

**Cisco Expo 2011**

**Helsinki**

**13.9.2011**

Messukeskus

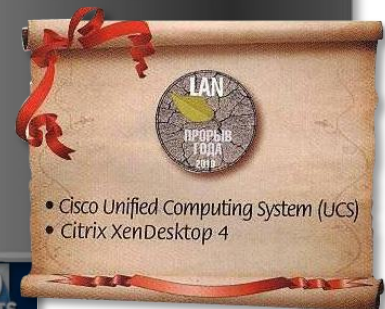
**Maailman paras palvelinjärjestelmä**

Tommi Salli

Distinguished Engineer

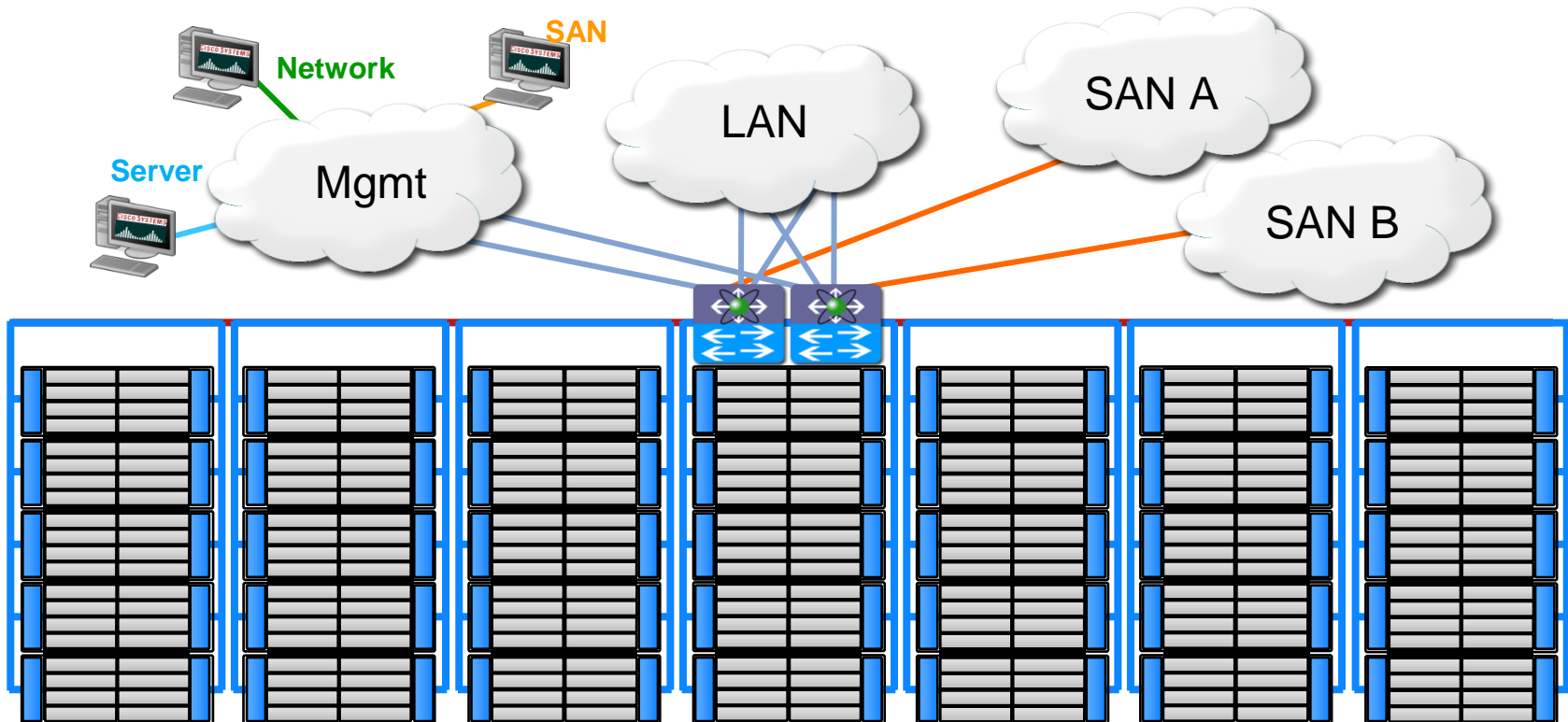
## Cisco UCS Momentum

- **\$1.1B** Annualized Run Rate
- **7,400** UCS Customers; **2,620** repeat customers with average 3.4 repeat buys
- **350** ATP Channel Partners for UCS B-Series; **All** for UCS C-Series; **Active Distis** with **Configuration to Order Capability**
- **Ten of Thousands** of supported applications
- **40+ World Record Performance Benchmarks** to date
- **44+** ISVs writing to UCS API
  - UCS Emulator Guide downloaded over 13,000 times
  - XML model information Guide downloaded over 6,300 times

