



Виртуализация серверной инфраструктуры Cisco UCS.

Виктор Подкорытов
инженер-консультант Cisco

vpodkory@cisco.com

+380 44 3913600

Technologies You Can't Afford to Ignore — Tablets Hot Near Term; Midterm Fabric, Context & UXP Impact Is Big

Top 10 Strategic Technology Areas for 2010

1. Cloud Computing
2. Advanced Analytics
3. Client Computing
4. IT for Green
5. Reshaping the Data Center
6. Social Computing
7. Security — Activity Monitoring
8. Flash Memory
9. Virtualization for Availability
10. Mobile Applications

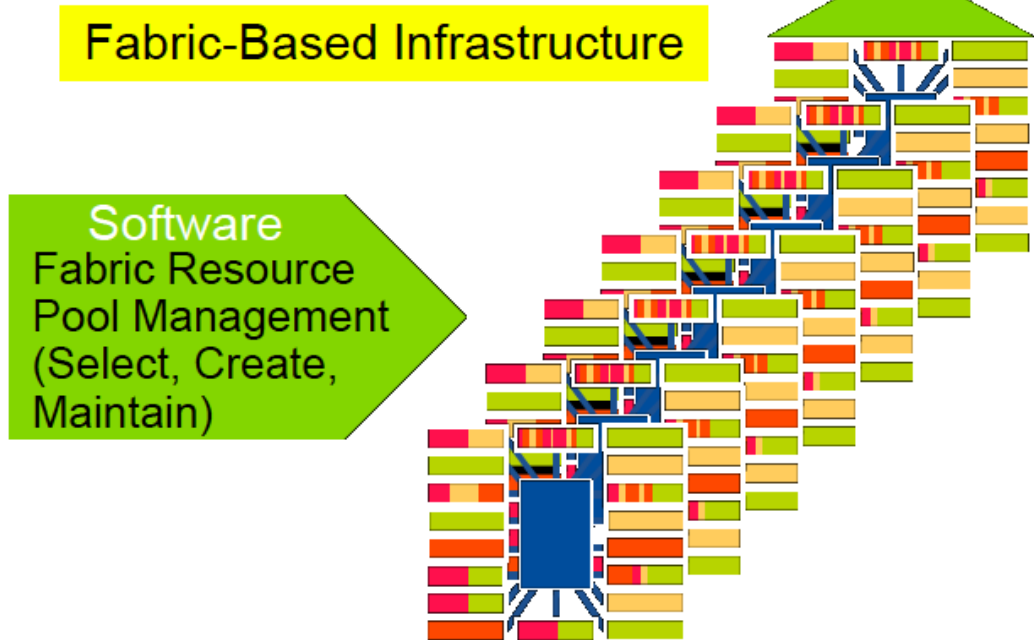
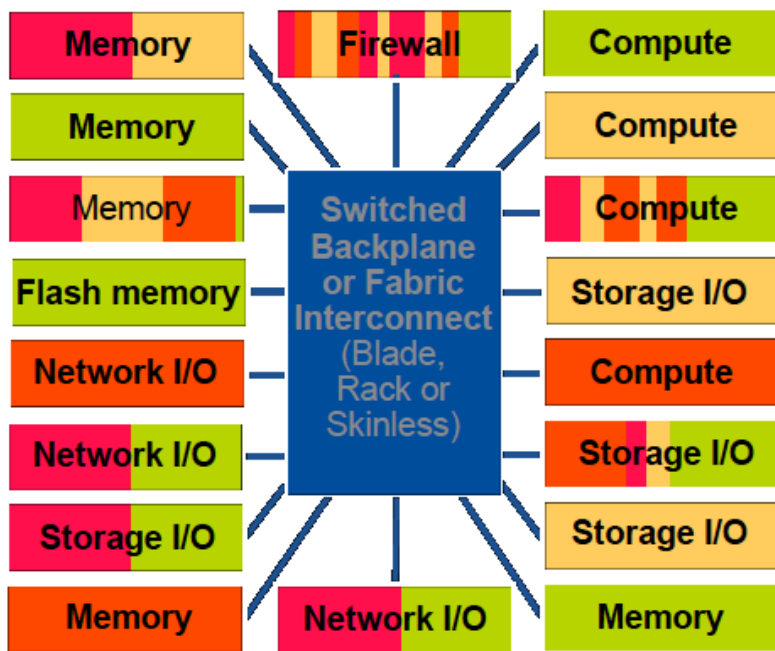
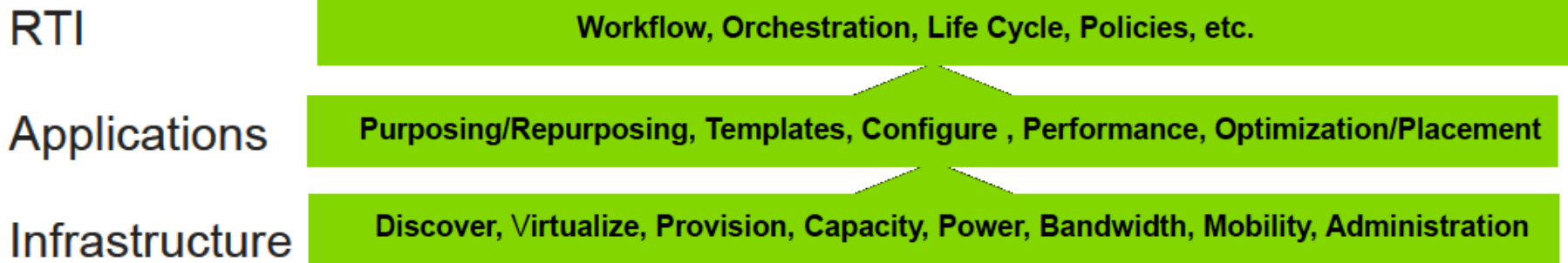
Top 10 Strategic Technology Trends for 2011

1. Pervasive Cloud Computing
2. Mobile Applications & Media Tablets
3. Next-Generation Analytics
4. Social Analytics
5. Social Experience
6. Video
7. Contextual Interactions
8. Ubiquitous Computing
9. Storage Class Memory
10. Fabric-Based Infrastructure and Computers

■ Modified for 2011 ■ New for 2011 ■ Dropped for 2011

Gartner

Fabric-Based Computers and Fabric Based Infrastructure — Two Distinct Ideas



Fabric-Enabled Computer – what is shipping today
 Fabric-Based Computer – the next stage of server evolution

Gartner 2011

Fabric-Based Infrastructure and Computers

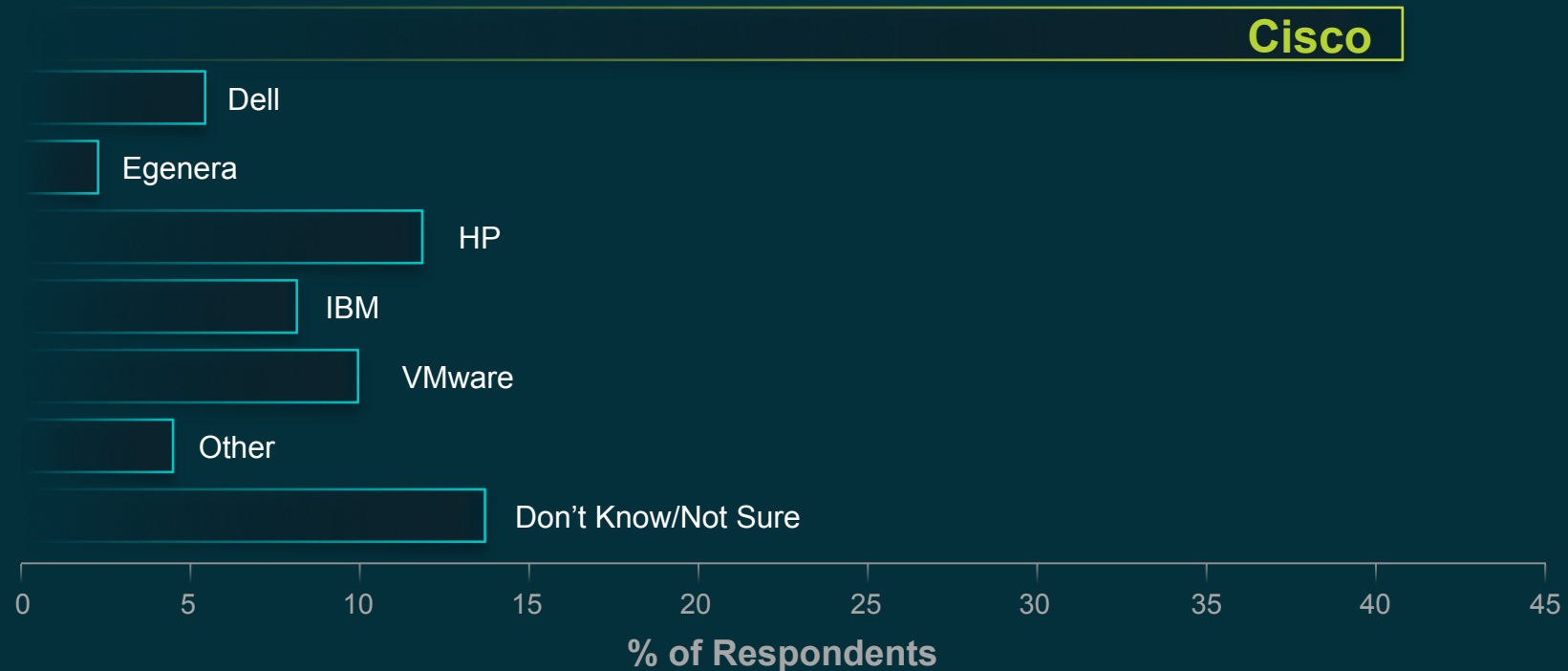
Fabric-based computer comprises a separate processor, memory, I/O, and offload modules (GPU, NPU, etc.) that are connected to a switched interconnect and, importantly, the software required to configure and manage the resulting system(s).

The fabric-based infrastructure (FBI) model abstracts physical resources — processor cores, network bandwidth and links and storage — into pools of resources that are managed by the Fabric Resource Pool Manager (FRPM), software functionality.

The FRPM in turn is driven by the Real Time Infrastructure (RTI) Service Governor software component. An FBI can be supplied by a single vendor or by a group of vendors working closely together, or by an integrator — internal or external

Gartner Identifies Fabric Computing as Preferred Infrastructure for Virtualization and Cloud

Which vendor would you perceive to be the most competent to deliver on a fabric-based strategy in your enterprise?



Gartner report: Fabric Computing Poised as a Preferred Infrastructure for Virtualization and Cloud Computing, February 11, 2011, George J. Weiss and Andrew Butler Report. ID number: G00210438.

You can read the full Gartner report here: <http://www.gartner.com/technology/media-products/reprints/cisco/210438.html>

Оглядываясь назад...

История Cisco: Унифицированная Вычислительная Система (UCS)

Cisco Unleashes the Power of Virtualization with Industry's First Unified Computing System

Innovative Architecture Integrates Compute, Networking and Virtualization in a Single Platform; New Services and Partnerships Focused on Next Generation Data Centers

Share Email 5 Tweet 1 Like 24

SAN JOSE Calif. - March 16, 2009 - Cisco today unveiled an evolutionary new data center architecture, innovative services and an open ecosystem of best in class partners to help customers develop next-generation data centers that unleash the full power of virtualization. With today's

Photos

- Объединение Вычислителя, Сети, Хранения, и Виртуализации в *новой системной архитектуре*.
- Полностью интегрированный и упрощенный менеджмент



Унифицированная Вычислительная Система

- Унифицированная Фабрика
- Расширители Фабрики (FEX) и Виртуализация Интерфейсов
- Встроенная Система Управления
- Гибкая Настройка Сервера
- Расширенная Память
- Интеграция RU- серверов



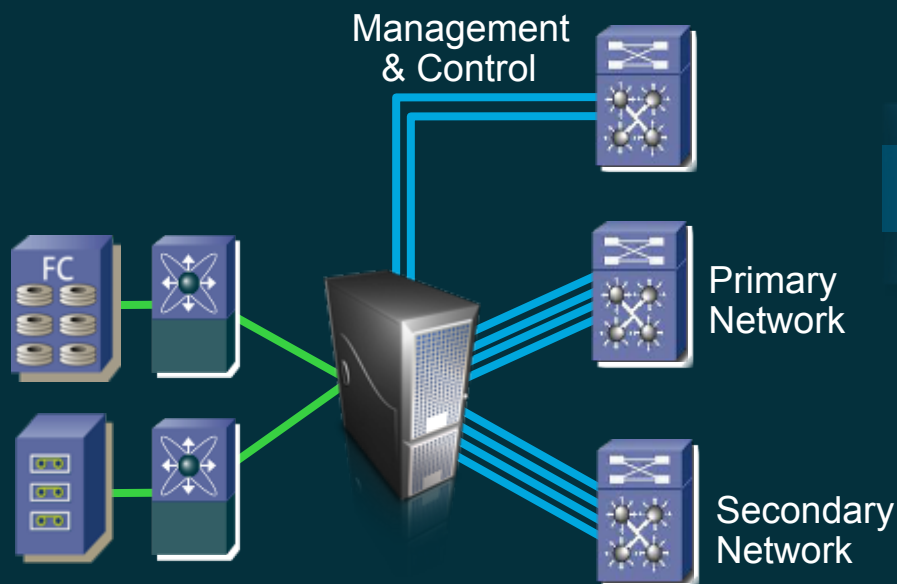
Унифицированная Вычислительная Система

- Унифицированная Фабрика
 - Increase workload agility, lower costs, lower power, higher reliability, simplified setup, higher asset utilization, higher application performance
- Расширители Фабрики (FEX) и Виртуализация Интерфейсов
- Встроенная Система Управления
- Гибкая Настройка Сервера
- Расширенная Память
- Интеграция RU- серверов

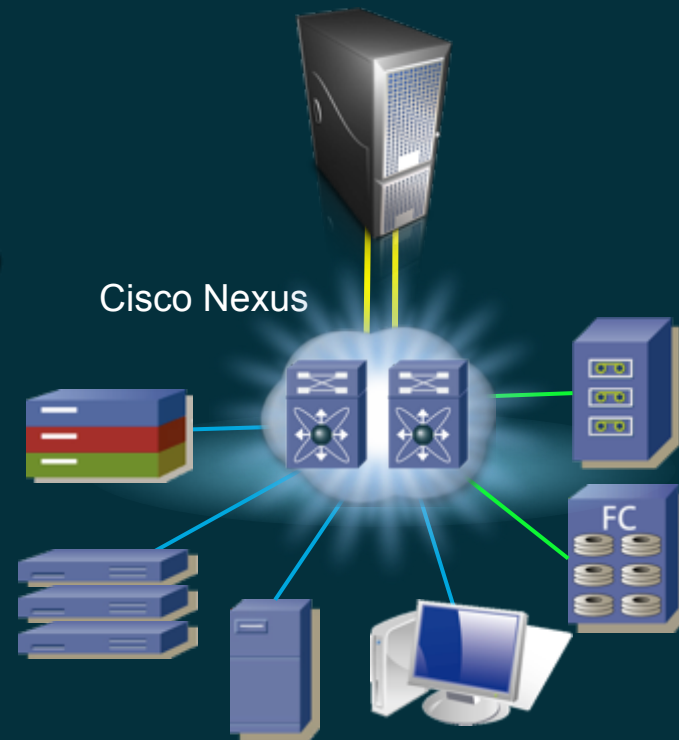


Унифицированная Фабрика ЦОД

В центре Приложение, не Сервер!

