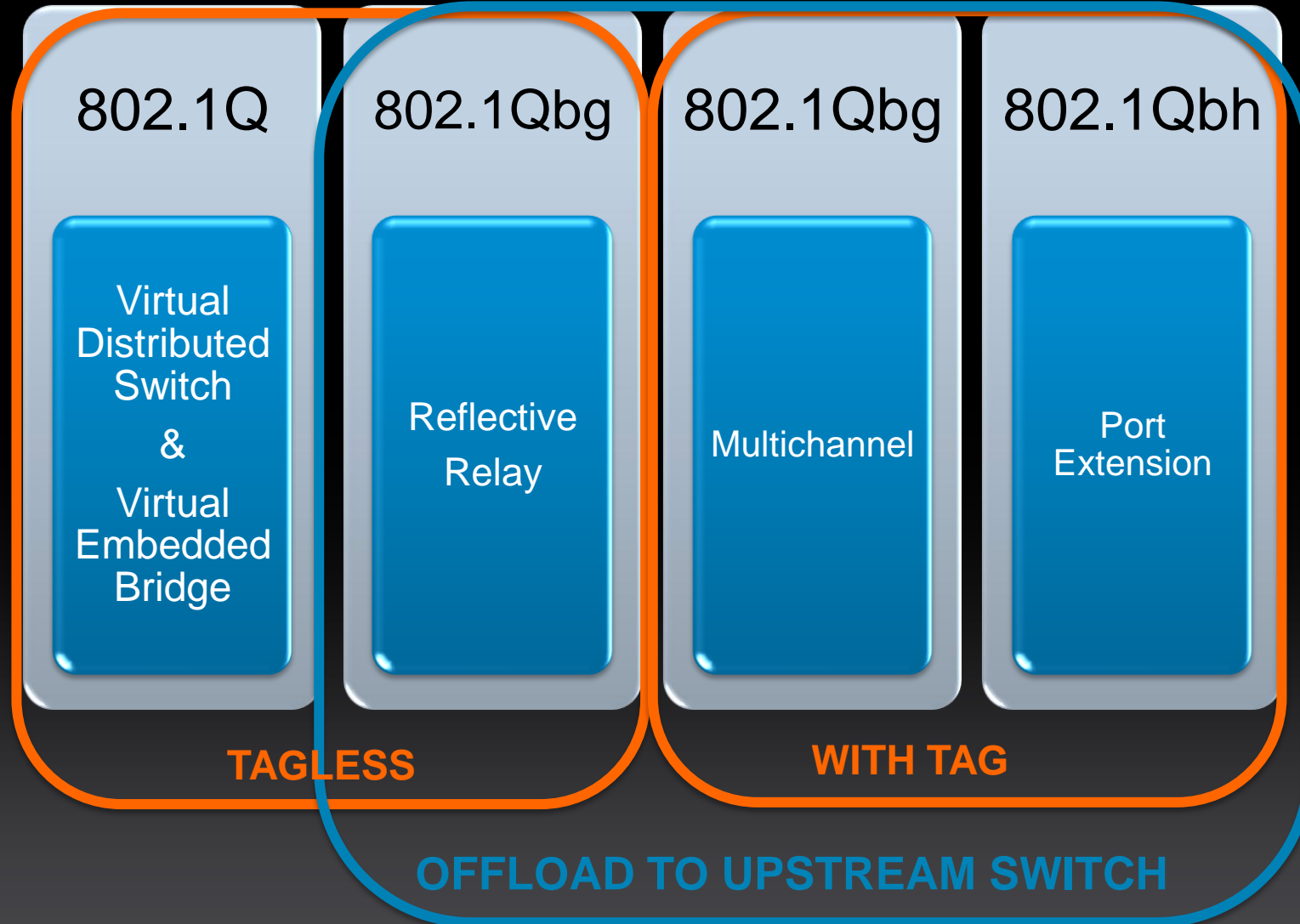
Higher performances
Granular I/O management
Consolidation

Tag-based (Pre-standard 802.1Qbh)