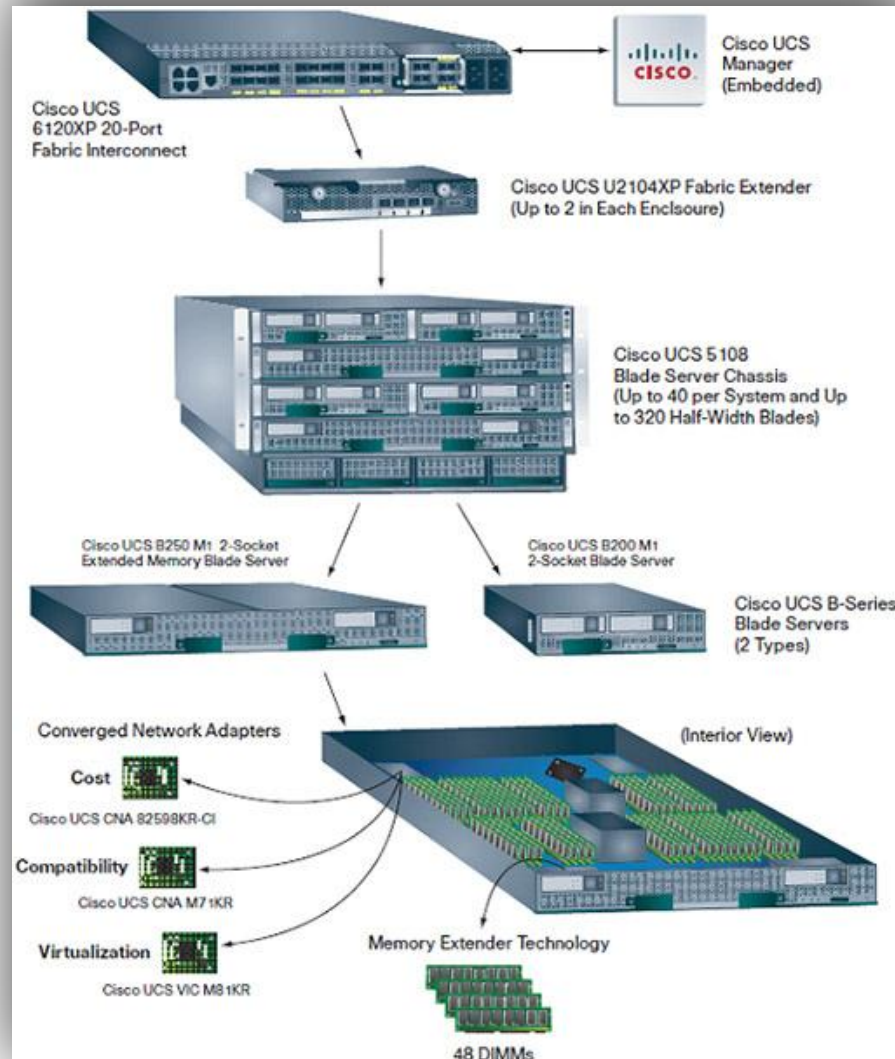


# UCS System and Connectivity View

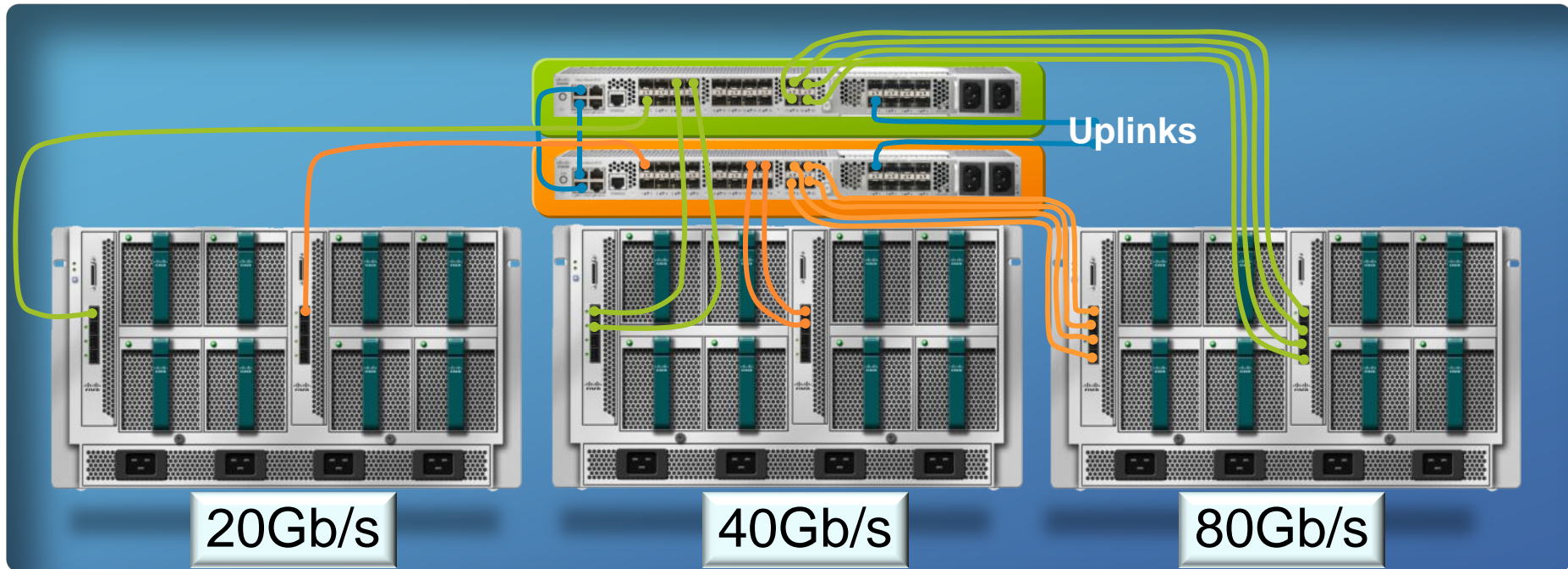
- Single Management Interface for up to 160 blade servers
- Role Based Access for LAN, SAN, and Server Administrators
- Clustered for fault tolerance and no single point of failure for any chassis
- Open APIs for third party integration