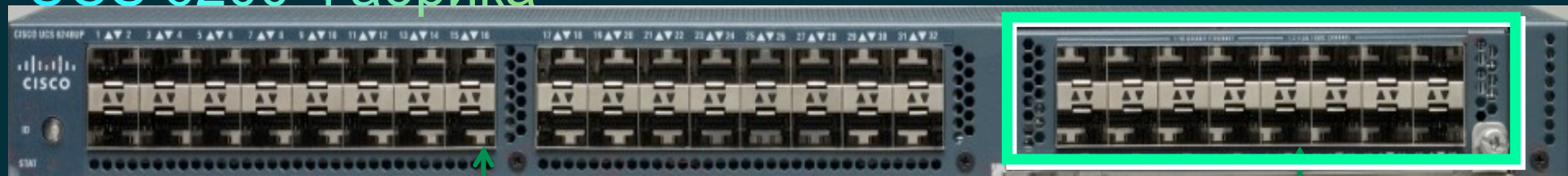


- Традиционный подход
- Сервер = Приложение
- Не эффективно
 - Сложность
 - Высокая Стоимость
 - Fragile



- Унификация
- Сервер = Ресурс
- Эффективность
 - Простота
 - Ниже Стоимость
 - Скорость разворачивания

UCS 6200 Фабрика



32 x Fixed ports: 1/10 GE or 1/2/4/8 FC

Expansion Module (GEM)

Fabric Interconnect Cluster Connectivity

Out of Band Mgmt 10/100/1000



Console

Fan Module

Fan Module

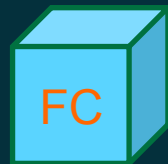
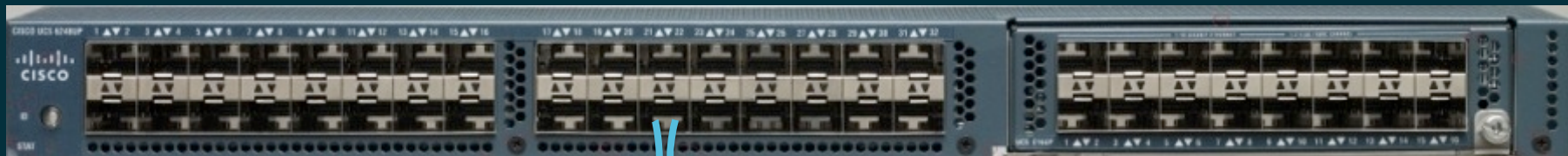
Power Entry

Power Entry

N + N Redundant FANs

N + N Power Supplies

UCS 6200 Унифицированные Порты



Fibre Channel



1/10GbE, FCoE, iSCSI, NAS

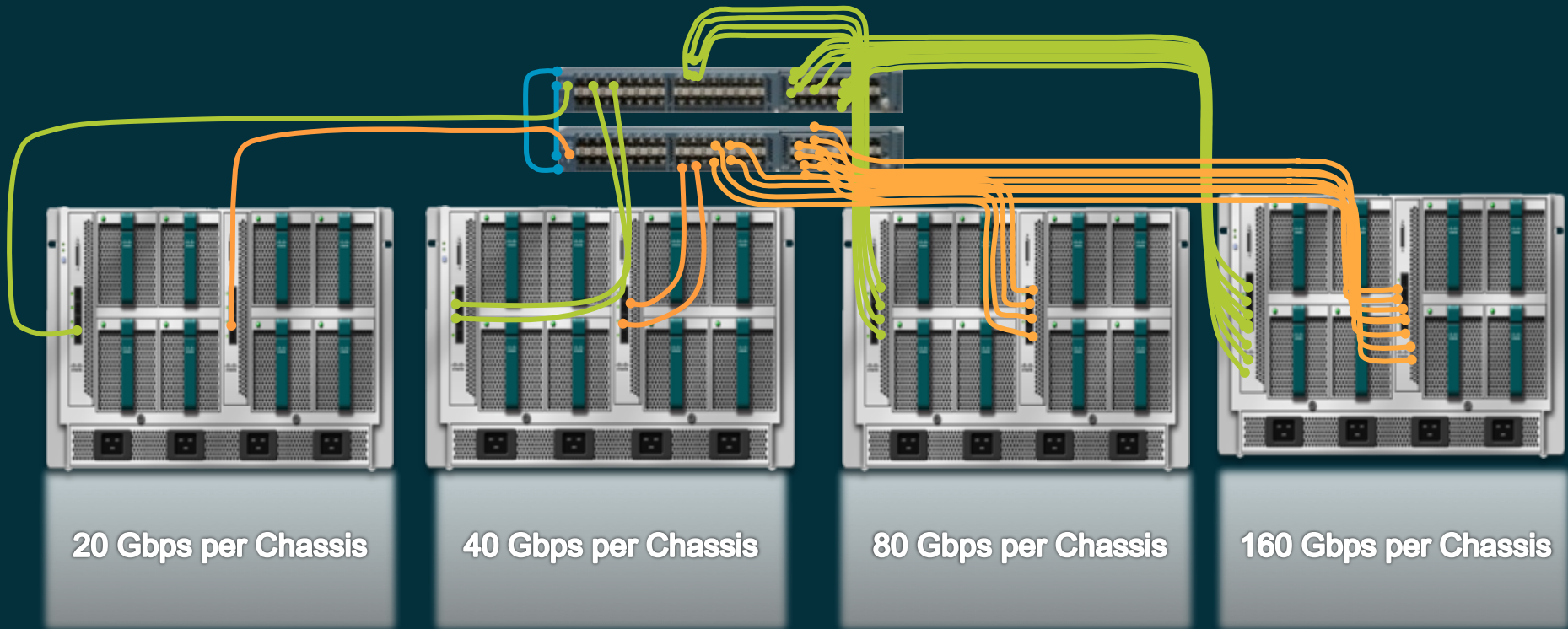
Выгоды

- Упрощение выбора коммутатора
- Увеличивается гибкость дизайна
- Убирается «бутылочное горлышко» специфических протоколов

Унифицированная Фабрика



UCS (Зарезервированная) Унифицированная Фабрика



Унифицированная Фабрика

- UCS использует FCoE и Конвергентные Сетевые Адаптеры (CNA)
 - UCS использует технологии Унифицированной Фабрики Cisco Nexus. Cisco инициировал ратификацию стандарта FCoE в IEEE (802.1BR 802.1Qbh).
 - UCS масштабируется до 160 серверов на одной паре UCS Фабрики.
 - Cisco UCS фабрики 6248UP/6296UP оснащены Унифицированными Портами.
 - UCS Фабрика поддерживает сторадж по протоколам NAS/iSCSI, FC, FCoE).

Унифицированная Вычислительная Система

- Унифицированная Фабрика
- **Расширители Фабрики (FEX) и Виртуализация Интерфейсов**
 - I/O модули, Adapter FEX, VM FEX: Higher workload agility, better VM performance, more workloads virtualized, lower cost per VM
- Встроенная Система Управления
- Гибкая Настройка Сервера
- Расширенная Память
- Интеграция RU- серверов

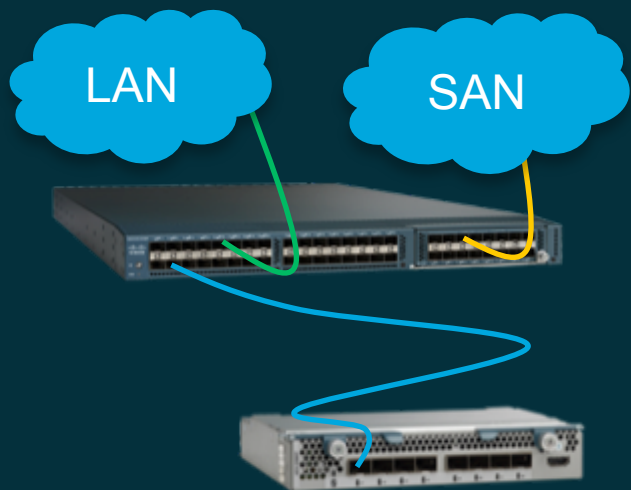


FEX-Распределенный Модульный Коммутатор



- **Виртуальное шасси= Фабрика, Патчкорды & Удаленные линейные карты**
 - Фабрика & Супервизор: UCS 6000, Nexus 5000
 - Расширители Фабрики: UCS 2000, Nexus 2000
- **Централизация менеджмента и конфигураций**
- **Уменьшен TCO:**
 - До 92% уменьшения точек управления
 - До 80% меньше стоимость кабелирования
 - До 30% уменьшено энергопотребление

Расширитель Фабрики UCS (FEX)

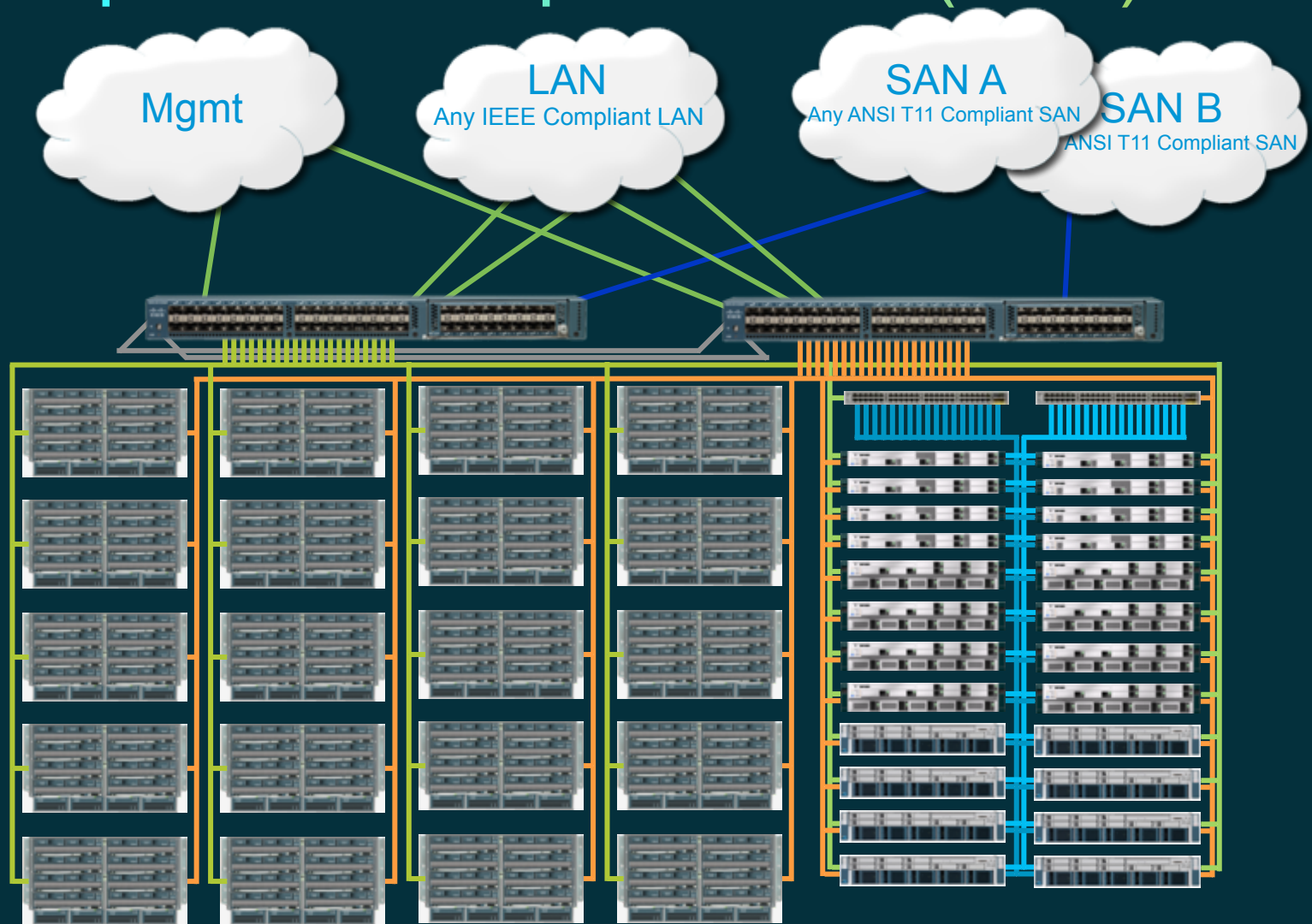


2104XP, 2204XP, 2208XP
I/O Module
(FEX)

- Добавляет 8, 16 или 32 10Gb портов к Фабрике.
- До 20 модулей на Фабрику UCS (160 блейд серверов).
- Все порты управляются через Фабрику
- 8:1; 4:1; 2:1 или без переподписки трафика.
- Provides integrated chassis and CIMC management.

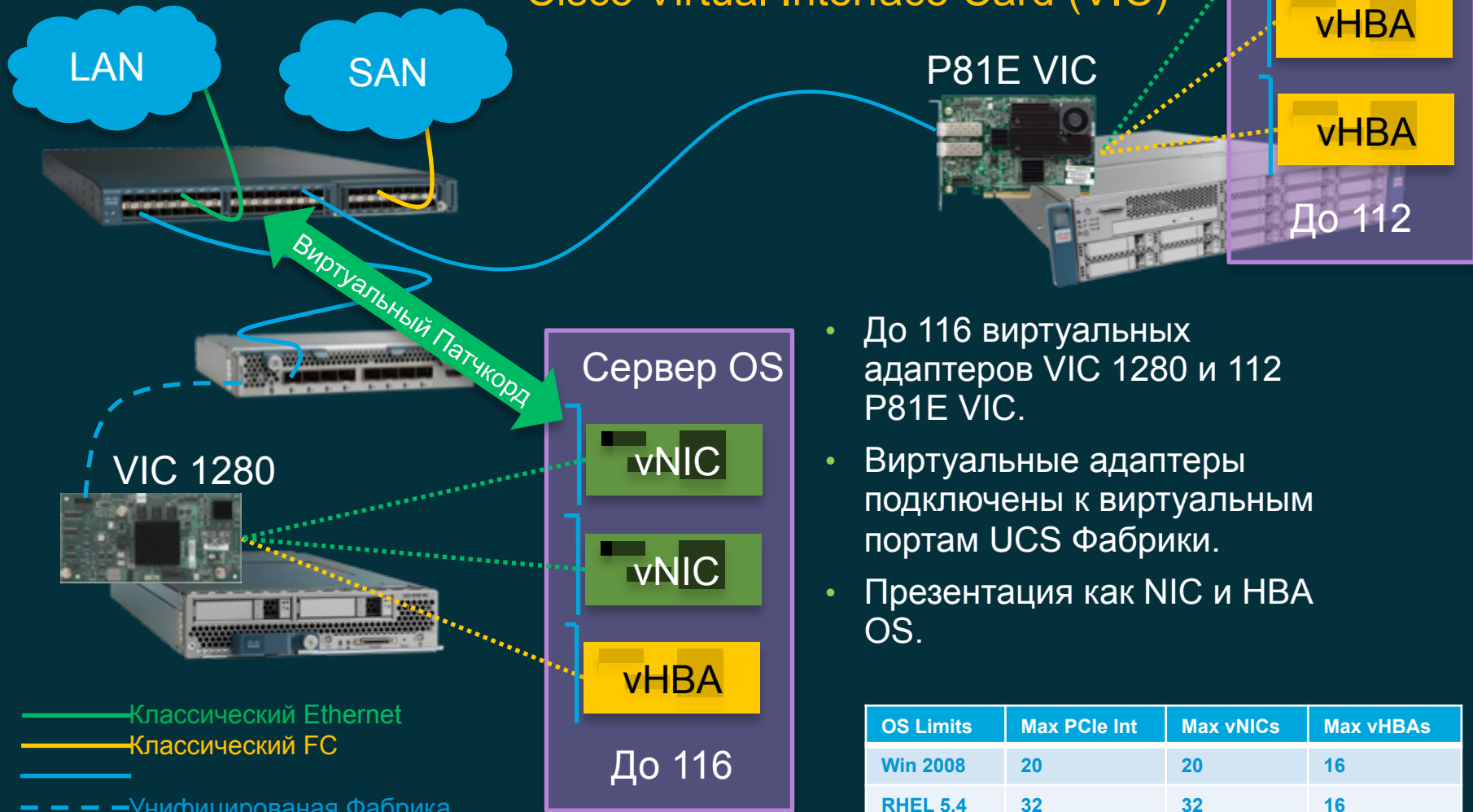
— Классический Ethernet
— Классический FC
— Унифицированная Фабрика

Расширитель Фабрики UCS (FEX)



