



UCS - the computing vision that boosts your business

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S&T Romania

Datacenter evolution

Cisco Nexus 1000V DVS

Unified I/O

Vblock

Cisco UCS

VMware Features

The EMC-Cisco-VMware Computing Vision

Datacenter Evolution



DC Trends

Today

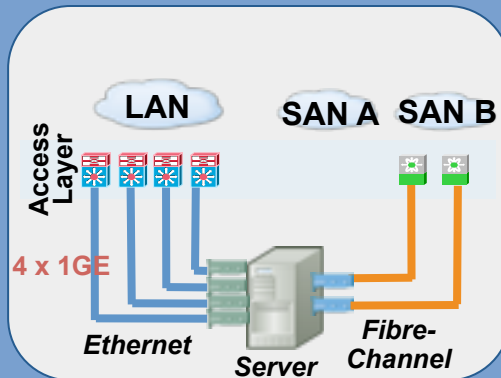


- Many under utilized servers
- Cable sprawl
- High power, cooling costs
- High CAPEX
- For every \$1 spent on server capex ~\$5 spent on opex

Virtualization Step1

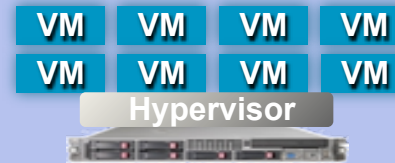


GE

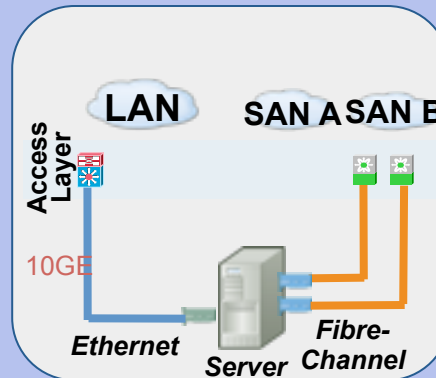


- Cable sprawl
- power, cooling costs
- Less number of access layer Ethernet ports

Virtualization Step2

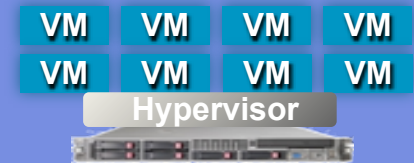


10 GE

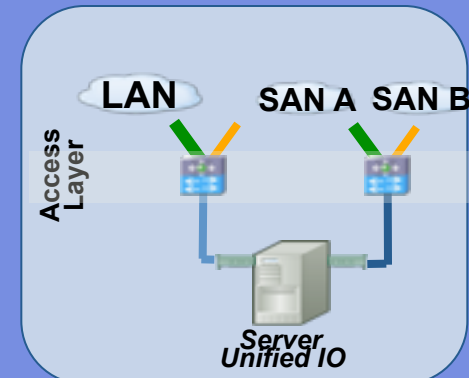


- GE to 10GE in access layer
- Less interfaces – reduced Cable sprawl
- Savings from power and cooling

Virtualization Step3

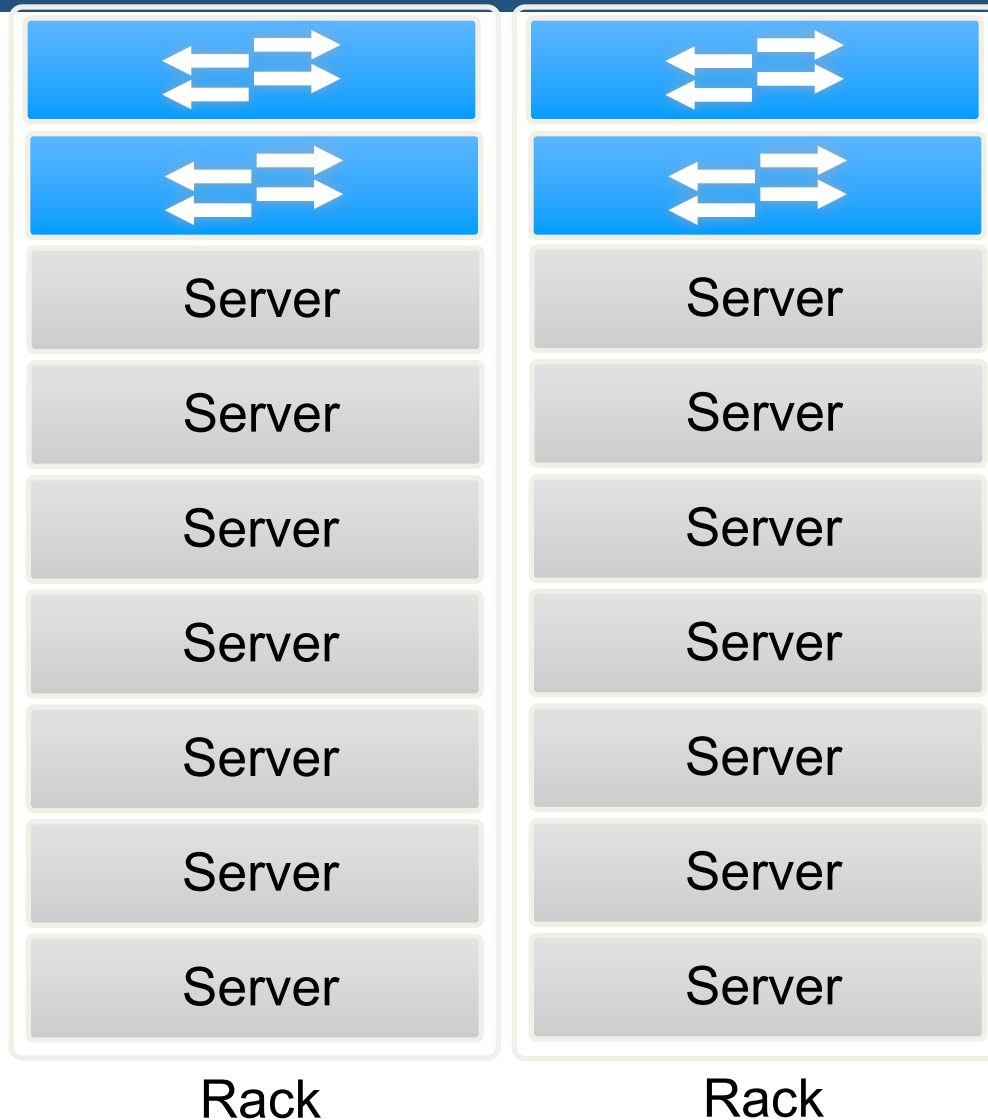


10 GE/FCOE



- Unified I/O - LAN & SAN consolidation
- Reduce NICs, HBAs,
- Reduce cabling
- More Savings from power and cooling
- Lower capex

