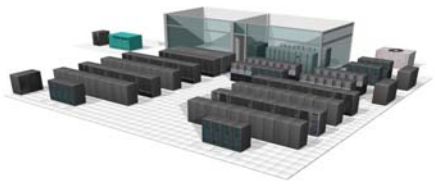
Cisco Data Center

Irfaan Harris
Business Development Manager
Cisco Data Center

What is a Data Center (DC)?

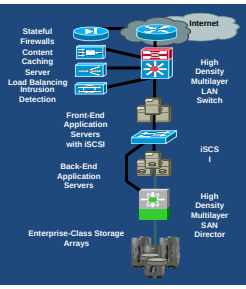


Rooms or Facilities that Contain Critical Computing Resources:

In a Controlled Environment

Under Centralized Management

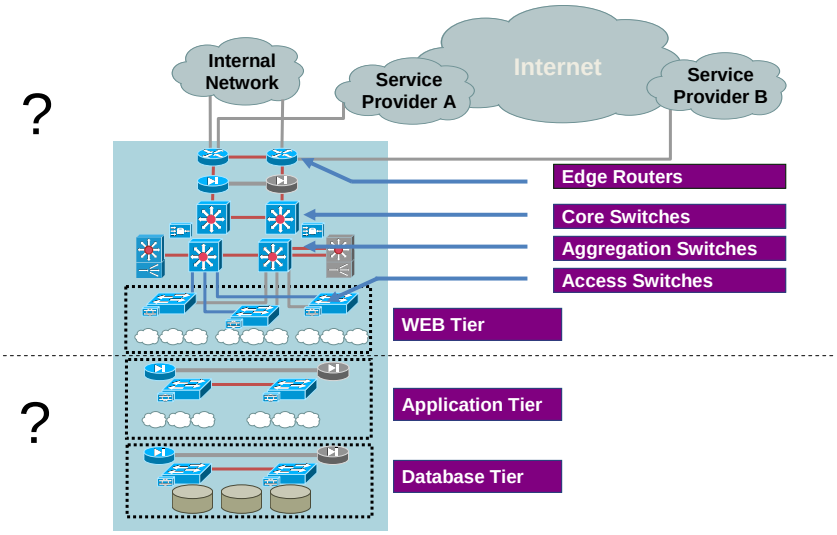
Supporting Business Needs 24 x 7 x 365



Computing Resources:

Mainframes, Web Servers, Application Servers, File & Print Servers, Messaging Servers, Application Software and the Operating Systems that Support Them; Storage Subsystems, Network Infrastructure (IP & SAN).

Typical Data Center Topology



The Next Generation Enterprise

CEO Priorities

- Top line, bottom line growth, innovative thinking
- Globalization…markets, talent
- New business models…vertical to horizontal
- Process change…transactions to interactions
- Partnerships…revenue growth, competitiveness
- IT as a strategic enabler

CIO Priorities

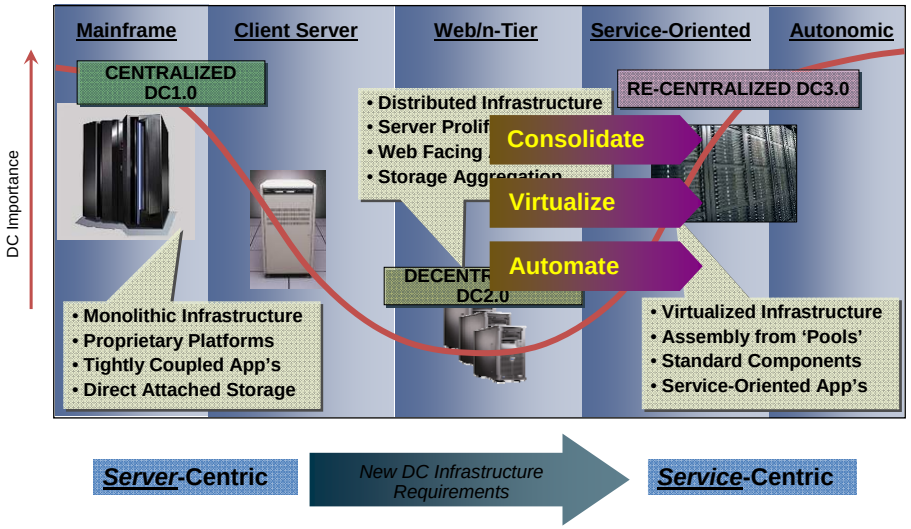
- IT as a strategic business enabler
- Global scalability
- Escalating user expectations
- IT service quality, availability, green
- Compliance and security
- Strategic vendor partnerships

COLLABORATION, WEB 2.0, PRODUCTIVITY

NETWORK AS THE PLATFORM

- Grassroots innovation
- Personalization
- participation
- Anytime, anywhere
- Global talent

The Data Center is Evolving
Server Centric to Service Centric

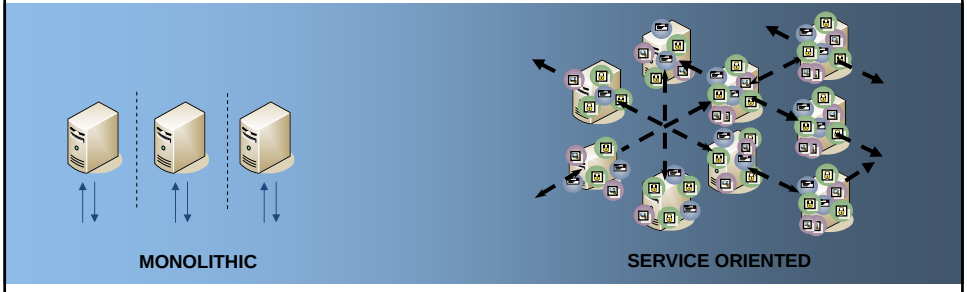


Complexity & Cost of your IT Infrastructure

- Customers are not able to provide increasingly more complex services in their own Data Center
- Financial and human resources
- New technology and application trends

Evolving Architectures

Productive, collaborative… .complex



- **Client-Server/Silo-ed (Web 1.0)**
  - Limited inter-application traffic & data sharing
  - Relatively simple environment
  - Limited scaling, security, management & control
- **Collaborative (Web 2.0 and SOA)**
  - Extensive inter-application traffic & data sharing
  - Graphically Rich, Interactive environment
  - Significant scalability, security,

Networked → Connected → Collaborative

Tackling Business Challenges

Where to Invest?

