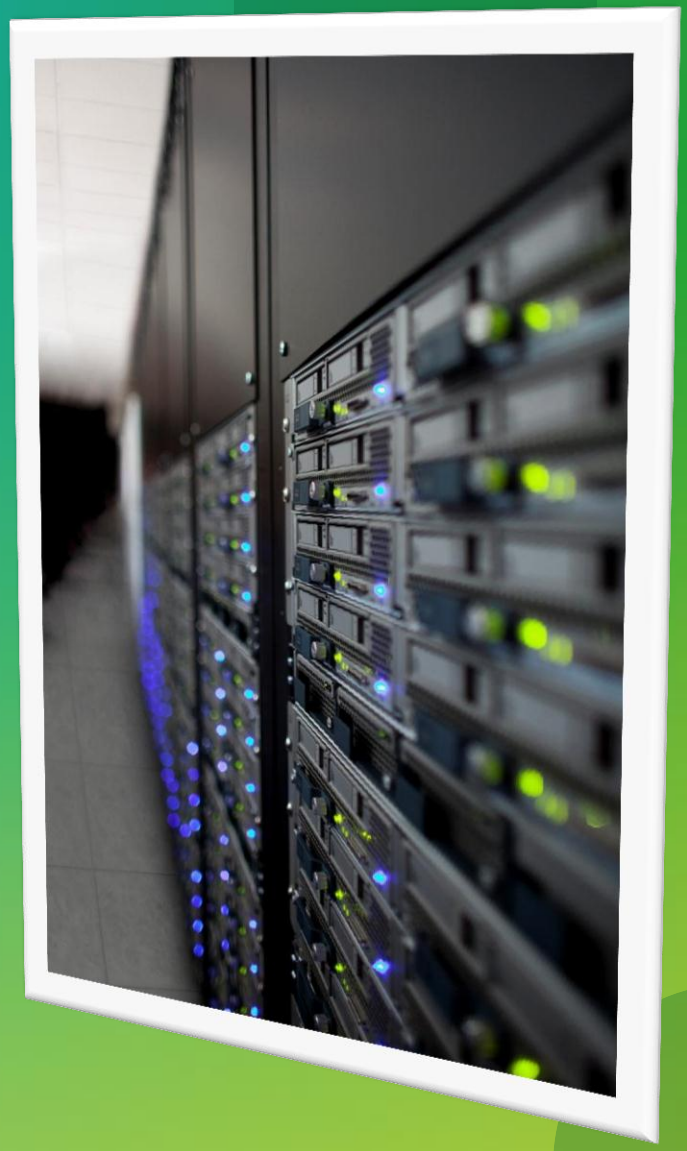
Cisco Data Center



Pablo Mollinger – Cisco Chile

Julio 2012

El objetivo: Entregar IT como servicio

Objetivos → Oferta de TI → Servicios on Demand

Personas, procesos, tecnología

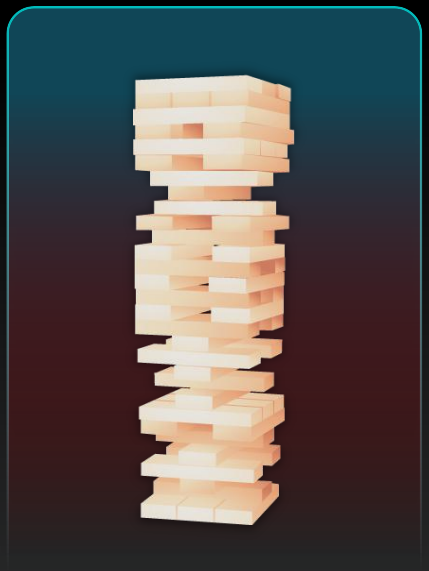
- Aplicaciones tradicionales
- Aplicaciones virtualizadas
- Cloud Computing
- Computación basada en el usuario final