# Cisco Unified Computing System

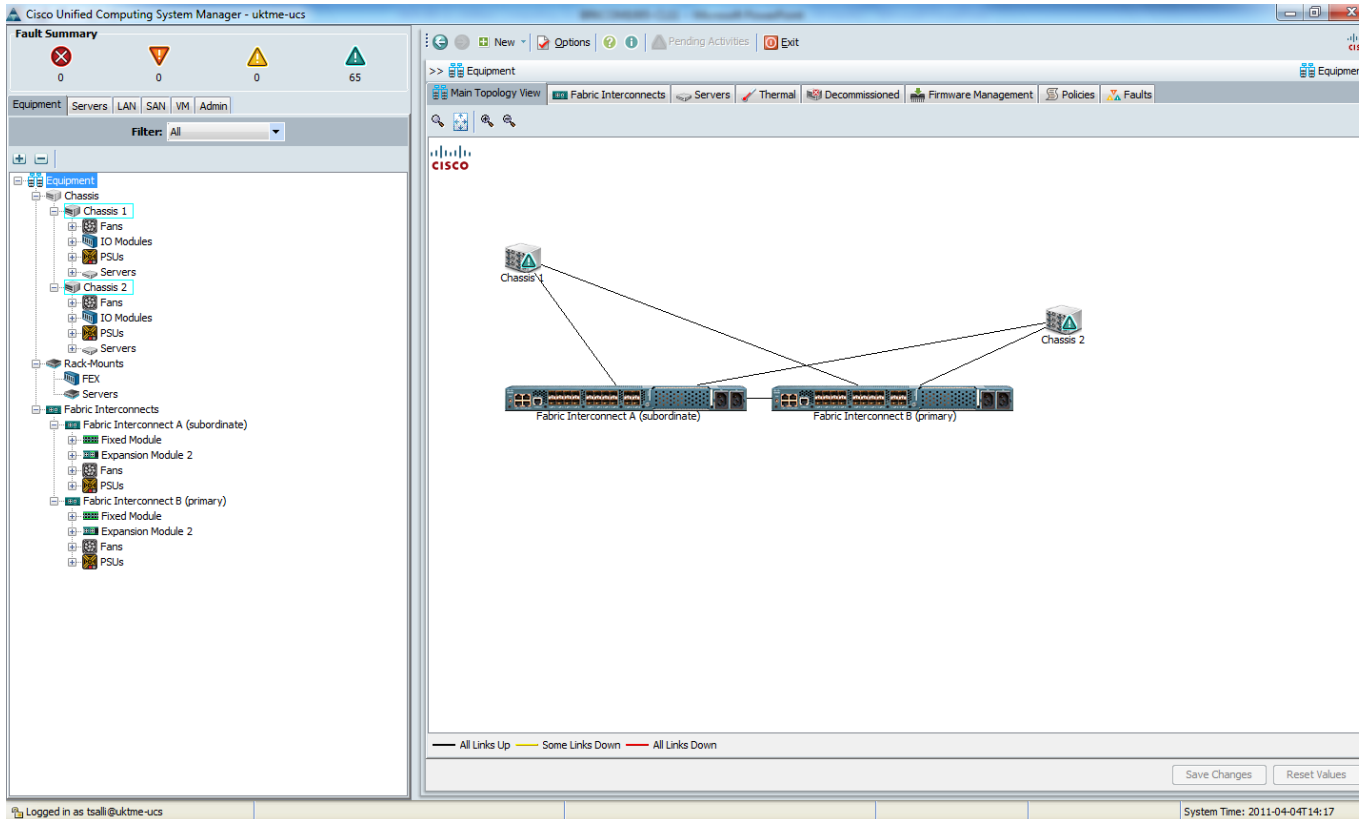


# Wire for Bandwidth, Not Connectivity



- Wire Once Architecture
- All links can be active all the time
- Policy-driven bandwidth allocation
- Virtual interface granularity