Server Deployment: Rackmounts



■ First generation

- Rack-optimized
- Top of Rack or End of Row switches
- Cables

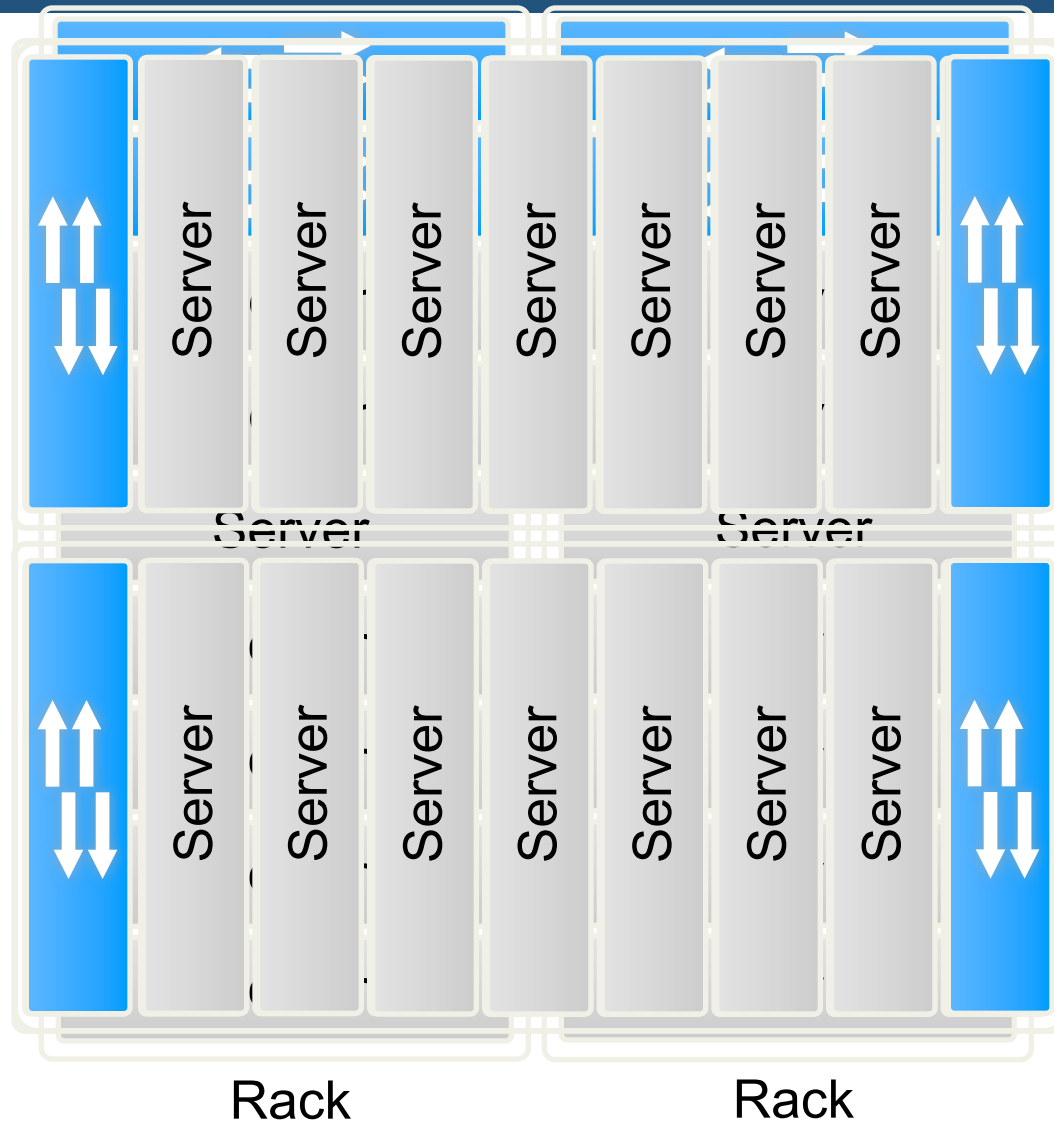
■ Benefits

- Space utilization
- Highly flexible

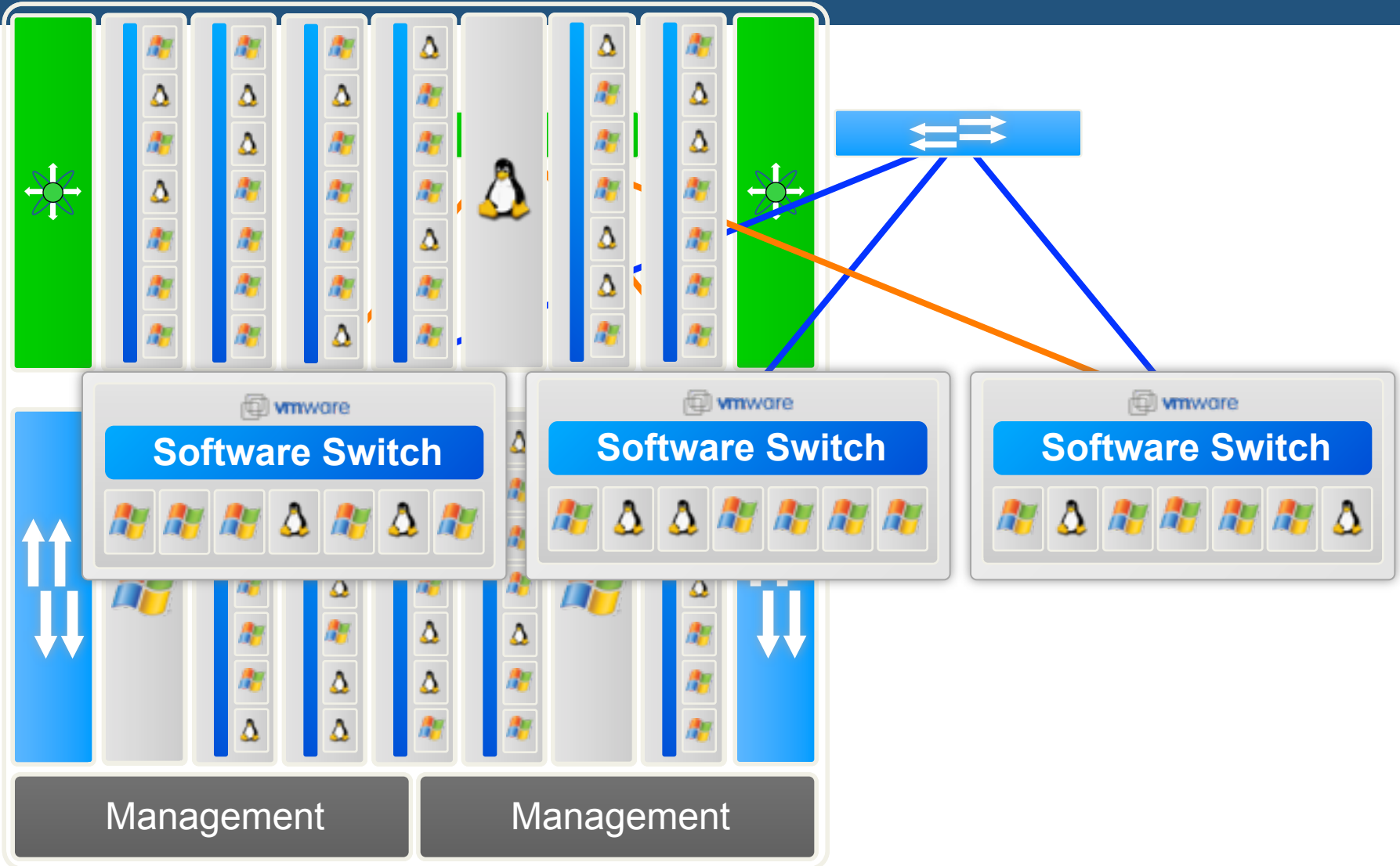
■ Weakness

- Cabling
- Serviceability
- Power efficiency

Server Deployment: Blades



Server Deployment Scale



Arhitectura UCS

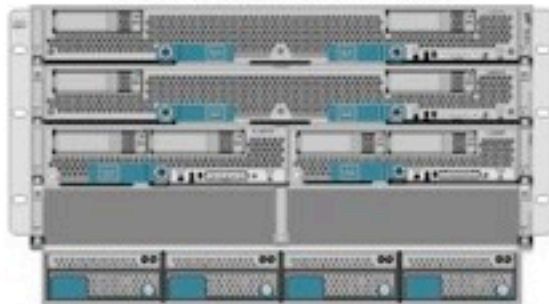
FRONT



2 x UCS 6120XP 20-port Fabric Interconnect