70% of the IT Budget for *Maintenance*
30% Available for *Assets and Innovation**

*Source: Gartner - IT Infrastructure, And The Shift To "Real-Time" Feb, 2005

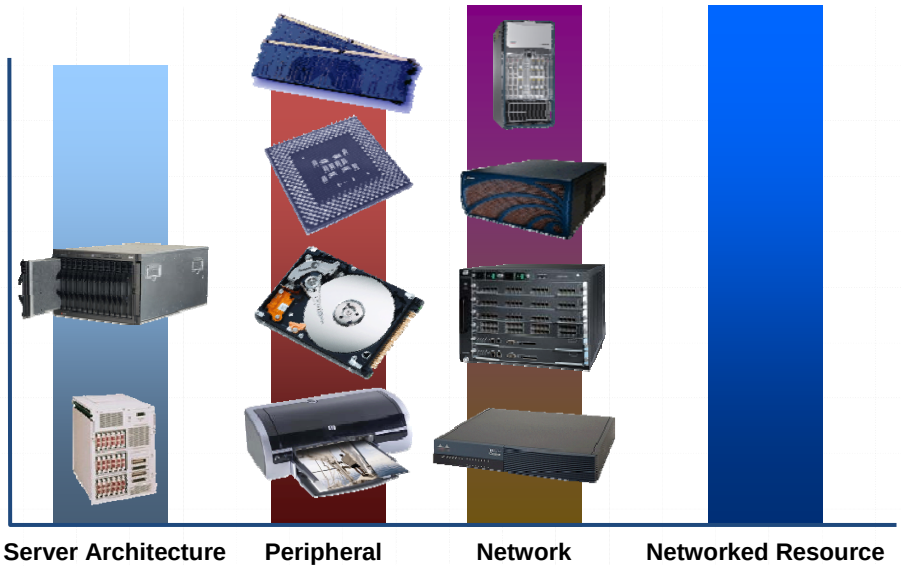
Lets pause for a Moment
Remember When…..

Printers were attached to servers in the DC?

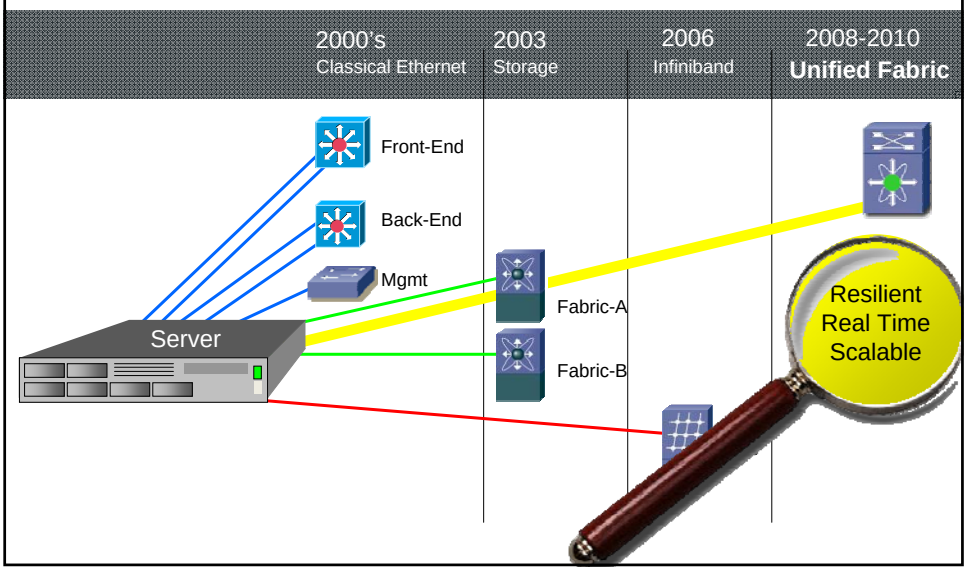
Where are we heading?

Do you have a home network?

The Network Consolidation Effect



Looking Ahead: A New Family of Data Center-Class Platforms



Scale of Current Problems Demands a New Approach

Infrastructure Scalability

- By 2009, 50% of large businesses will spend more on power and cooling then on new servers (Gartner, 2006)
- Quad-cores and octal-cores will drive significantly more traffic
- Storage is expected to continue to grow at a 40-70% CAGR (Gartner, 2006)

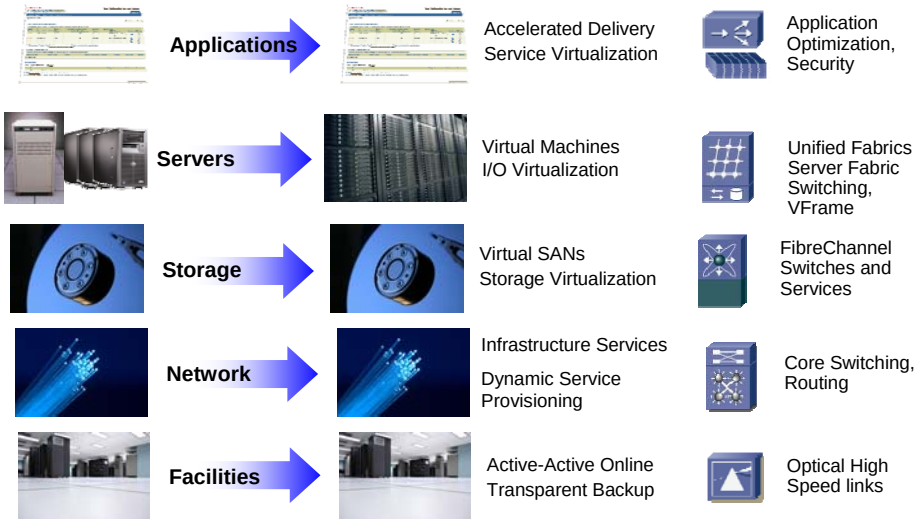
Transport Flexibility

- Continued deconstruction of the server increases demands on the network
- Market transitions between transport technologies and application architectures

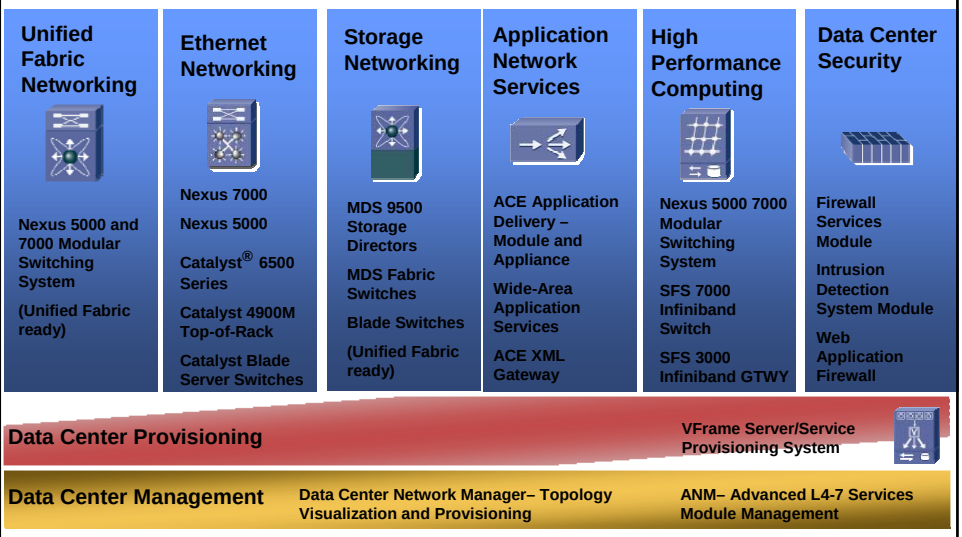
Operational Continuity

- Expectation of 24x7 application availability
- 54% of network downtime is caused by human error (Uptime Institute, 2007)