# Unified Computing System Manager



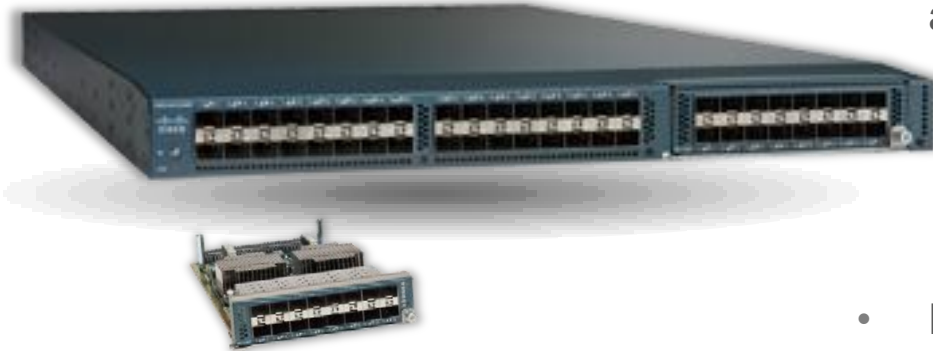
- Embedded device manager for family of UCS components
- Enables stateless computing via Service Profiles
- Efficient scale: Same effort for 1 to N blades
- APIs for integration with new and existing data center infrastructure

# UCS 6200 Series Networking Fabric

## 48 Unified Port Fabric Interconnect

Available  
NOW

### UCS-FI-6248UP



### UCS-FI-E16UP

- **Performance** for improved Workload Density
  - High Density 48 Ports in 1RU
  - Increased 1Tbps Switching Performance
- **Flexibility** to defer port usage type and number at design time rather than purchase time
  - Flexibility to configure any port at Ethernet (1/10 Gigabit with SFP+) or FCoE or Native FC Ports (8/4/2/1G with FC Optics)
  - All Ports usable as uplinks/ downlinks
- **Latency** Lowered to 3.2us within Switch
- **Power** Optimized with 80 PLUS Gold Efficiency
- **Investment Protection** with Backward and Forward Compatibility

FLEXIBILITY, UTILIZATION AND BETTER APP. PERFORMANCE

## UCS 2208 IO Module

Enable Dual 40 Gbps to Each Blade Server

Available  
NOW

### UCS-IOM-2208XP



- **Bandwidth increase** for improved response esp for bursty Applications
  - 80G to the Network
  - 320G to the Host (4x10G/ Half width slot; 8x10G/ Full width slot)  
Redundant
- **Latency** Lowered to 0.6us within IOM
- **Investment Protection** with Backward and Forward Compatibility