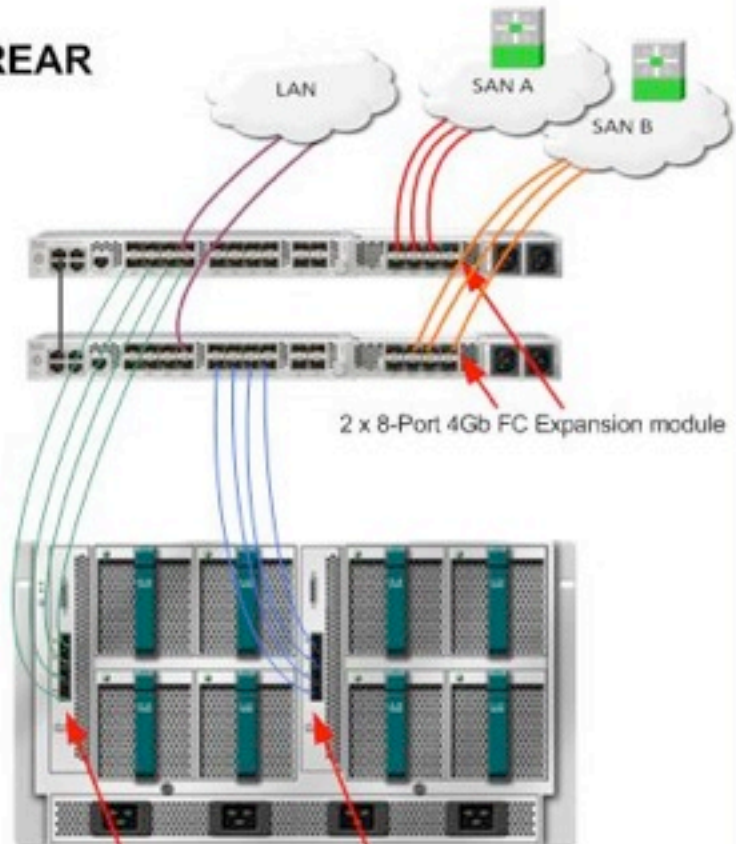


UCS 5108 Blade Server Chassis



2 x UCS B200 M1 Blade Server
2 x UCS B250 M1 Blade Server

REAR



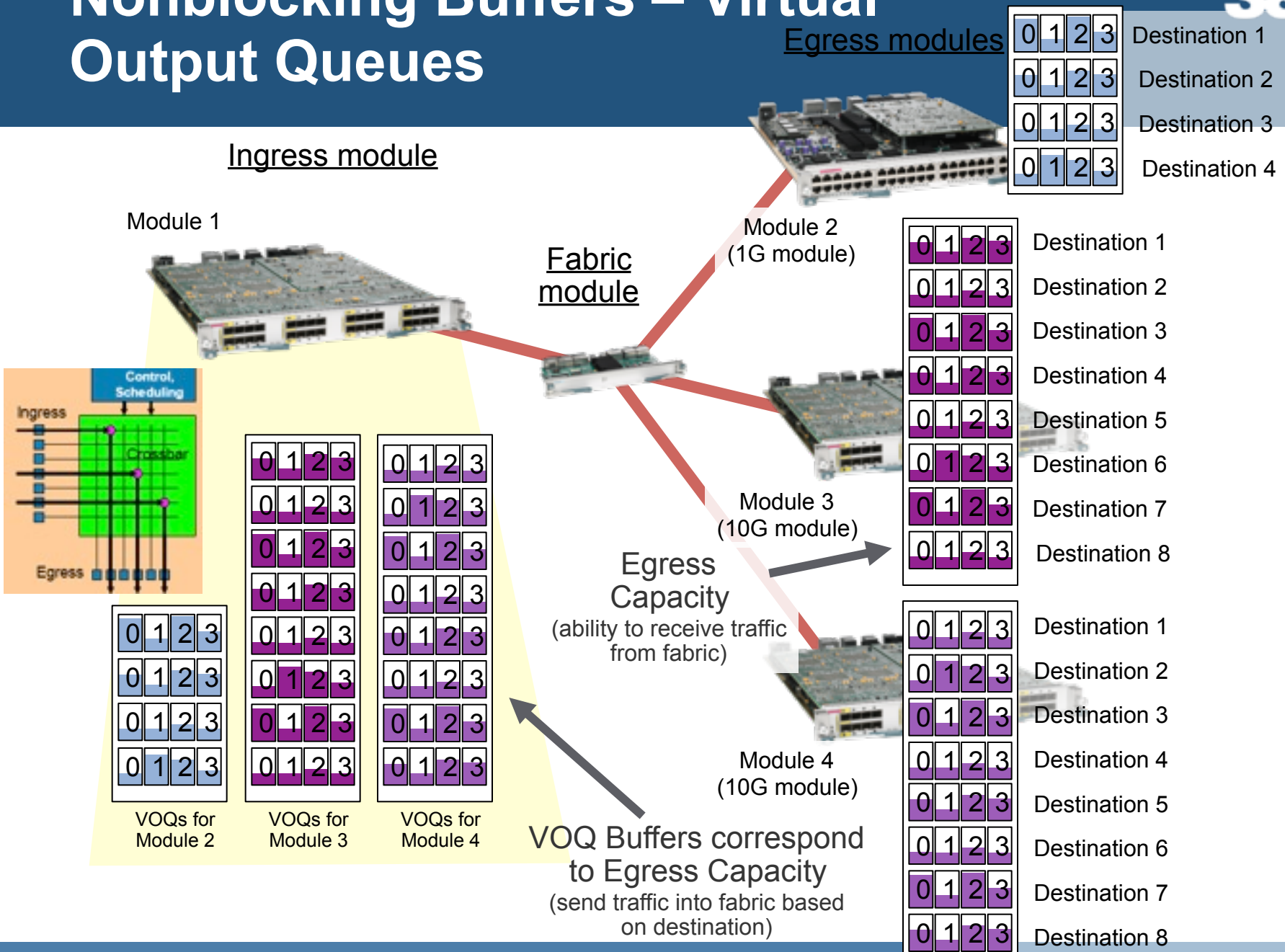
2 x 8-Port 4Gb FC Expansion module

2 x UCS 2104XP Fabric Extender

Unified I/O

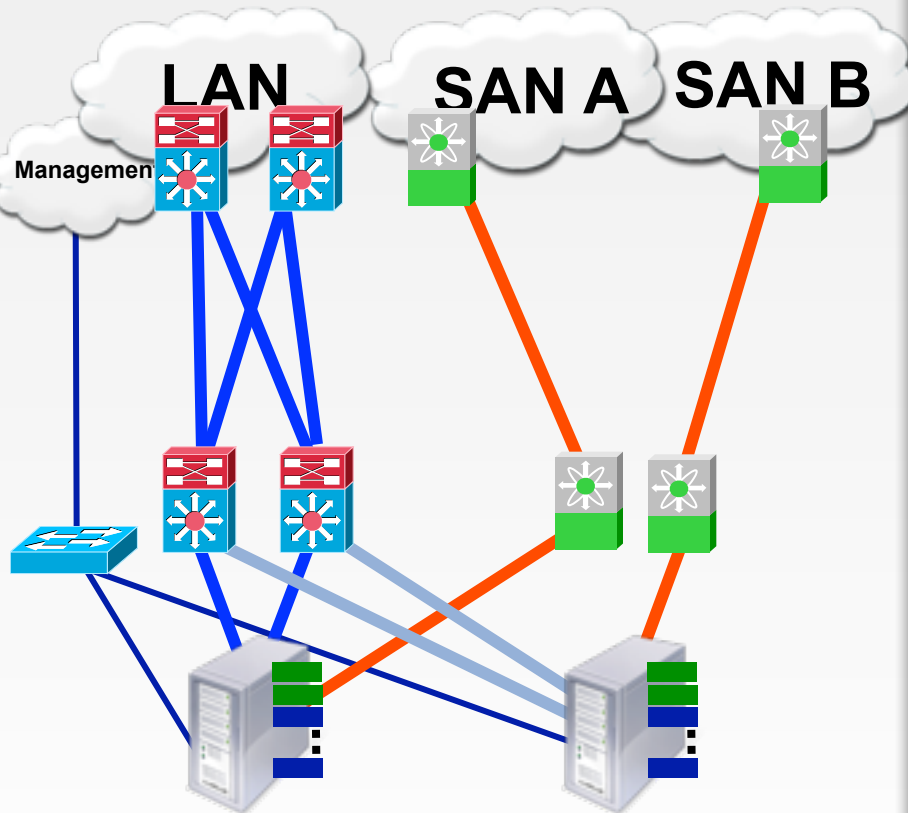


Nonblocking Buffers – Virtual Output Queues



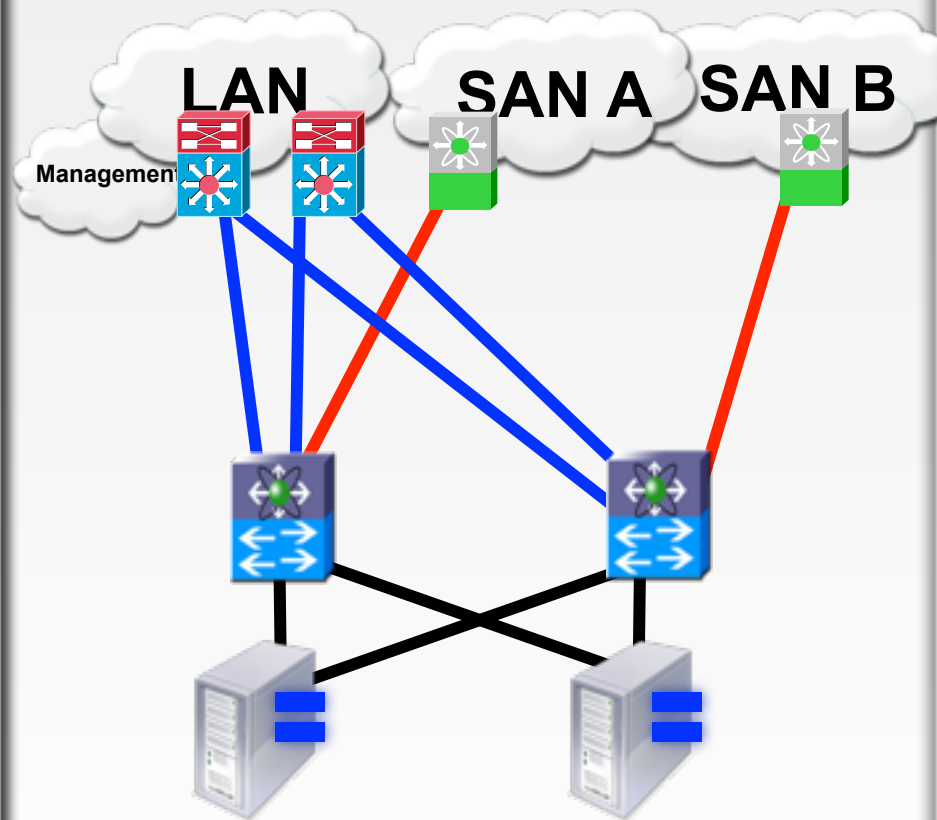
Unified I/O – less cabling, less costs, less power & cooling, less complexity, faster provisioning