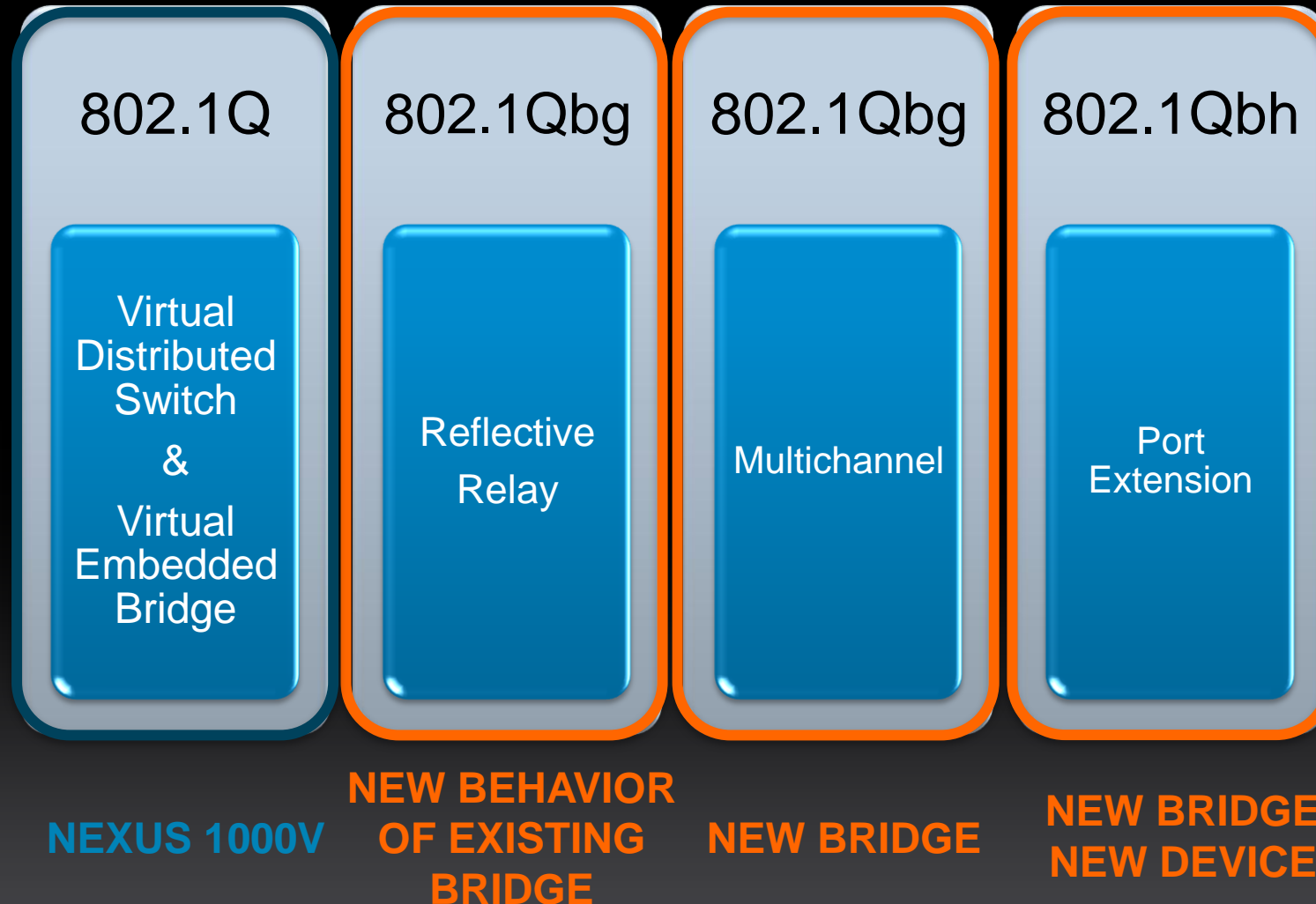


Non-Disruptive
Operational Model

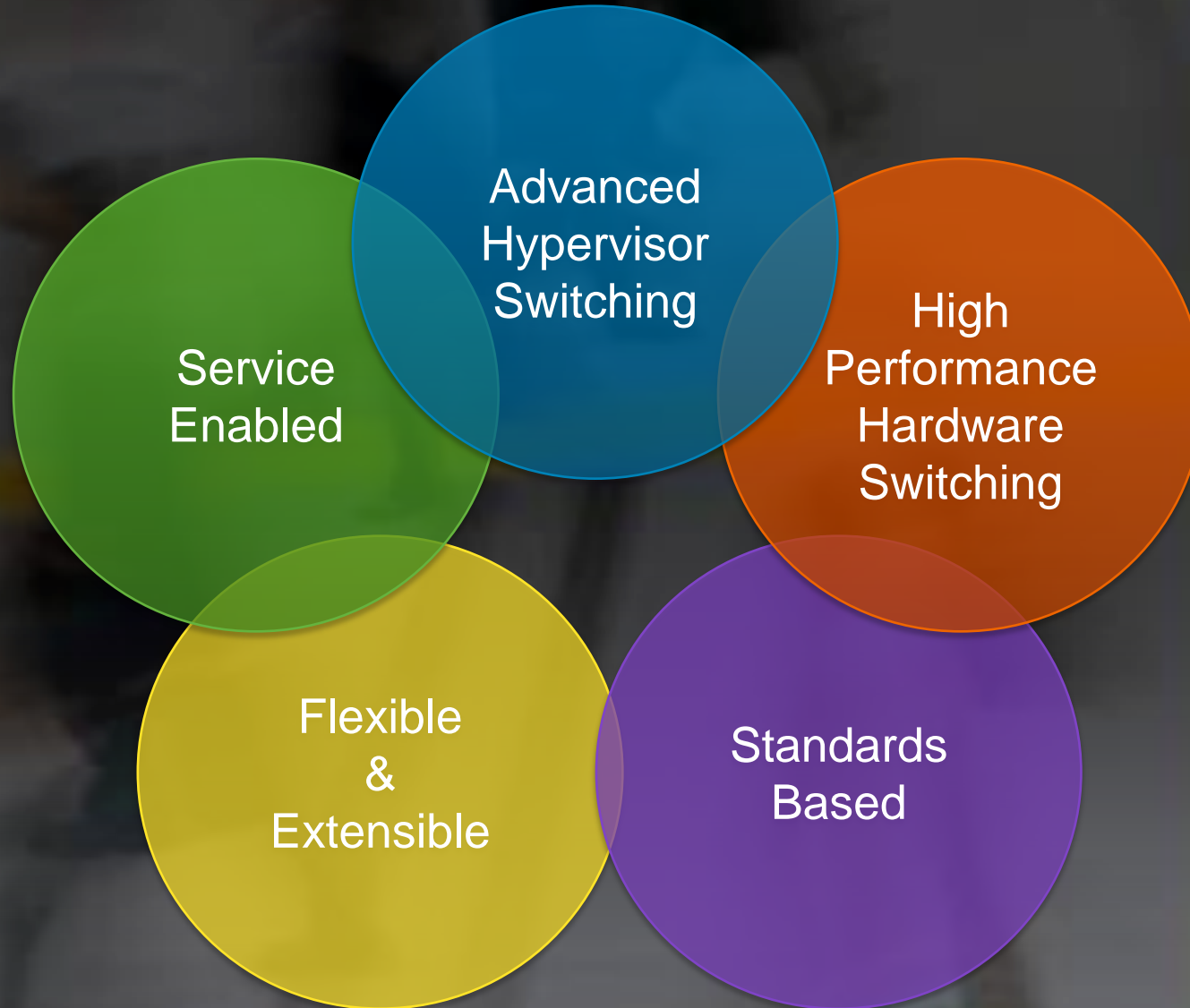
Virtual Networking Standards Components



Virtual Networking Standards Components



The Most Complete Virtual Machine Support Today





CISCO