The Network is the Platform for the New Data Center



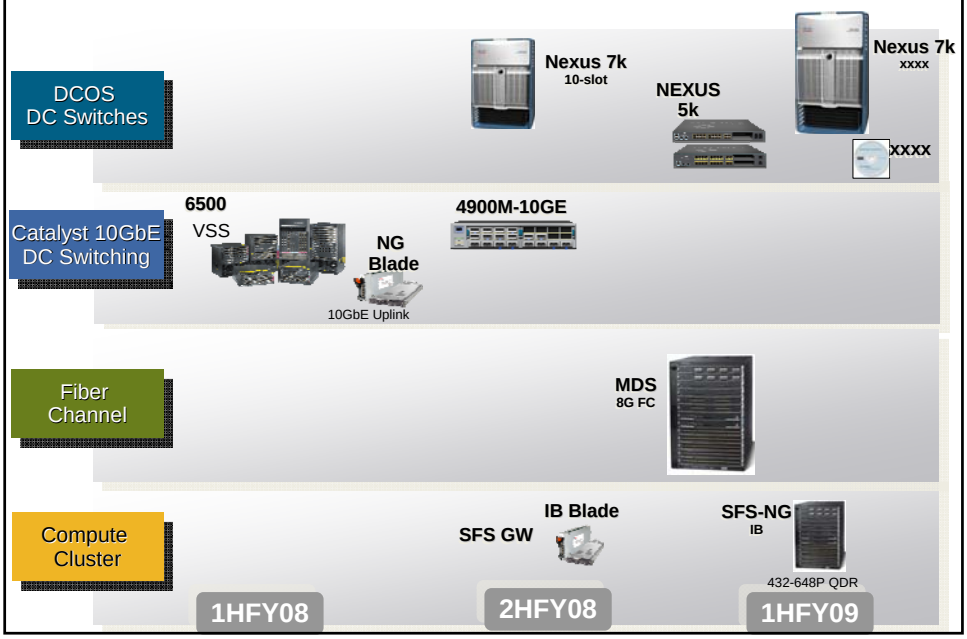
A Comprehensive Portfolio for Data Center 3.0



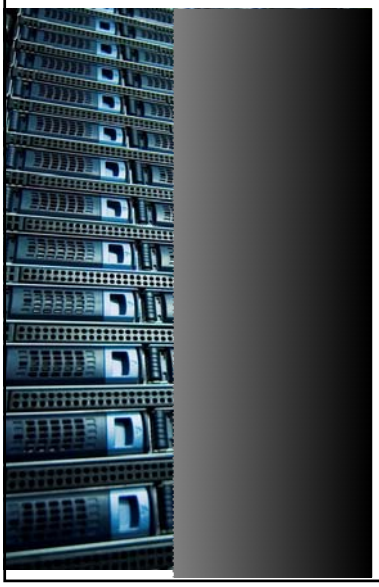
Critical Infrastructure for Data Center 3.0

Unified Fabric and I/O Interfaces	Enables storage, Ethernet, IP, and HPC traffic to converge to a single network Lowers overall data center power draw
Cisco® Nexus Switching Platforms	Multi-Terabit platform with ops-centric design Delivers unified fabric and I/O deployments Designed for the most stringent availability needs
NX-OS Operating System	First multi-protocol DC-class operating system Virtualized control plane and scalable design sets new standard for usability
Data Center Network Manager **Fabric Manager**	Builds on Cisco Fabric Manager to extend L2, L3, Fibre Channel, and unified fabric management Provides end-to-end systems visibility

Data Center Switching Platforms 2008/9



The Case for 10GbE to the Server



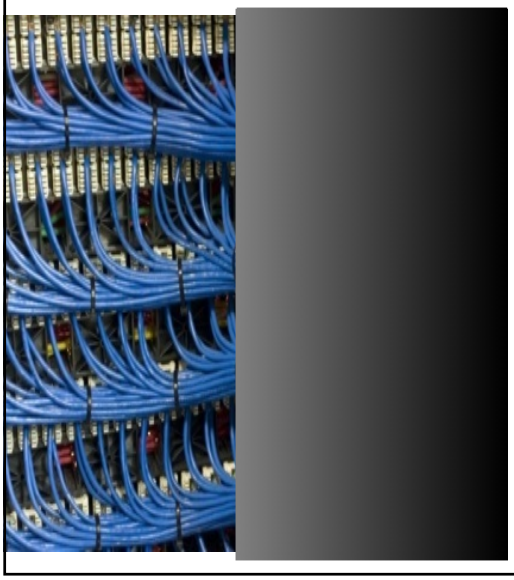
Multi-Core CPU architectures allowing bigger and multiple workloads on the same machine

Server virtualization driving the need for more I/O bandwidth per server

Growing need for network storage driving the demand for higher network bandwidth to the server

10GE LAN on server Motherboards (LoM) beginning mid-2008 *(source: Broadcom)*

The Case for Unified Fabric



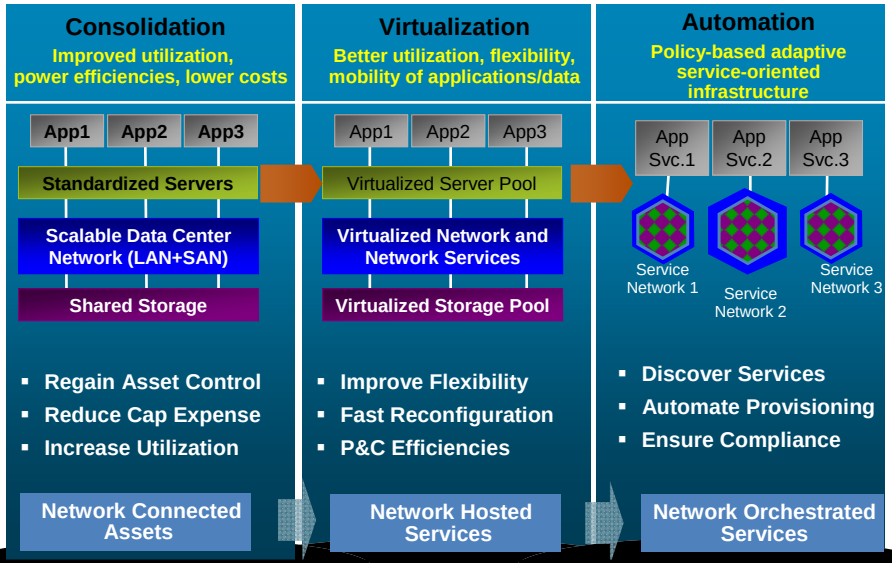
Reduce overall Data Center power consumption by up to 8%. Extend the lifecycle of current data center.

Wire hosts once to connect to any network - SAN, LAN, HPC. Faster rollout of new apps and services.