Фабрика До 160 серверов

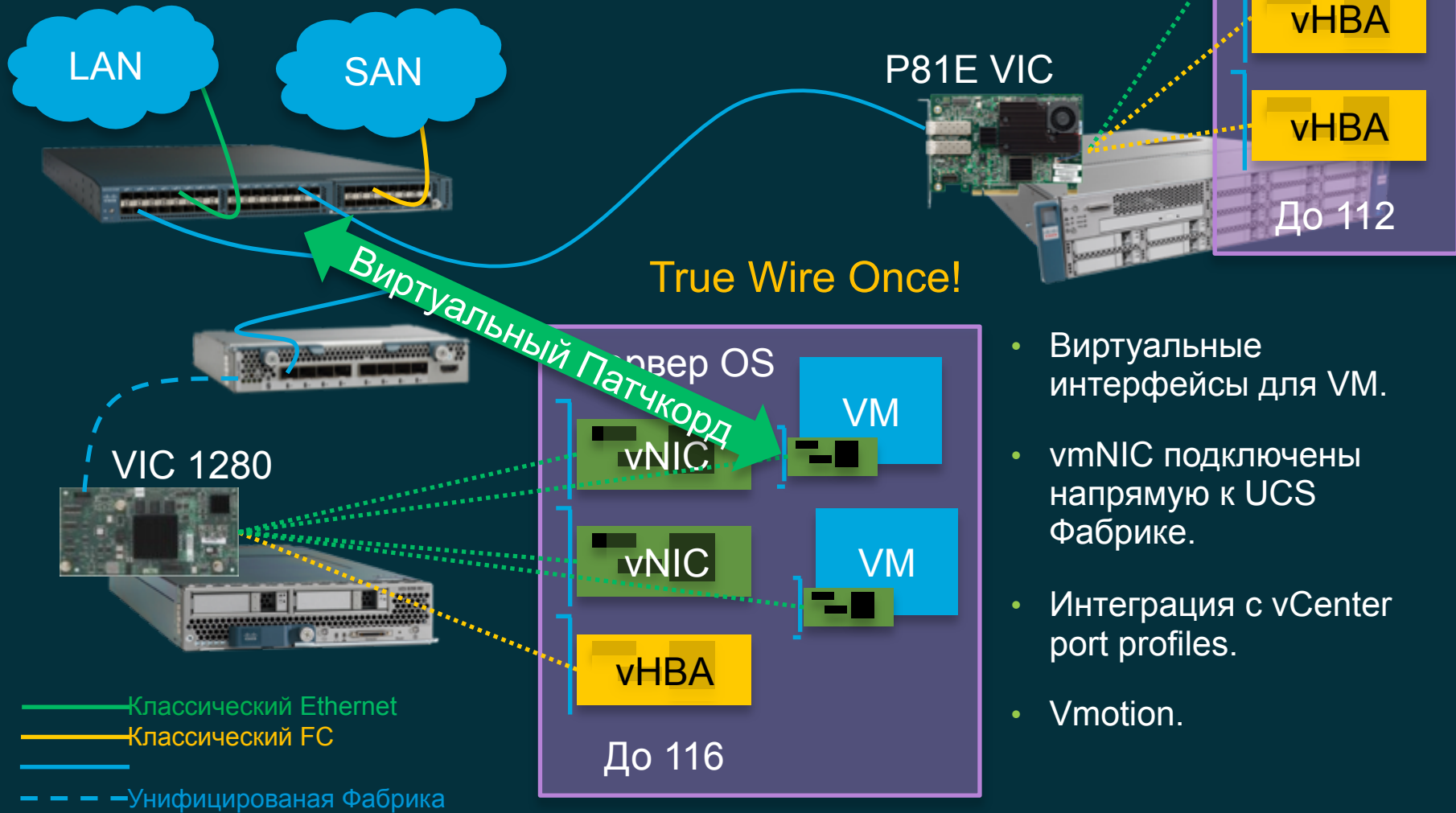
Расширитель Фабрики UCS... Adapter FEX



- До 116 виртуальных адаптеров VIC 1280 и 112 P81E VIC.
- Виртуальные адаптеры подключены к виртуальным портам UCS Фабрики.
- Презентация как NIC и HBA OS.

OS Limits	Max PCIe Int	Max vNICs	Max vHBAs
Win 2008	20	20	16
RHEL 5.4	32	32	16
ESX		26	16

Расширитель Фабрики UCS... Virtual Machine FEX (VM-FEX)



- Виртуальные интерфейсы для VM.
- vNIC подключены напрямую к UCS Фабрике.
- Интеграция с vCenter port profiles.
- Vmotion.

Fault Summary

0 2 1 0

Equipment Servers LAN SAN VM Admin

Filter: All

- Servers
 - Service Profiles
 - root
 - ESX1
 - vHBAs
 - vNICs**
 - vNIC Data1
 - vNIC Data2
 - vNIC ServiceConsole
 - vNIC vMotion
 - ESX17
 - ESX2
 - ESX3 (ESXi 4.1 SAN)
 - ESX4 (ESXi 4.1 Local HD)
 - Sub-Organizations
 - Service Profile Templates
 - root
 - Service Template MyESXServers
 - Sub-Organizations
 - Policies
 - root
 - Adapter Policies
 - BIOS Defaults
 - BIOS Policies
 - Boot Policies
 - Host Firmware Packages
 - IPMI Access Profiles
 - Local Disk Config Policies
 - Maintenance Policies
 - Management Firmware Packages
 - Power Control Policies
 - Crash Policies

Dynamic vNIC Connection Policy

Nothing Selected

vNIC/vHBA Placement Policy

Nothing Selected

vNICs

Name	MAC Address	Desired Order	Actual Order	Fabric ID	Desired Placement	Actual Placement	Native VLAN
vNIC ServiceConsole	00:25:B5:A0:00:6F 3	1	1	A-B	any	1	
Network VLAN90							
vNIC vMotion	00:25:B5:B0:00:6F 4	2	1	B-A	any	1	
Network VLAN20							
Network VLAN90							
vNIC Data1	00:25:B5:A0:00:7F 5	1	2	A	any	2	
Network VLAN90							
vNIC Data2	00:25:B5:B0:00:7F 6	2	2	B	any	2	
Network VLAN90							

Delete Add Modify

Save Changes Reset Values

Fault Summary

0 2 1 0

Equipment Servers LAN SAN VM Admin

Filter: All

- Servers
 - Service Profiles
 - root
 - ESX1
 - vHBAs
 - vNICs
 - vNIC Data1
 - vNIC Data2
 - vNIC ServiceConsole**
 - vNIC vMotion
 - ESX17
 - ESX2
 - ESX3 (ESXi 4.1 SAN)
 - ESX4 (ESXi 4.1 Local HD)
 - Sub-Organizations
 - Service Profile Templates
 - root
 - Service Template MyESXServers
 - Sub-Organizations
 - Policies
 - root
 - Adapter Policies
 - BIOS Defaults
 - BIOS Policies
 - Boot Policies
 - Host Firmware Packages
 - IPMI Access Profiles
 - Local Disk Config Policies
 - Maintenance Policies
 - Management Firmware Packages
 - Power Control Policies

Servers > Service Profiles > root > Service Profile ESX1 > vNICs > vNIC ServiceConsole > vNIC ServiceConsole

General vNIC Interfaces Statistics Faults Events

Fault Summary

0 0 0 0

Actions

- Change MAC Address
- Modify VLANs
- Bind to a Template
- Unbind from a Template
- Reset MAC Address

Properties

WARNING

This vNIC is not modifiable because it is bound to the LAN template **ServiceConsole**. To modify this vNIC, please unbind it from the template.

Name: **ServiceConsole**

MAC Address: **00:25:B5:A0:00:6F**

MAC Pool: **Fabric-A**

MAC Pool Instance: **org-root/mac-pool-Fabric-A**

Fabric ID: Fabric A Fabric **Enable Failover**

Owner: **logical**

Type: **ether**

Equipment: **sys/chassis-1/blade-1/adaptor-2/host-eth-1**

Boot Device: **disabled**

MTU:

States

Operational Speed: **line-rate**

State: **applied**

Policies

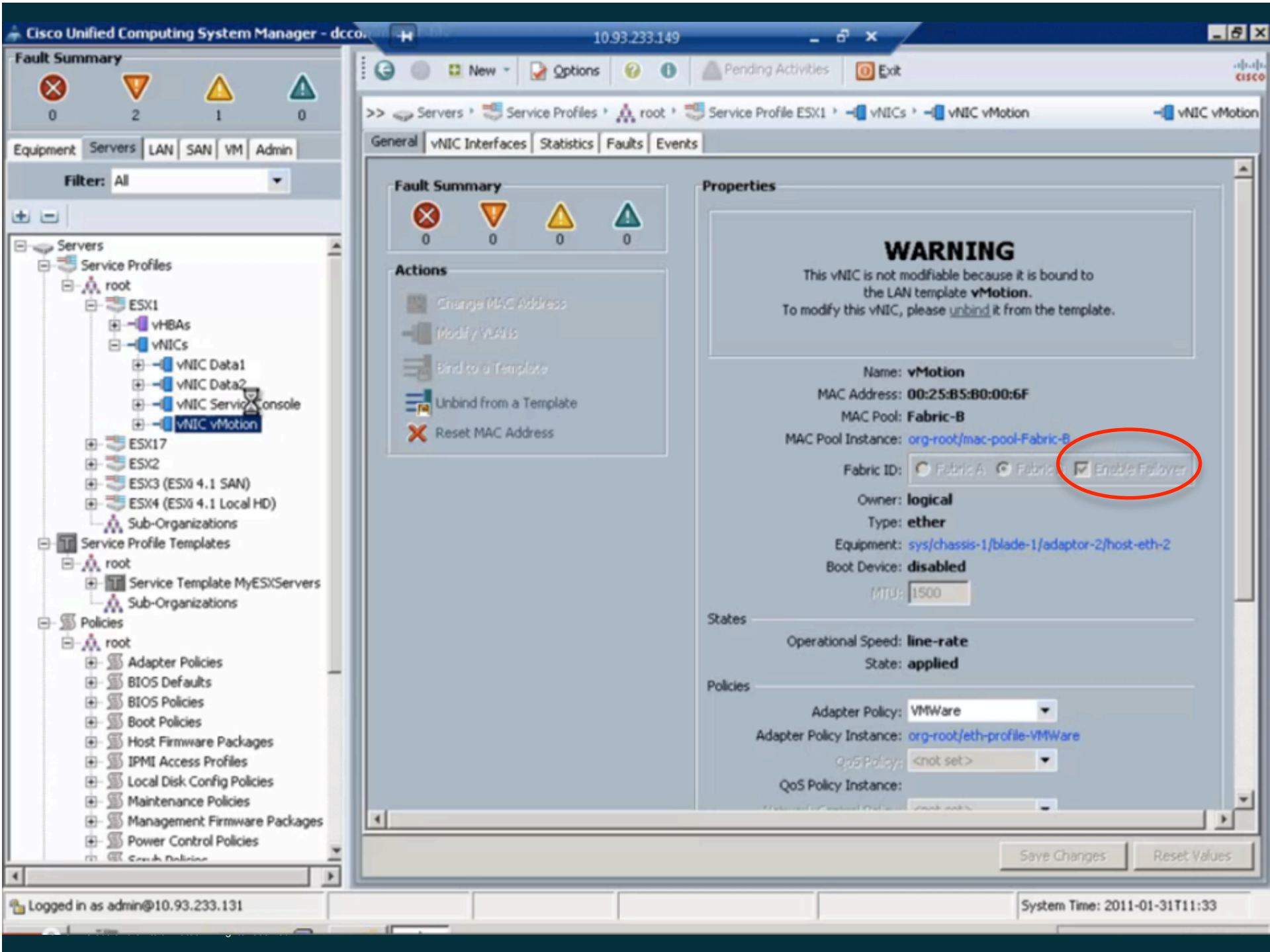
Adapter Policy:

Adapter Policy Instance: **org-root/eth-profile-VMWare**

QoS Policy:

QoS Policy Instance:

Save Changes Reset Values



WIN-DINCGBLNLFM - vSphere Client 10.93.233.149

File Edit View Inventory Administration Plug-ins Help

Home Inventory Hosts and Clusters Search Inventory

WIN-DINCGBLNLFM
 dcommwest-blv
 10.93.233.161
 CactEZ
 Ubuntu1
 Ubuntu2
 10.93.233.162
 10.93.233.168
 10.93.233.171
 Ubuntu3
 Ubuntu4
 Ubuntu5

10.93.233.161 VMware ESXi, 4.1.0, 260247

Getting Started Summary Virtual Machines Resource Allocation Performance Configuration Tasks & Events Alarms Permissions Maps

View: Virtual Switch vNetwork Distributed Switch

Networking Refresh Add Networking... Properties...

Virtual Switch: vSwitch0 Remove... Properties...

Virtual Machine Port Group
 VM Network
 2 virtual machine(s)
 CactEZ
 Ubuntu1
 VMkernel Port
 Management Network
 vmk0 : 10.93.233.161

Physical Adapters
 vmnic0 10000 Full

Virtual Switch: vSwitch1 Remove... Properties...

Virtual Machine Port Group
 Data
 1 virtual machine(s)
 Ubuntu2

Physical Adapters
 vmnic4 10000 Full
 vmnic3 10000 Full

Virtual Switch: vSwitch2 Remove... Properties...

Recent Tasks Name, Target or Status contains: Clear

Name	Target	Status	Details	Initiat

Cisco Unified Computing System Manager - dcco... 10.93.233.149

Fault Summary
0 2 1 0

Equipment Servers LAN SAN VM Admin
Filter: All

ESX17
ESX2
ESX3 (ESX 4.1 SAN)
vHBAs
vNICs
vNIC Data1
vNIC Data2
vNIC dynamic-prot-001
vNIC dynamic-prot-002
vNIC dynamic-prot-003
vNIC dynamic-prot-004
vNIC dynamic-prot-005
vNIC dynamic-prot-006
vNIC dynamic-prot-007
vNIC dynamic-prot-008
vNIC dynamic-prot-009
vNIC dynamic-prot-010
vNIC dynamic-prot-011
vNIC dynamic-prot-012
vNIC dynamic-prot-013
vNIC dynamic-prot-014
vNIC dynamic-prot-015
vNIC dynamic-prot-016
vNIC dynamic-prot-017
vNIC dynamic-prot-018
vNIC dynamic-prot-019
vNIC dynamic-prot-020
vNIC dynamic-prot-021
vNIC dynamic-prot-022
vNIC dynamic-prot-023
vNIC dynamic-prot-024

Service Profile ESX1
General Storage Network Boot Order Virtual Machines Policies Server Details FSM VIF Paths Faults Events

Fault Summary
0 0 0 0

Status
Overall Status: ↑ ok
Status Details

Actions
Book Server
Shutdown Server
Reset
KVM Console
SSH to CIMC for SoL
Create a Clone
Create a Service Profile Template
Disassociate Service Profile
Change Service Profile Association
Unbind from the Template
Bind to a Template
Change Maintenance Policy

Properties
Name: ESX1
User Label:
Description: HD Boot
UUID: 00000000-0000-0000-ffff-00
UUID Pool: UUIDPool1
UUID Pool Instance: org-root/uuid-pool-UUIDPool1
Associated Server: sys/chassis-1/blade-1
Service Profile Template:
Template Instance:
Assigned Server or Server Pool
Management IP Address
Maintenance Policy

Save Changes Reset Values

Logged in as admin@10.93.233.131 System Time: 2011-01-31T11:34

Cisco Unified Computing System Manager - dcco... 10.93.233.149

Fault Summary

0 2 1 0

Equipment Servers LAN SAN VM Admin

Filter: All

VMware

- Port Profiles
- vCenter WIN-DINCGBLNLFM
 - Datacenter dcommwest-blv
 - Folder blv-ucs
 - DVS blv-ucs-dvs
 - Profile DataNet1
 - Profile FarmBureau1
 - Profile Getty1
 - Profile ServiceConsole
 - Profile VMUGBoise
 - Profile vMotion
- Virtual Machines
 - ESX Host Server 1/4
 - Virtual Machine Ubuntu3
 - vNIC 0
 - Virtual Machine Ubuntu4
 - vNIC 1
 - Virtual Machine Ubuntu5
 - vNIC 1852
 - vNIC 1629
 - vNIC 1693