El objetivo: Entregar IT como servicio

Objetivos → Oferta de TI → Servicios on Demand

Personas, procesos, tecnología

Infraestructura tradicional Convergente



Capas de software para hacer que cosas discimiles se puedan operar en conjunto

Infraestructura convergente = Capas de software




El objetivo: Entregar IT como servicio

Objetivos

Oferta de TI

Servicios on Demand

Personas, procesos, tecnología

Unificación

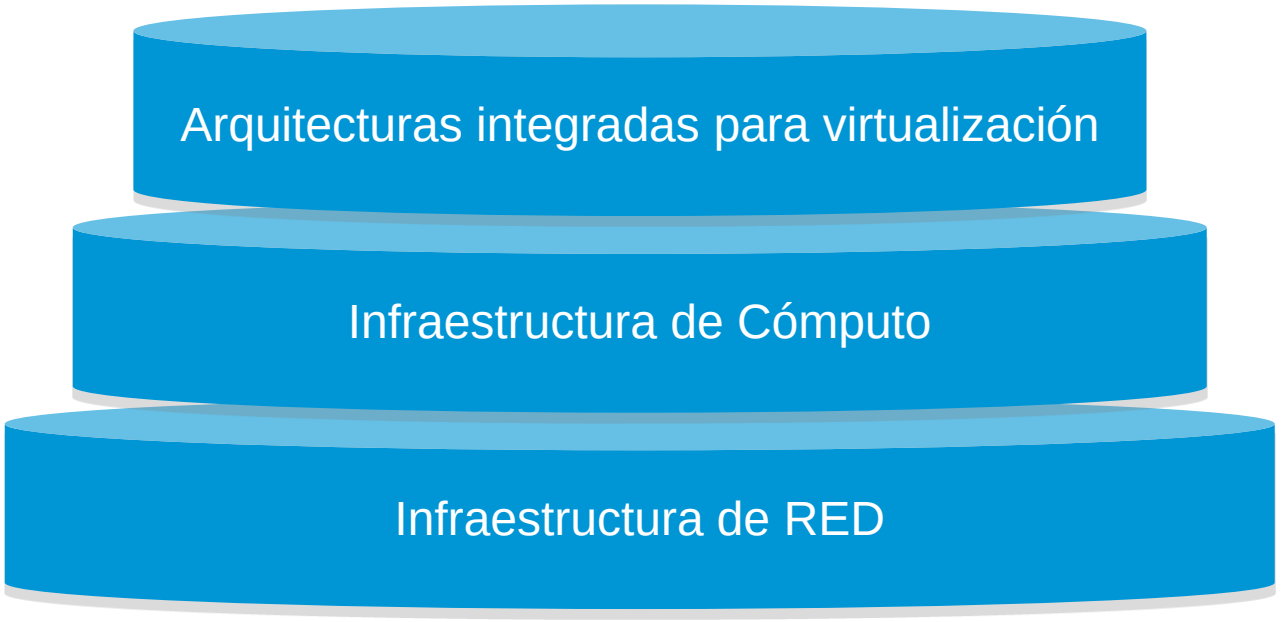
por diseño

Agenda

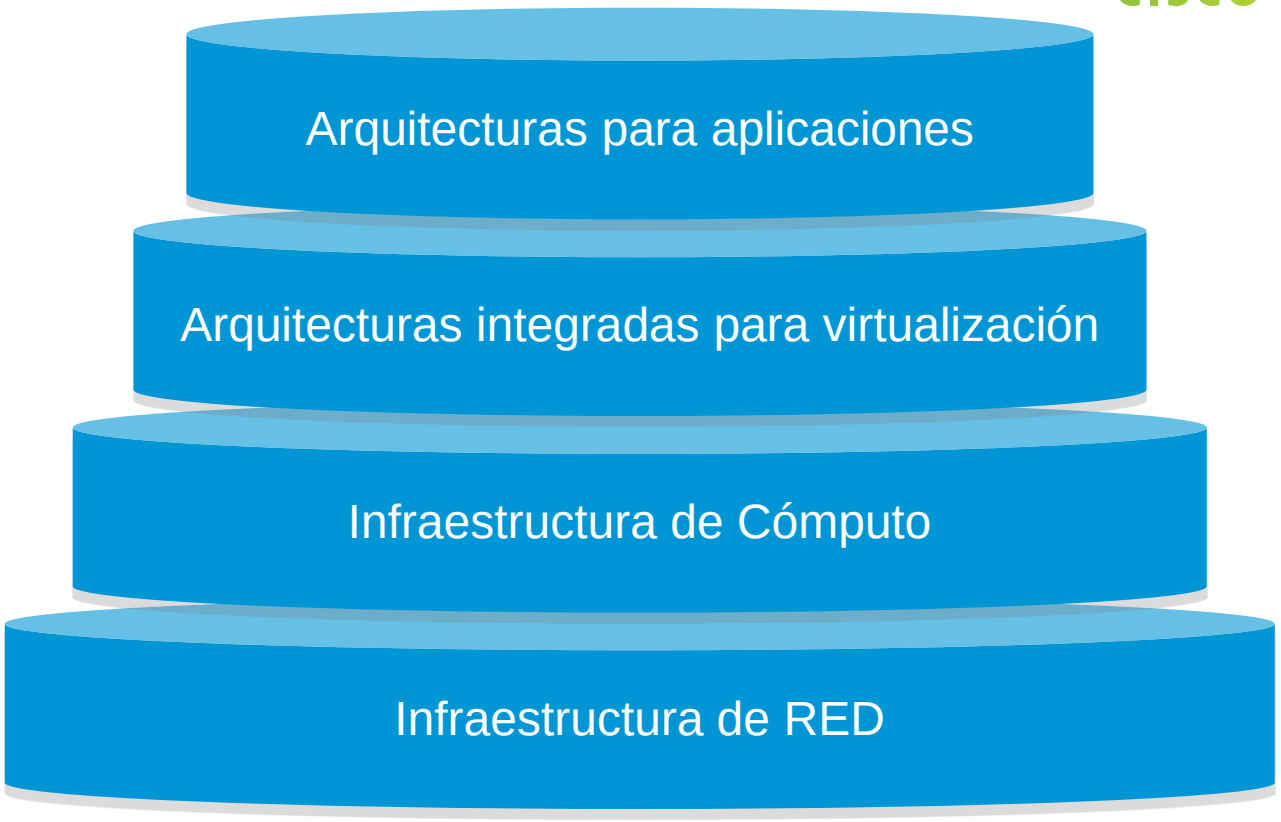
Infraestructura de RED

Agenda

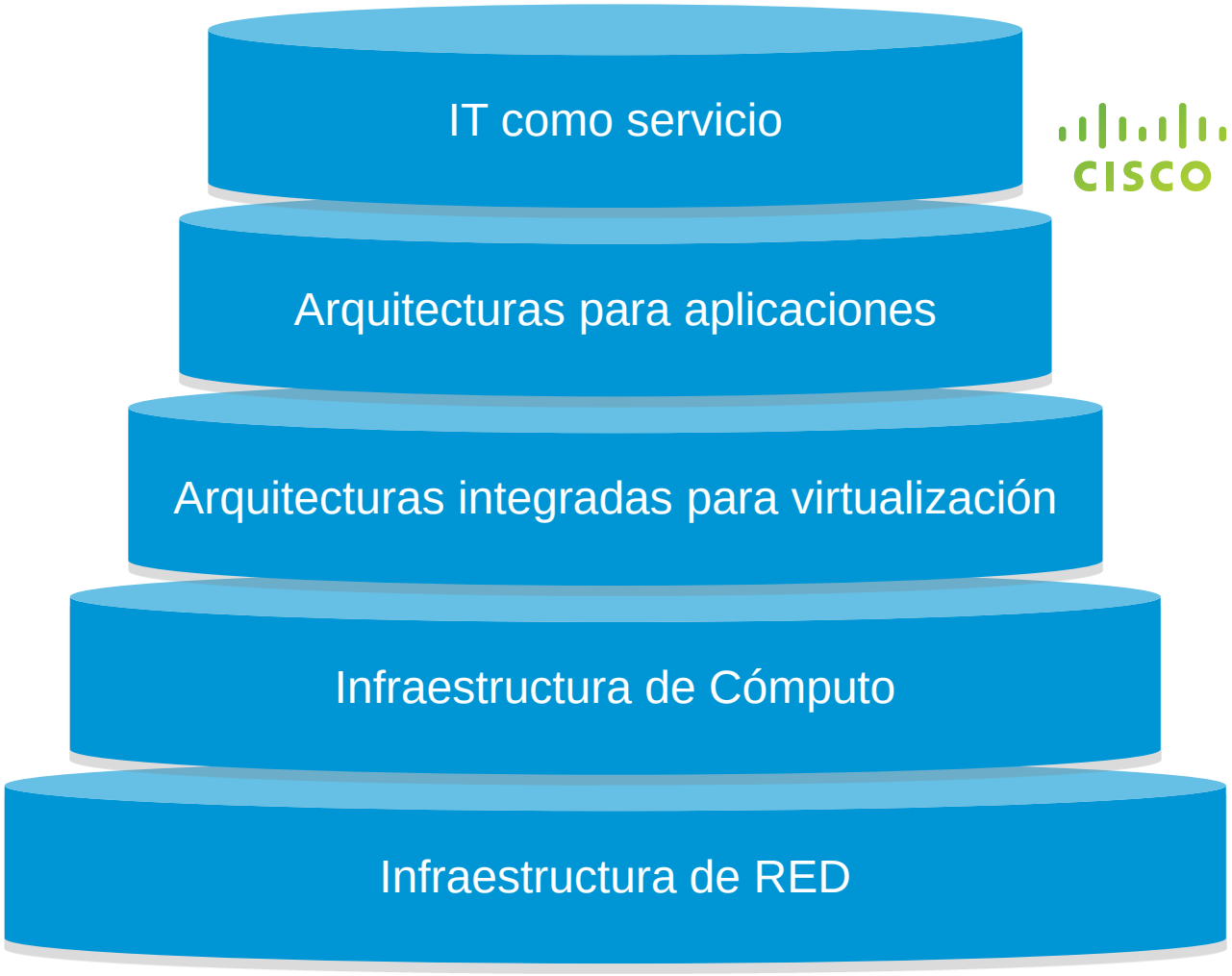
Agenda



Agenda



Agenda



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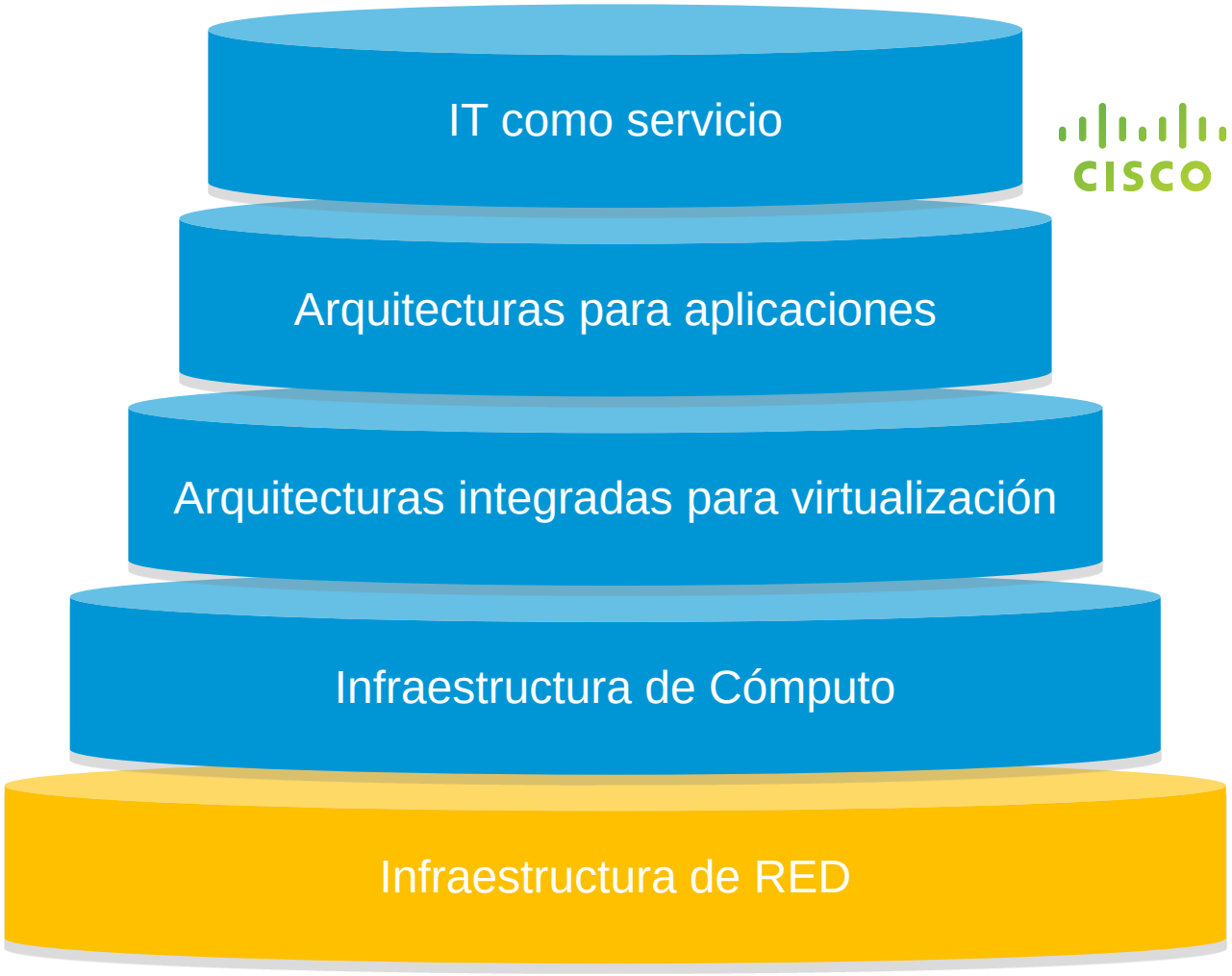
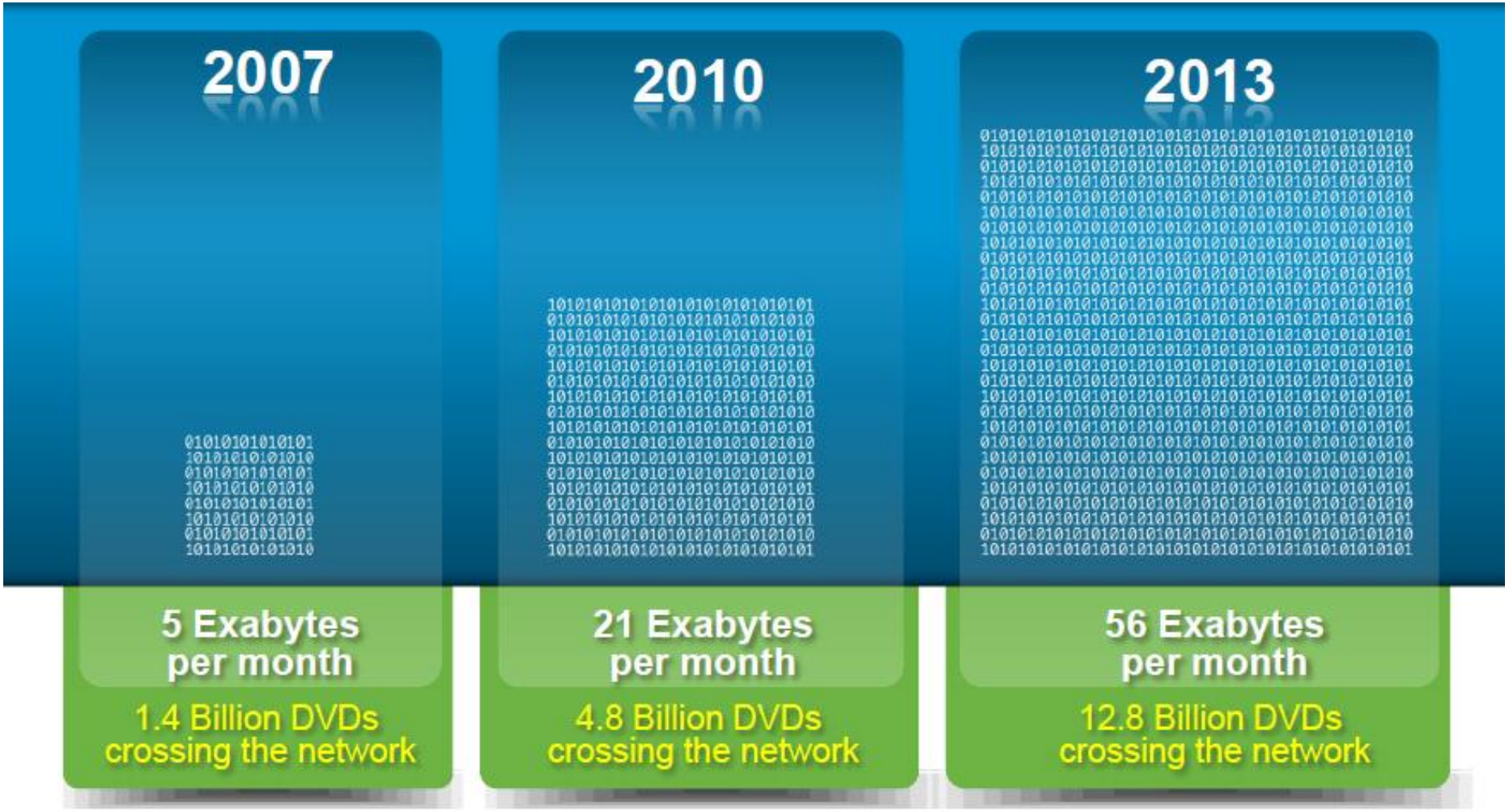
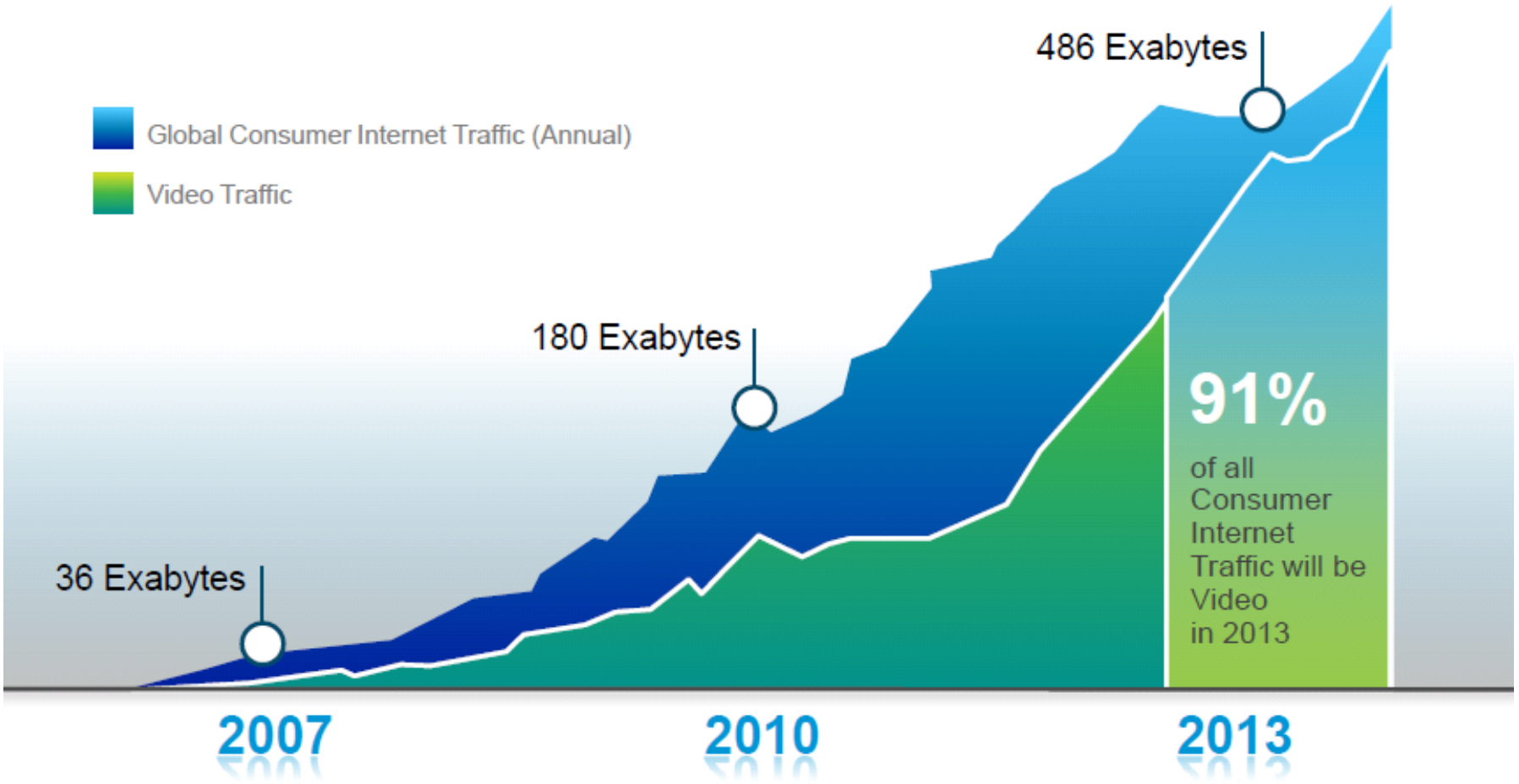




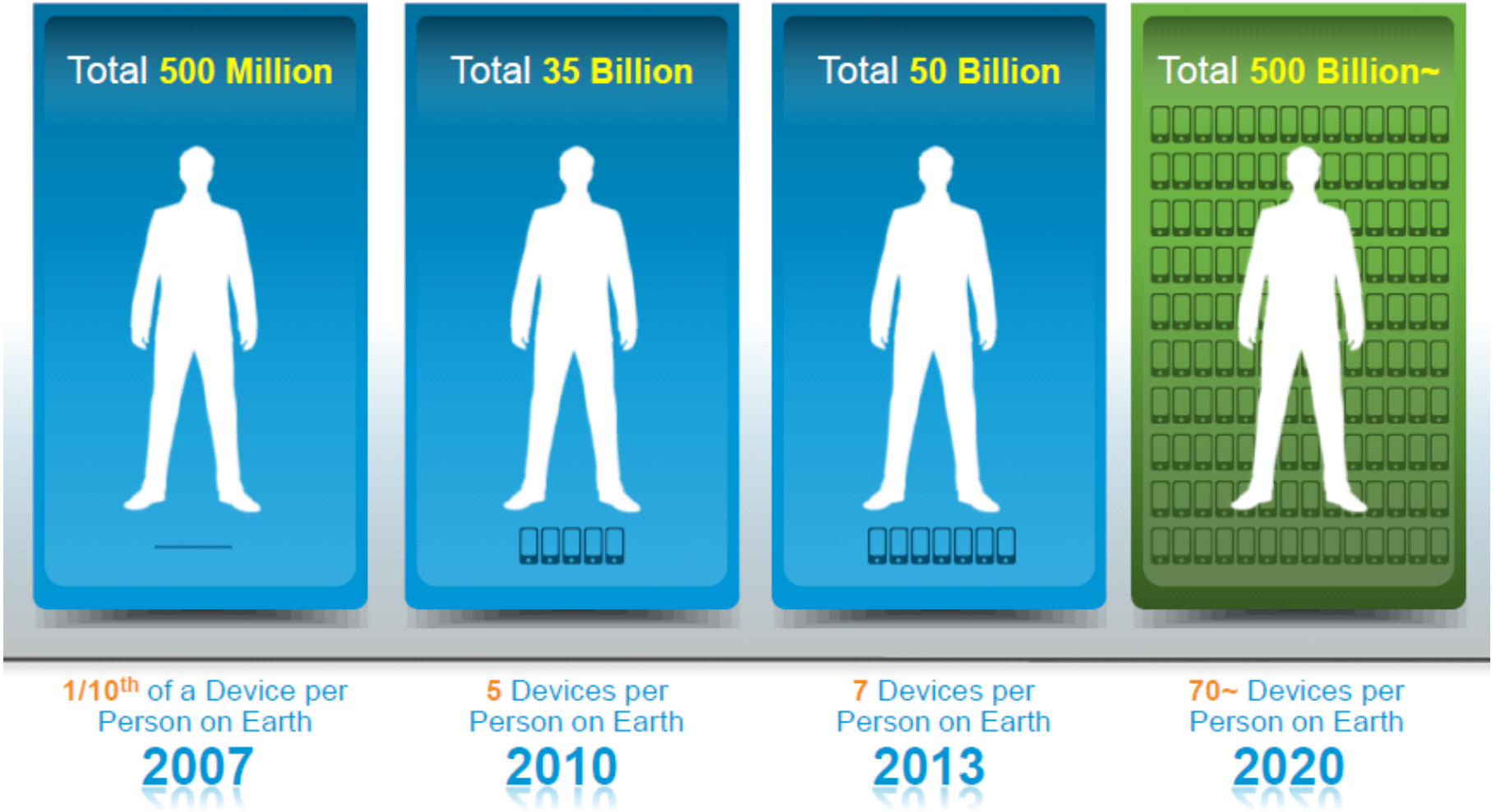
Source: Cisco Visual Networking Index

91 % del tráfico de Internet será video



Source: Cisco Visual Networking Index

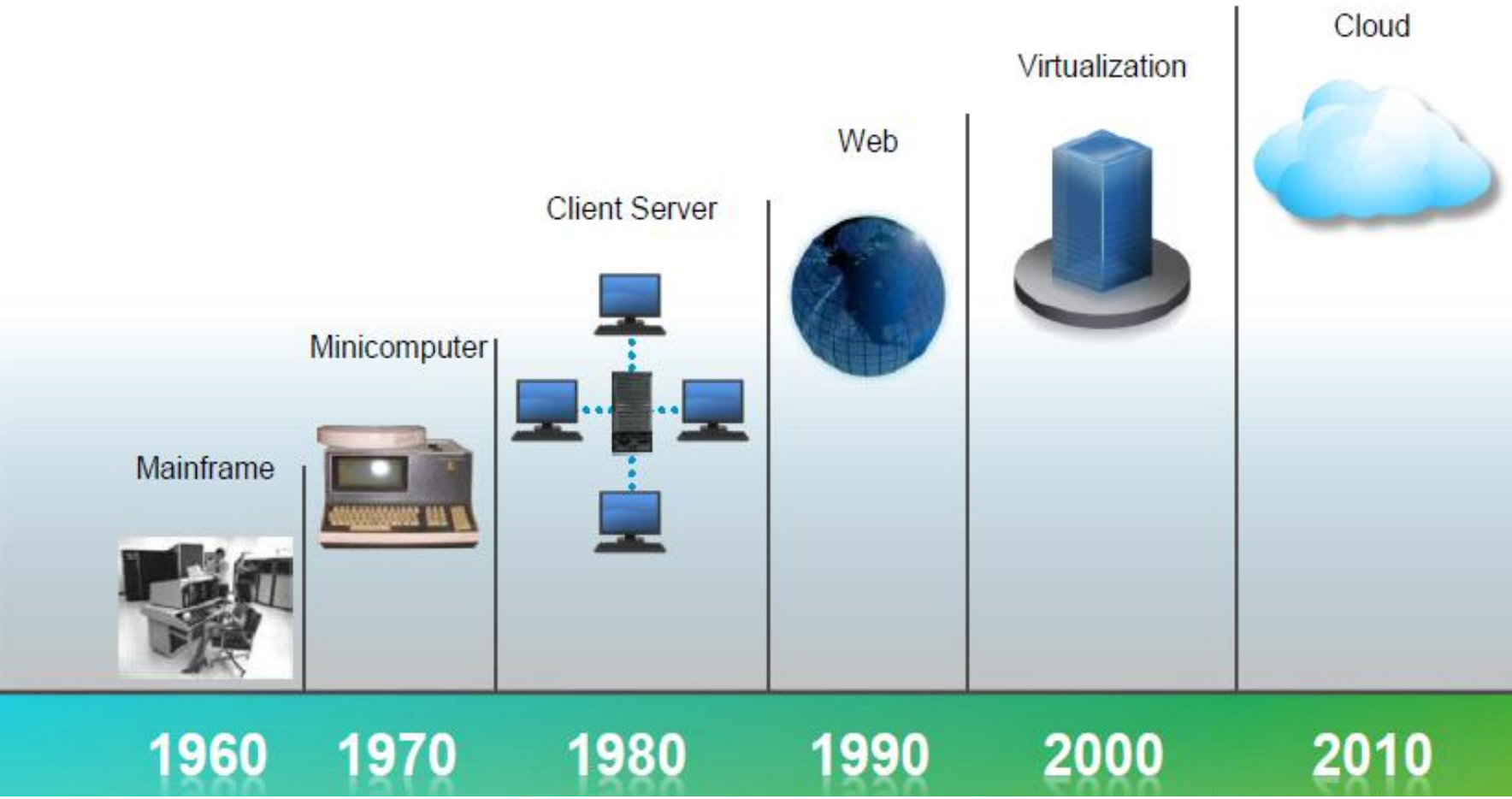
Dispositivos conectados



Source: Forrester Research, Cisco IBSG

Reference: J. Rabaey, "A Brand New Wireless Day," Keynote Presentation, ASPDAC Jan. 2008