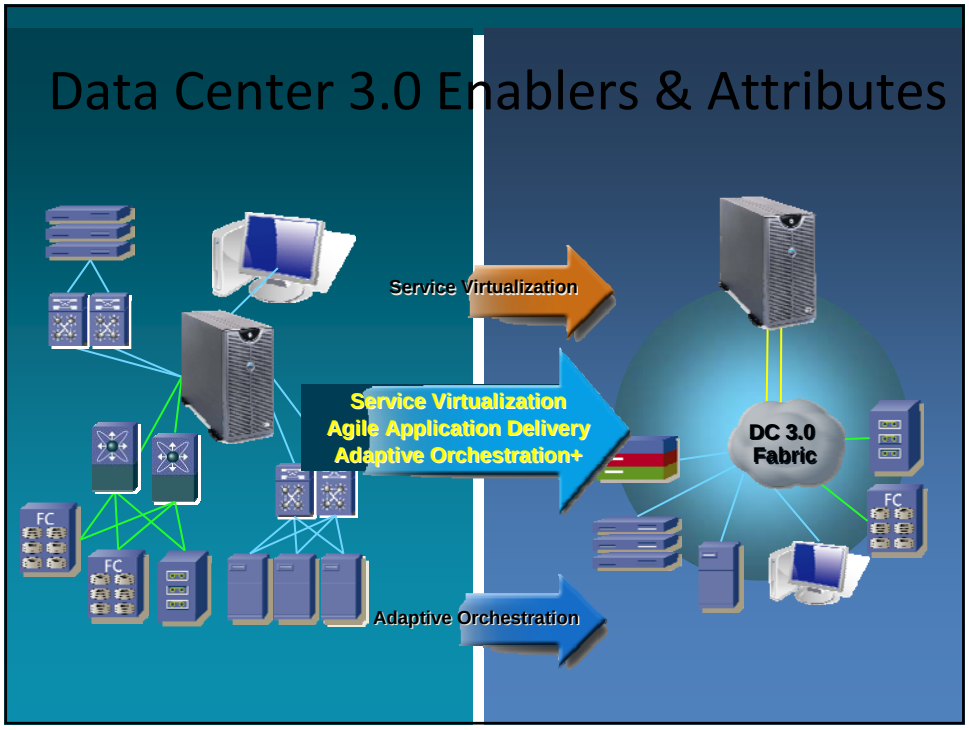
Every host will be able to mount any storage target. Drive storage consolidation and improve utilization.

Rack, Row, and X-Data Center VM portability become possible.

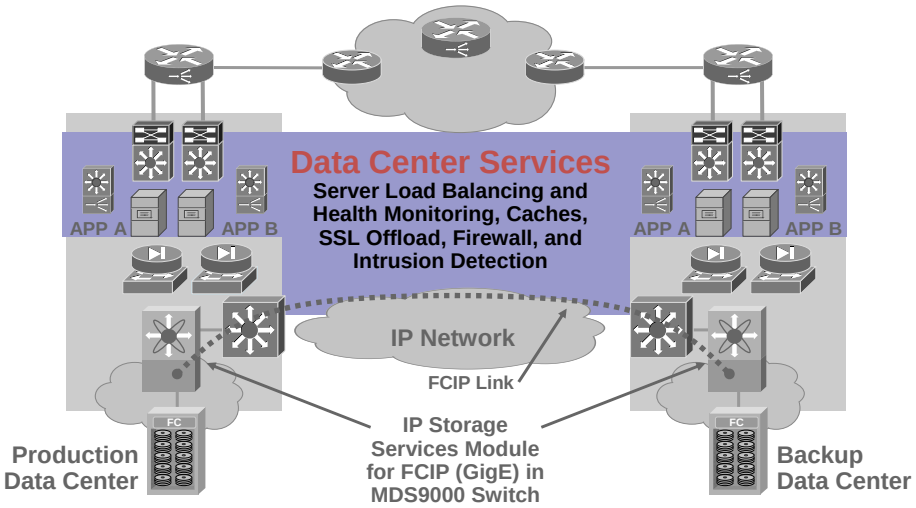
"Silos to Services": Network-Based DC Infrastructure Transformation