Today



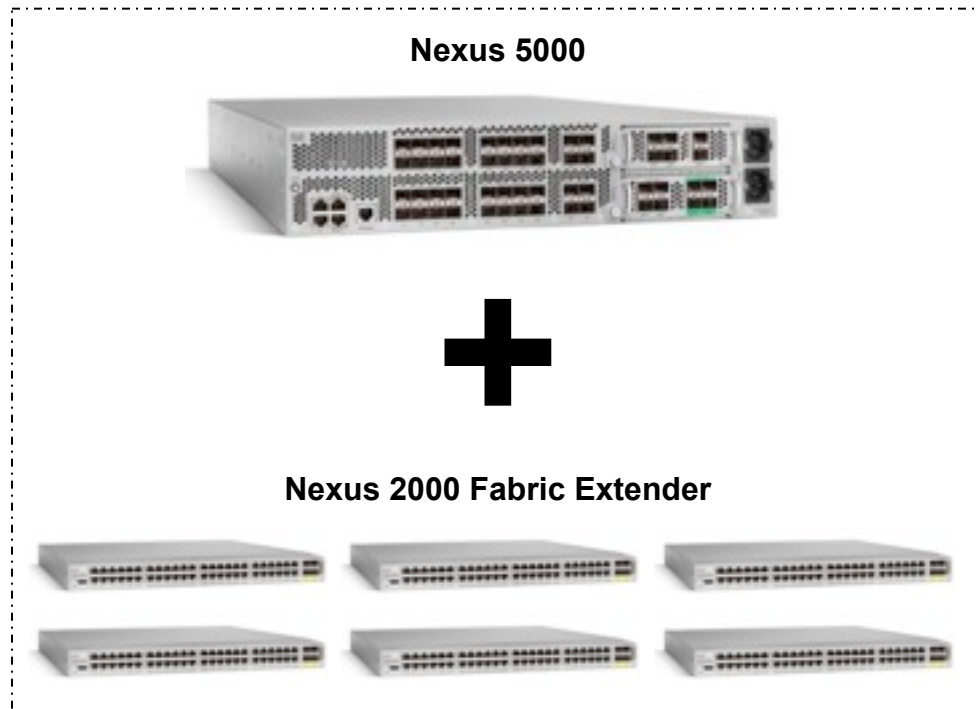
— FCoE
— Ethernet
— FC

Tomorrow



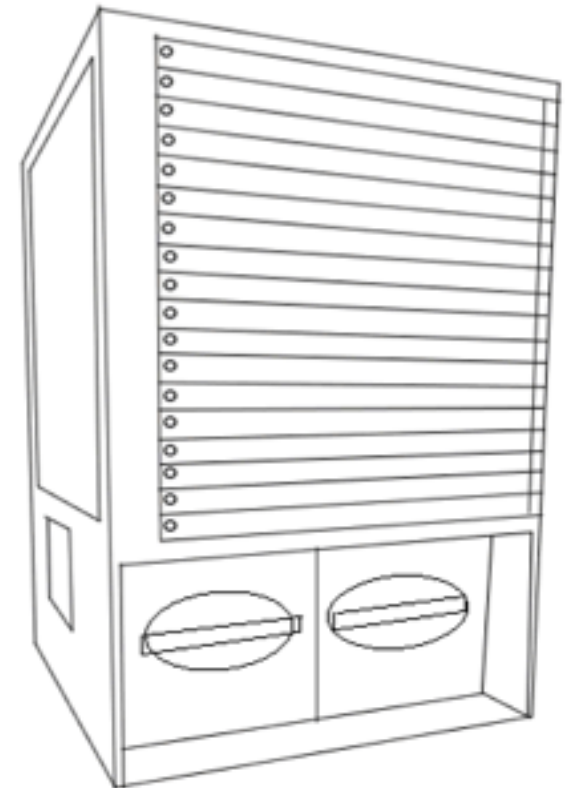
— FCoE
— Ethernet
— FC

Integration of old Servers - Nexus 2000 Fabric Extender Virtual Chassis

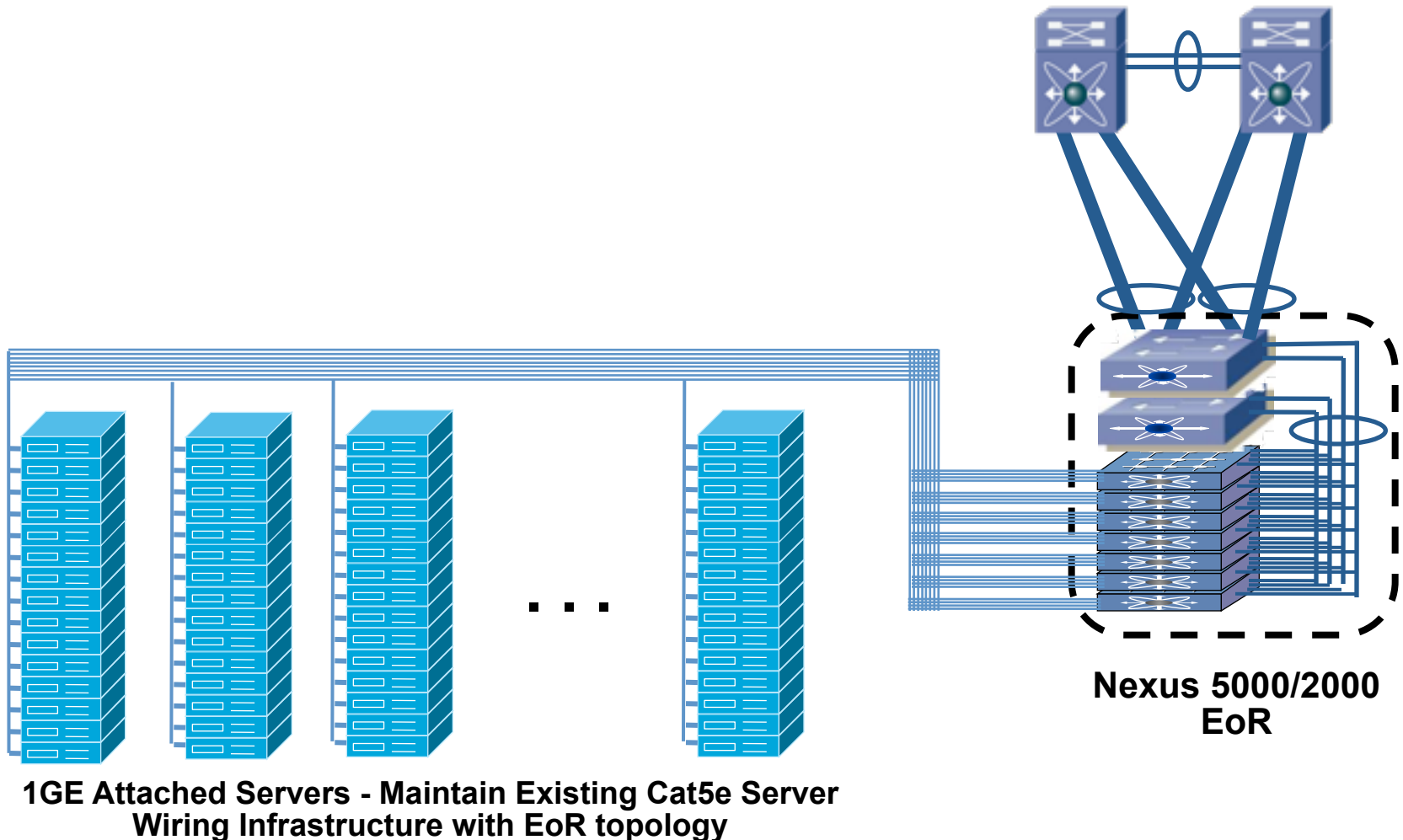


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**Nexus 5000
Virtualized chassis**



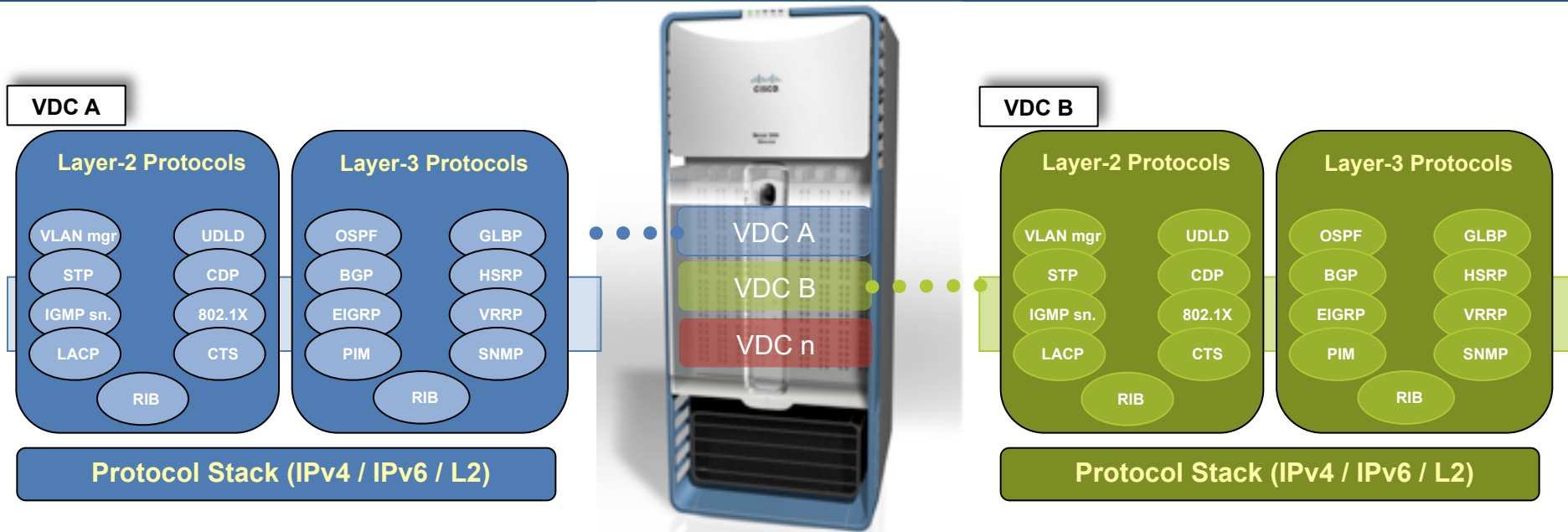