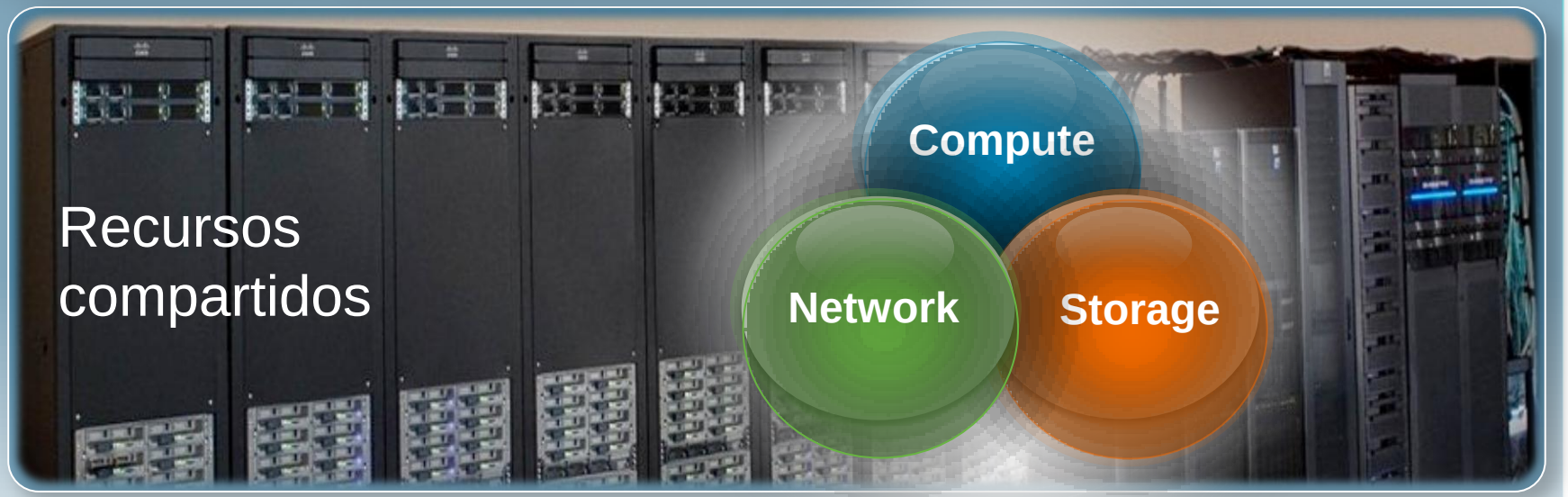
Respuesta


Cloud
Virtualization
Web
Client Server
Minicomputer
Mainframe
1960
1970
1980
1990
2000
2010

El poder del Cloud
Recursos de TI entregados como servicio

Entregado como servicio

Atributos
- Ante demanda, autoservicio
- Uso medido
- Elastico
- Entregado via la red



Vision del Fabric del Cisco Data Center

Flexible, Alta Capacidad, Seguro, Infraestructura Compartida

Muy Integrado con la Red, Storage, Computo y Servicios de Aplicacion

Abierto

- FabricPath/TRILL
- LISP
- 802.1Qbh
- XML
- FC/FCoE

Seguro

- Roles-based access
- Cisco TrustSec
- Virtual Security Gateway

Resilente

- In Service Software upgrades
- NX-OS architecture
- Integrated WireShark

Integrado

- Network Convergence
- Unified Computing
- Integrated IaaS stacks (Vblock, FlexPod)

Escalable

- 1G → 100G
- 15,000 1GbE ports
- 10,000+ 10GbE ports
- 320 blades/system
- 1000+ VM/system
- Low latency

Flexible

- Topology Independent
- Architecture Independent
- Customer Choice

Data Center Fabric: Flexible y Escalable

Tradicional

Topological Approach

Enterprise, SMB

100s – 1,000s
servers per POD

Spanning Tree

PODs Escalables

Fabric Extension &
switch scaling

Enterprise, SMB, HPC

100s - 10,000s
servers per POD

Virtual Port Channel

Fabric Flexible

Multipathing

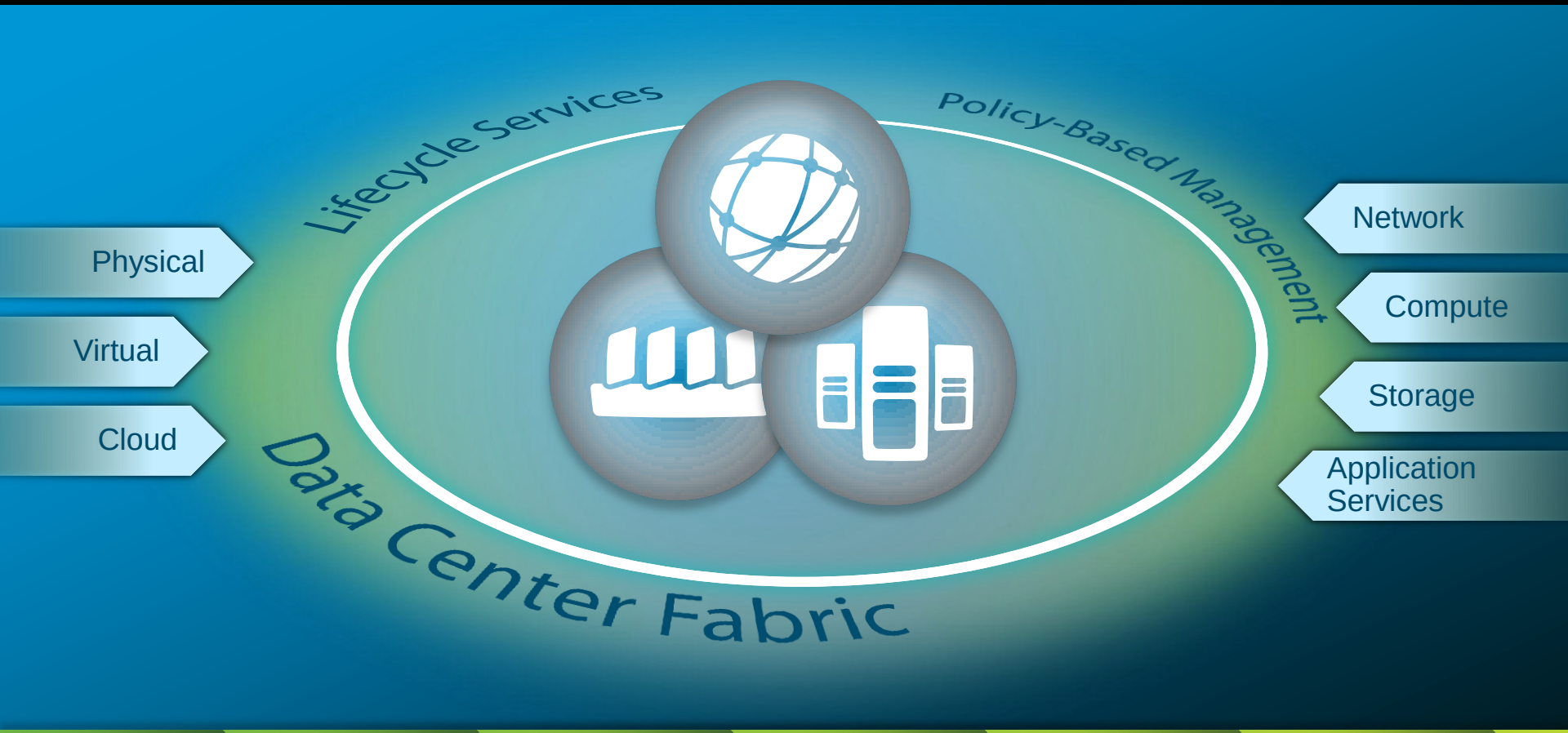
Cloud providers, large DC

10,000s - 100,000s
servers per POD

FabricPath

Cisco's Holistic Fabric-based Approach

Hi-performance Infrastructure Delivering Architectural Flexibility



OPEN | INTEGRATED | FLEXIBLE | SCALABLE | RESILIENT | SECURE

Cisco Unified Fabric
Continued Architectural Innovation

2012

CONVERGENCE

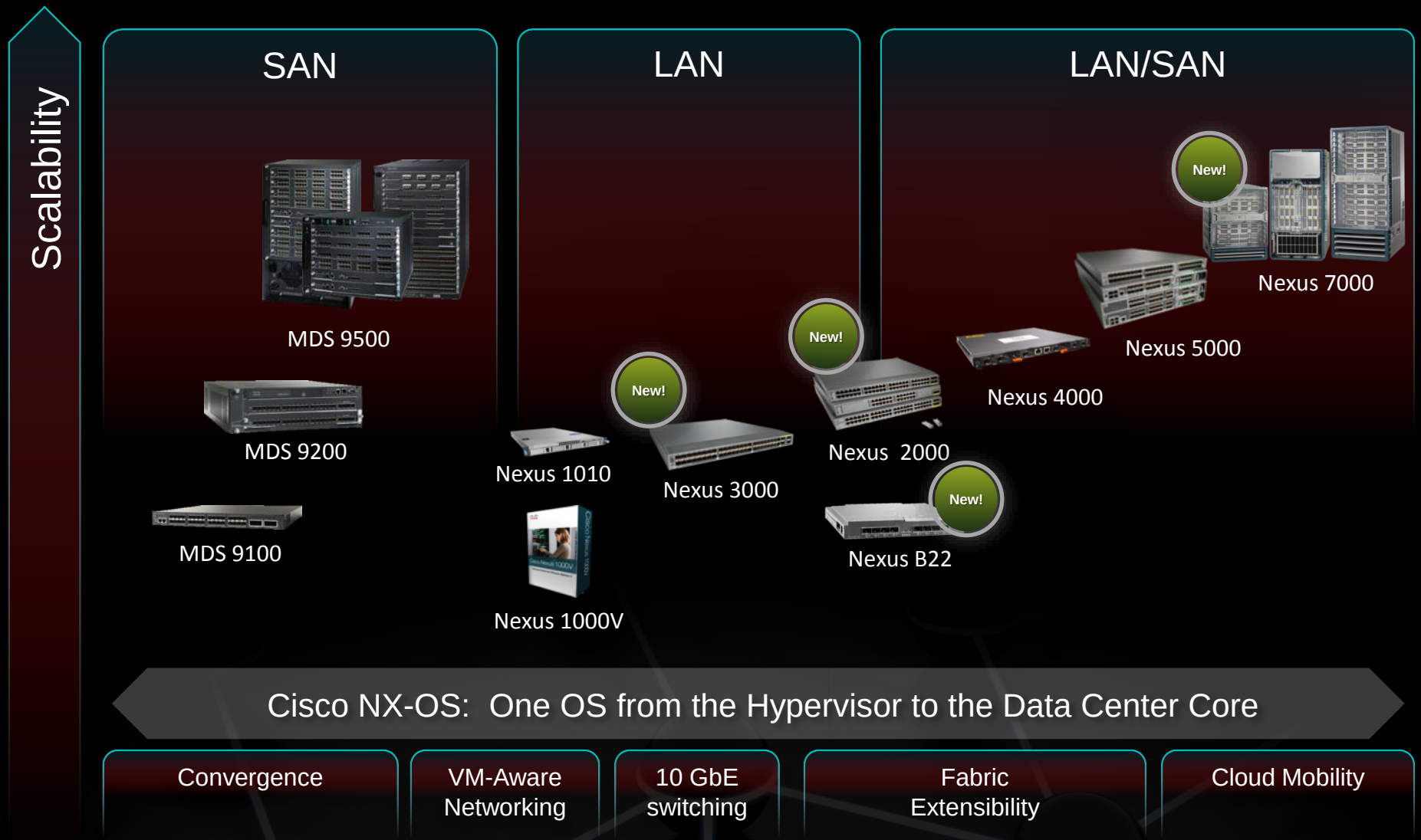
SCALE

INTELLIGENCE

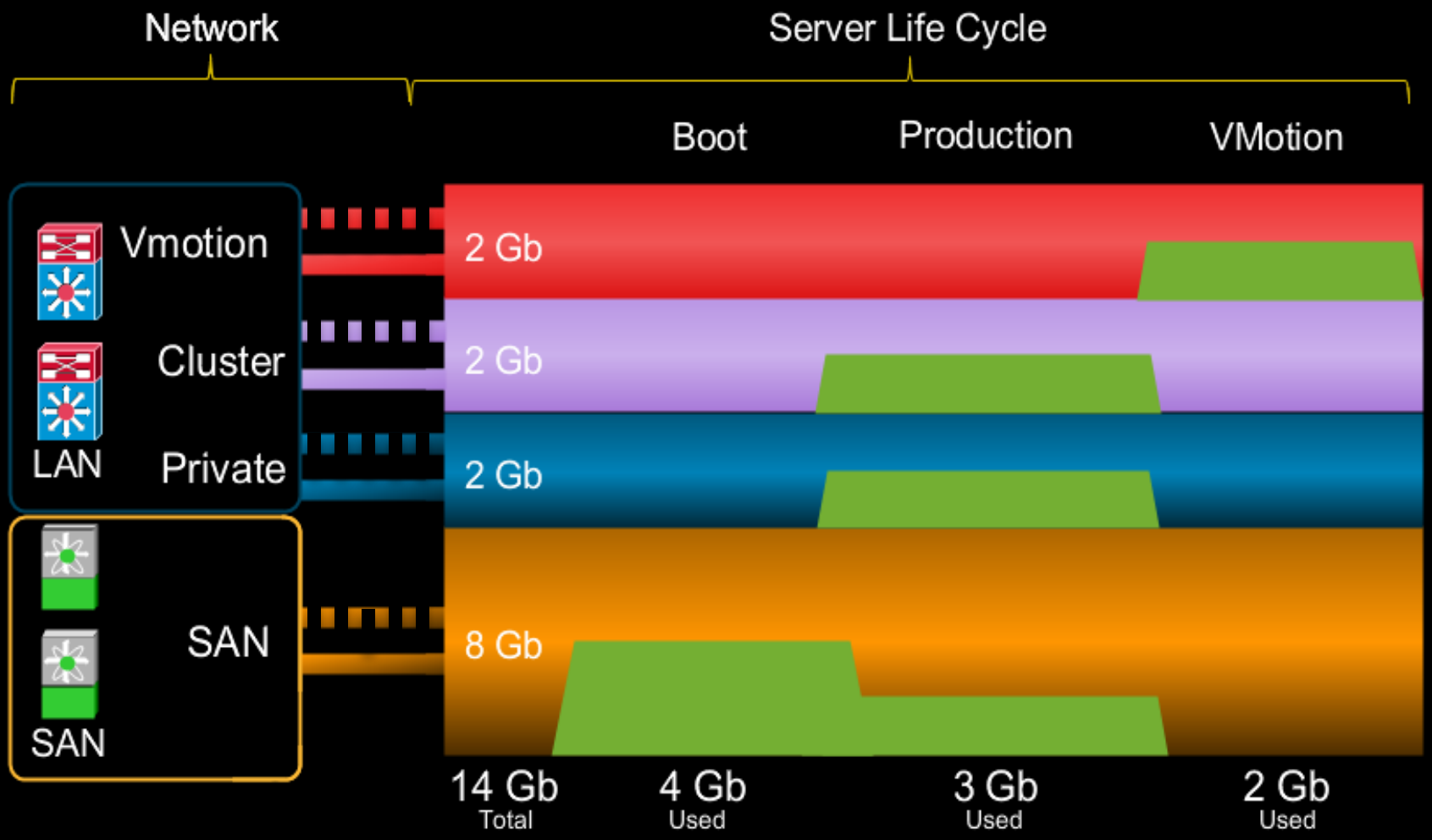
2008

VXLAN	VM Segmentation & Mobility
Unified Ports	Deployment Flexibility
FabricPath	Architectural Flexibility
OTV/LISP	Scalability & Mobility
FEX	Simplified Management
VM-FEX	VM-Aware Networking
DCB/FCoE	Consolidated I/O
vPC	Active-Active Uplinks
VDC	Virtualizes the Switch