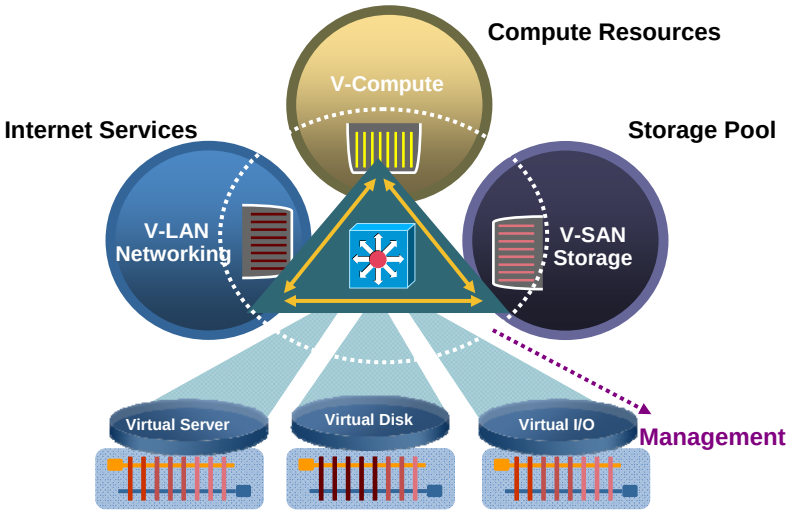
Data Center 3.0 Enablers & Attributes



Distributed Data Centers
Or Virtually Distributed Data Center



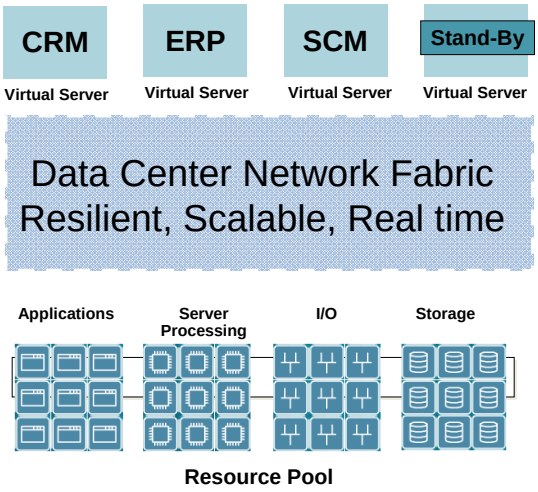
Cisco Network Virtualization Today



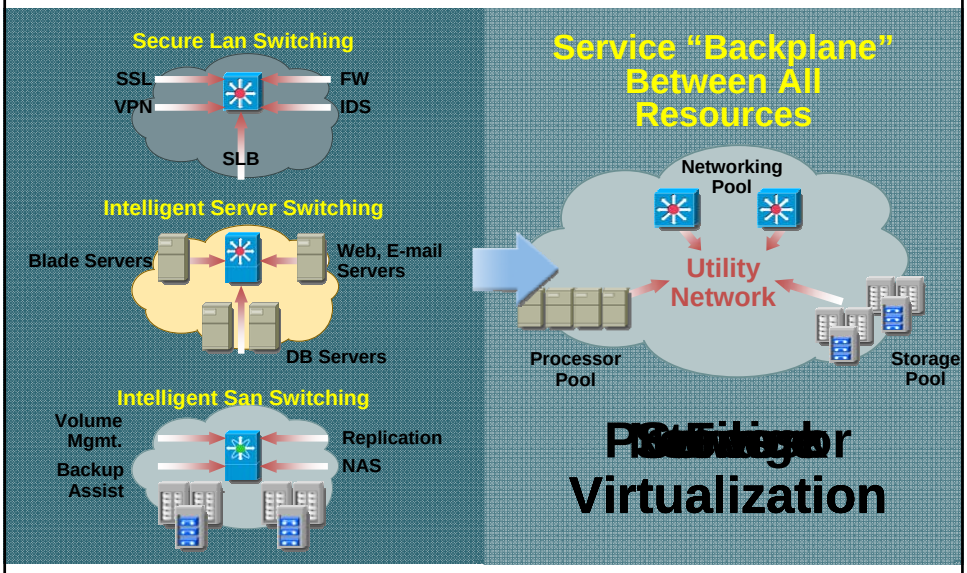
The Data Center 3.0 Foundation

- Massive proliferation of server resources

- Orchestrate pools of compute, storage and I/O
- Based on application, process, or business objectives

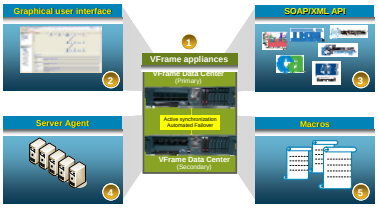


Data Center 3.0: Service Virtualization

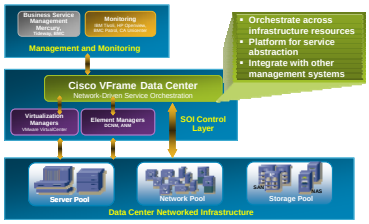


What is VFrame DC?
Service Orchestration or Provisioning

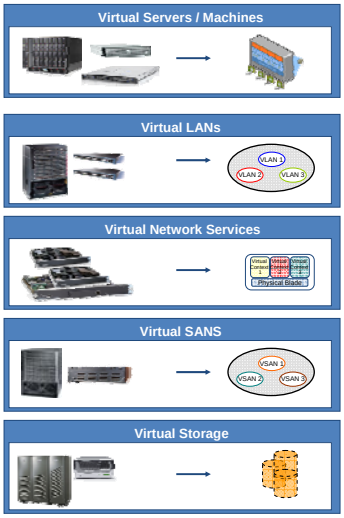
- Hardware appliance
- Java Web Start GUI
- Web Services API
- Server Host Agent
- Extensibility macros



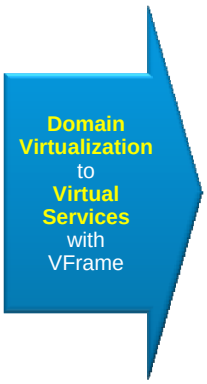
- Rules based infra provisioning
- Design once, deploy many
- Dynamic policy based change
- End to end orchestration
- Enhanced troubleshooting

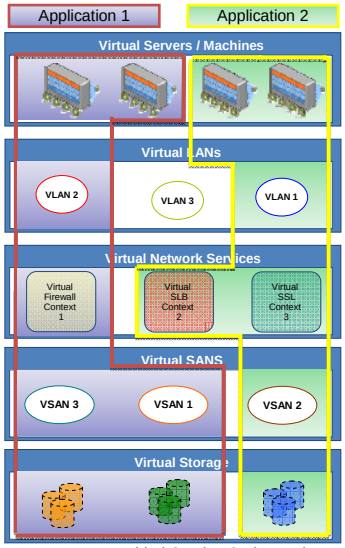


VFrame - Enabling Virtual Services



Traditional Virtualization
Creating a virtual element





VFrame Enabled Service Orchestration
Creating an End-to-End Virtual Service

Data Center Virtualization VMware and Cisco

Network Virtualization

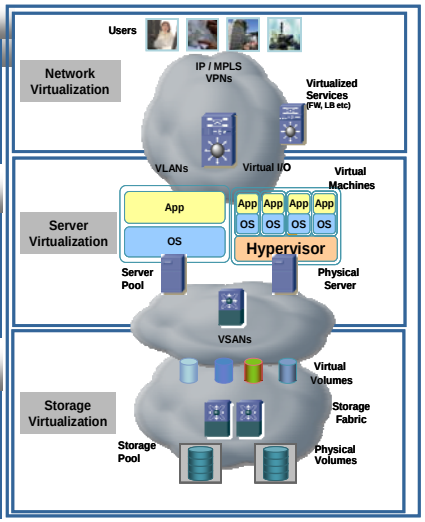
- Segmentation and security
- Higher resource flexibility
- Improved capacity utilization

Server Virtualization

- Consolidation of physical servers
- Virtual Machine mobility-VMotion
- Rapid application deployment with VMs

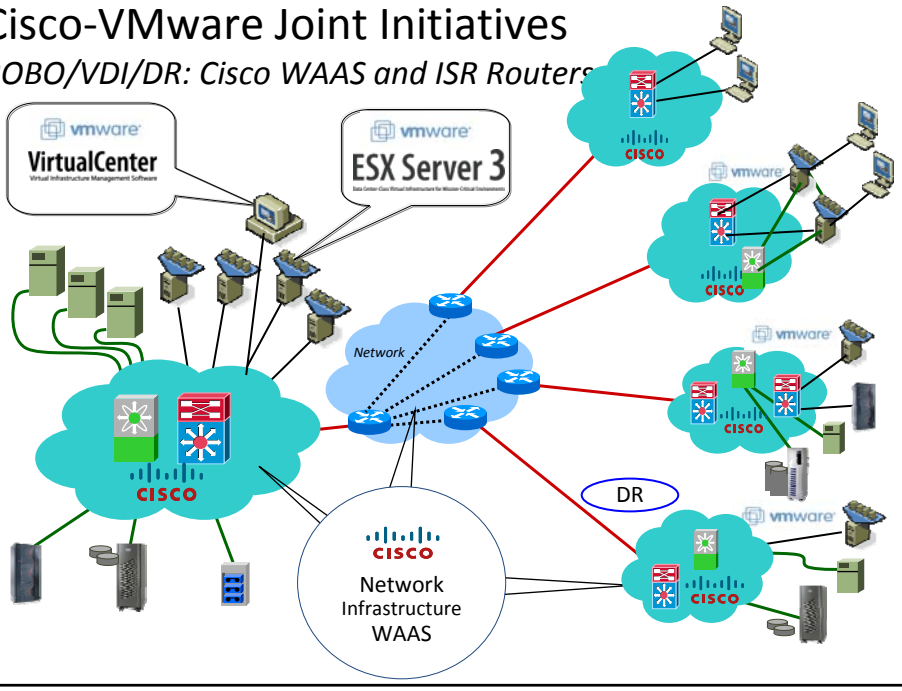
Storage Virtualization

- Segmentation and security
- Improved data mgmt. & compliance
- Non-disruptive provisioning & migration