Integration of old servers - Nexus 2000 Fabric Extender Virtual Chassis - EoR and ToR



Integration of old servers – Blade Chassis



Virtual Device Contexts – several Datacenter Partitions



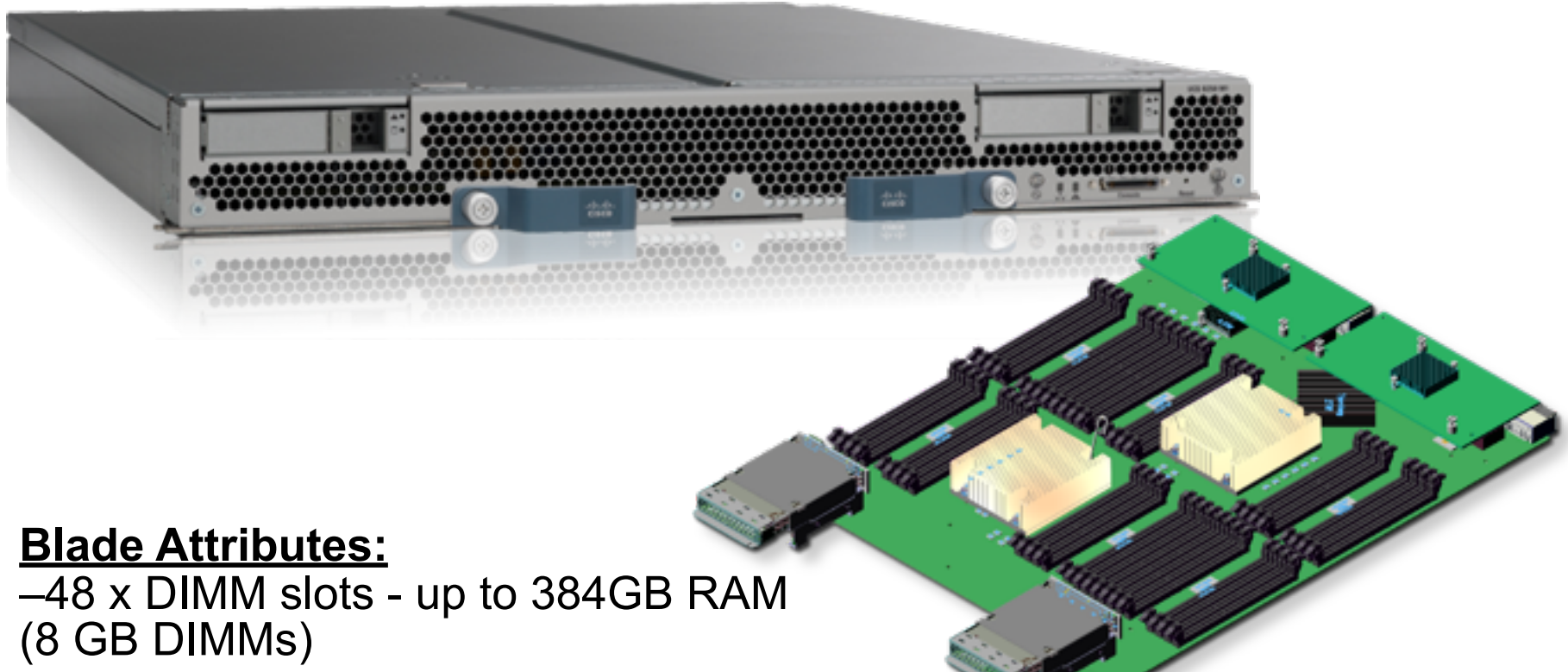
■ Benefits

- Flexible separation/distribution of **Software Components**
- Flexible separation/distribution of **Hardware Resources**
- Securely delineated **Administrative Contexts**