Cisco Unified Fabric Switching Portfolio

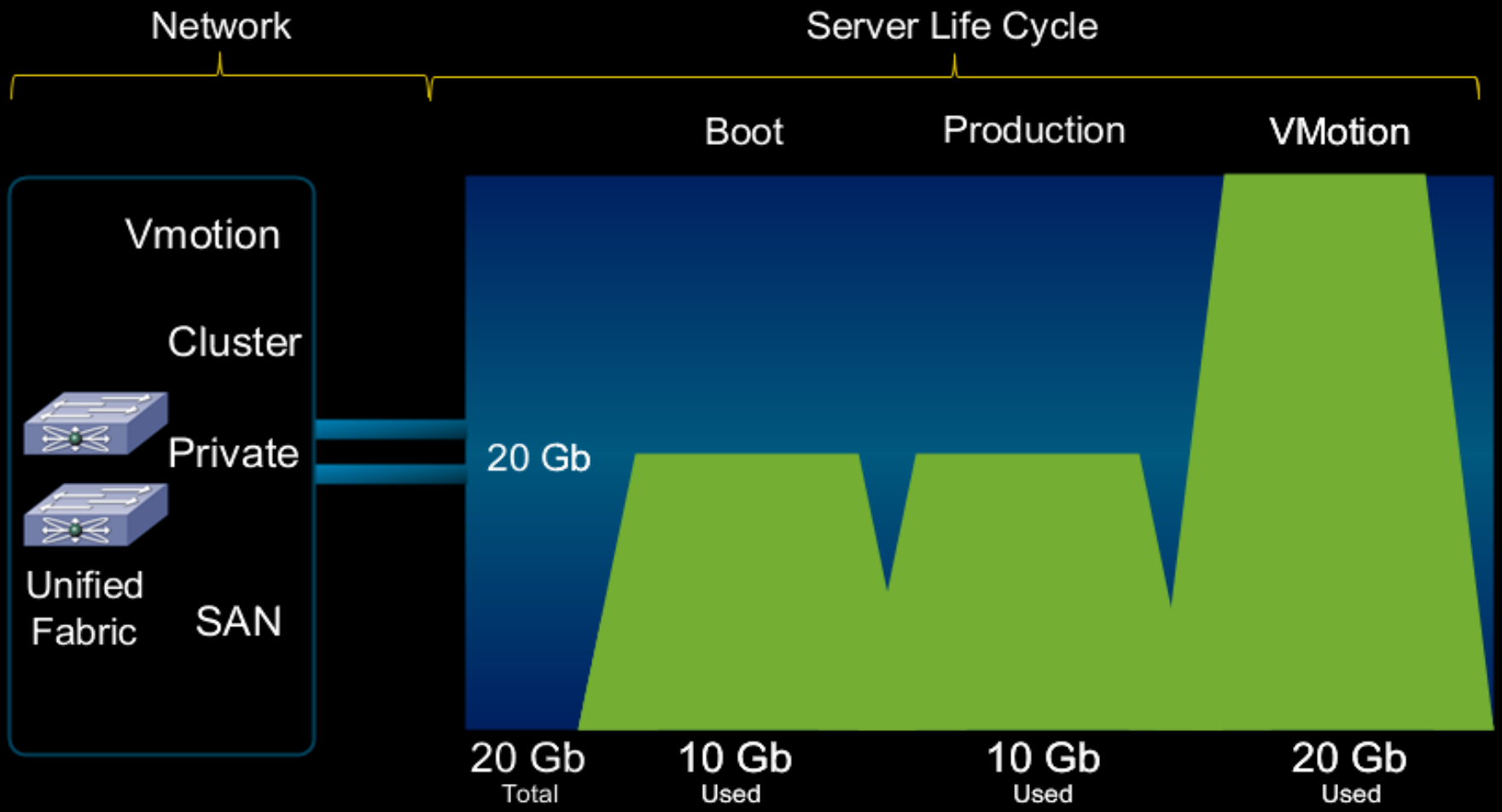


Fabric Tradicional



Recursos ociosos, Alto Costo. La mitad del ancho de banda no se usa

Fabric Unificado



Menos Costos: La mitad de los switches, ¼ de adaptadores, menos costos en cableado
Más capacidad, desempeño y flexibilidad

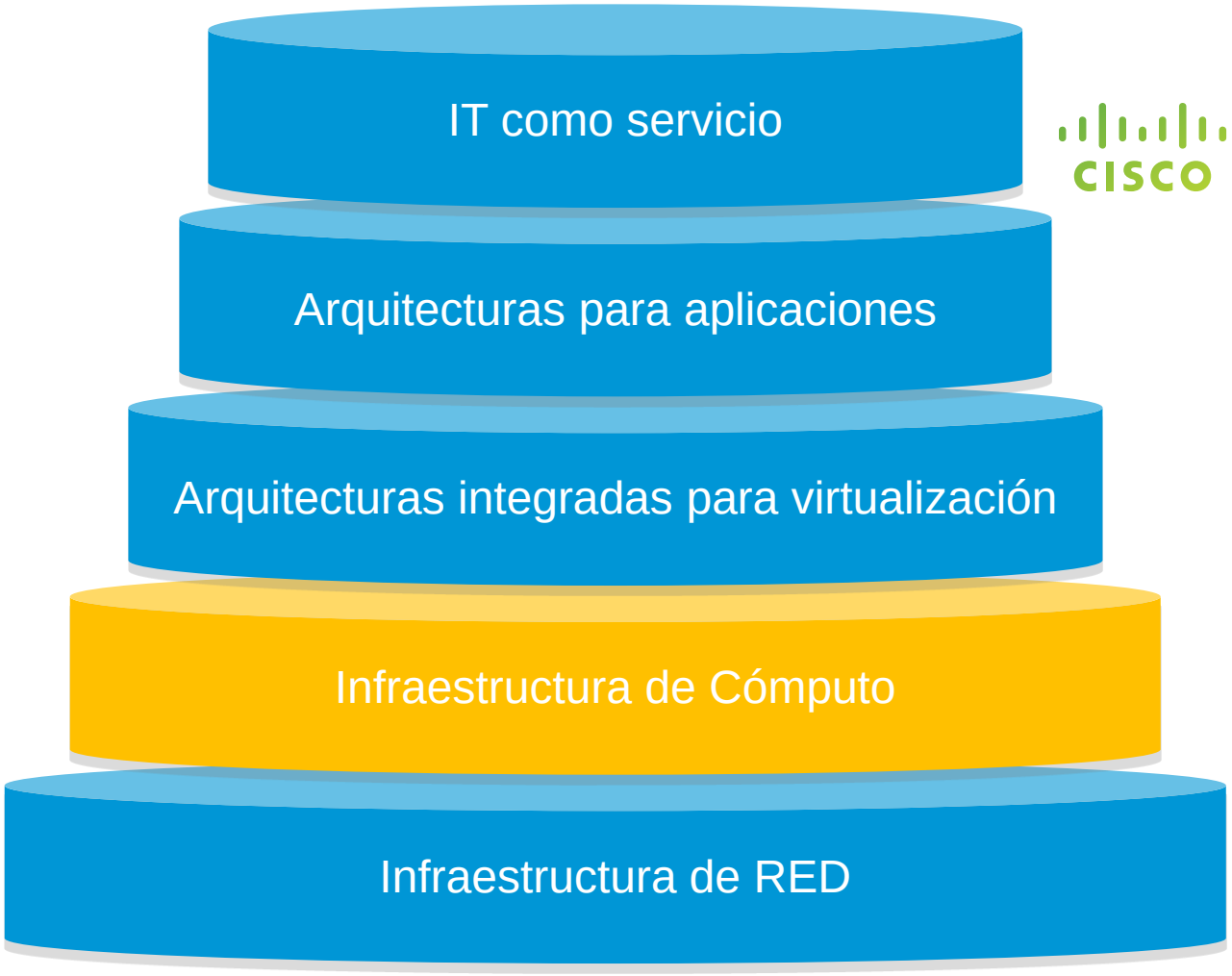
Comparación (mismo ancho de banda)

Cisco Unified Computing System

Blade Chassis

86% de reducción de cables respecto a tecnología tradicional 1gbps / FC

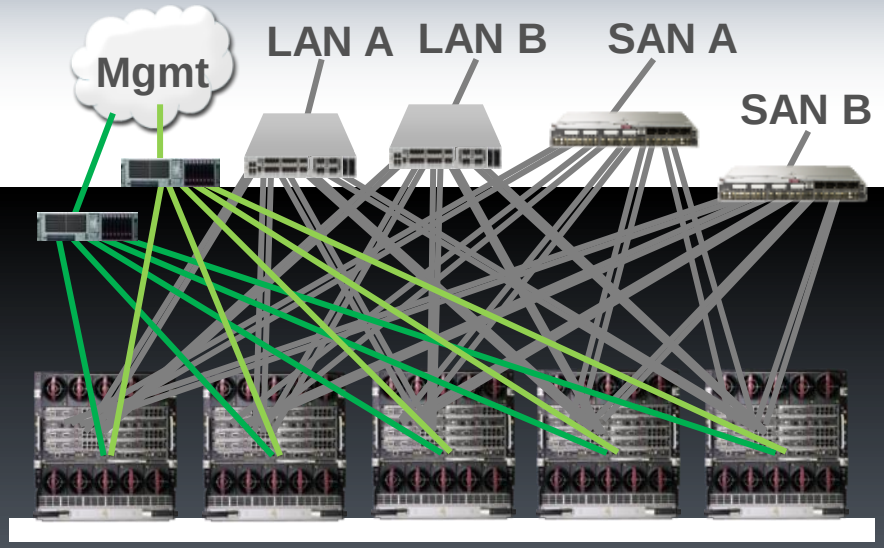
Agenda



El Concepto de Fabric Computing

Legacy

MULTIPLES REDES, MULTIPLES PUNTOS DE ADMINISTRACION



Server = Application

Inefficient | Complex | High Cost | Fragile

Each enclosure burdened with HW, FW, Cables for Management. Why?