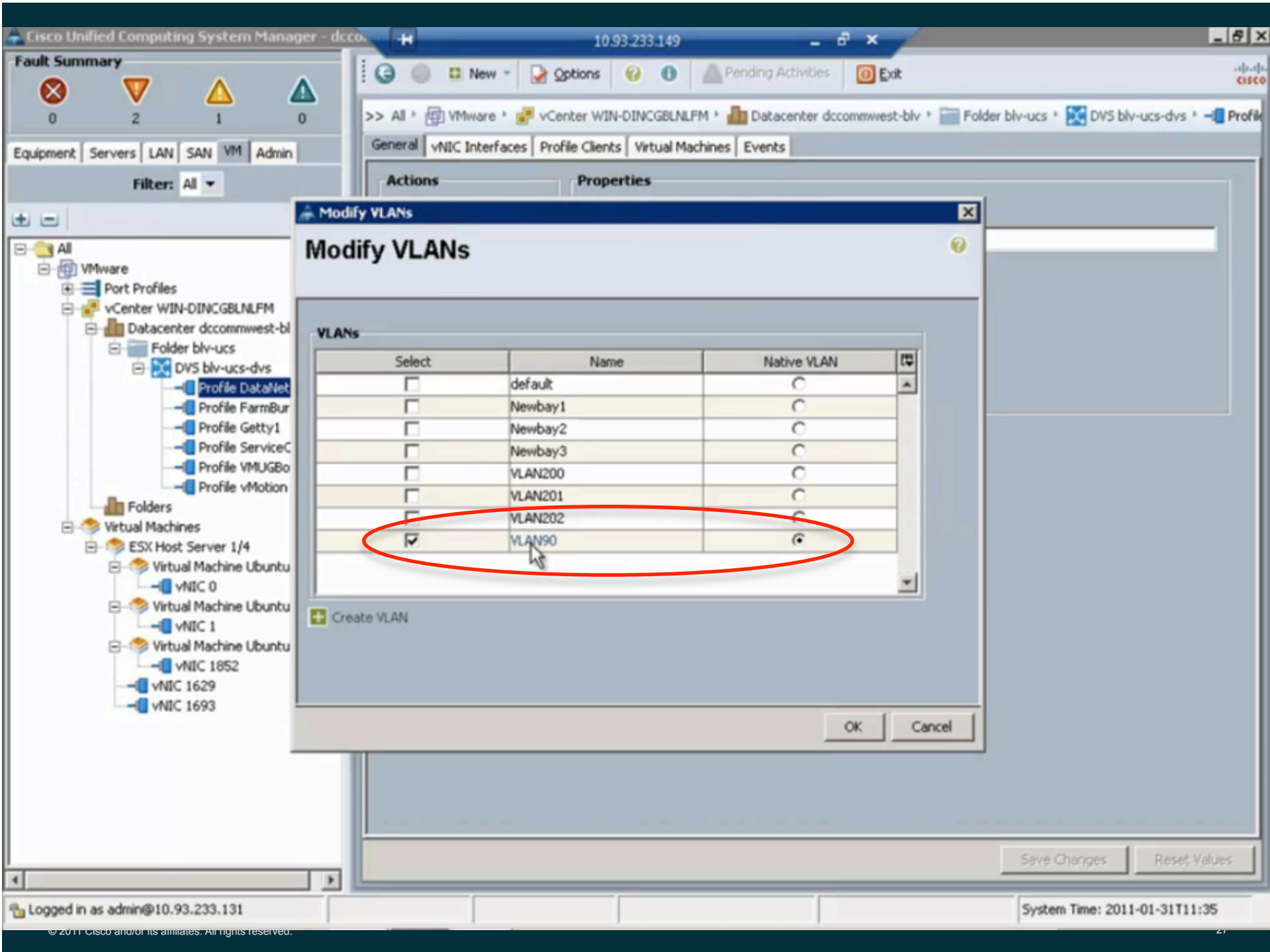
>> All

Port Profiles vCenters Virtual Machines Virtual Switches Certificates Events

Filter Export Print

Name	QoS Policy Name	MAC
Port Profile BareMetal-A		
Port Profile BareMetal-B		
Port Profile Data		
Port Profile Data1		
Port Profile Data2		
Port Profile DataNet1		
Port Profile FarmBureau1		
Port Profile Getty1		
Port Profile ServiceConsole		
Port Profile VMUGBoise		
Port Profile vMotion		

Save Changes Reset Values



Cisco Unified Computing System Manager - dco... 10.93.233.149

Fault Summary
0 2 1 0

Equipment Servers LAN SAN VM Admin
Filter: All

VMware
vCenter WIN-DINGBLLNLFM
Datacenter dcommwest-blv
Folder blv-ucs
DVS blv-ucs-dvs
Profile DataNet1
Profile FarmBureau1
Profile Getty1
Profile ServiceConsole
Profile VMUGBoise
Profile vMotion

Virtual Machines
ESX Host Server 1/4
Virtual Machine Ubuntu3
vNIC 0
Virtual Machine ubuntu4
vNIC 1
Virtual Machine Ubuntu5
vNIC 1852
vNIC 1629
vNIC 1693

General VM NICs Faults Events

Fault Summary
0 0 0 0

Properties
Name: **Ubuntu3**
Description:
System UUID: **420ccbbe-fb2b-e07c-51ae-92569c907aea**
Service Profile: [org-root/ls-ESX3](#)
Server: [sys/chassis-1/blade-4](#)
Distributed Virtual Switch: [sys/extvm-mgmt/vm-WIN-DINGBLLNLFM/dc-dcommwest-blv/org-](#)
Status
Status: **online**

Actions
No Actions Supported

Save Changes Reset Values

Logged in as admin@10.93.233.131 3:45 System Time: 2011-01-31T11:35

© 2011 Cisco and/or its affiliates. All rights reserved.

WIN-DINCGBLNF - vSphere Client 10.93.233.149

File Edit View Inventory Administration Plug-ins Help

Home Inventory Hosts and Clusters Search Inventory

WIN-DINCGBLNF

- dccommwest-blv
 - 10.93.233.161
 - CactEZ
 - Ubuntu1
 - Ubuntu2
 - 10.93.233.162
 - 10.93.233.168
 - 10.93.233.171
 - Ubuntu3
 - Ubuntu4
 - Ubuntu5

10.93.233.171 VMware ESXi, 4.1.0, 260247

Getting Started Summary Virtual Machines Resource Allocation Performance Configuration Tasks & Events Alarms Permissions Maps

View: **Virtual Switch** vNetwork Distributed Switch

Networking Refresh Add Networking... Properties...

Virtual Switch: vSwitch0 Remove... Properties...

Virtual Machine Port Group VM Network Physical Adapters No adapters

Virtual Switch: vSwitch1 Remove... Properties...

No associated port groups Physical Adapters No adapters

Hardware

- Processors
- Memory
- Storage
- Networking
 - Storage Adapters
 - Network Adapters
 - Advanced Settings
 - Power Management

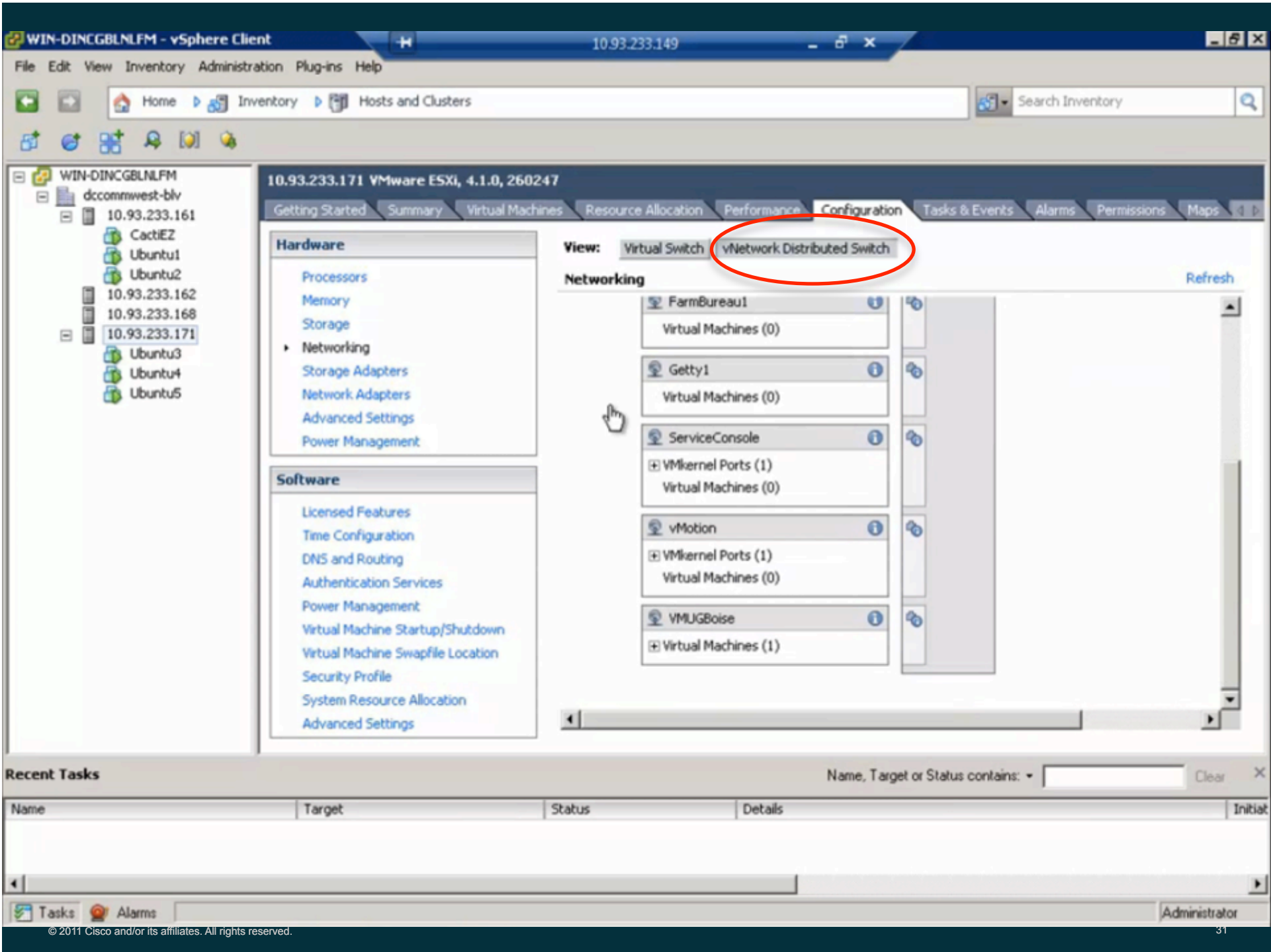
Software

- Licensed Features
- Time Configuration
- DNS and Routing
- Authentication Services
- Power Management
- Virtual Machine Startup/Shutdown
- Virtual Machine Swapfile Location
- Security Profile
- System Resource Allocation
- Advanced Settings

Recent Tasks Name, Target or Status contains: Clear X

Name	Target	Status	Details	Initiat

Tasks Alarms 5:07 Administrator



WIN-DINCGBLNF - vSphere Client 10.93.233.149

File Edit View Inventory Administration Plug-ins Help

Home Inventory Networking Search Inventory

WIN-DINCGBLNF

- blv-ucs
 - blv-ucs-dvs
 - uplink-pg-blv-uc
 - DataNet1
 - deleted-pg-blv-uc
 - FarmBureau1
 - Getty1
 - ServiceConsole
 - vMotion
 - VMUGBoise
 - Data
 - VM Network

blv-ucs-dvs

Getting Started Summary Networks Ports Configuration Virtual Machines Hosts Tasks & Events Alarms Permissions

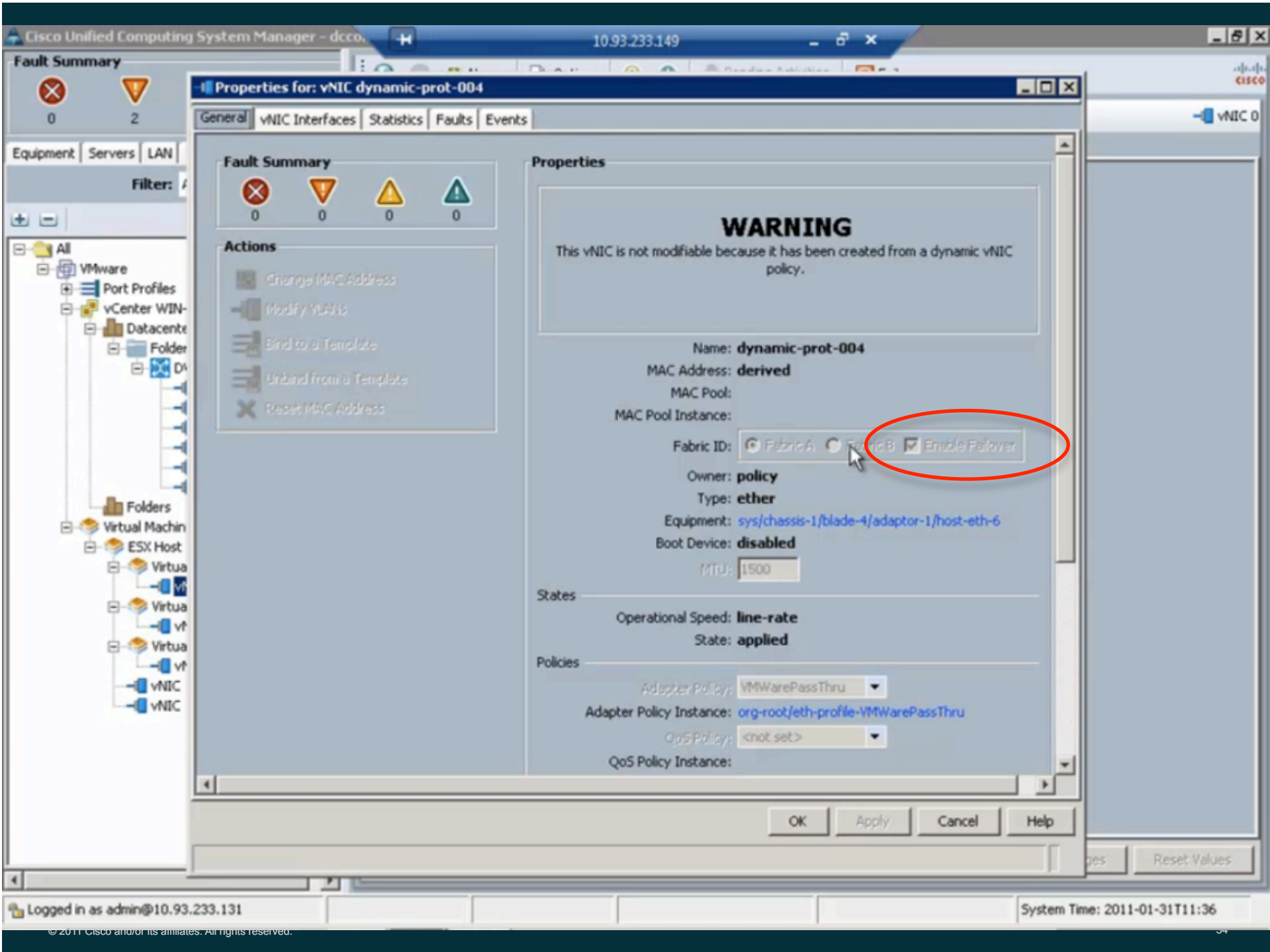
Time since last refresh: 00:02 Start Monitoring Port State