Cisco-VMware Joint Initiatives

ROBO/VDI/DR: Cisco WAAS and ISR Routers

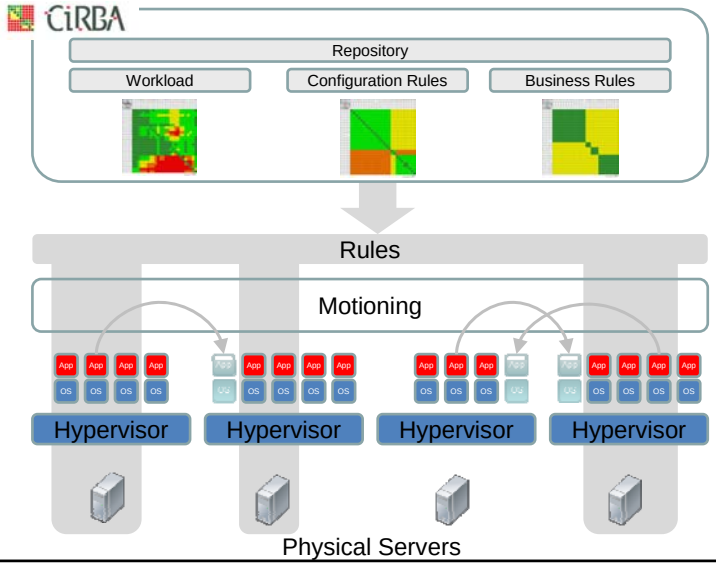


Service Virtualization Infrastructure

Transformation, Consolidation and Virtualization Through Data Center Intelligence

Cisco And Cirba

Managing the Virtualized Environment



Data Center Intelligence

Transformational Analytics
Rapidly analyzes and visually maps the safest path to an optimally transformed data center

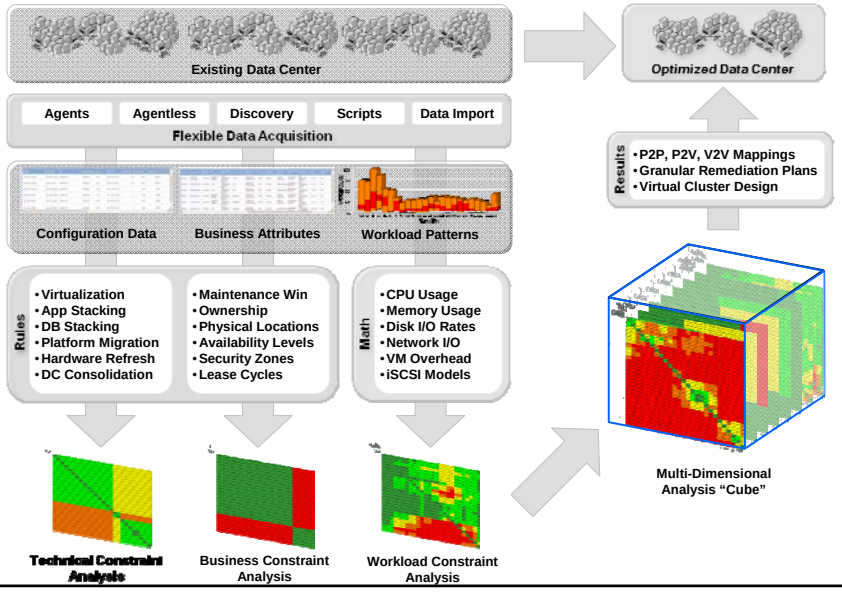
Operational Analytics
Continually audits the environment to maintain the optimal state despite constantly changing constraints and configurations

Technical Constraints

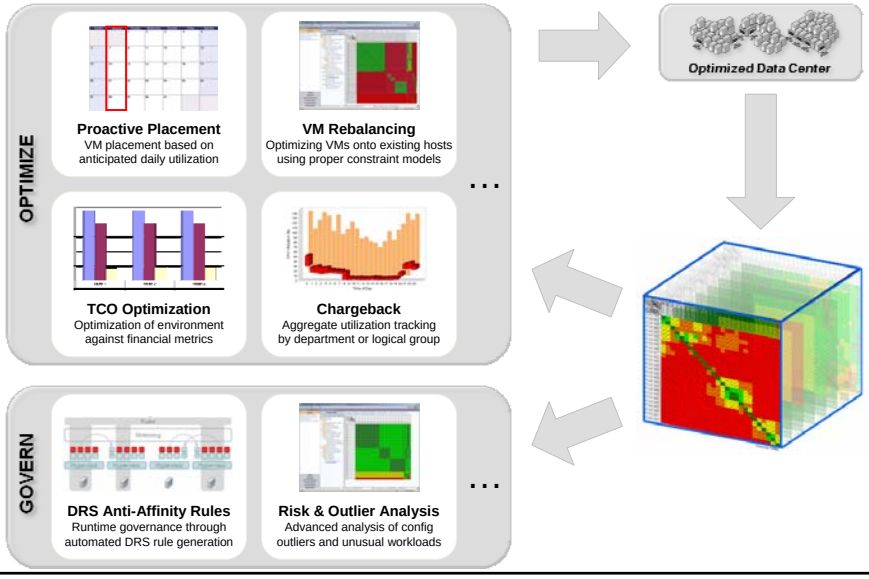
Business Constraints

Workload Constraints

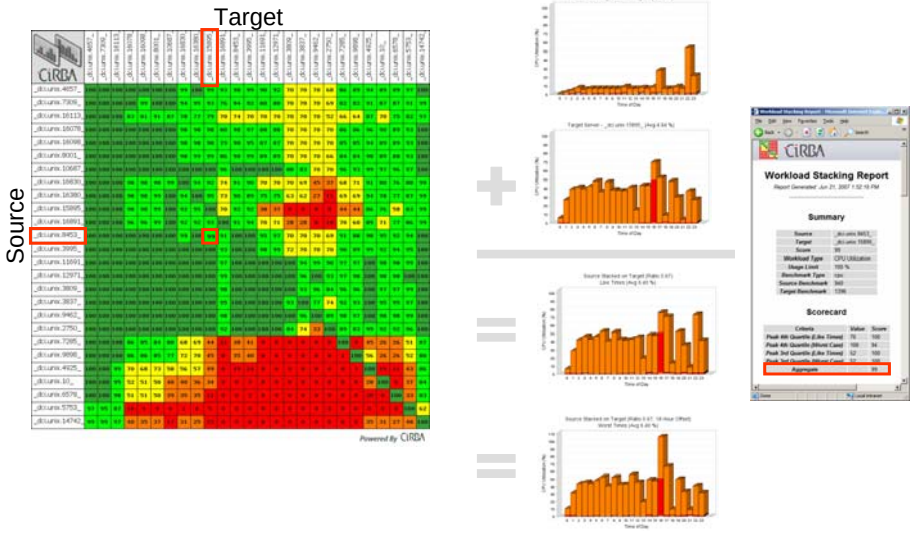
Transformational Analytics



Operational Analytics



How to Read CiRBA Analysis Maps



Benefits of the Cisco & CiRBA Approach

- Cross-platform coverage & enterprise scalability
- Rule-driven multi-strategy approach
- Considers business, process and technical constraints
- Flexible What-If? analysis allows exploration of options
- Unbiased results based on up to date information
- One solution for transformation and ongoing