UCS

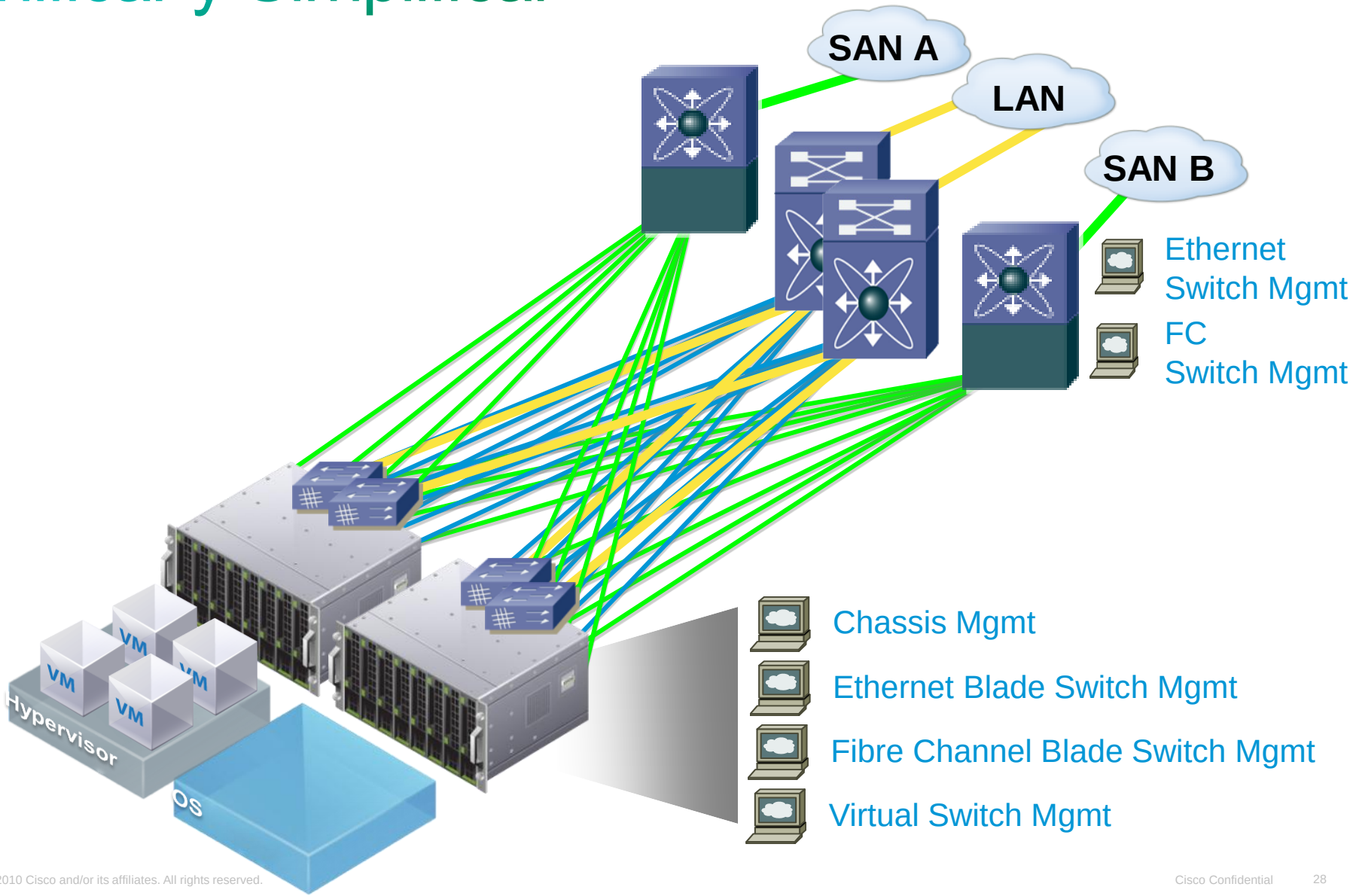
LAN, SAN, MANAGEMENT UNIFICADOS

Server = Pool of Resources

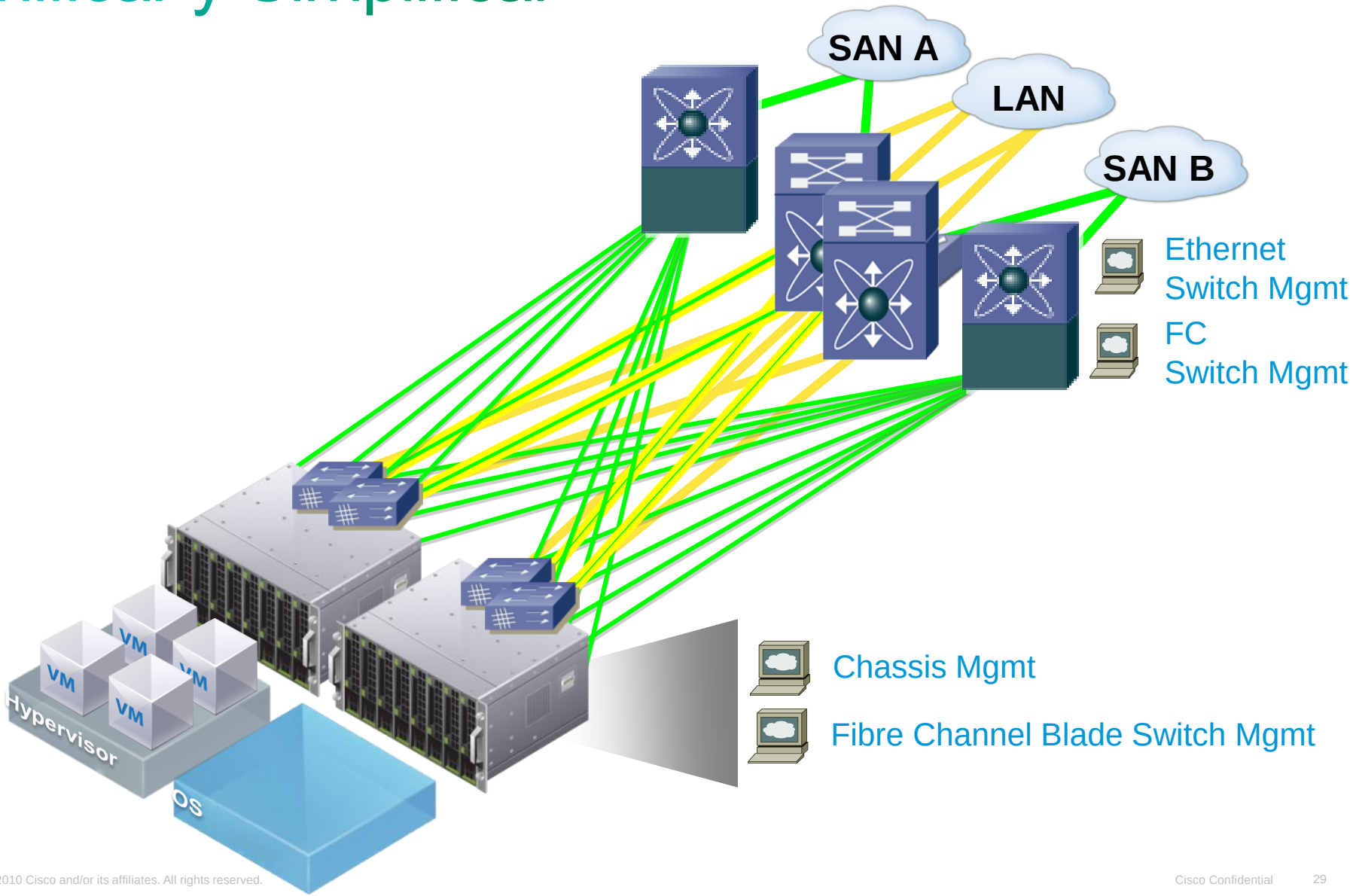
Efficient | Agile | Transformative

Higher Availability, Fewer Connections, Easy HW addition. Flexibility

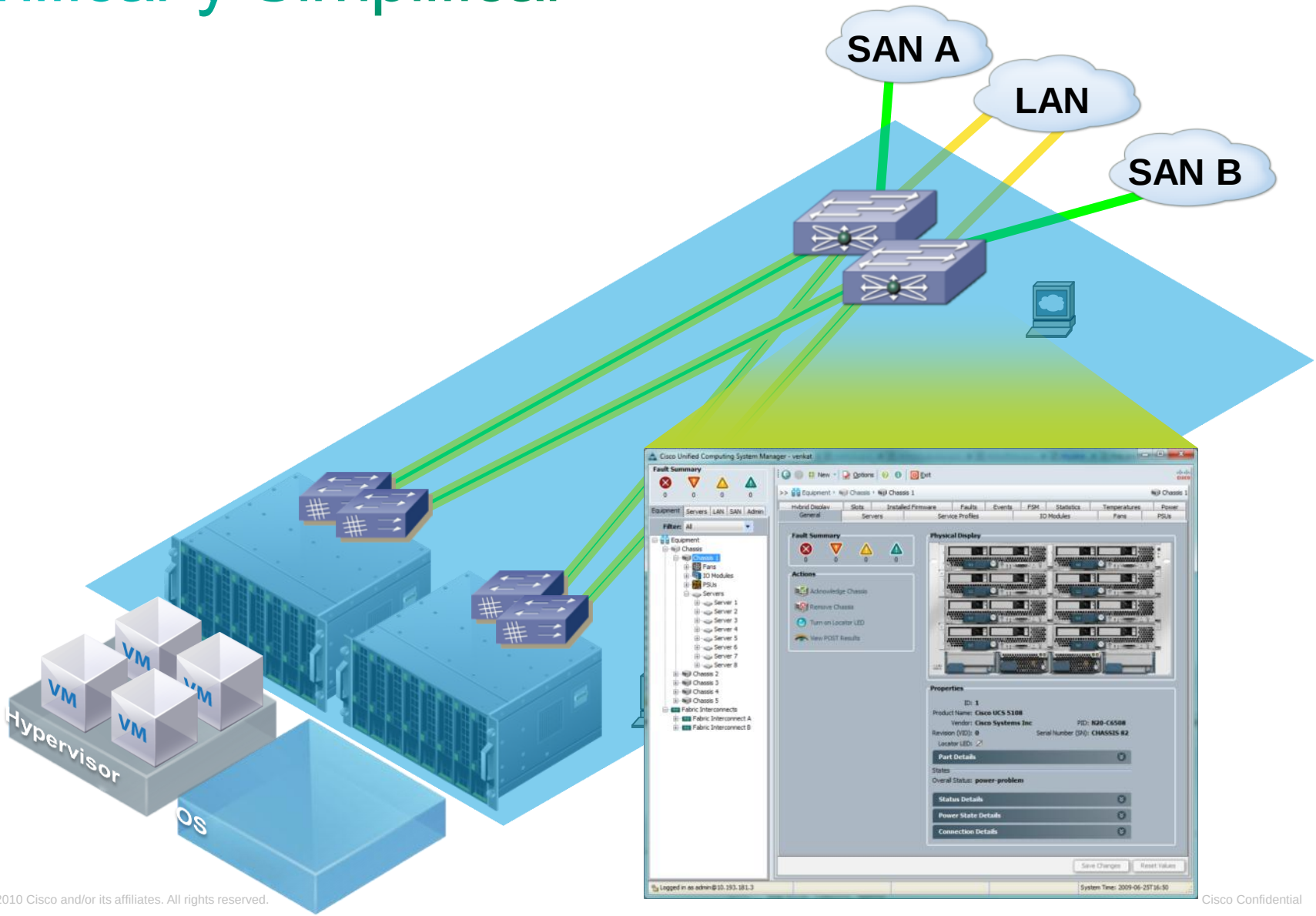
Unificar y Simplificar



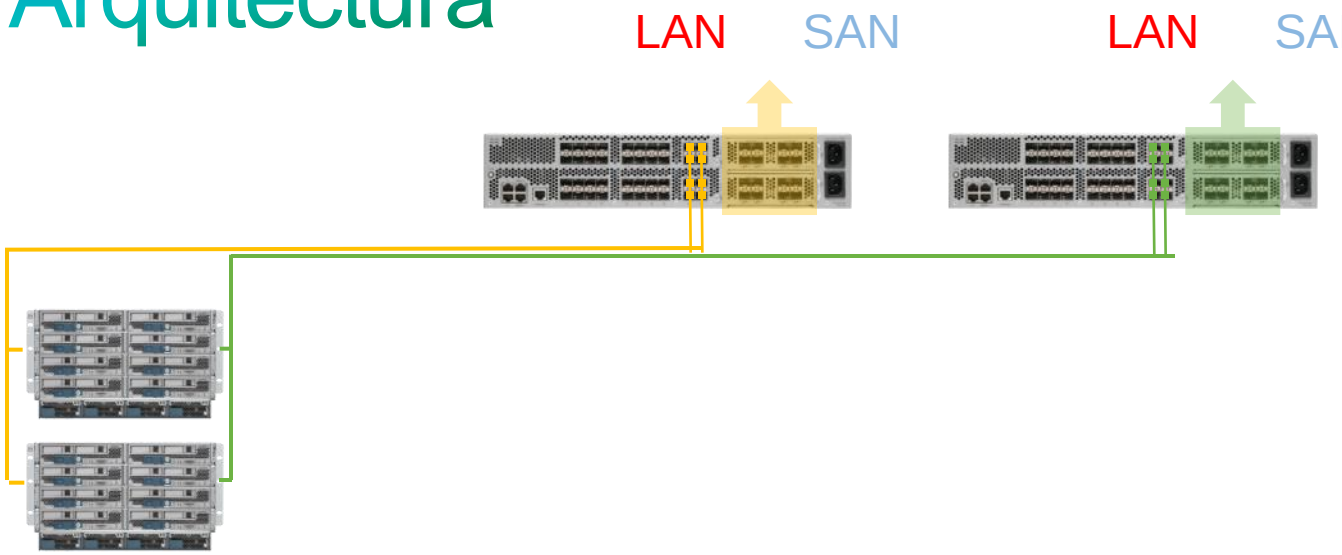
Unificar y Simplificar



Unificar y Simplificar



Arquitectura



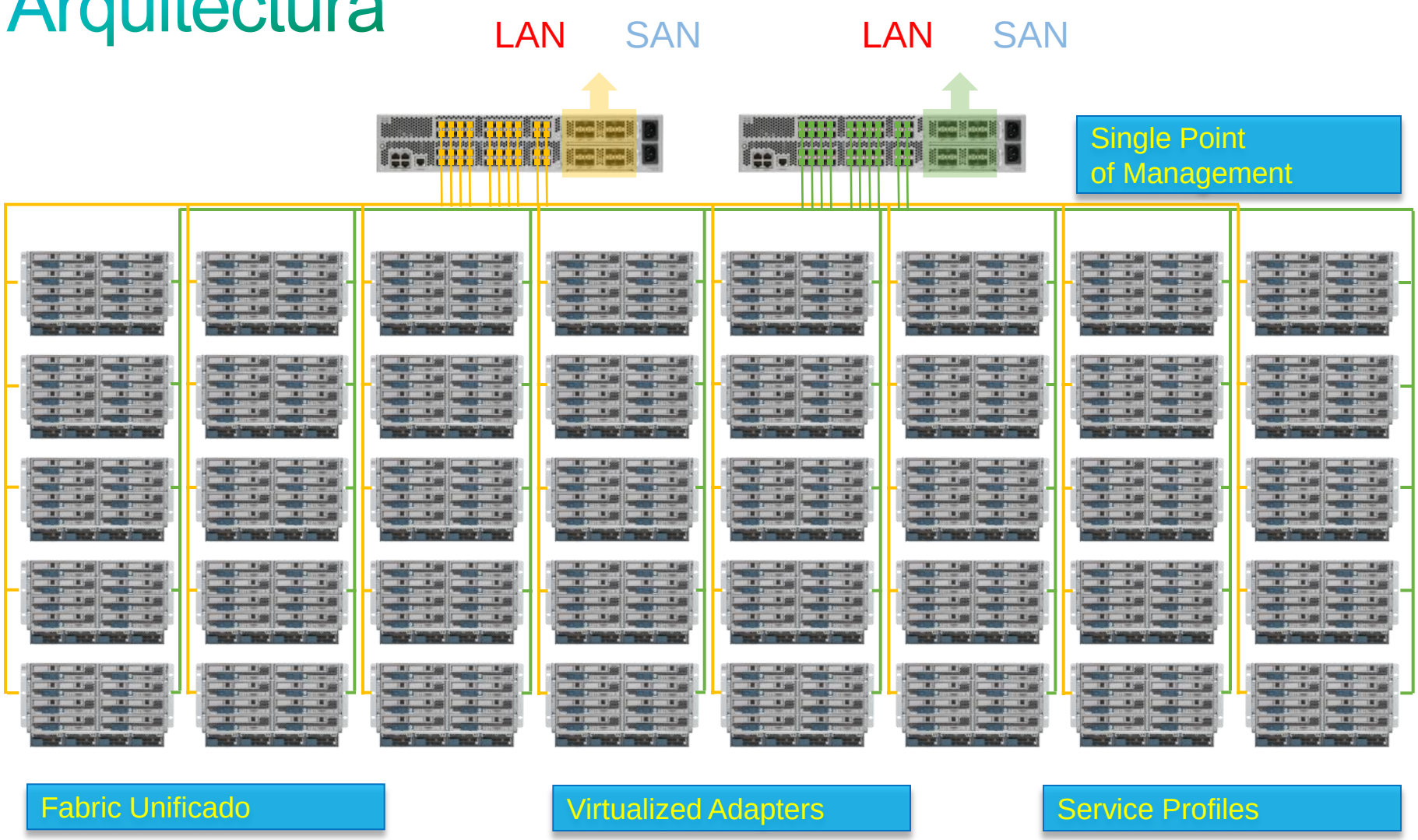
Single Point of Management

Fabric Unificado

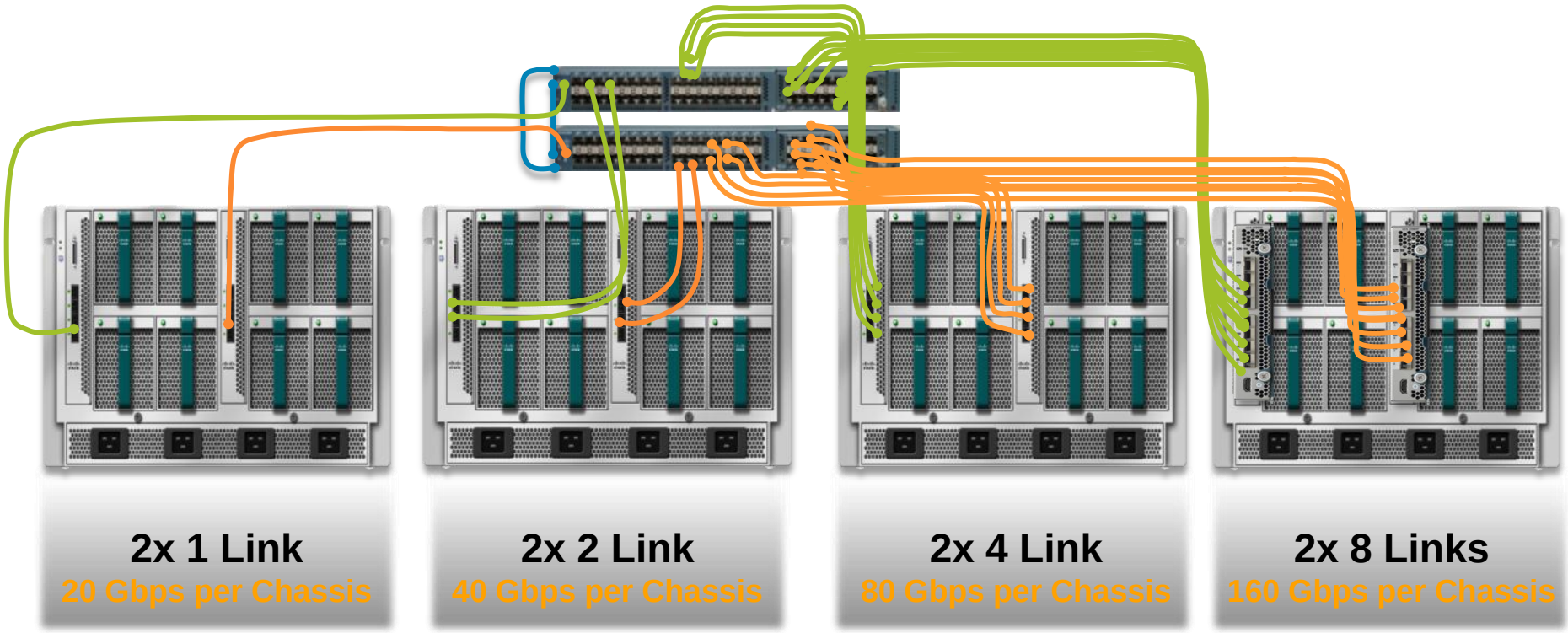
Virtualized Adapters

Service Profiles

Arquitectura

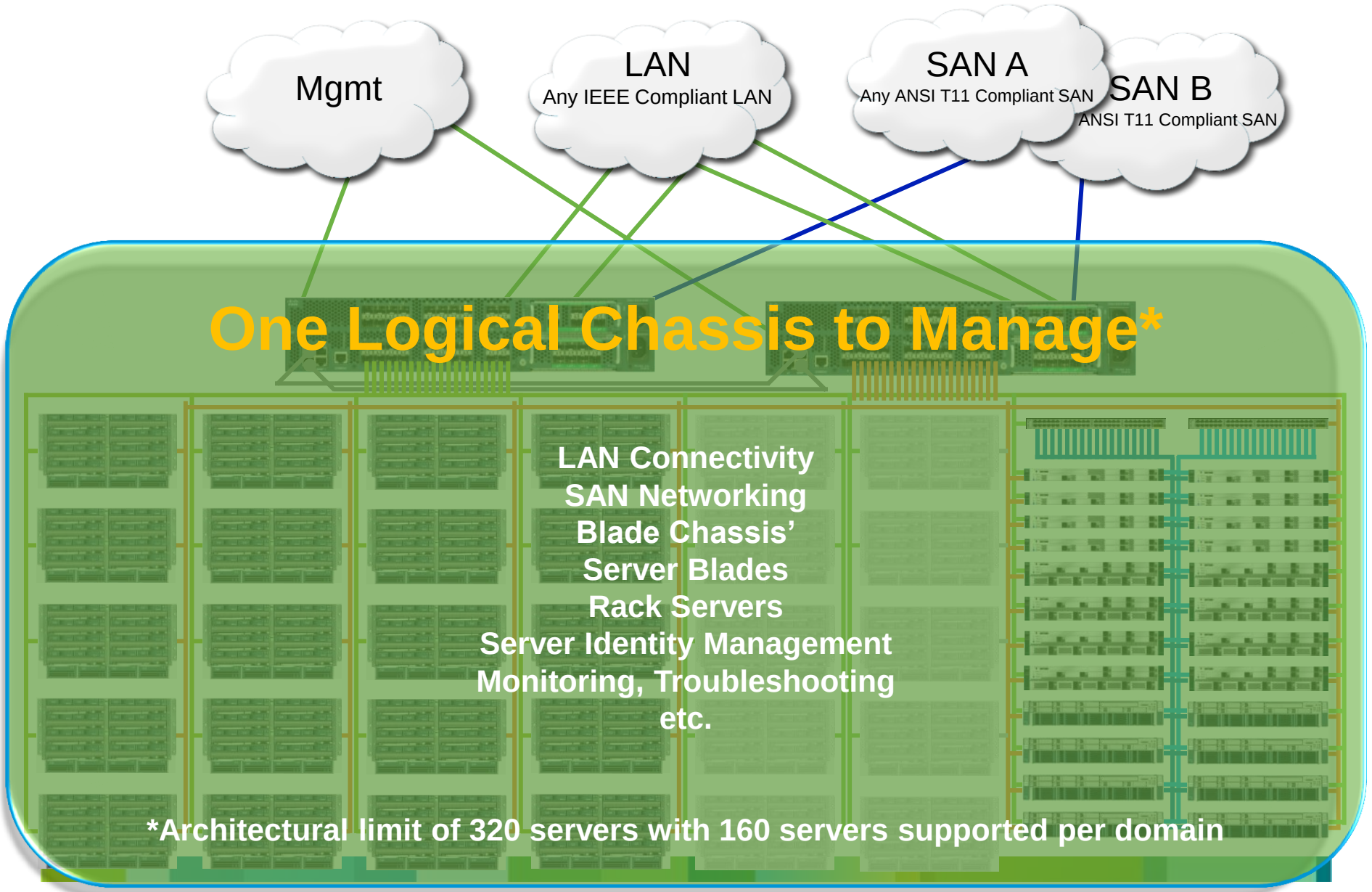


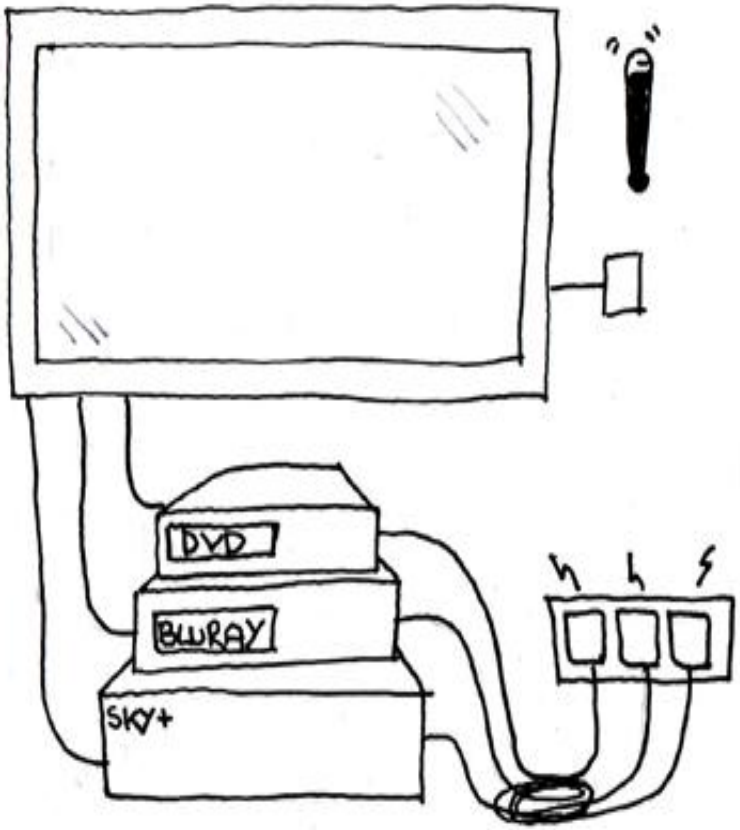
UCS Is Defining Converged Networking And Scalability

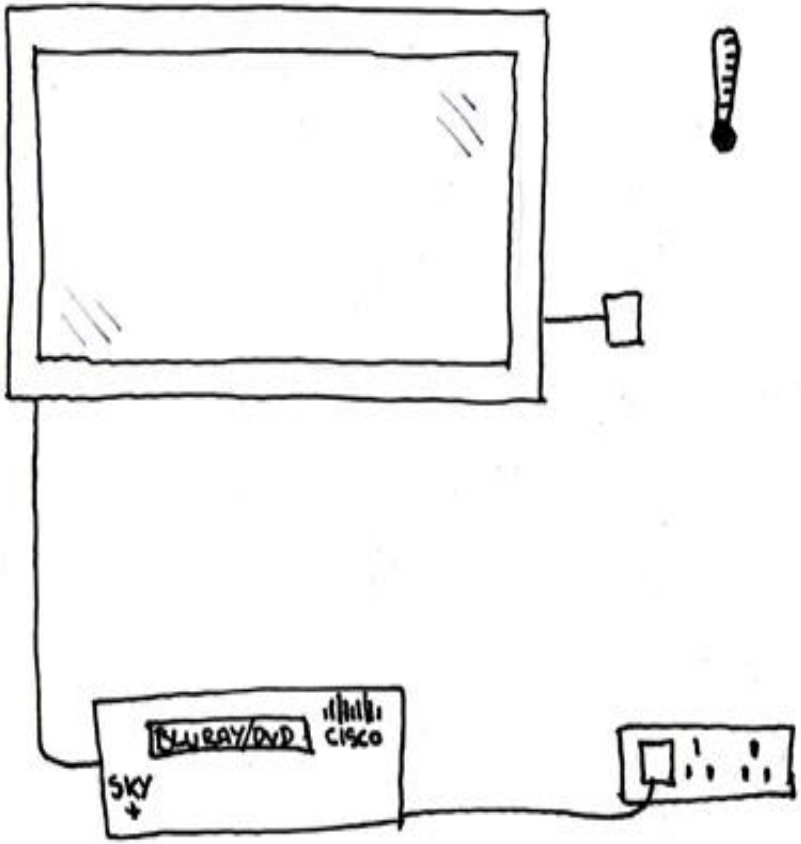


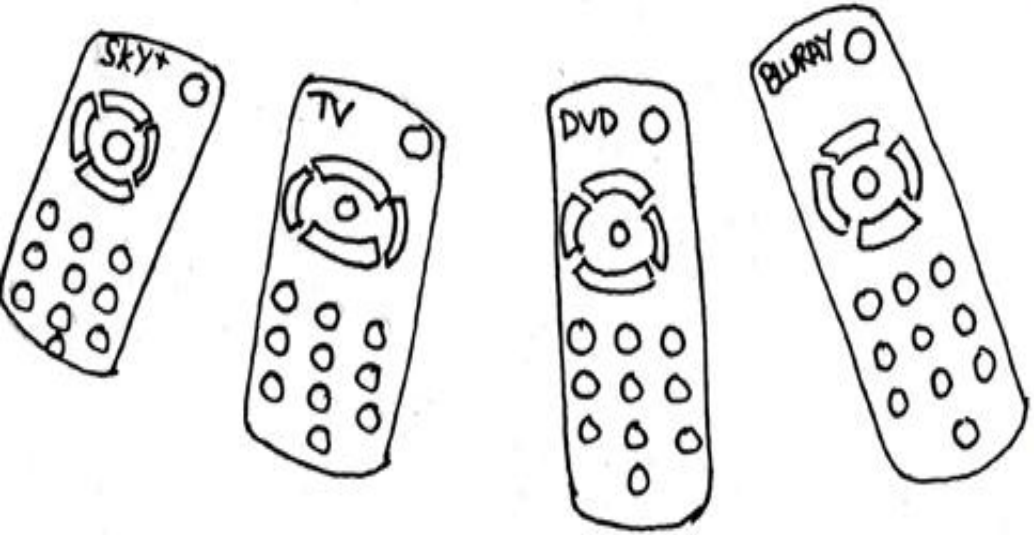
- Wire **once** for bandwidth, not connectivity
- Policy-driven bandwidth allocation
- All links can be active all the time
- All servers connected to LAN and SAN

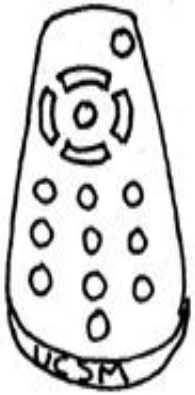