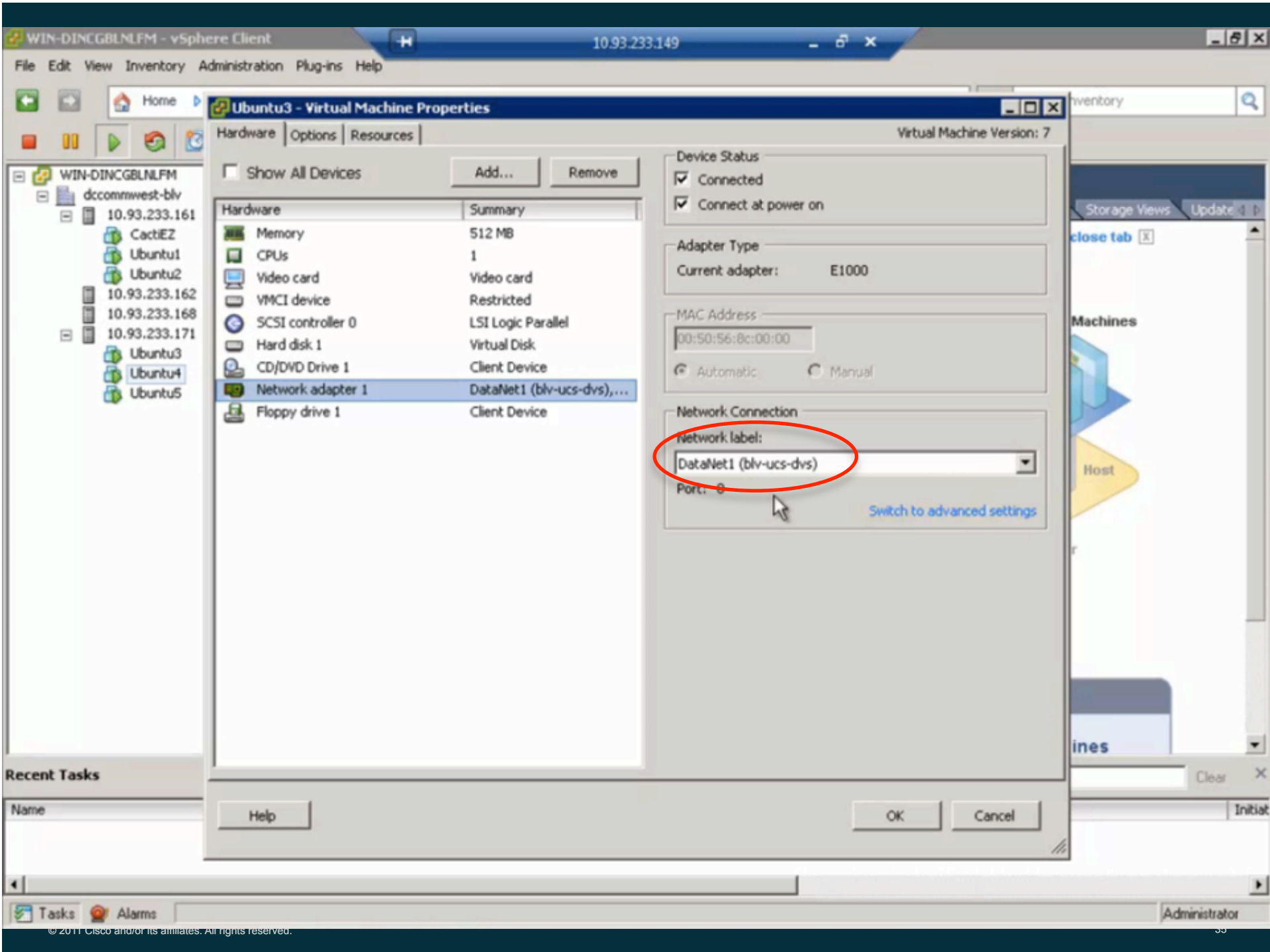
Port ID contains: Clear

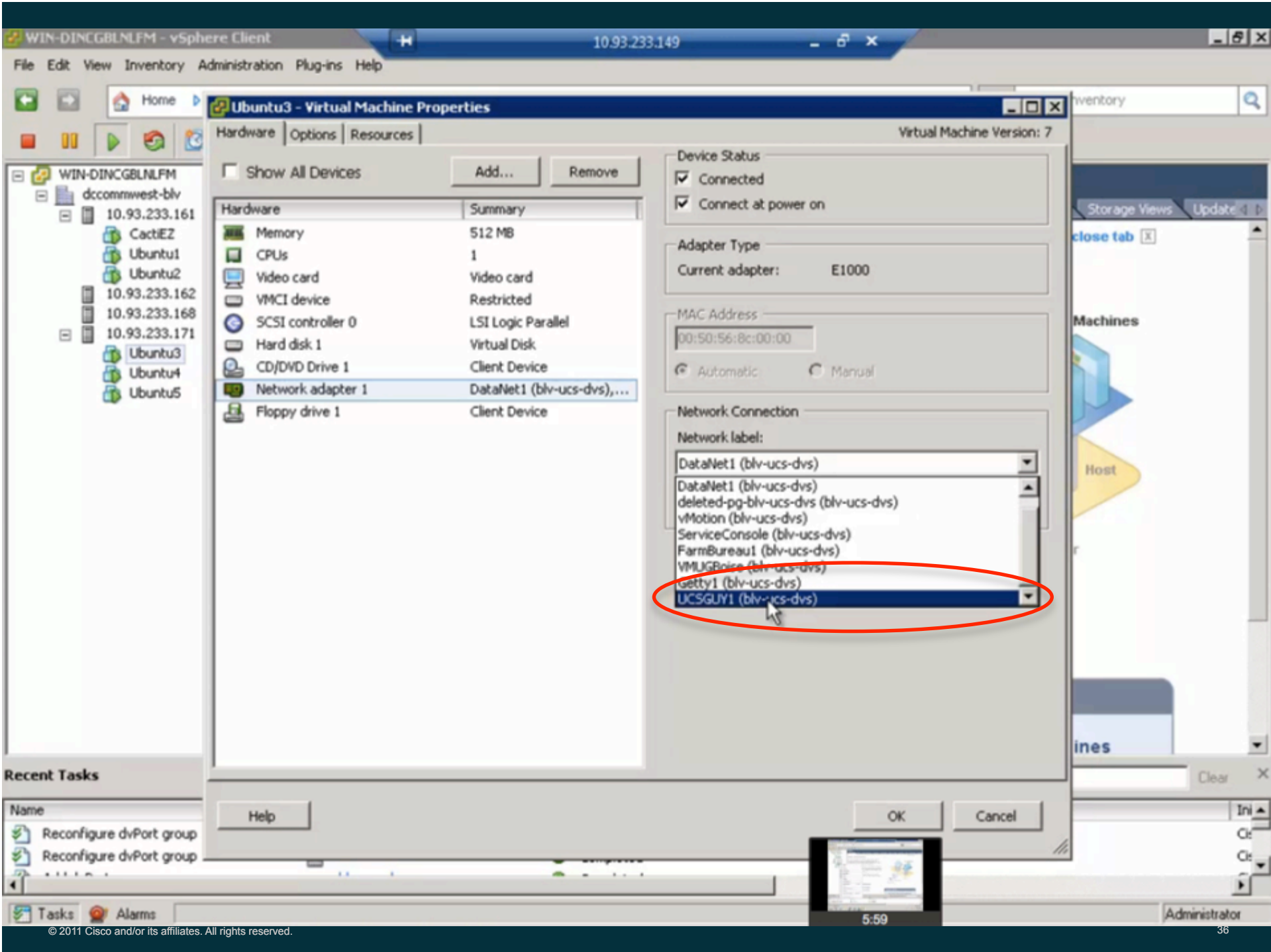
Port ID	Name	Connectee	Runtime MAC address	Port group	State	VLAN ID
0	--	Ubuntu3	00:50:56:8c:00:00	DataNet1	Link Up	VLAN access : 0
1	--	Ubuntu4	00:50:56:8c:00:01	DataNet1	Link Up	VLAN access : 0
2	--	--	--	DataNet1	--	--
3	--	--	--	DataNet1	--	--
4	--	--	--	DataNet1	--	--
5	--	--	--	DataNet1	--	--
6	--	--	--	DataNet1	--	--
7	--	--	--	DataNet1	--	--
8	--	--	--	DataNet1	--	--
9	--	--	--	DataNet1	--	--
10	--	--	--	DataNet1	--	--
11	--	--	--	DataNet1	--	--
12	--	--	--	DataNet1	--	--
13	--	--	--	DataNet1	--	--
14	--	--	--	DataNet1	--	--
15	--	--	--	DataNet1	--	--
16	--	--	--	DataNet1	--	--
17	--	--	--	DataNet1	--	--
18	--	--	--	DataNet1	--	--

Recent Tasks Name, Target or Status contains: Clear

Name	Target	Status	Details	Initiat







Cisco Unified Computing System Manager - dcco 10.93.233.149

Fault Summary: 0 Critical, 2 Warning, 1 Error, 0 Info

Equipment Servers LAN SAN VM Admin

Filter: All

Port Profile UCSGUY1

General vNIC Interfaces Profile Clients Virtual Machines Events

Actions Properties

Modify VLANs

Select	Name	Native VLAN
<input type="checkbox"/>	default	
<input type="checkbox"/>	Newbay1	
<input checked="" type="checkbox"/>	Newbay2	
<input checked="" type="checkbox"/>	Newbay3	
<input checked="" type="checkbox"/>	VLAN200	
<input type="checkbox"/>	VLAN201	
<input type="checkbox"/>	VLAN202	
<input checked="" type="checkbox"/>	VLAN90	

Create VLAN

OK Cancel

Save Changes Reset Values

Logged in as admin@10.93.233.131 System Time: 2011-01-31T11:38

© 2011 Cisco and/or its affiliates. All rights reserved. 37

Cisco Unified Computing System Manager - dco... 10.93.233.149

Fault Summary

0 2 1 0

Equipment Servers LAN SAN VM Admin

Filter: All

LAN

- LAN Cloud
- Appliances
- Internal LAN
- Policies
- Pools
 - root
 - MAC Pools
 - Sub-Organizations
- Traffic Monitoring Sessions
 - Monitor Session Port8**
 - Fabric B

LAN > Traffic Monitoring Sessions > Fabric A > Monitor Session Port8

General Faults Events

Actions

- Get Destination
- Clear Destination
- Delete

Properties

Name: **Port8** Admin State: enabled

Operational State: **up** Operational State Reason: **Active**

Destination: [sys/switch-A/slot-1/switch-ether/port-8](#)

Sources

Server Ports

Uplink Ethernet Ports

Port Channels

VLANs

vNICs

Filter Export Print

Object	Name
org-root/ls-ESX3/ether-dynamic-prot-004	dynamic-pro...

Save Changes Reset Values

Logged in as admin@10.93.233.131 System Time: 2011-01-31T11:39

Cisco Unified Computing System Manager - dco... 10.93.233.149

Fault Summary

0 2 1 0

Equipment Servers LAN SAN VM Admin

Filter: All

LAN

- LAN Cloud
- Appliances
- Internal LAN
- Policies
- Pools
 - root
 - MAC Pools
 - Sub-Organizations
- Traffic Monitoring Sessions
 - Fabric A
 - Monitor Session Port8
 - Fabric B

General Faults Events

Active Ubuntu3 on 10.93.233.171

File View VM

```
eth0      Link encap:Ethernet  HWaddr 00:50:56:8c:00:00
          inet addr:10.93.233.166  Bcast:10.93.233.191  Mask:255.255.255
          inet6 addr: fe80::250:56ff:fe8c:0/64  Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:45340  errors:0  dropped:0  overruns:0  frame:0
          TX packets:26681  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:39584837 (39.5 MB)  TX bytes:37836693 (37.8 MB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128  Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:0  errors:0  dropped:0  overruns:0  frame:0
          TX packets:0  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0 txqueuelen:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

scollora@ubuntu3:~$
scollora@ubuntu3:~$ ping 10.93.233.130
PING 10.93.233.130 (10.93.233.130) 56(84) bytes of data.
64 bytes from 10.93.233.130: icmp_req=1 ttl=255 time=7.26 ms
64 bytes from 10.93.233.130: icmp_req=2 ttl=255 time=0.448 ms
64 bytes from 10.93.233.130: icmp_req=3 ttl=255 time=0.419 ms
-
```

Logged in as admin@10.93.233.131

System Time: 2011-01-31T11:39

© 2011 Cisco and/or its affiliates. All rights reserved.

Capturing from Intel(R) 82576 Gigabit Dual Port 10.93.233.149

File Edit View Go Capture Analyze Statistics Telephony Tools Help

Filter: Expression... Clear Apply

No.	Time	Source	Destination
1	0.000000	10.93.233.166	10.93.233.130
2	0.000303	10.93.233.130	10.93.233.166
3	0.999964	10.93.233.166	10.93.233.130
4	1.000306	10.93.233.130	10.93.233.166
5	1.999929	10.93.233.166	10.93.233.130
6	2.000238	10.93.233.130	10.93.233.166
7	3.000031	10.93.233.166	10.93.233.130
8	3.000366	10.93.233.130	10.93.233.166
9	4.000073	10.93.233.166	10.93.233.130
10	4.000421	10.93.233.130	10.93.233.166
11	5.000126	10.93.233.166	10.93.233.130
12	5.000469	10.93.233.130	10.93.233.166
13	6.000128	10.93.233.166	10.93.233.130
14	6.000471	10.93.233.130	10.93.233.166
15	7.000089	10.93.233.166	10.93.233.130

Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
 Ethernet II, Src: Vmware_8c:00:00 (00:0c:29:8c:00:00), Dst: Intel(R) 82576 Gigabit Dual Port Network Connection (00:0c:29:8c:00:00)
 Internet Protocol, Src: 10.93.233.166 (10.93.233.166), Dst: 10.93.233.130 (10.93.233.130)
 Internet Control Message Protocol

Ubuntu3 on 10.93.233.171

```

PING 10.93.233.130 (10.93.233.130) 56(84) bytes of data.
64 bytes from 10.93.233.130: icmp_req=1 ttl=255 time=7.26 ns
64 bytes from 10.93.233.130: icmp_req=2 ttl=255 time=0.448 ns
64 bytes from 10.93.233.130: icmp_req=3 ttl=255 time=0.419 ns
64 bytes from 10.93.233.130: icmp_req=4 ttl=255 time=0.401 ns
64 bytes from 10.93.233.130: icmp_req=5 ttl=255 time=0.441 ns
64 bytes from 10.93.233.130: icmp_req=6 ttl=255 time=0.426 ns
64 bytes from 10.93.233.130: icmp_req=7 ttl=255 time=0.454 ns
64 bytes from 10.93.233.130: icmp_req=8 ttl=255 time=0.468 ns
64 bytes from 10.93.233.130: icmp_req=9 ttl=255 time=0.433 ns
64 bytes from 10.93.233.130: icmp_req=10 ttl=255 time=0.461 ns
64 bytes from 10.93.233.130: icmp_req=11 ttl=255 time=0.446 ns
64 bytes from 10.93.233.130: icmp_req=12 ttl=255 time=0.458 ns
64 bytes from 10.93.233.130: icmp_req=13 ttl=255 time=0.423 ns
64 bytes from 10.93.233.130: icmp_req=14 ttl=255 time=0.451 ns
64 bytes from 10.93.233.130: icmp_req=15 ttl=255 time=0.444 ns
64 bytes from 10.93.233.130: icmp_req=16 ttl=255 time=0.444 ns
64 bytes from 10.93.233.130: icmp_req=17 ttl=255 time=0.435 ns
64 bytes from 10.93.233.130: icmp_req=18 ttl=255 time=0.431 ns
64 bytes from 10.93.233.130: icmp_req=19 ttl=255 time=0.440 ns
64 bytes from 10.93.233.130: icmp_req=20 ttl=255 time=0.469 ns
64 bytes from 10.93.233.130: icmp_req=21 ttl=255 time=0.453 ns
64 bytes from 10.93.233.130: icmp_req=22 ttl=255 time=0.466 ns
64 bytes from 10.93.233.130: icmp_req=23 ttl=255 time=0.465 ns
  
```

0000 00 1e 13 24 ac 7f 00 50 56 8c 00 00
 0010 00 54 00 00 40 00 40 01 52 c6 0a 5d
 0020 e9 82 08 00 4e 94 08 6f 00 10 38 10
 0030 00 00 5b bc 07 00 00 00 00 00 10 11
 0040 16 17 18 19 1a 1b 1c 1d 1e 1f 20 21
 0050 26 27 28 29 2a 2b 2c 2d 2e 2f 30 31

Intel(R) 82576 Gigabit Dual Port Network Connection Packets: 15 Displayed: 15 Marked: 0 Profile: Default

Расширитель Фабрики (FEX) и Виртуализация Интерфейсов (Adapter-FEX, VM-FEX)

- FEX добавляет порты UCS Фабрике без дополнительных точек управления. Гибкий выбор требуемой пропускной полосы от 10 до 80 Gb на FEX.
- Виртуальные адаптеры Cisco VIC предоставляют до 116 vNIC, vHBA, и динамические адаптеры для виртуальных машин (VM-FEX).
- VM-FEX разработан виртуализации и интегрирован с гипервизором. Изначально для VMware, сегодня для Redhat KVM завтра для Hyper-V.