BEST of Vmworld 2007
Capacity Planning and Server Consolidation Software

#1 on Top 10 List of Virtualization Management vendors to watch in 08

Ten Management Vendors to Watch in 08

Cisco Data Center Services Vision

Evolving Business Model for Services

Business Consultancy

Validated Architectures for Business Applications

Broad services footprint

Project Management

Network Optimization Services

Services Globalization

End-to-end accountability

Customization

Customer Demand

Cisco Solution

Data Center Services

Lifecycle Services Approach

Business Architecture

Technology Architecture

Gathering Business Requirements

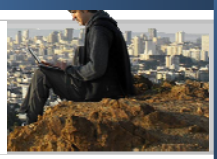
Business Case Development

Recommend Services

Translate Services to Solutions

Offer Technology Options

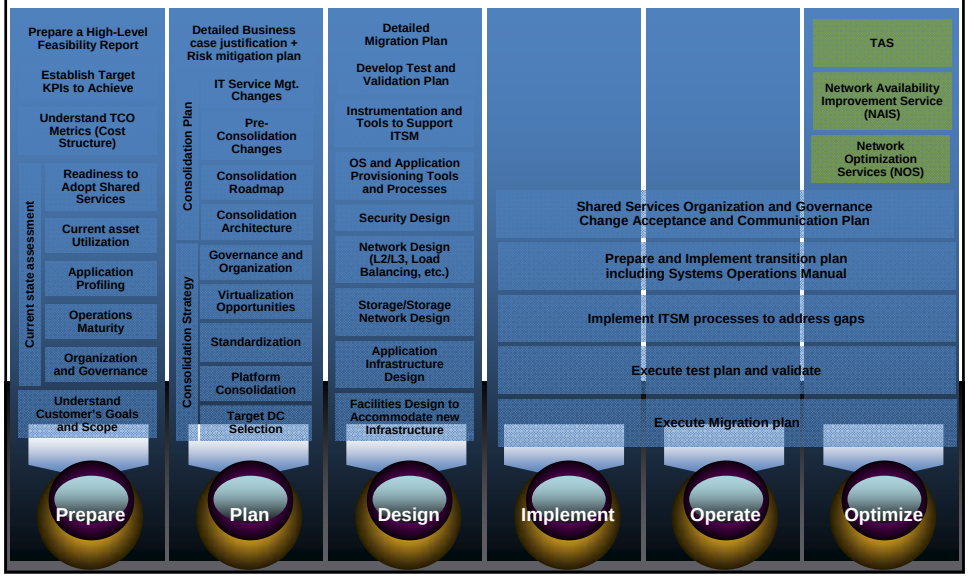
Solution Deployment



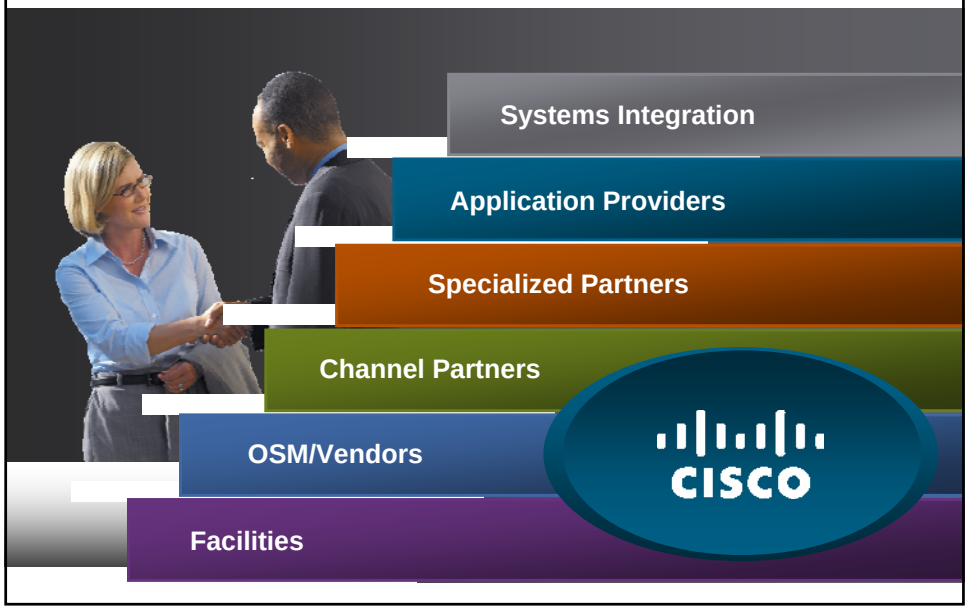
Network as the Platform for Integration

Targeting Optimization of Business Applications!

Data Center Consolidation—Approach



Cisco Partnerships for Data Center Services

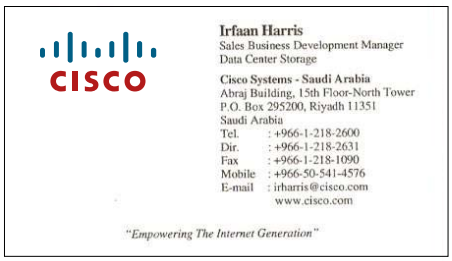


Cisco Saudi Arabia Data Center Team

Sales Support
In Saudi Arabia
(Excludes MEast)

- Irfaan Harris
  Data Center BDM
  Walid Issa
  Consulting Systems Engineer
- Hama Alio
  Muntasir Asad
  Maqsood Siddiqui
  Ahmad Ghannoum
  Systems Engineers Sales
- Ayman Akdar
  Abdulla Ahmed
  Nidal Abu Sadeh
  Eyad Mohammad
  Systems Engineers Channel

Q and A



CISCO

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E-mail : irharris@cisco.com
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Cisco HPC & Top Tier Server Vendors

- Cisco has built relationships with server vendors to deliver integrated HPC and cluster solutions, jointly testing for solution delivery

Cisco Data Center Storage Partners

Storage Manufacturers and Integrators

IBM
hp invent
EMC² where information lives
Sun microsystems
DELL
HITACHI Inspire the Next
FUJITSU COMPUTERS SIEMENS
NetApp

Cisco Networking Business Relationships

CSI1

Internet Communications Software

ORACLE
OPENWAVE
Sun microsystems

Technology Developer Partners

at&t
PANDUIT
hp invent
viola
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equant
Sprint
CEON

Internet Business Solutions

TIBCO
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IBM

Strategic Alliances

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SIEMENS
ITALTEL
Capgemini
hp invent
accenture
Microsoft

CISCO

KNOWLEDGENET
SkillSoft
Asoelta
IBM
azlan
Global Knowledge
TP TRAINING PARTNERS

TREND MICRO
McAfee SECURITY
ca Computer Associates
IBM
symantec.