UCS Is Unified Fabric




DVD
BLURAY
SKY+


BLURAY/DVD
CISCO
SKY+


SKY+
TV
DVD
BLURAY


UCSM

Componentes y Relacionamiento

UCS Manager
Management resides in the Fabric Interconnect

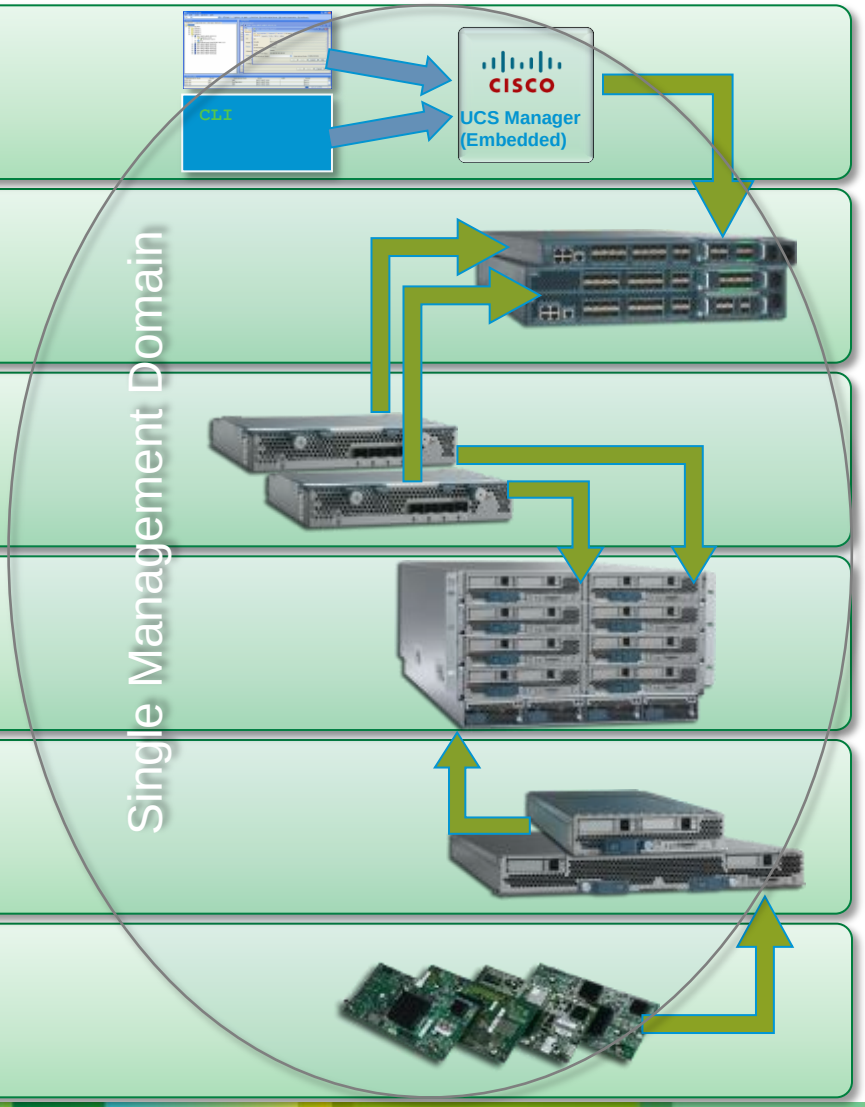
UCS 6200 - Fabric Interconnect
Fabric Extender is a logically part of the Fabric Interconnect

UCS 2204/2208 - IOM
Inserts into Blade Chassis
Chassis is logical part of the IOM

UCS 5108 – Blade Chassis
Blade inserts into the Chassis
Up to 20 chassis per environment

UCS Blade Server
Industry Standard Architectures

UCS Mezzanine Adapters
10GB, CNA, and Virtualized



UCS Blade Servers

	B22 M3	B200 M3	B230 M2	B420 M3	B440 M2
Slots	1	1	1	2	2
CPU	E5-2400	E5-2600	E7-2800	E5-4600	E7-4800
Cores	16	16	20	32	40
DIMMs	12	24	32	48	32
Max GB	384GB*	768GB*	512GB	1.5TB*	1TB
Disk	2 x 2.5”	2 x 2.5”	2 SSD	4 x 2.5”	4 x 2.5”
RAID	0/1	0/1	0/1	0/1/5/6	0/1/5/6
Integrated I/O	Dual 20Gb	Dual 20Gb	No	Dual 20Gb	No
Mezz	1	1	1	2	2

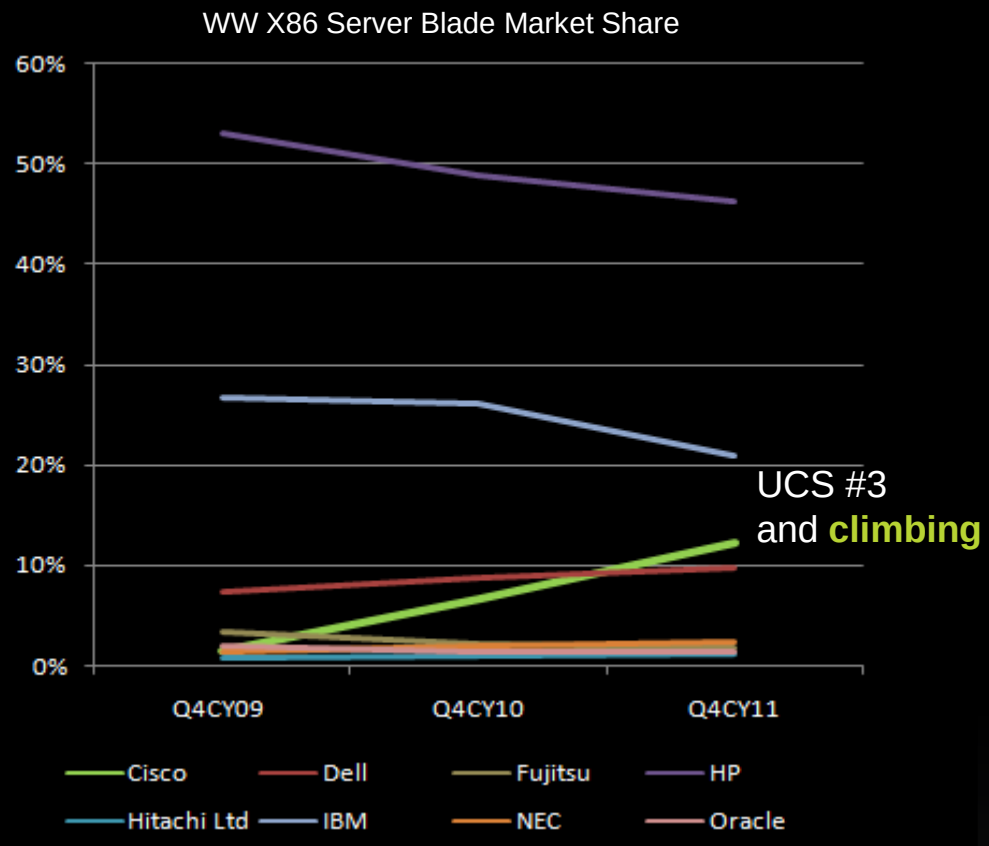
*with 32GB DIMMs (post-FCS)