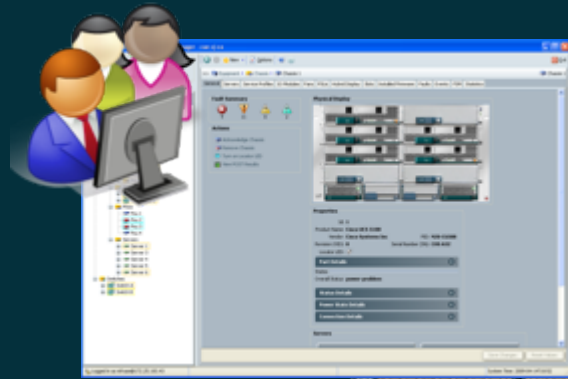
Унифицированная Вычислительная Система

- Унифицированная Фабрика
- Расширители Фабрики (FEX) и Виртуализация Интерфейсов
- **Встроенная Система Управления**
 - Simplified setup, increased control, lower costs
- Гибкая Настройка Сервера
- Расширенная Память
- Интеграция RU- серверов

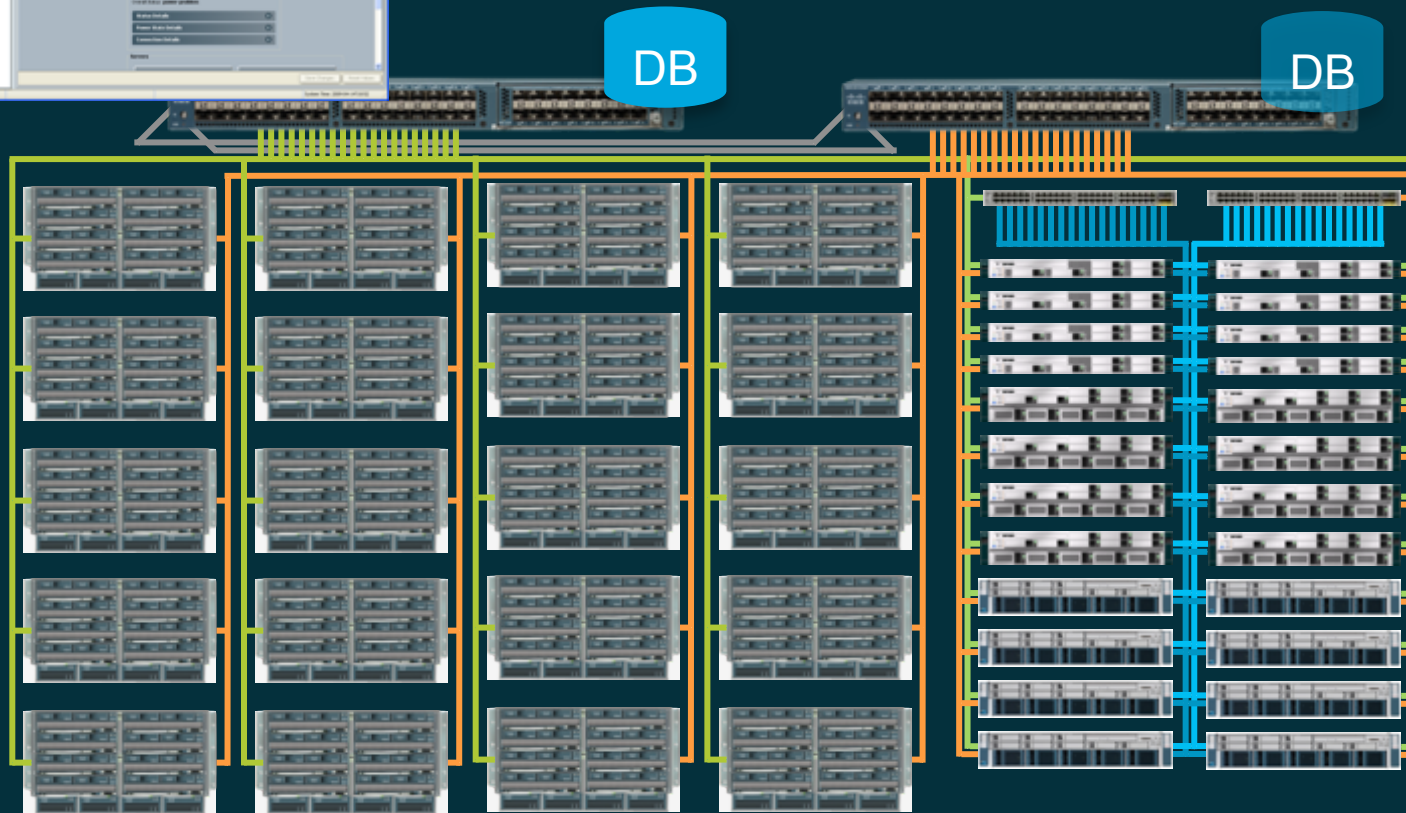


UCS Менеджер

Централизованное Управление до 160 серверов

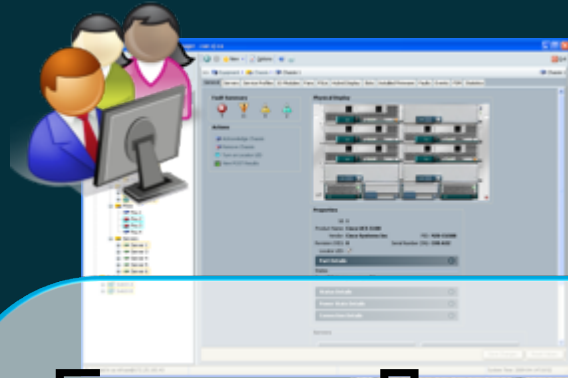


- Единая точка управления
- Зарезервированная база данных для firmware, конфигураций, политик, пулов, ...
- Всего Три IP адреса...



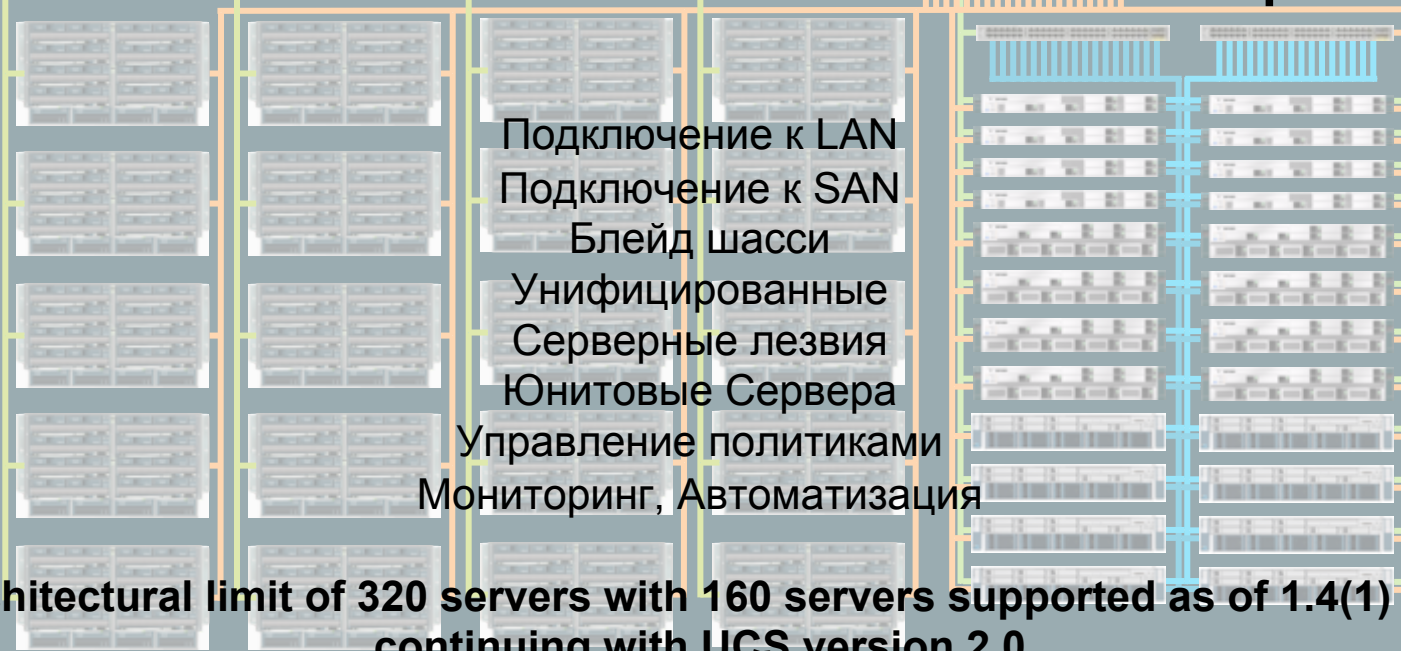
UCS Менеджер

Централизованное Управление до 160 серверов



- Единая точка управления
- Зарезервированная база данных для firmware, конфигураций, политик, пулов, ...
- Всего Три IP адреса...

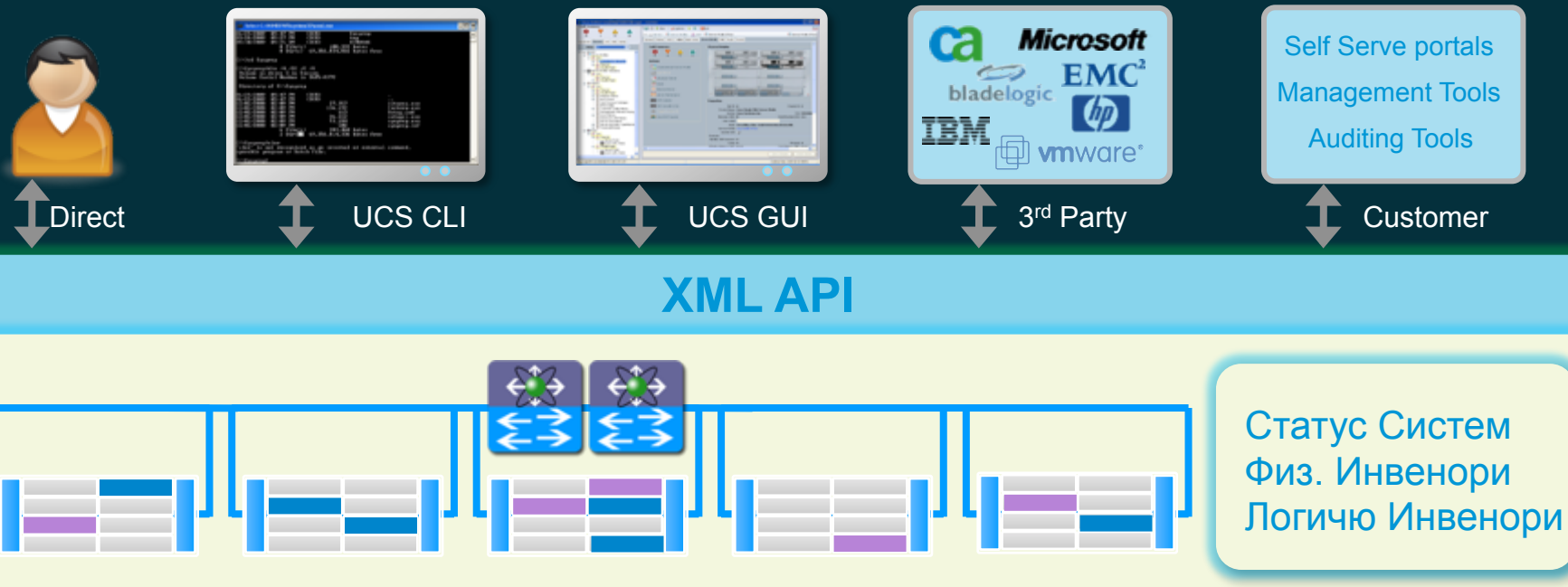
Единое Логическое Шасси в 160 серверов



***architectural limit of 320 servers with 160 servers supported as of 1.4(1) and continuing with UCS version 2.0**

Прагматичная Инфраструктура

- Полный XML API, стандартизованный интерфейс
- Двух-Направленный доступ к физическим & логическим компонентам



Встроенная Система Управления

- Разработана одновременно с UCS и доступна через GUI, CLI и партнерские продукты управления.
- UCS предоставляет Полный и открытый XML API
 - UCS Эмулятор доступен как виртуальная машина
- Три IP адреса для управления UCS (2x UCSM + 1xVirtual IP).
- Управление Firmware, конфигурациями, и политиками встроены в UCS. Полностью in-band.
- ВСЯ функциональность UCS доступна изначально, без лицензирования.

Как UCS управляет firmware, конфигурациями, и политиками?

? DB



UCS Фабрики?

Управление Шасси?

Disk Drives?

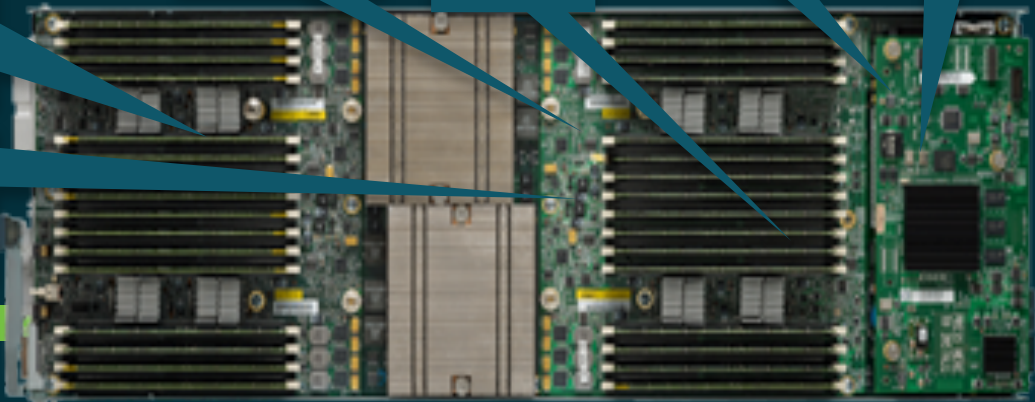
Array Controller?

System BIOS?

NIC?

CIMC?

HBA?



Unified Computing System

- Унифицированная Фабрика
- Расширители Фабрики (FEX) и Виртуализация Интерфейсов
- **Гибкая Настройка Сервера**
 - Higher productivity, lower labor costs, fewer errors (no configuration drift)
- Расширенная Память
- Интеграция RU- серверов



Традиционный подход: настройка индивидуальных компонентов

Ручная Настройка Сервера (Скрипты) :

1. Confirm system BIOS is current, update if necessary.
2. Interrupt POST, configure BMC.
3. Updated FW on array
4. Configure Array
5. Config Processor settings
6. ...

- RAID settings
- Disk scrub actions

- Number of vHBAs
- HBA WWN assignments
- FC Boot Parameters
- HBA firmware

- FC Fabric assignments for HBAs

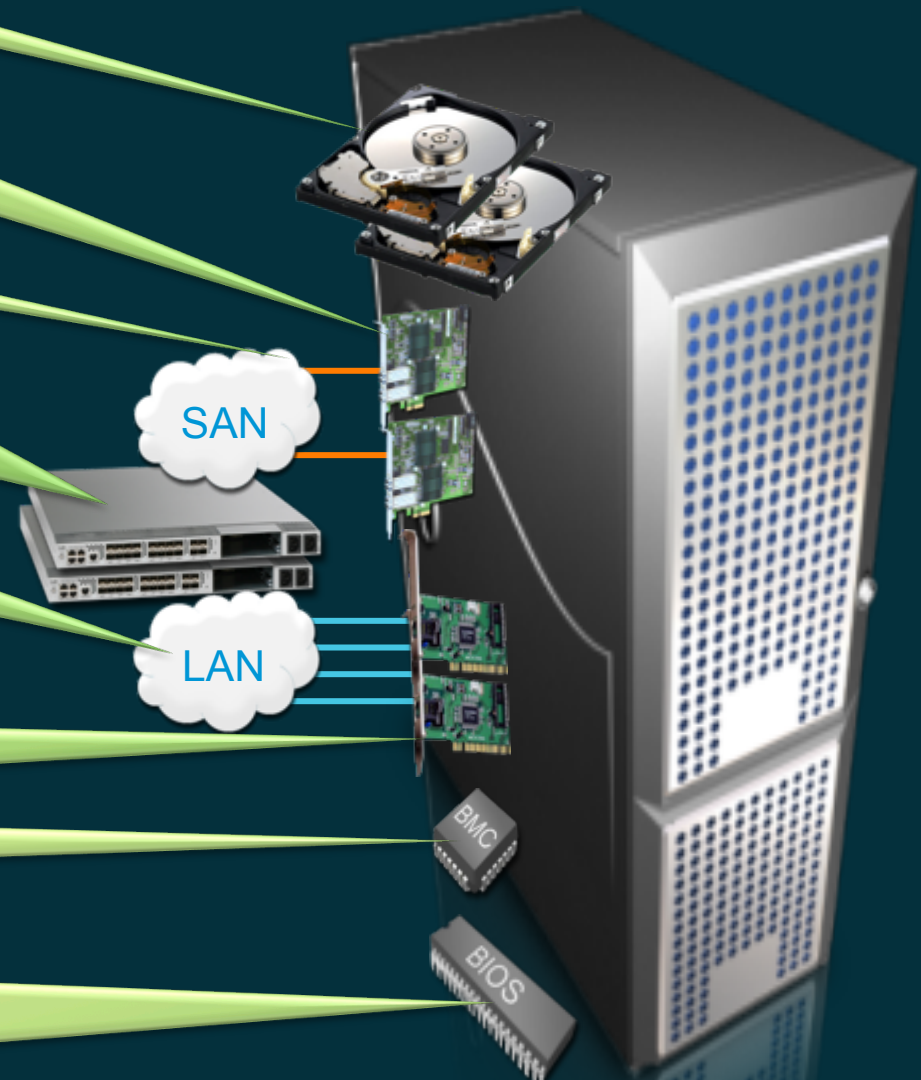
- QoS settings
- Border port assignment per vNIC
- NIC Transmit/Receive Rate Limiting