BANDWIDTH

FOR

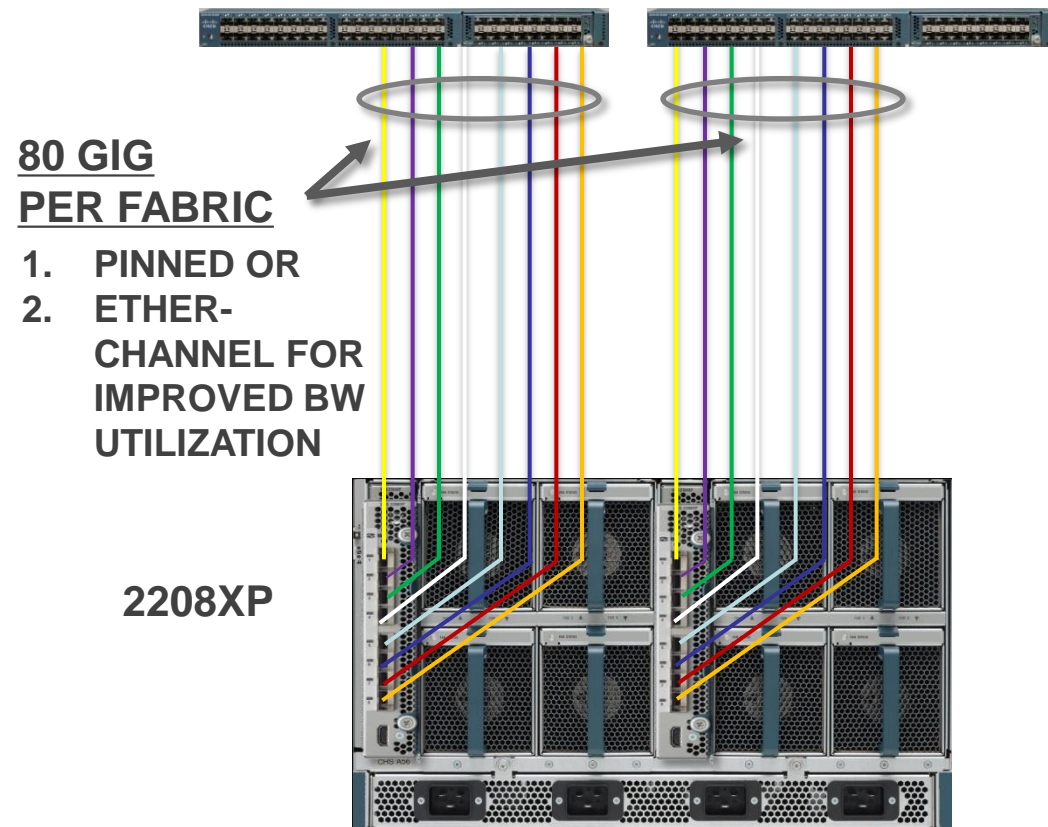
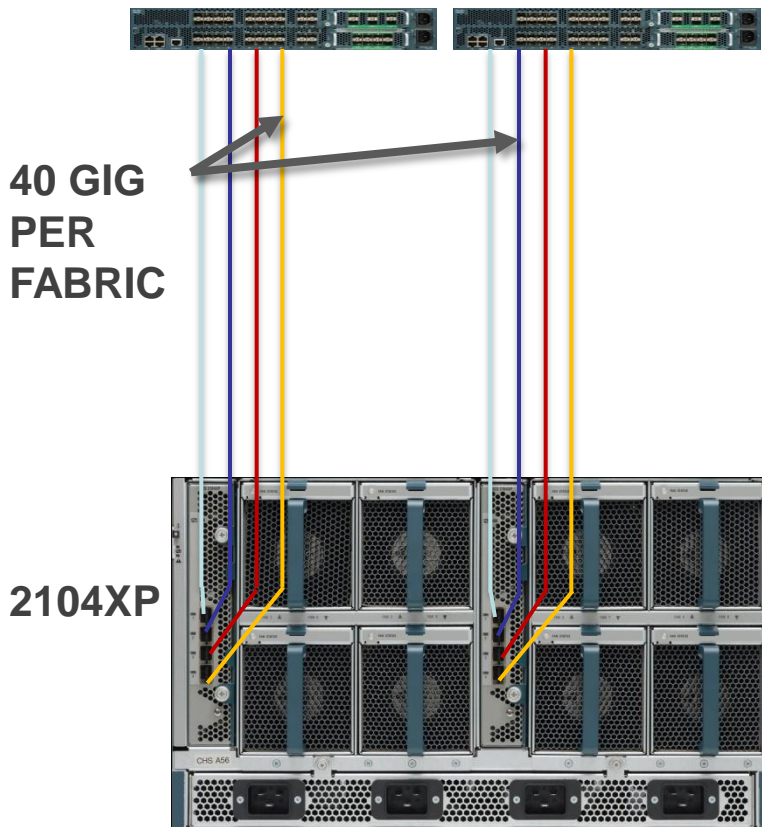
BURSTY APPLICATIONS



## Double Chassis Throughput

### 80 GBPS

### 160 GBPS



## Compute overview

### Blade

**B200 M2**  
2 Socket Intel 5600, 2 SFF Disk, 12 DIMM



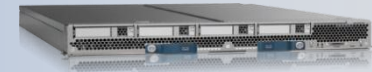
**B230 M2**  
2 Socket Intel E7, 2 SSD 7mm Disk, 32 DIMM



**B250 M2**  
2 Socket Intel 5600, 2 SFF Disk, 48 DIMM



**B440 M2**  
4 Socket Intel E7, 4 SFF Disk, 32 DIMM



### Rack Mount

**C200 M2**  
2 Socket Intel 5600, 4 Disks, 12 DIMM, 2 PCIe, 1U



**C210 M2**  
2 Socket Intel 5600, 16 Disks, 12 DIMM, 5 PCIe, 2U



**C250 M2**  
2 Socket Intel 5600, 8 Disks, 48 DIMM, 5 PCIe, 2U



**C260 M2**  
2 Socket Intel E7, 16 Disks, 32/64 DIMM, 6 PCIe, 2U



**C460 M2**  
4 Socket Intel E7, 12 Disks, 64 DIMM, 10 PCIe, 4U



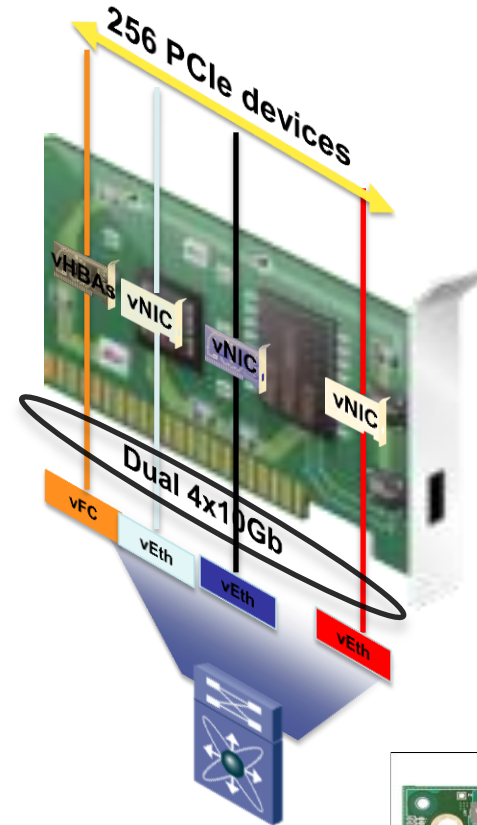
## UCS 1280 2<sup>nd</sup> Gen VIC

### Customer benefits

- Dual 4x10 Gb to a single slot
- VM-FEX scale, up to 116 VM interfaces /w ESX 5.0