UCS Rackmount Servers

	C22 M3	C24 M3	C220 M3	C240 M3	C260 M2	C420 M3	C460 M2
RU	1	2	1	2	2	2	4
CPU	E5-2400	E5-2400	E5-2600	E5-2600	E7-2800	E5-4600	E7-4800
Cores	16	16	16	16	20	32	40
DIMMs	12	12	16	24	64	48	64
Max GB	192GB*	192GB*	512GB	768GB	1TB	1.5TB	1TB
Disk	8 x 2.5" or 4 x 3.5"	24 x 2.5" or 12 x 3.5"	8 x 2.5" or 4 x 3.5"	24 x 2.5" or 12 x 3.5"	16 x 2.5" or 32 x SSD	16 x 2.5"	16 x 2.5"
LoM	2 x 1Gb	2 x 1Gb	2 x 1Gb	4 x 1Gb	2 x 1Gb + 2 x 10Gb	2 x 10Gb	2 x 1Gb + 2 x 10Gb
PCIe Slots	2 x PCIe 3.0	5 x PCIe 3.0	2 x PCIe 3.0	5 x PCIe 3.0	6 x PCIe 2.0	6 x PCIe 3.0	10 x PCIe 2.0
Internal Storage	USB Port	USB Port	USB Port FlexFlash	USB Port FlexFlash	USB Port FlexFlash	USB Port FlexFlash	eUSB

*with 32GB DIMMs (post-FCS)

Ellos dijeron que no se podia hacer



- UCS impacting growth of established vendors like HP
- Legacy offerings flat-lining or in decline
- Cisco growth out-pacing the market

Market appetite for innovation fuels UCS growth

- Customers have shifted over 12% of the global x86 blade server market to Cisco and 19% in the US

Demand for data center innovation has vaulted Cisco Unified Computing System (UCS) to the #3 leader in the fast-growing segment of the x86 server market

Source: IDC Worldwide Quarterly Server Tracker, Q4 2011 Revenue Share, February 2012

Cisco UCS Performance-63 Records

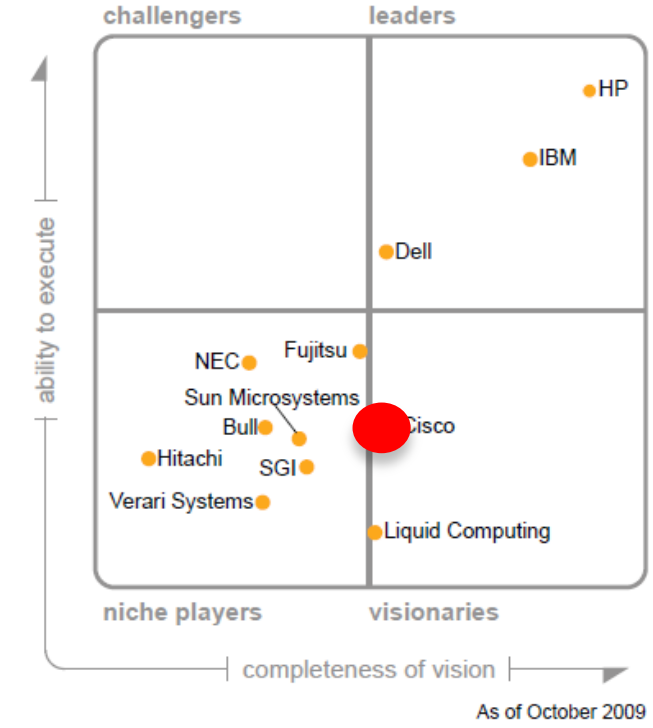
A History of World Record Performance on Industry Standard Benchmarks

Best CPU Performance	SPECfp_rate_base2006 X86 2-socket B200 M1	SPECint_rate_base2006 X86 2-socket B200 M1	SPECfp_rate_base2006 X86 2-socket B200 M2	SPECint_rate_base2006 X86 2-socket B200 M2	SPECfp_rate_base2006 X86 4-socket C460 M1	SPECfp_rate_base2006 X86 2-socket C220 M3	SPECfp_base2006 X86 2-socket C220 M3
	SPECint_rate_base2006 X86 2-socket B200 M2	SPECfp_rate_base2006 2-socket C260 M2	SPECint_rate_base2006 2-socket C260 M2	SPECint_rate2006 X86 4-socket C460 M2	SPECint_rate_base2006 X86 4-socket C460 M1	SPECint_rate_base2006 X86 2-socket C220 M3	
Best Virtualization Performance	VMmark 1.x 2-socket B200 M1	VMmark 1.x 2-socket B200 M1	VMmark 1.x 2-socket B250 M2	VMmark 1.x Overall C460 M1			
	VMmark 1.x Overall C460 M1	VMmark 1.x Blade Server B440 M1	VMmark 1.x 2 –socket Blade B230 M1				
Best Cloud Computing Performance	VMmark 2.1 2-socket Blade B200 M2	VMmark 2.1 4-socket C460 M2	VMmark 2.1 Two–node 4-socket C460 M2				
	VMmark 2.0 Overall B200 M2	VMmark 2.1 Overall C460 M2	VMmark 2.1 2-socket B200 M3				
Best Enterprise Application Performance	Oracle E-Business Suite Ex-large Model Payroll Batch B200 M2	Oracle E-Business Suite Medium Model Order-to-Cash B200 M2	Oracle E-Business Suite Xtra Large Model Payroll Batch B230 M2	Oracle E-Business Suite Xtra Large Model Payroll B200 M3	TPC-C Oracle DB 11g & OEL C250 M2	TPC-H 1000GB Microsoft SQL Server C460 M2	TPC-H 300GB VectorWise C250 M2
	Oracle E-Business Suite Medium Model Payroll Batch B200 M2	Oracle E-Business Suite Medium Model Payroll Batch B200 M2	Oracle E-Business Suite Large Model Order-to-Cash B200 M3	SPECjEnterprise2010 Overall B440 M1	SPECjEnteprise2010 2-node B440 M2	TPC-H 100GB VectorWise C250 M2	
Best Enterprise Middleware Performance	SPECjAppServer2004 1-node 2-socket C250 M2	SPECjbb2005 X86 2-socket B200 M2	SPECjbb2005 X86 4-socket C460 M1	SPECjAppServer2004 2-node B230 M1	SPECjbb2005 X86 2-socket B230 M1	SPECjbb2005 X86 2-socket C220 M3	
	SPECjbb2005 X86 2-socket B230 M1	SPECjbb2005 2-socket C260 M2	SPECjbb2005 2-socket B230 M2	SPECjbb2005 2-socket B230 M2	SPECjbb2005 4-socket B440 M2		
Best HPC Performance	SPECompMbase2001 2-socket B200 M2	SPECompLbase2001 2-socket B200 M2	LinPack 2-socket B200 M2	LS-Dyna 4-socket C460 M1	SPECompMbase2001 4-socket C460 M1	SPECompMbase2001 4-socket C460 M1	SPECompMbase2001 2-socket C240 M3
	SPECompMbase2001 2-socket B200 M2	SPECompLbase2001 2-socket B200 M2	SPECompMbase2001 2-socket B230 M2	SPECompLbase2001 2-socket B230 M2	SPECompMbase2001 4-socket C460 M2	SPECompMbase2001 4-socket C460 M2	

Cisco UCS Benchmarks that held world record performance records as of date of publication

Gartner Magic Quadrant – Blade Servers Market Cisco UCS Evolution

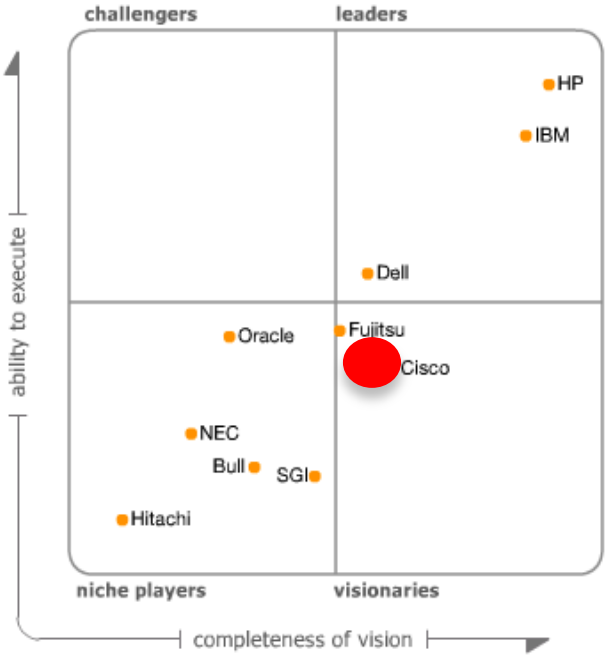
2009



As of October 2009

Source: Gartner (October 2009)

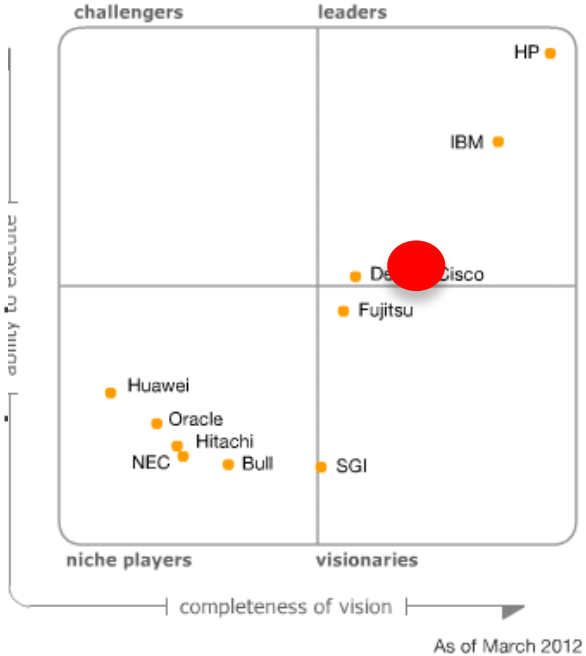
2011



Source: Gartner (January 2011)

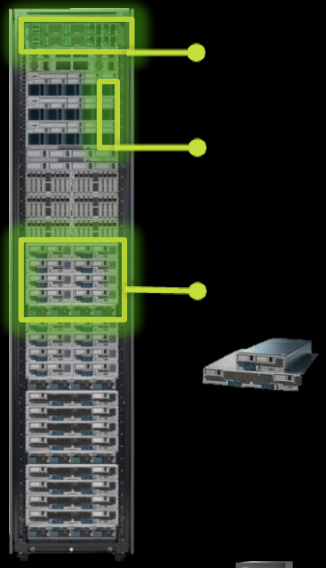
As of January 2011

2012



As of March 2012

Protección de inversión



HOY: 80 gbps full duplex por servidor

Watts suficientes para procesadores actuales y futuros

CISCO

Diseñado para el 2020
UCS 5100 Series Chassis

12 Years and Counting
Catalyst 6500 Series Chassis

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012

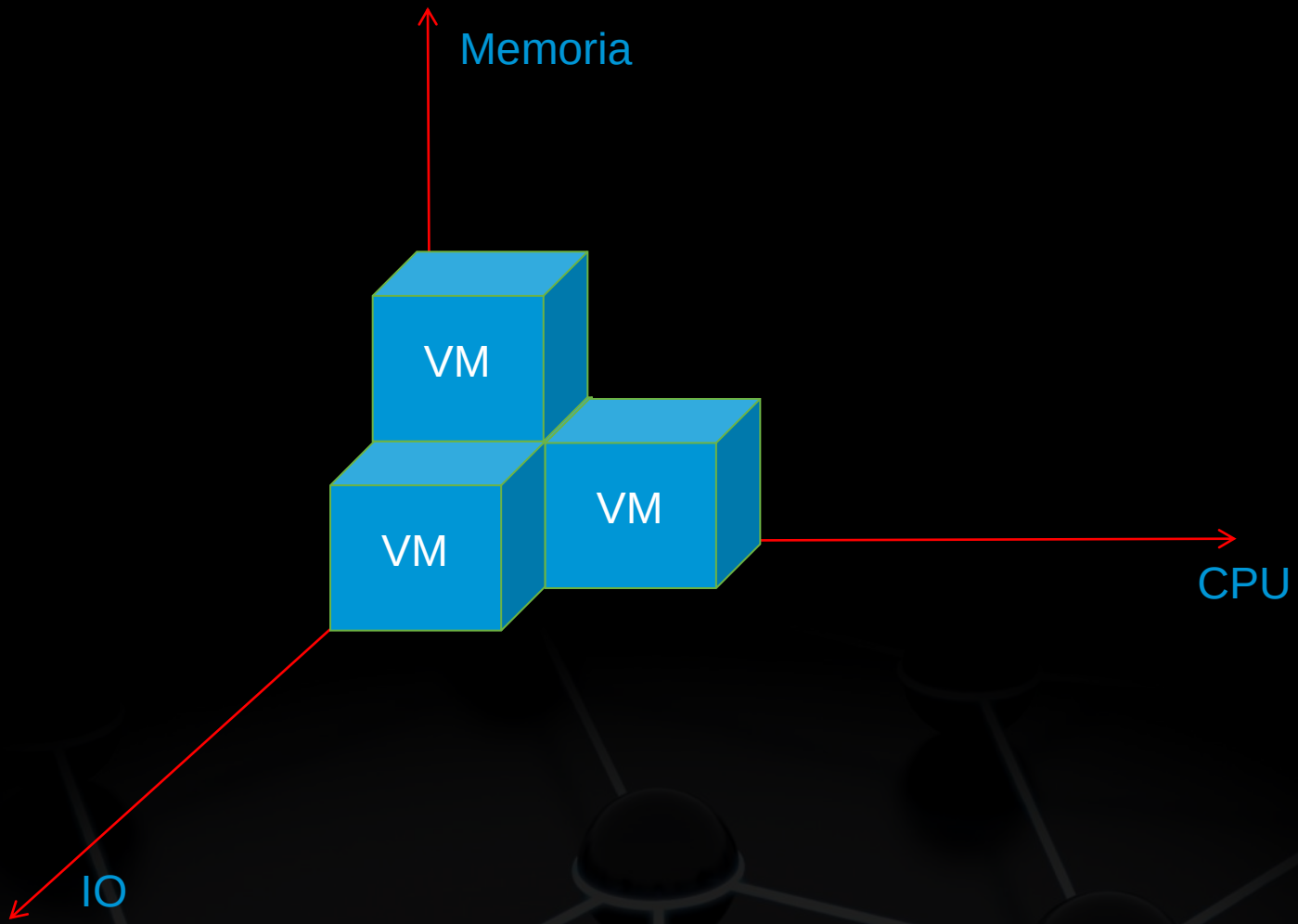
IBM BladeCenter H

C7000

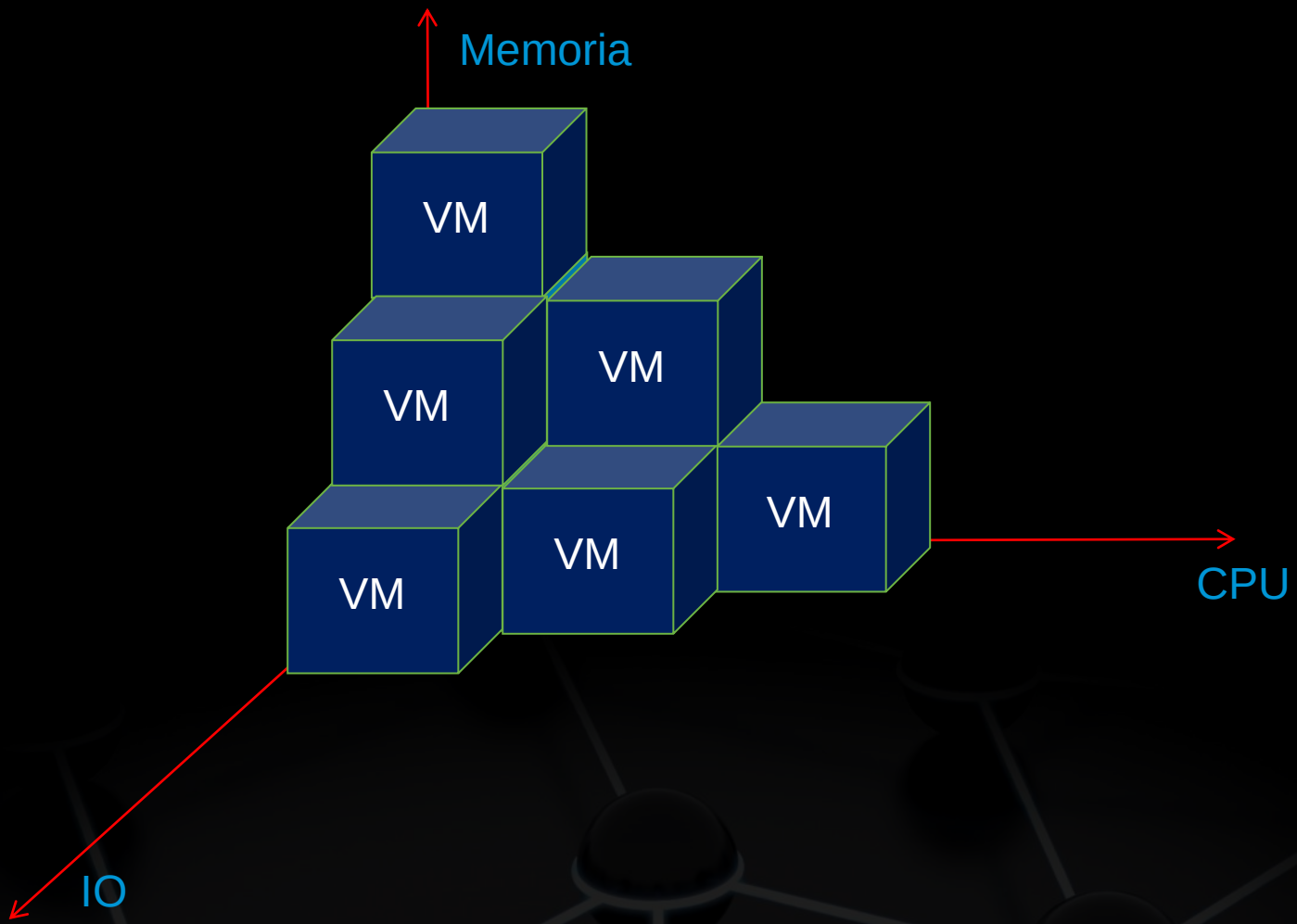
DELL M1000

?