Cisco Unified Computing System



UCS Blade B250



Blade Attributes:

—48 x DIMM slots - up to 384GB RAM
(8 GB DIMMs)

Large Data Set

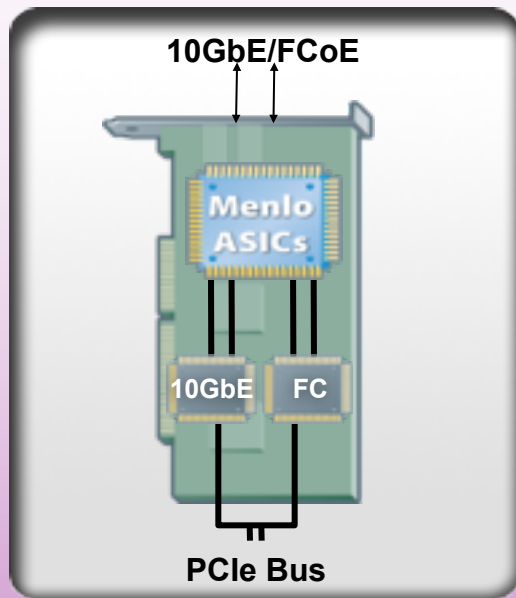


- Applications requiring large memory such as business intelligence, financial and engineering modeling
- In-memory databases
- OLTP

Network Adapters – 3 flavors

Compatibility

Existing Driver Stacks



Cost

“Free” SAN Access
for
any Ethernet
equipped host

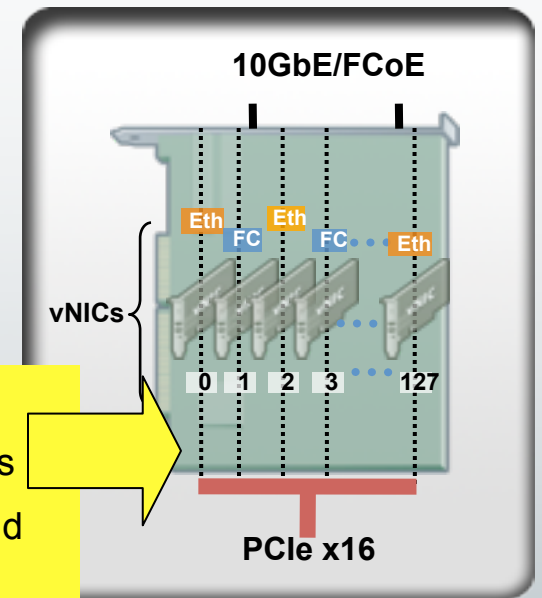


Software FCoE

Wire Once
Hypervisor Bypass
Network Policy and
Visibility

Virtualization

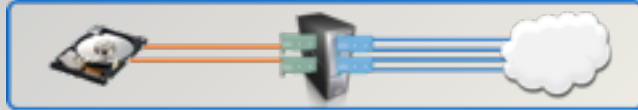
VM I/O Virtualization
and Consolidation



Service Profiles – Stateless Computing

Service Profile

Attr



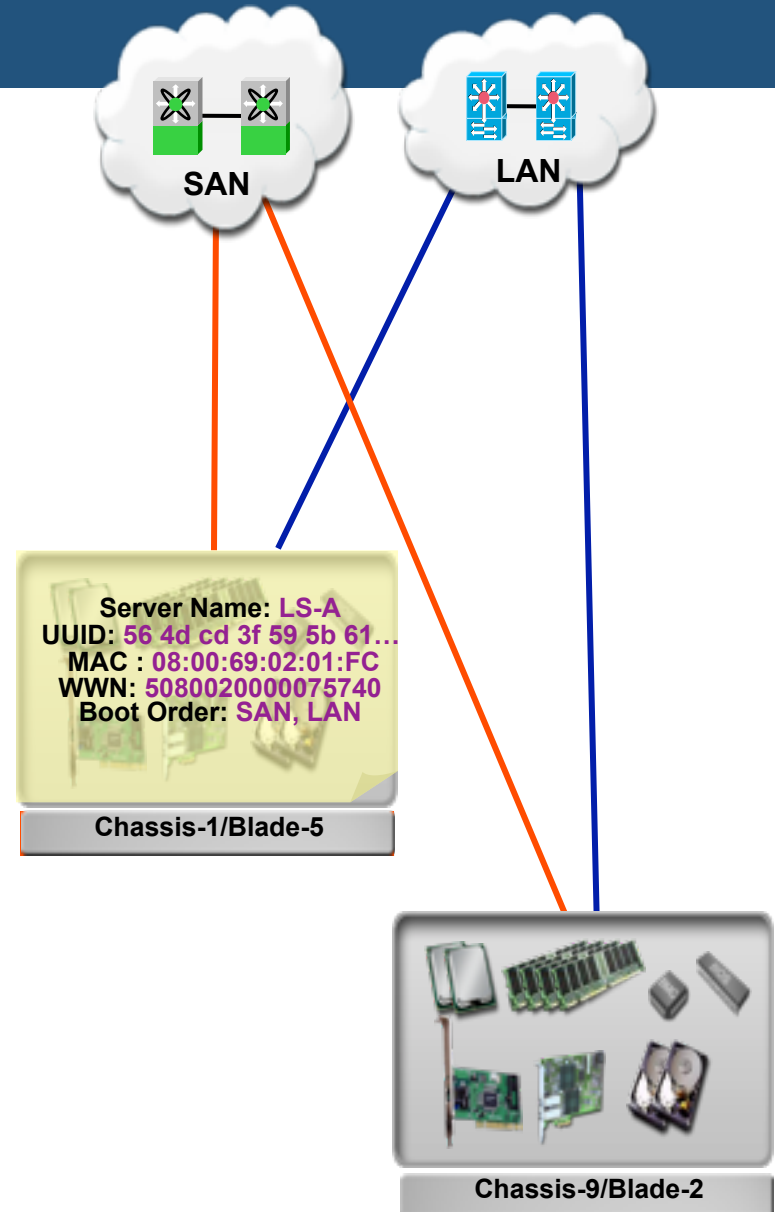
- Seamless server mobility
- Within interconnect domain

Dynamic Provisioning

- Complete infrastructure repurposing
- Integrated with 3rd part tools

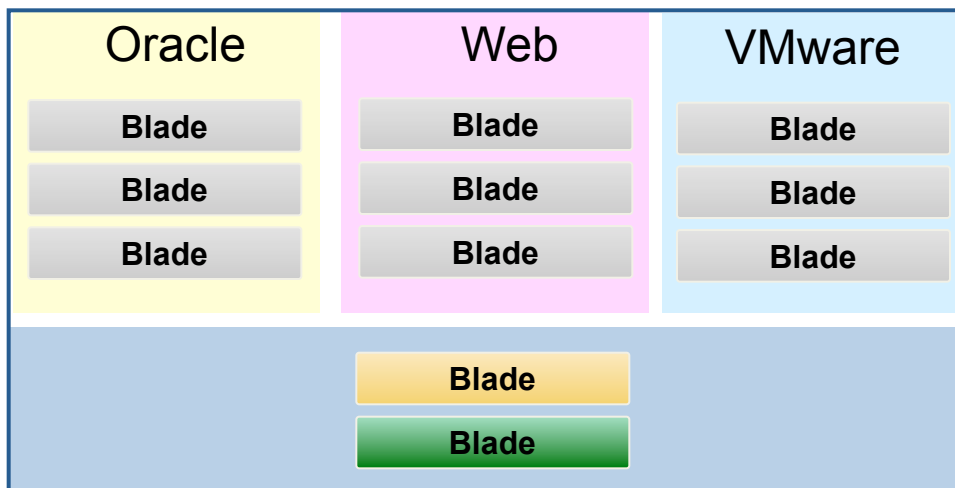
Benefits:

- Firmware and bios included



Simpler DR

- Export & import profiles on a periodic or ad-hoc basis
- Periodic DR tests at remote site
- Hardware at DR site can be used for other functions during normal operations
 - E.g.: Servers can be deployed for test/dev/QA at DR site
 - In case of primary site outage, simply disassociate existing profiles and associate imported production profiles



Less Spares

- With Server Profiles:
 - Resources provisioned as needed
 - Same availability with fewer spares

Cisco Nexus 1000V DVS



VN-Link Brings VM Level Granularity

Uses:

Vmotion

DRS

Upgrade/patch

HW failure

Port profiles

Encapsulated RSPAN

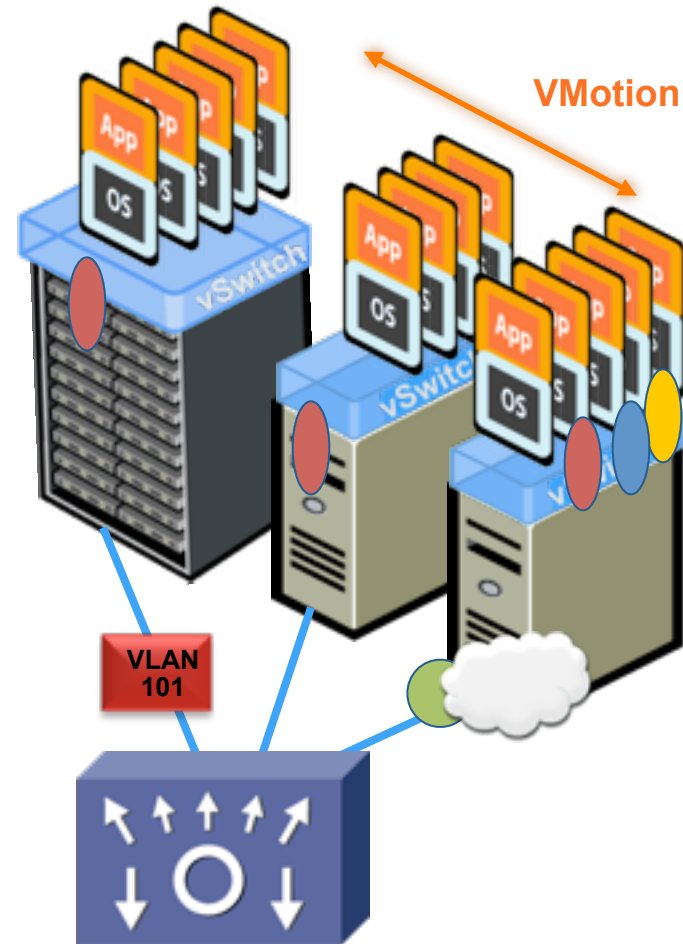
Benefits:

Mobility

VM Security

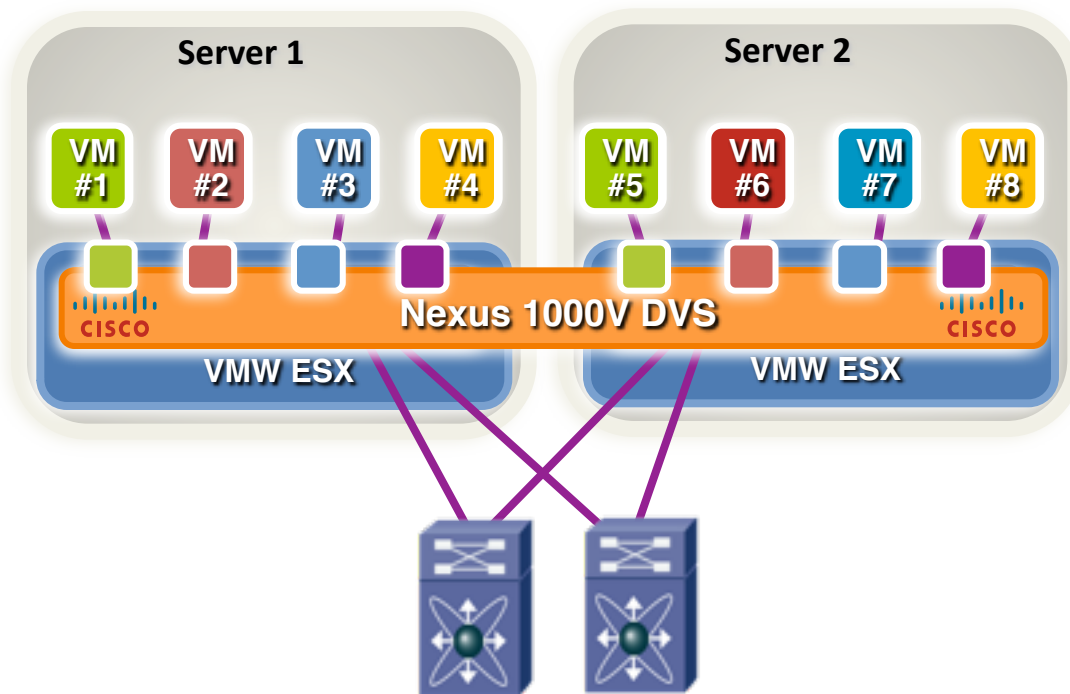
Non-disruptive

Faster deployment



Cisco VN-Link Switch

Cisco Nexus 1000V - Industry First 3rd Party Distributed Virtual Switch



Vblock



- Compute
 - Cisco UCS B-series
- Network
 - Cisco Nexus 1000V
 - Cisco MDS 9222i
- Storage
 - EMC CLARiiON CX4
- Hypervisor
 - VMware vSphere 4
- Management
 - EMC Ionix Unified Infrastructure Manager (Optional)
 - VMware vCenter
 - EMC Navisphere
 - EMC PowerPath
 - Cisco UCS Manager
 - Cisco Fabric Manager