### Feature details

- Dual 4x10 Gbps to a single slot
- Host connectivity PCIe Gen2x16
- HW Capable of 256 PCIe devices
  - OS restriction apply
- PCIe virtualization OS independent (similar to Palo)
- OS drivers for 1<sup>st</sup> Gen VIC and 2<sup>nd</sup> Gen VIC same

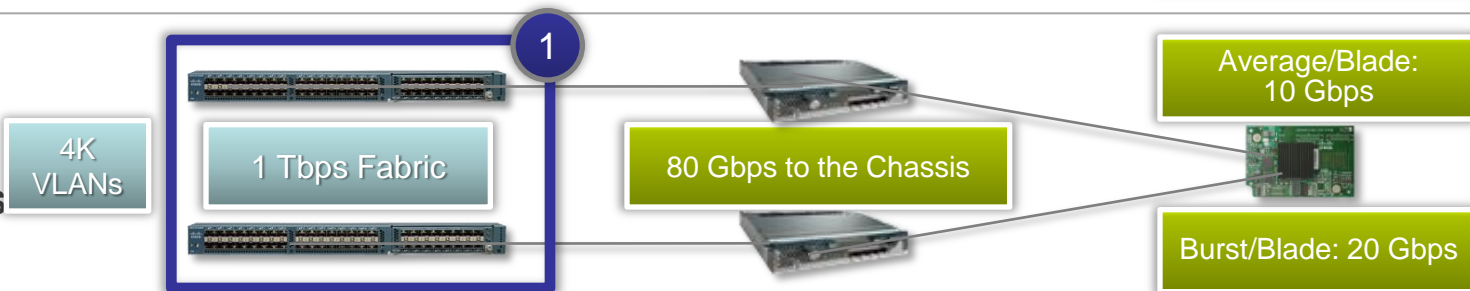


## UCS Fabric Capacity Infusion

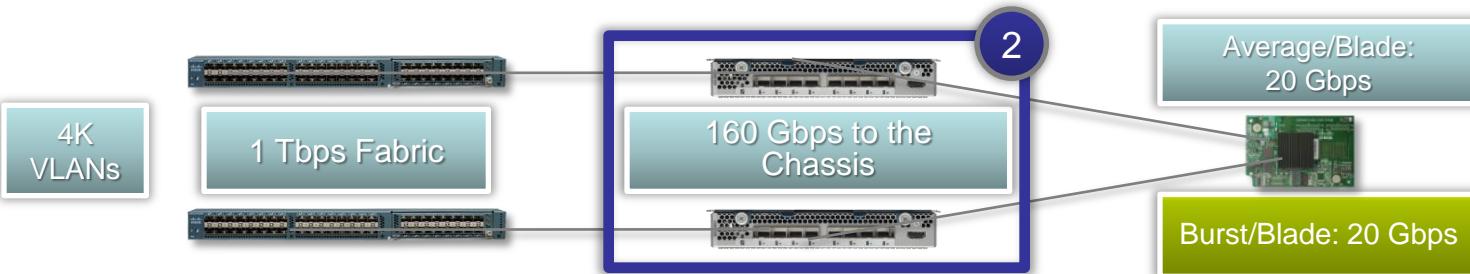
FABRIC CAPACITY TODAY



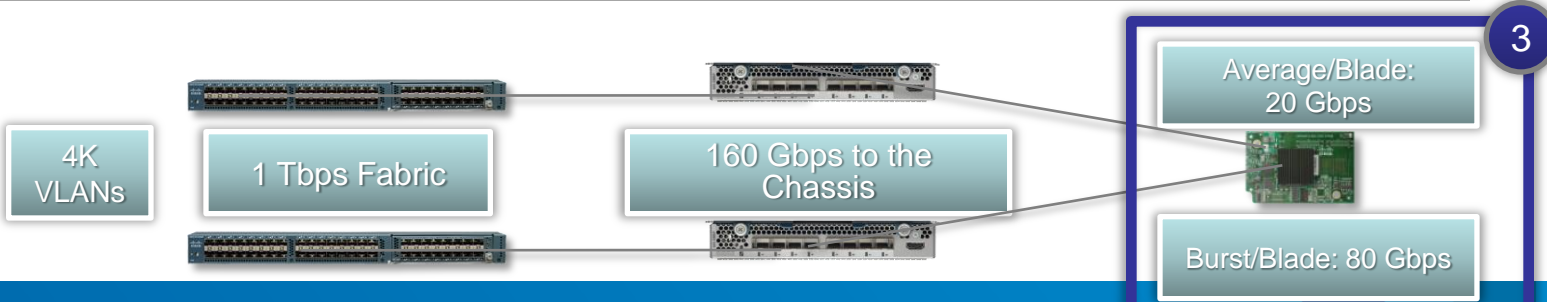
UCS 6248 FABRIC INTERCONNECTS



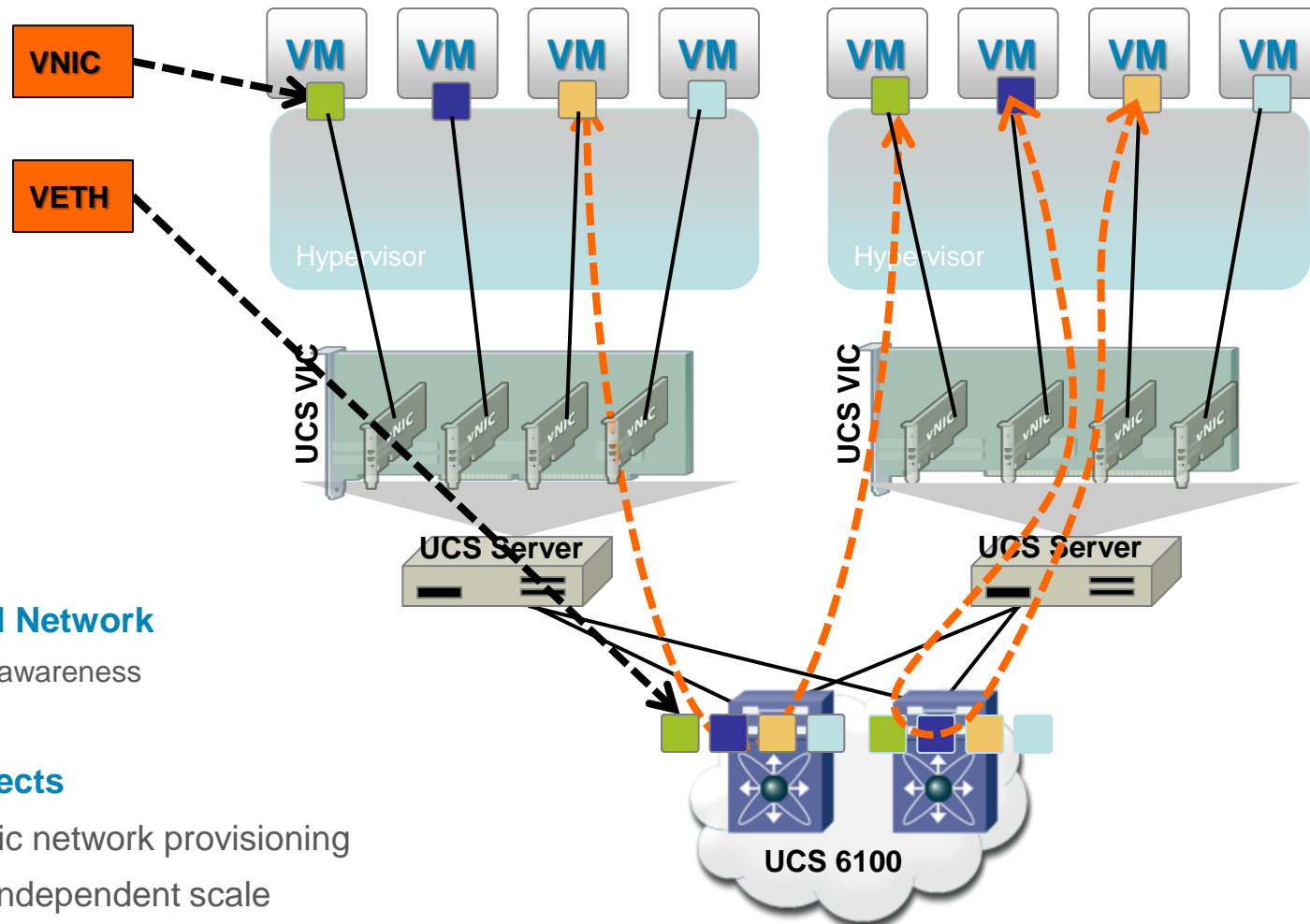
UCS 2208 IO MODULES



UCS 1280 VIC



## Virtual Machine Fabric Extender (VM-FEX)



### Physical Network

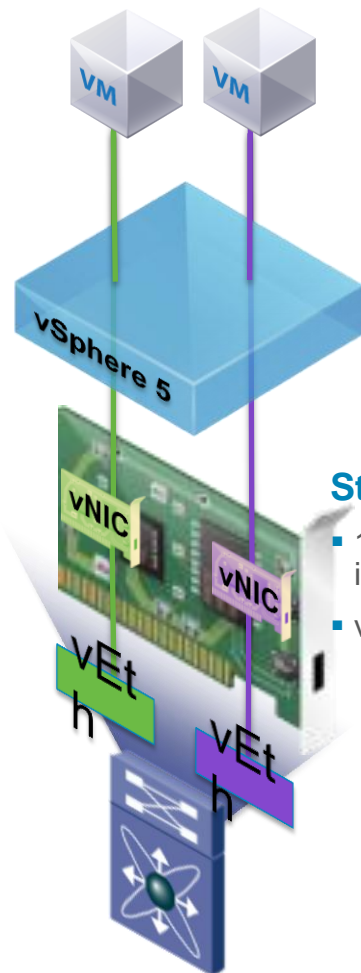
- Full VM awareness

### Side Effects

- Dynamic network provisioning
- VLAN independent scale
- Hardware performance/scale

## Modes of VM-FEX

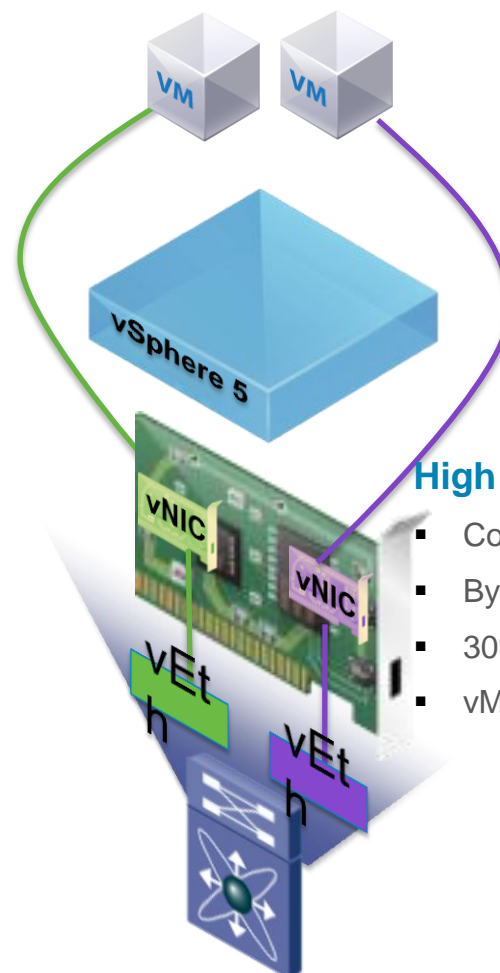
### Emulated Mode



#### Standard Mode

- 12%-15% CPU performance improvement
- vMotion supported