- VLAN assignments for NICs
- VLAN tagging config for NICs

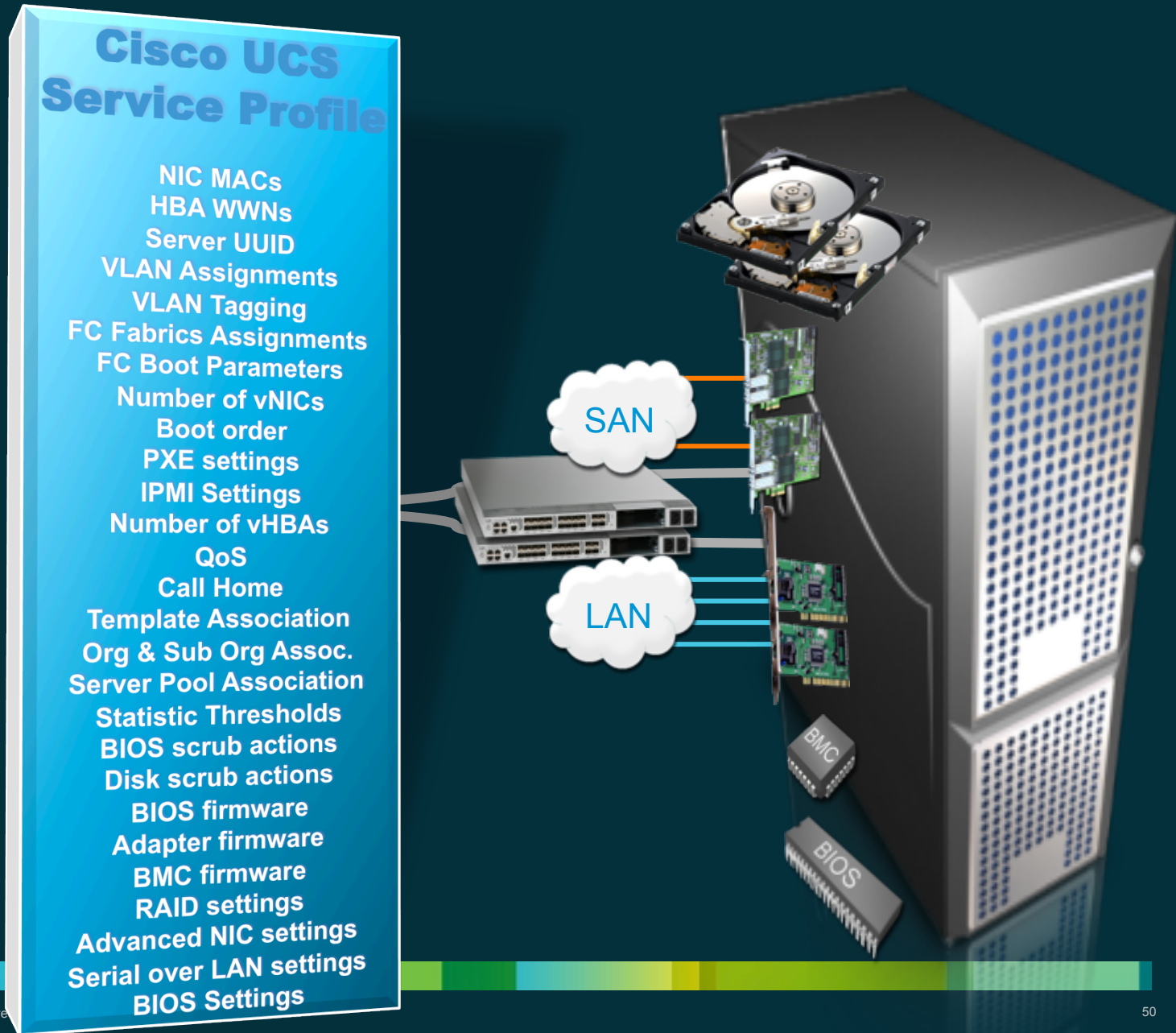
- Number of vNICs
- PXE settings\
- NIC firmware
- Advanced feature settings

- Remote KVM IP settings
- Call Home behavior
- Remote KVM firmware

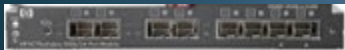
- Server UUID
- Serial over LAN settings
- Boot order
- IPMI settings
- BIOS scrub actions
- BIOS firmware
- BIOS Settings



UCS Service Profiles: Настройка инфраструктуры под сервис



Сравнение Гибкости настройки Сервера



HP VC FlexFabric



CNA



HP VC Server Profile

- NIC MACs
- HBA WWNs
- Server UUID
- Server Serial Number
- VLANs
- VLAN Tagging
- FC Fabrics
- FC Boot Params
- Number of vNICs
- vNIC Transmit Speed
- Partial Boot Order (FC only)
- PXE settings

Multi Chassis Access Layer

Chassis Modules

Adapters

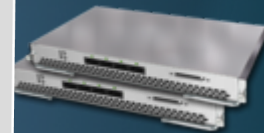
Server Blades

Cisco UCS Service Profile

- NIC MACs
- HBA WWNs
- Server UUID
- VLANs
- VLAN Tagging
- FC Fabrics
- FC Boot Parameters
- Number of vNICs
- Number of vHBAs
- vNIC Transmit Speed
- vNIC Receive Speed
- PXE settings
- Full Boot order
- IPMI Settings
- Number of vHBAs
- QoS
- Call Home
- Template Association
- Org & Sub Org Assoc.
- Server Pool Association
- Statistic Thresholds
- BIOS scrub actions
- Disk scrub actions
- BIOS firmware
- Adapter firmware
- BMC firmware
- RAID settings
- Advanced NIC settings
- Advanced HBA settings
- Serial over LAN settings
- BIOS Settings



Unified Fabric



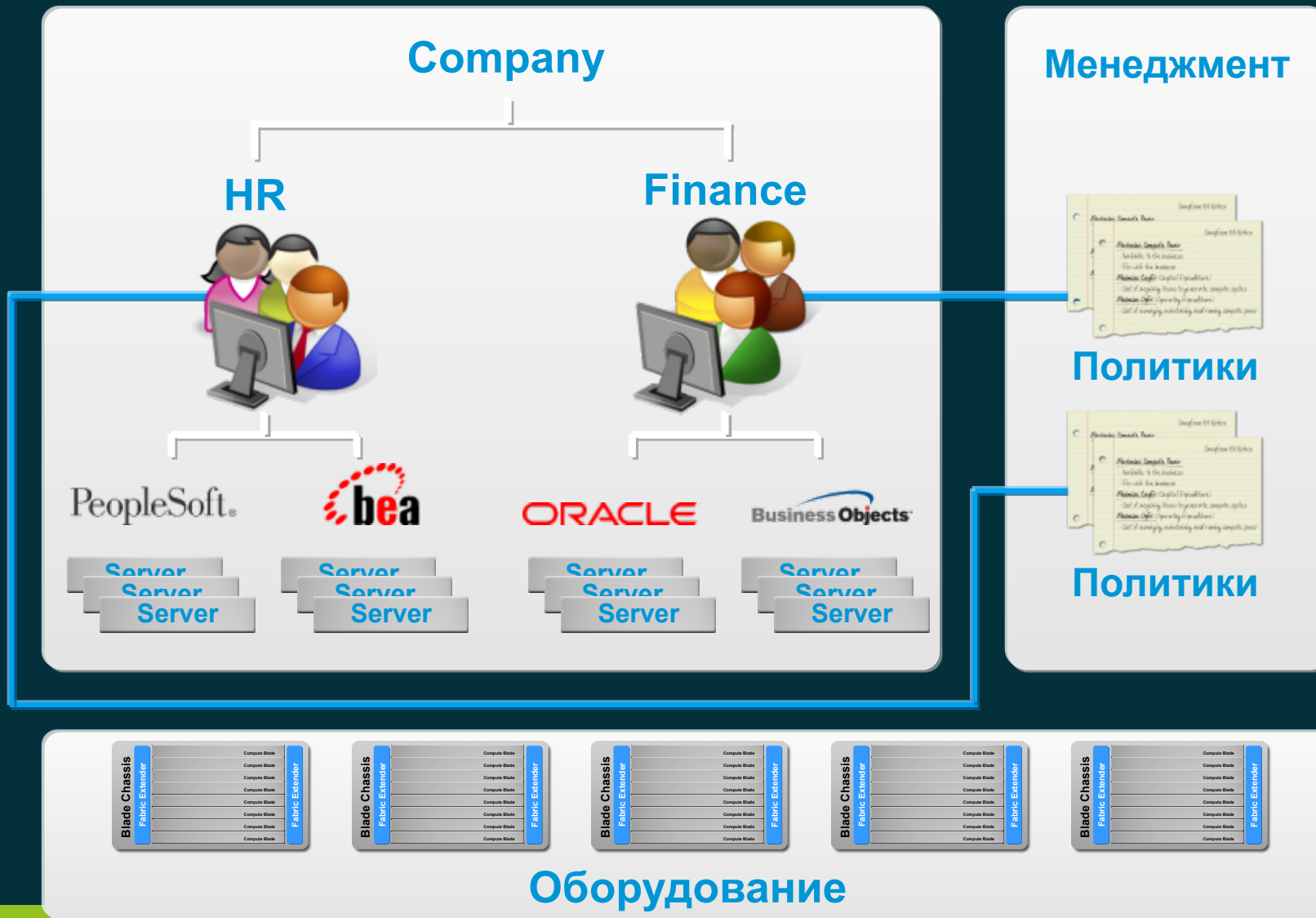
Unified Fabric



Unified Fabric



Модель Оргструктуры в UCS



Ролевое администрирование

Storage Management



LUN access



External Connectivity



Performance Management



SAN Troubleshooting

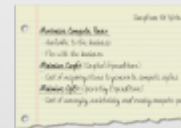


vSANs

Server Administration



Server Identities



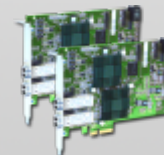
Server Policies



Online Troubleshooting



Resource Allocation



Server Connectivity

Network Management



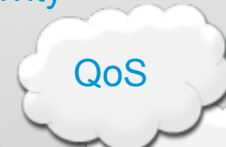
External Connectivity



Network Troubleshooting



Performance Management



QoS



Security



vLANs

Operations Management



Hardware Setup



Inventory



Cabling



Power



Cooling



Diagnostics



Offline Troubleshooting

Гибкость Настройки Серверов

- Разработана одновременно с UCS и доступна через GUI. Управляет обслуживанием firmware, конфигураций, политик для серверов и инфраструктуры.
- Всегда доступный UCS Менеджер.
- Более чем 100 индивидуальных опций в Сервис Профайле
- UCS Сервис Профайлы полностью поддерживаются для интегрированных с UCS RU-серверов.
- UCS Сервис Профайлы могут перемещаться между разными шасси.

Unified Computing System

- Унифицированная Фабрика
- Расширители Фабрики (FEX) и Виртуализация Интерфейсов
- Гибкая Настройка Сервера
- **Расширенная Память**
 - Lower cost per VM, higher database consolidation, better performance
- Интеграция RU- серверов



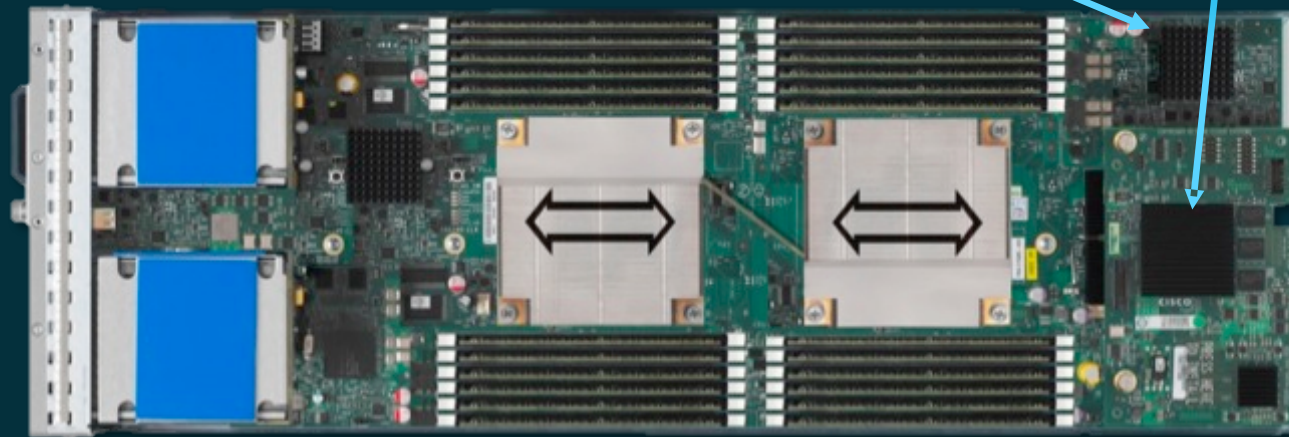
UCS B200 M3



Half width blade form factor

Modular LOM Slot

Mezzanine Slot



1. 24 слотов DIMM – 768GB для Intel E5 CPU
2. 40-80 Gb mLOM Slot: VIC 1240
3. 20 -80 Gb Mezz Slot: Supports VIC 1280 & 3rd party Gen 3

Connectors to the backplane

UCS B250 M2



Full width blade form factor

Mezzanine Slot



1. 48 слотов DIMM – 384GB (8Gb DIMM) Intel 56xx CPU
2. 2xMezz Slot: Supports VIC 81KR & 3rd party Gen 2 Mezz cards

Connectors to the backplane

UCS B200 M3



Half width blade
form factor

Mezzanine
Slot



Connectors to
the backplane

1. 32 слотов DIMM – 512 GB для Intel E7 CPU
2. 20-80 Gb Mezz Slot: Supports VIC 1280 & 3rd party Gen 2

Расширенная память

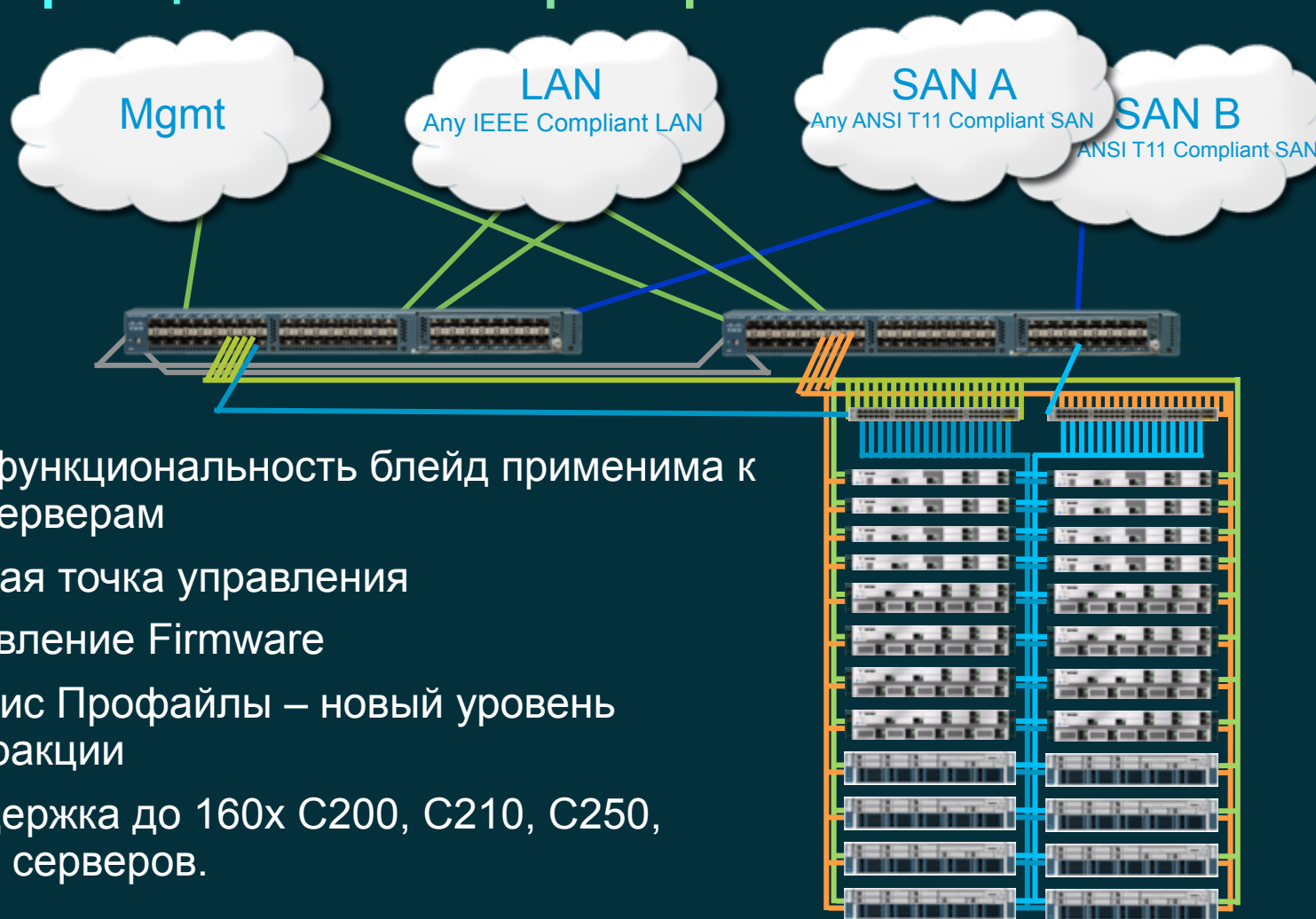
- Ниже стоимость на VM
- Выше производительность Баз Данных
- Больше плотность виртуальных десктопов (175 VD/B230)

Unified Computing System

- Унифицированная Фабрика
- Расширители Фабрики (FEX) и Виртуализация Интерфейсов
- Гибкая Настройка Сервера
- Расширенная Память
- **Интеграция RU- серверов**
All of the benefits of blade servers applied to rack servers



Интеграция RU-серверов



- Вся функциональность блейд применима к RU-серверам
- Единая точка управления
- Управление Firmware
- Сервис Профайлы – новый уровень абстракции
- Поддержка до 160х C200, C210, C250, C260 серверов.