Learning Partners

at&t
NORTHROP GRUMMAN
FORSYTHE
INGRAM MICRO
Tech Data
comstor

Network Security

EDS
Microsoft
UNISYS
Telcordia Technologies
IBM
NCR
accenture
Capgemini

Distribution

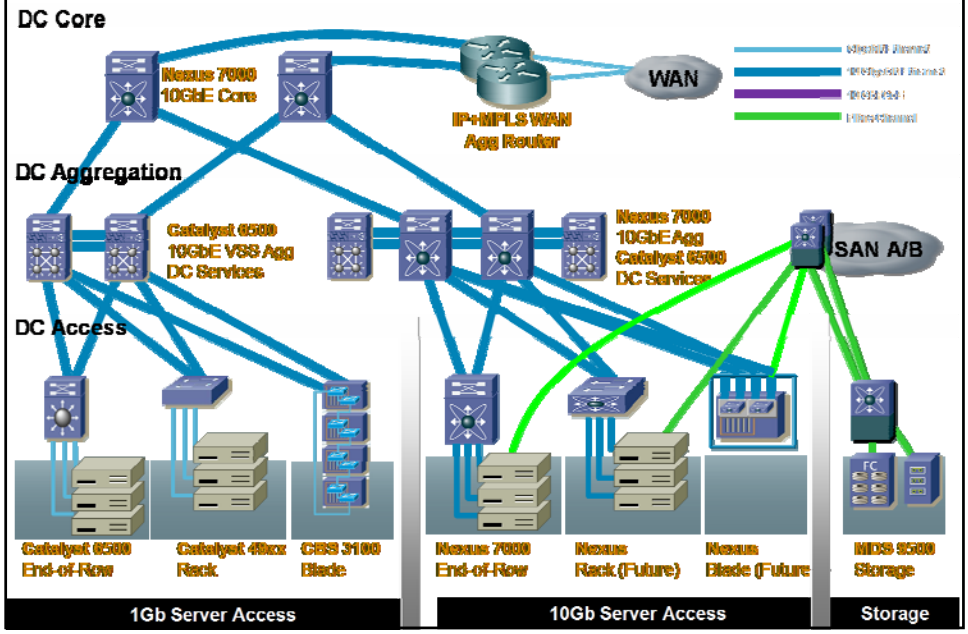
Professional Services

Slide 46

CSI1 I think equant has changed names--is it Orange Business Services now?

Cisco Systems, Inc., 2/28/2007

Data Center 3.0 Infrastructure Portfolio



A Comprehensive Portfolio for Data Center 3.0 Revisted

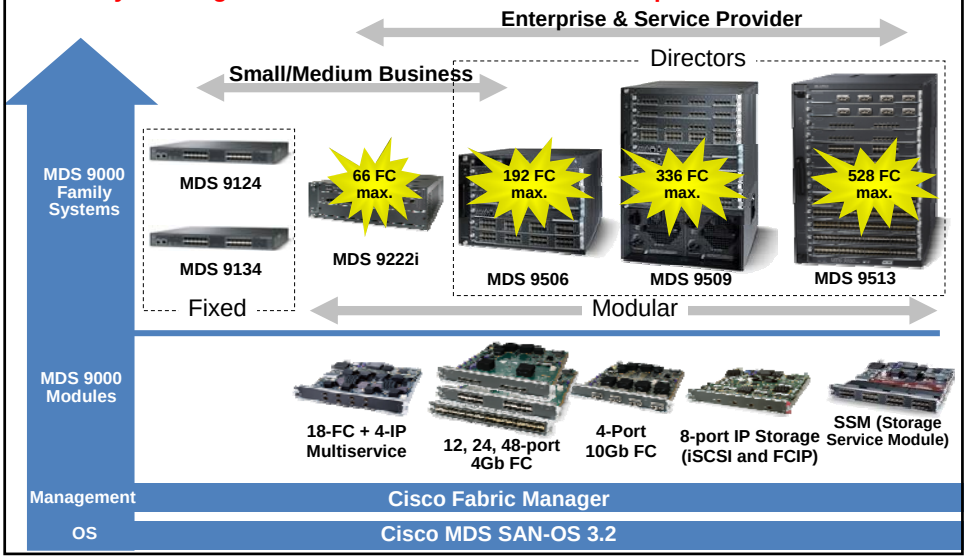
Unified Fabric Networking	Ethernet Networking	Storage Networking	Application Network Services	High Performance Computing	Data Center Security
Nexus 5000 and 7000 Modular Switching System (Unified Fabric ready)	Nexus 7000 Nexus 5000 Catalyst® 6500 Series Catalyst 4900M Top-of-Rack Catalyst Blade Server Switches	MDS 9500 Storage Directors MDS Fabric Switches Blade Switches (Unified Fabric ready)	ACE Application Delivery – Module and Appliance Wide-Area Application Services ACE XML Gateway	Nexus 5000 7000 Modular Switching System SFS 7000 Infiniband Switch SFS 3000 Infiniband GTWY	Firewall Services Module Intrusion Detection System Module Web Application Firewall

Data Center Provisioning — VFrame Server/Service Provisioning System

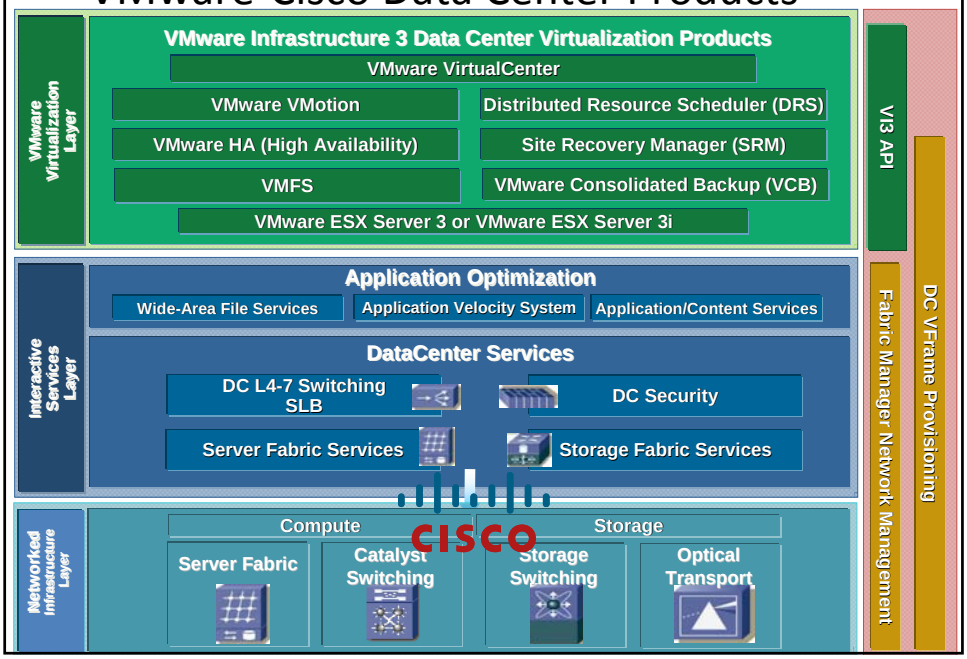
Data Center Management — Data Center Network Manager– Topology Visualization and Provisioning; ANM– Advanced L4-7 Services Module Management

MDS 9000 Storage Networking Products
Redefining Data Centre Scalability

Industry-Leading Investment Protection Across a Comprehensive Product Line



VMware-Cisco Data Center Products



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