### VMDirectPath



#### High Performance Mode

- Co-exists with Standard mode
- Bypasses Hypervisor layer
- 30% improvement in I/O performance
- vMotion supported with ESX 5.0

## UCS: vSphere Performance Leadership

New world record on the industry standard Cloud benchmark

- **New Cisco UCS world record** on VMmark 2.1 benchmark
  - Score of 35.06 @ 35 tiles
- **11<sup>th</sup> VMmark world record** on Cisco UCS platform
- **Highest score ever published**
  - 21% advantage over servers with equal number of cores



4 node, 4-socket UCS C460 M2 cluster

160 cores with Intel Xeon E7-4870 CPUs

Nexus 5000 series switch

EMC VNX Storage

<sup>1</sup>Based on results posted at <http://www.vmmark.com> as of 8/26/2011. Cisco UCS C460 M2 Vmmark 2.1.1 result available at <http://www.cisco.com/go/UcsAtWork>. VMware® VMmark® is a product of VMware, Inc.

# Cisco UCS Standing Performance Records

#1

## Server World Records



Overall Record  
SPECjEnterprise2010  
17,301.86 EjOPS  
B440 M1

Four-Socket X86 Blade Record  
SPECint\*\_rate\_base2006  
1040 base score  
C460 M2

Two-Socket Record  
SPECjbb\*2005  
1,395,684 BOPS  
B230 M2

Four-Socket x86 Record  
SPECCompM\*base2001  
115,176 base score  
C460 M2

Two-Socket x86 Record  
SPECCompM\*base2001  
67,926 base score\*  
B230 M2

Four-Socket Record  
SPECCompL\*base2001  
727,635 base score\*  
C460 M2

Two-Socket Record  
SPECCompL\*base2001  
378,522 base score  
B230 M2

Two-Socket x86 Record  
SPECint\*\_rate\_base2006  
526 base score  
C260 M2

Overall Record  
Oracle E-Business Suite Payroll  
581,846 Employees/Hour Large  
422,535 Employees/Hour Medium  
B200 M2

Two-Socket x86 Record  
SPECfp\_rate\_base2006  
365 base score  
C260 M2



Results as of July 5, 2011

<sup>1</sup>Two socket comparison based x86 Volume servers—Intel Xeon series and AMD Opteron 6100 Series

<sup>1</sup>Four socket comparison based on x86 servers—Intel Xeon series and AMD Opteron 6100 Series



# Kiitos