Unified Fabric + PCIe Virtualization

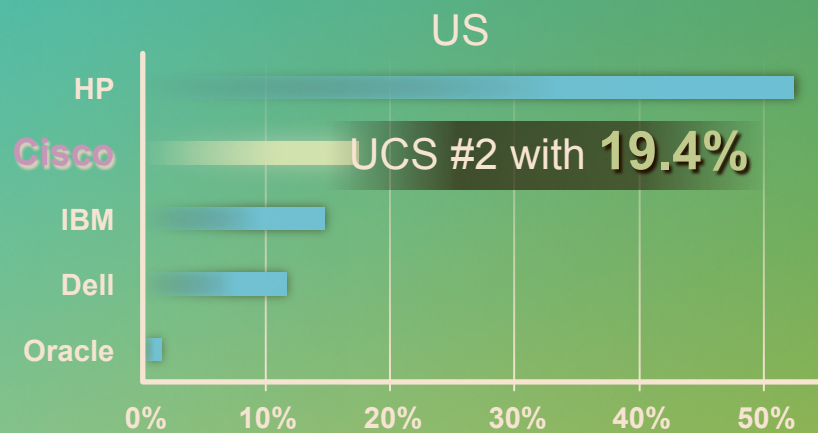
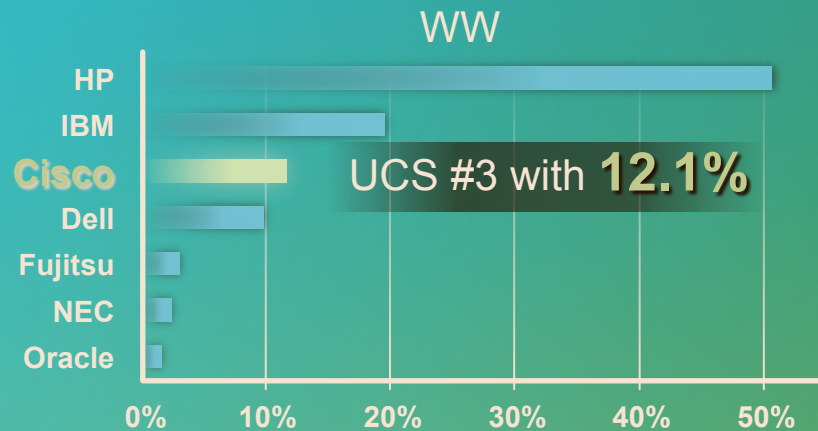


- Nexus 5x00 switches
- P81E Virtual Interface Card + C-Series Rack Servers
 - Support for up to 18 vNICs + two vHBAs
 - Configured via CIMC

Дополнительные Выгоды UCS

- FEX + Adapter FEX + VM-FEX устраняют сложность при виртуализации серверов
- Виртуализованные адаптеры Cisco (VIC) Fabric Failover.
- Качество сервиса QoS.
- Ролевое Администрирование и Многопользовательская среда.
- CIMC 2-порта, избыточность, полный функционал (нет доп. лицензий).
- Лицензируются только порты на UCS фабрике.
- UCS полностью автоматизирован и готов для облака и оркестрации благодаря открытому XML API.
- Подключение SAN доступно для всех серверов.
- Операционные выгоды: нет POST прерывания, Конфигурация SAN в сервисном профиле, шаблоны профилей, нет агентов для OS, администраторы работают асинхронно.

Заказчики говорят: X86 Server Blade Market Share Q3 CY2011



UCS After Two Short Years

-UCS momentum is fueled by game-changing innovation; Cisco is quickly passing established players¹

-Blade servers are the fastest growing segment of the x86 computing market²

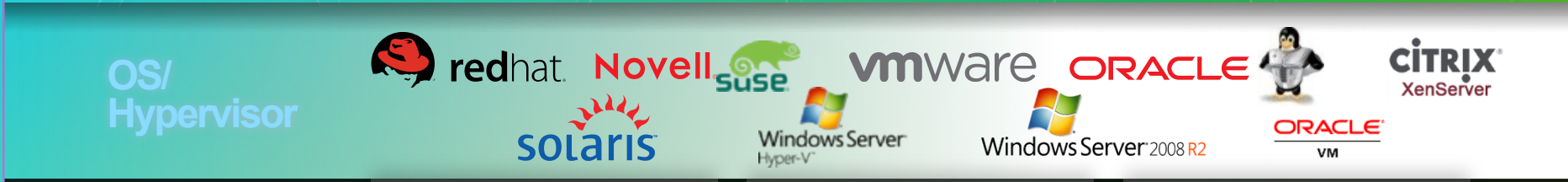
-**10,400** UCS Customers WW

-**\$1.1B** annualized bookings run rate FY12Q1: +122% Y/Y

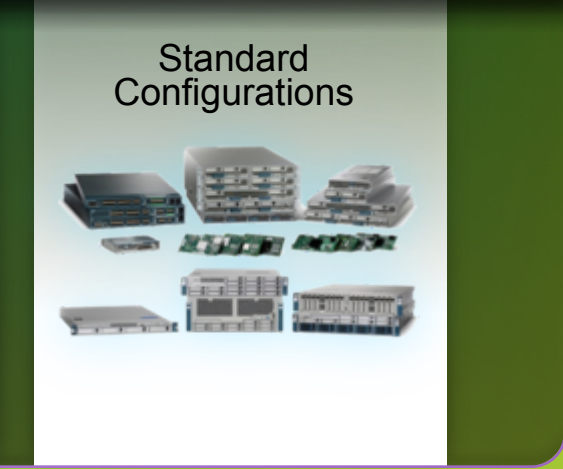
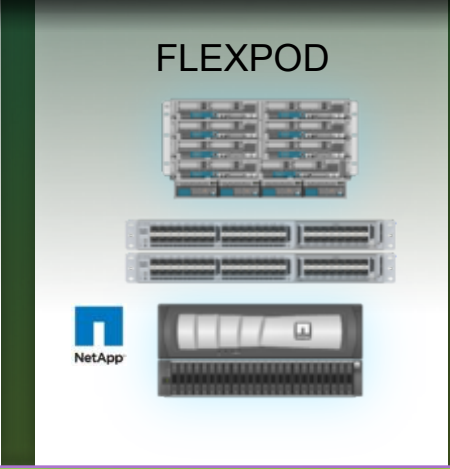
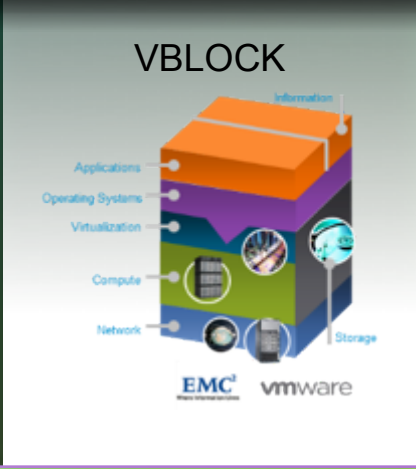
Source: ¹ IDC Worldwide Quarterly Server Tracker, Q3 2011, November 2011, Revenue Share

² IDC Q2 CY11 Server Forecaster

UCS Solution Focus

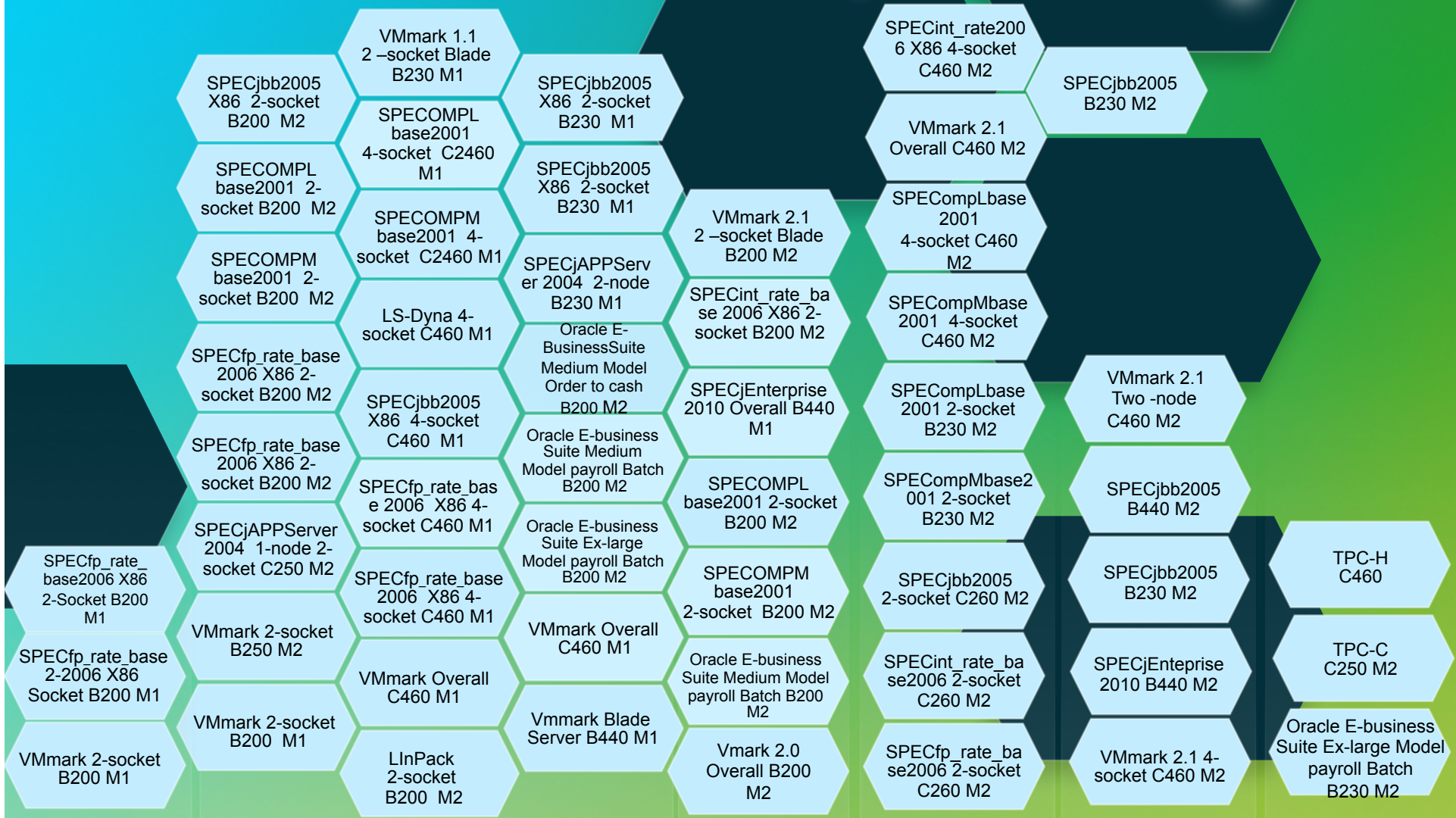


Infrastructure



Cisco UCS Performance Records

Two Years - 53 World Records & Counting



CY09

CY10

Q1 CY11

Q2 CY11

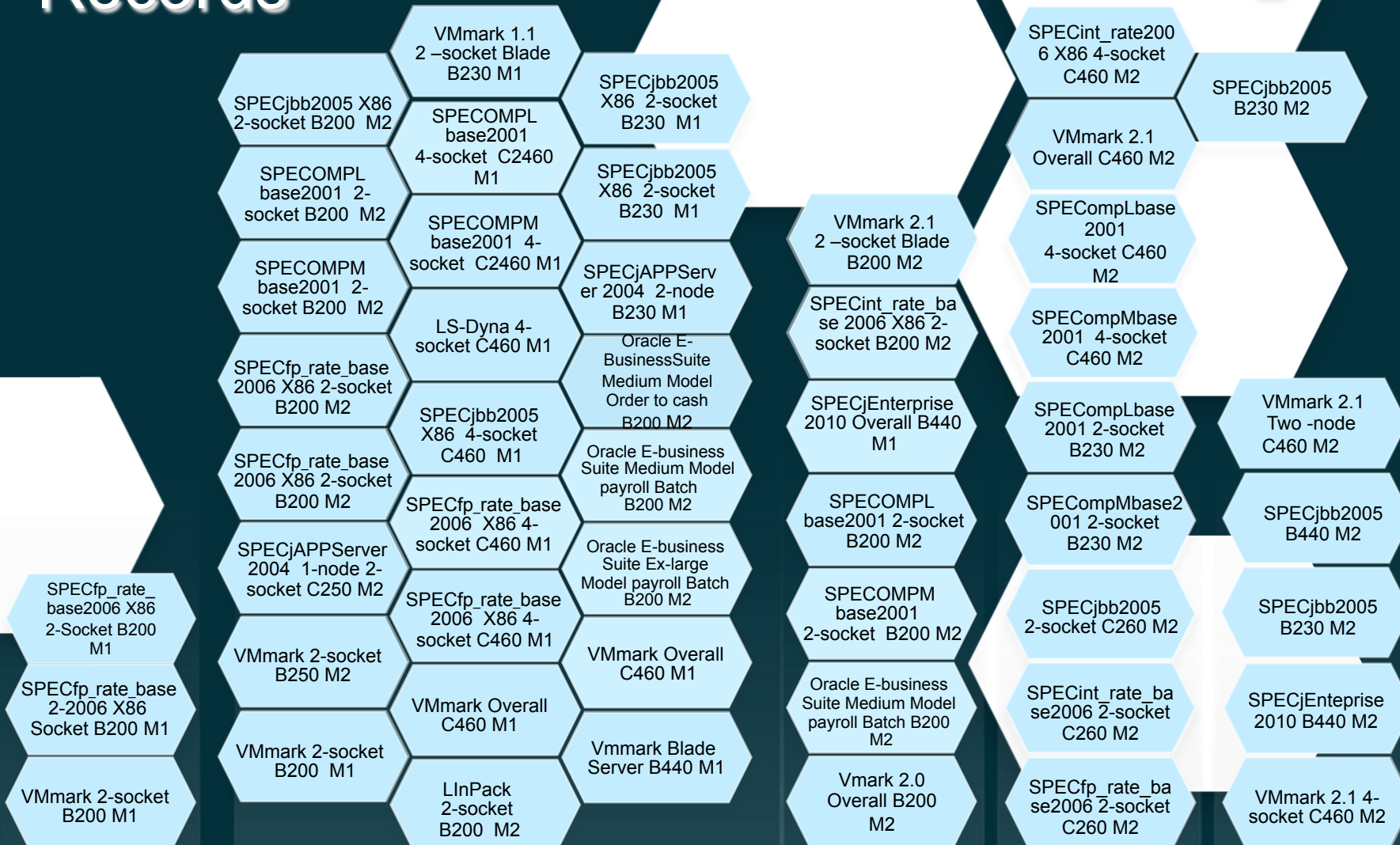
Q3 CY11

Q4 CY11

Cisco UCS Performance

Two Years - 50 World Records & Counting

Records



CY09 CY10 Q1 CY11 Q2 CY11 Q3 CY11



CISCO