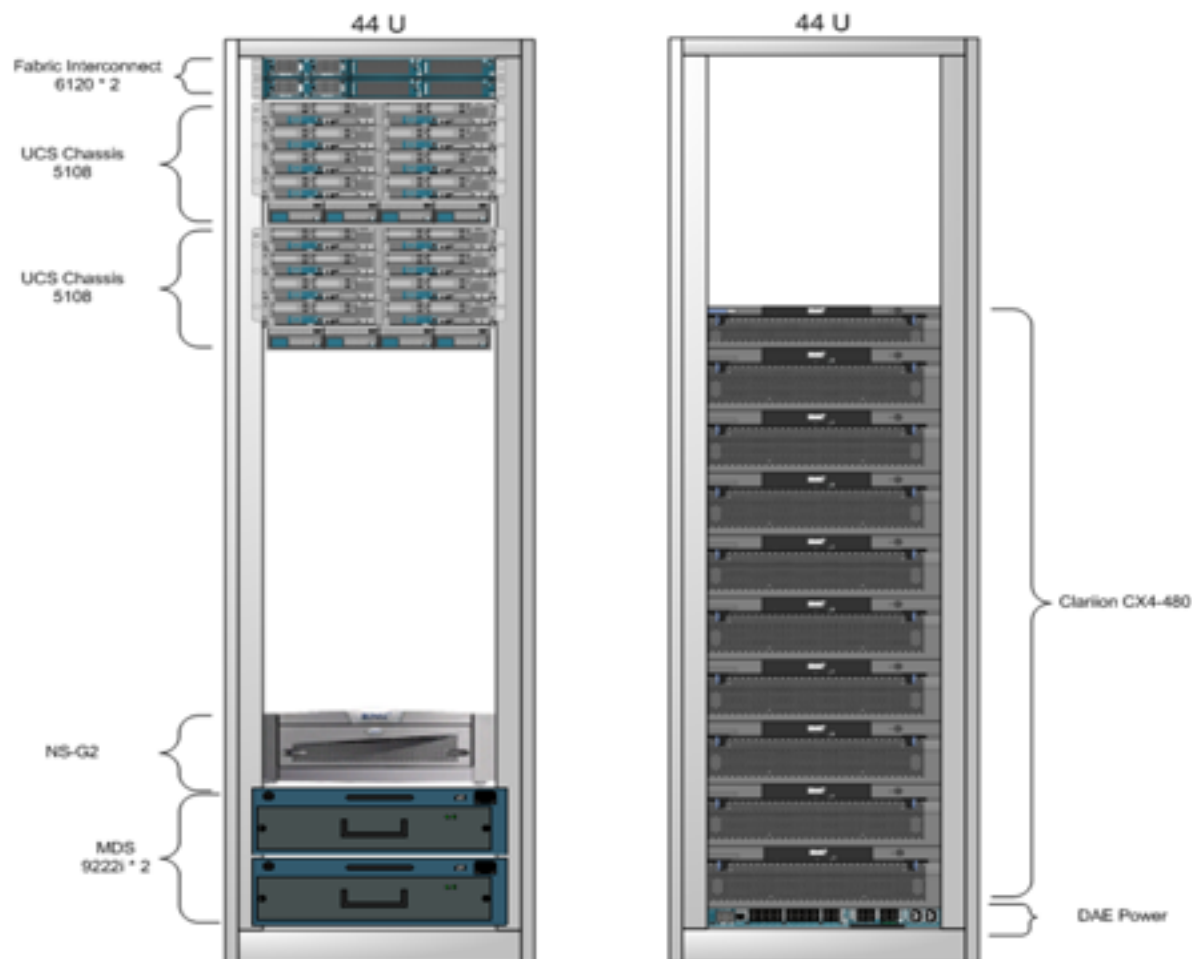


- Type 1- vBlock for Commercial and Enterprise
- Scales between 800 – 3000+ VMs
- Typical Use case:
 - Shared services – Email, File & Print, Virtual Desktops, etc
 - Business critical ERP, CRM systems

VBlock 1

vBlock 1 Min Configuration – Rack Layout - Front View

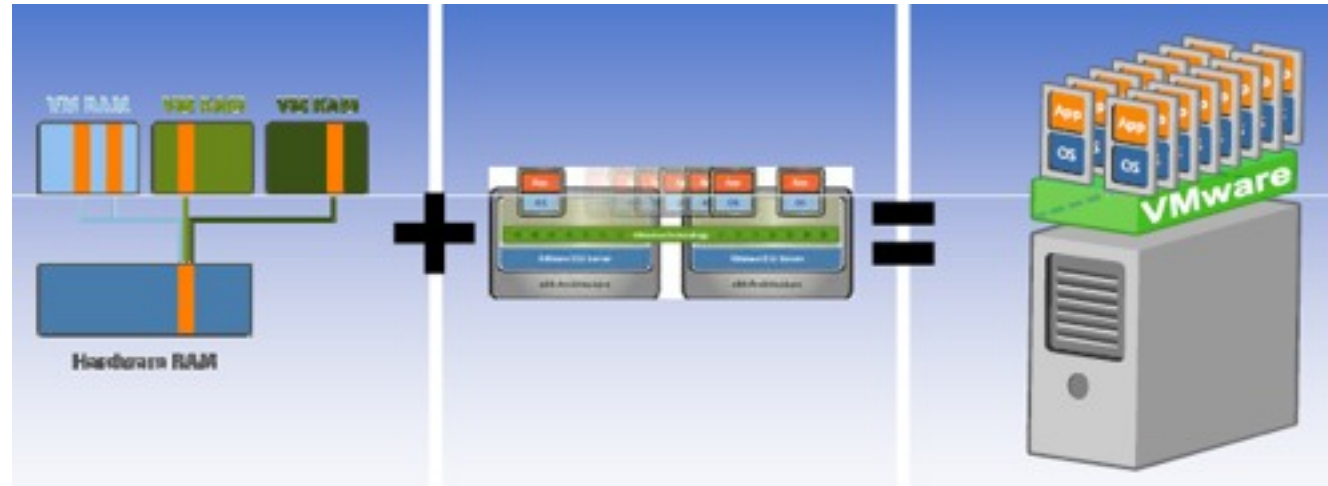
2 UCS Chassis, 8 Blades each, 6*48 GB RAM + 2* 96 GB RAM (Total 480 GB RAM), 2 73 GB Internal HDD 2
2 UCS 6120 Fabric Interconnect, 20 Fixed ports, 8 Ports 4 GB Fiber Channel
2 MDS 9222i, 18 Ports 4 GB Fiber Channel
Clarion CX4-480, 2 Controllers



VMware Features

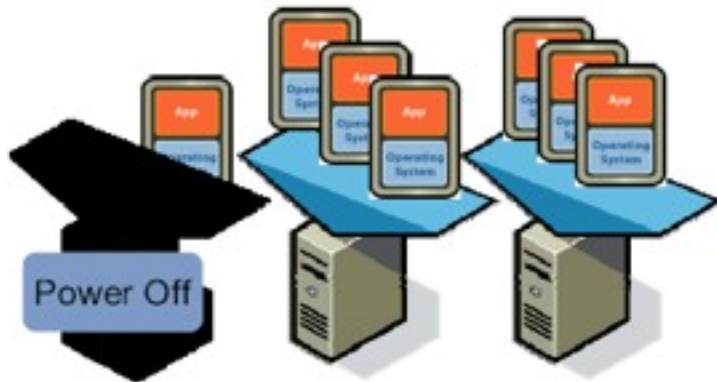


- VMware DRS (Distributed Resource Scheduler) automatically balances the workloads between physical machines
- Vmotion – Planned downtime



Distributed Power Management (DPM) and Fault Tolerance

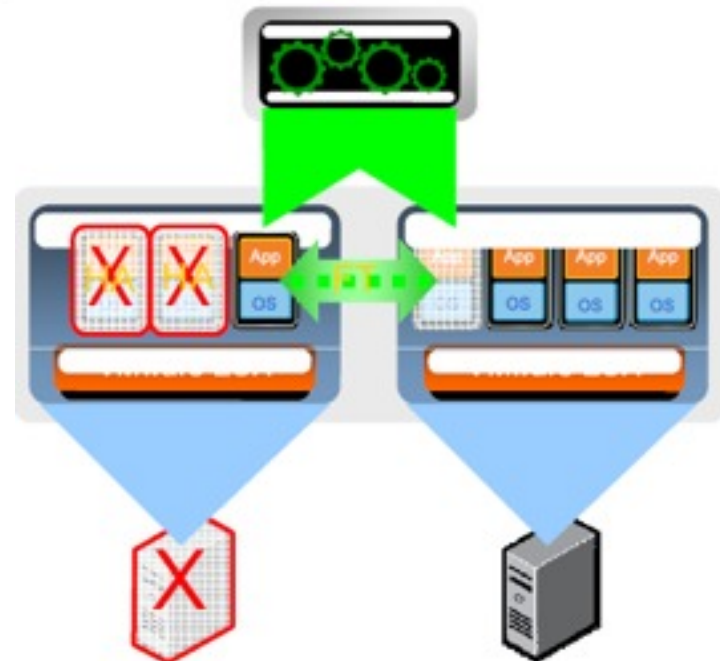
Business Demand



Resource Pool

- Single identical VMs running in lockstep on separate hosts
- Zero downtime, zero data loss failover for all virtual machines in case of hardware failures
- Integrated with VMware HA/DRS

- Consolidates workloads onto fewer servers when the cluster needs fewer resources
- Places unneeded servers in standby mode
- Brings servers back online as workload needs increase



we create values