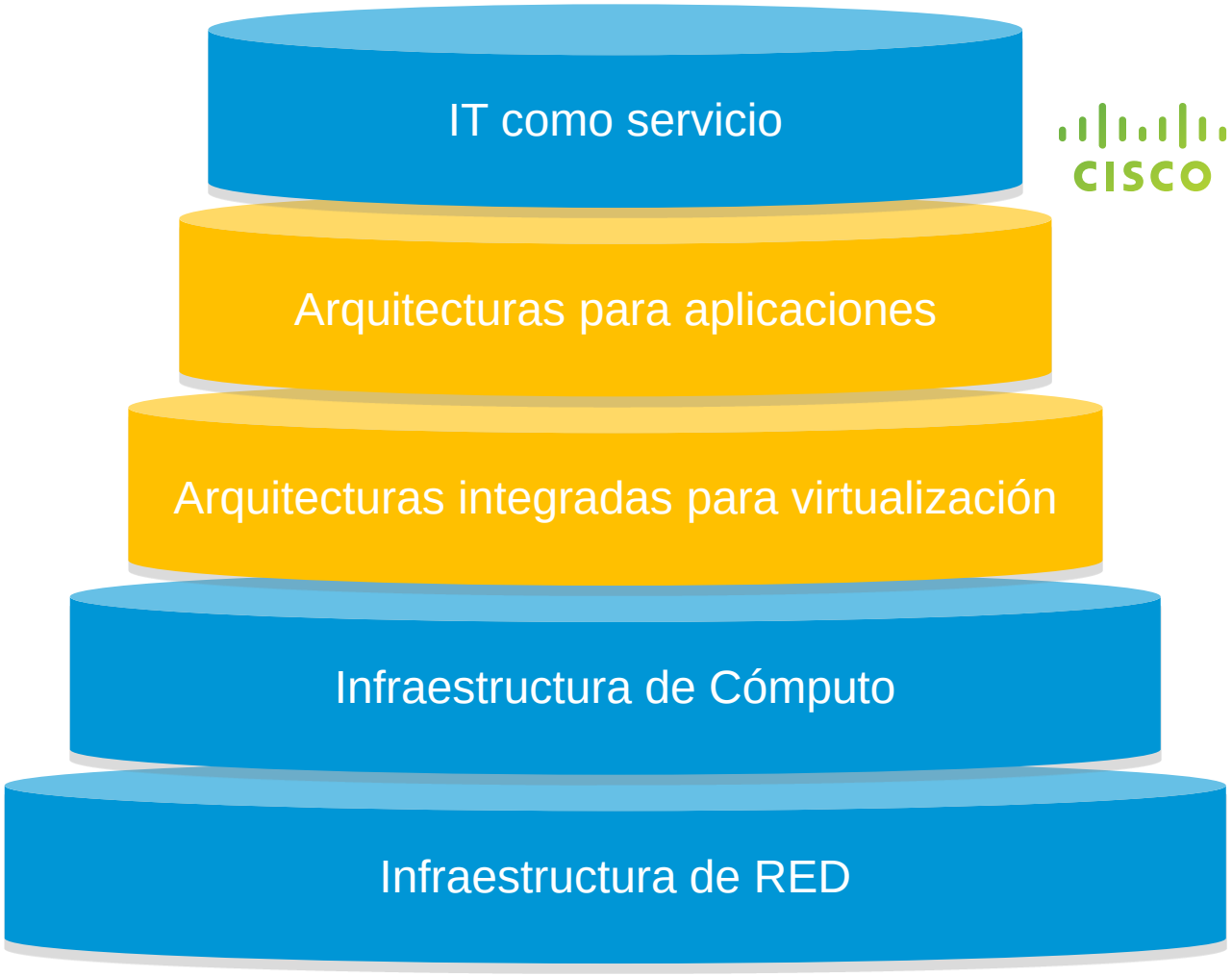
Beneficio en escalabilidad



Beneficio en escalabilidad

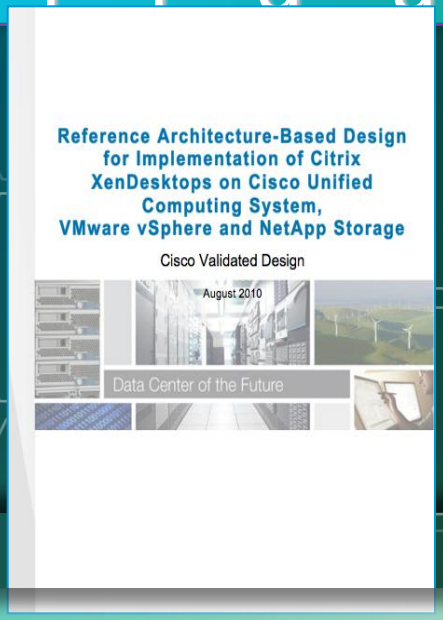


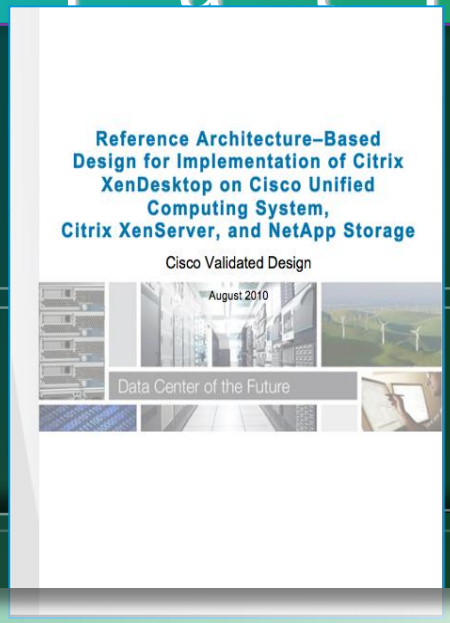
Agenda



Validated Designs and Reference Configurations

Validated Designs

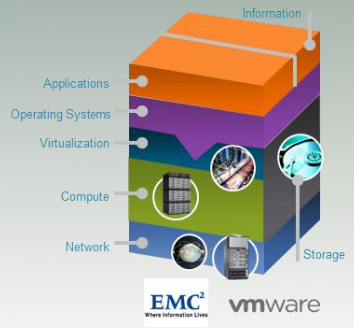




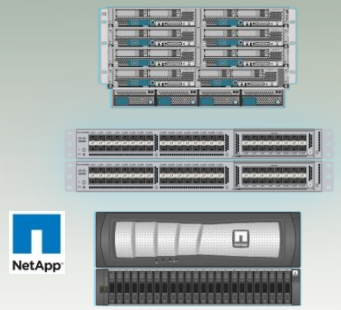
www.cisco.com/go/vdi
www.cisco.com/go/designzone

Infrastructure

VBLOCK



FLEXPOD



Standard Configurations

Desktop Virtualization

Clients

WAN

Cisco WAAS

Partner Solution Elements

NetApp

CITRIX

Storage

Broker

App

App

Data

Desktop O/S

Desktop Virtualization S/W Citrix

Hypervisor VMWare/Citrix

Cisco UCS Platform

Cisco Nexus

Cisco MDS9000 Family

Cisco ASA

Cisco WAAS

Cisco ACE

Hypervisor

Unified Fabric

Unified Network Services

Unified Computing

Cisco Data Center Business Advantage Framework

Virtualized Data Center

*1500 seat scenario

CISCO UCS B230 M2 BLADE SERVER: UNCOMPROMISED VIRTUAL DESKTOP PERFORMANCE

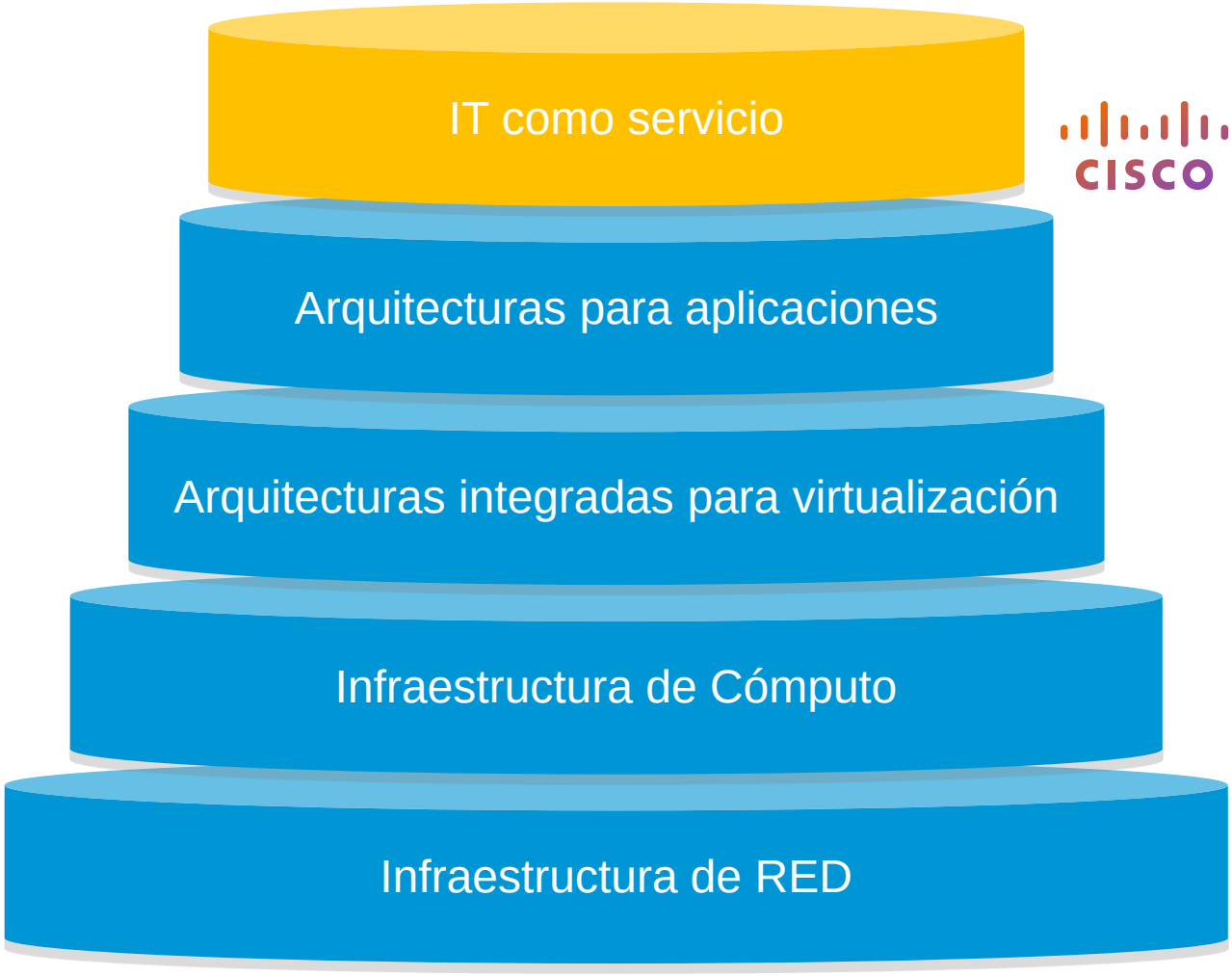
175 Windows® 7 virtual desktops on a single Cisco® UCS B230 blade with Cisco and VMware®

The Cisco UCS B230 M2 Blade Server supported 175 VMware View™ 5 virtual desktops while using less than 5% of available bandwidth.

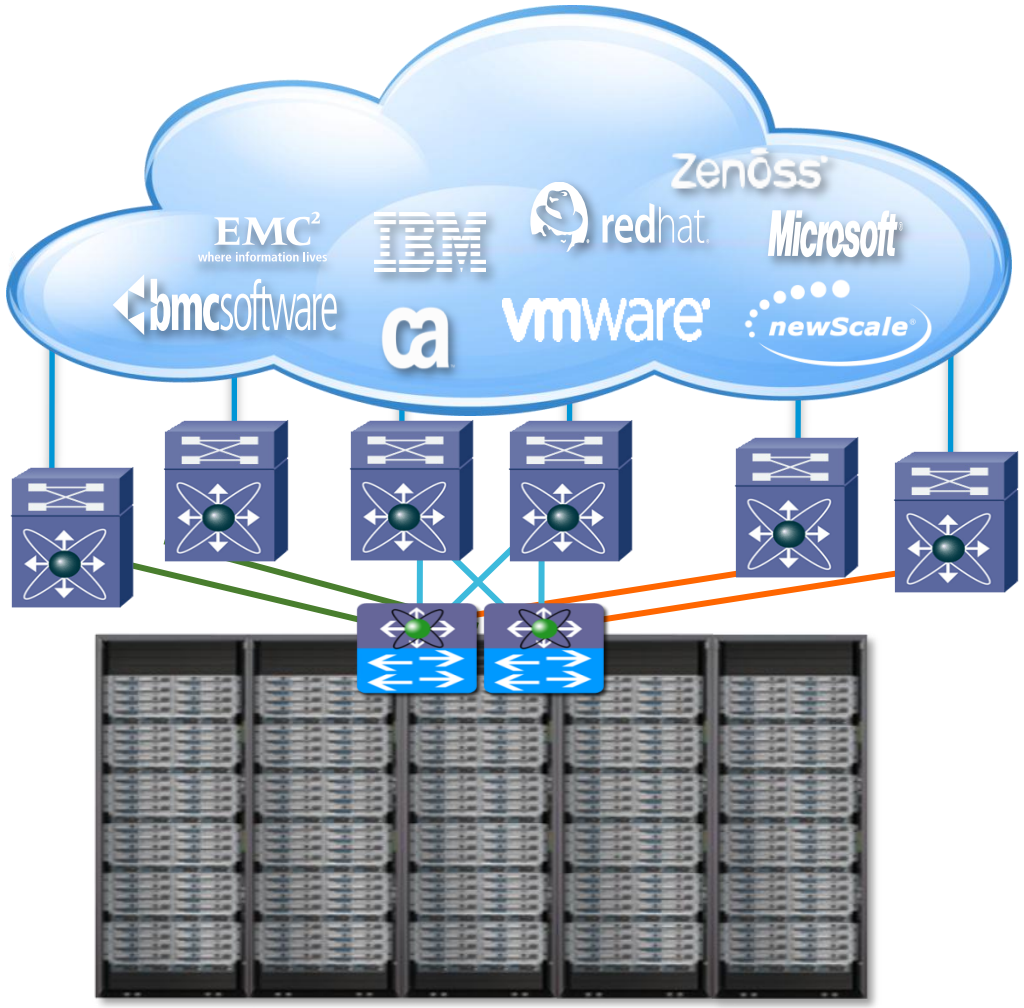
cisco vmware

http://www.cisco.com/go/vmware

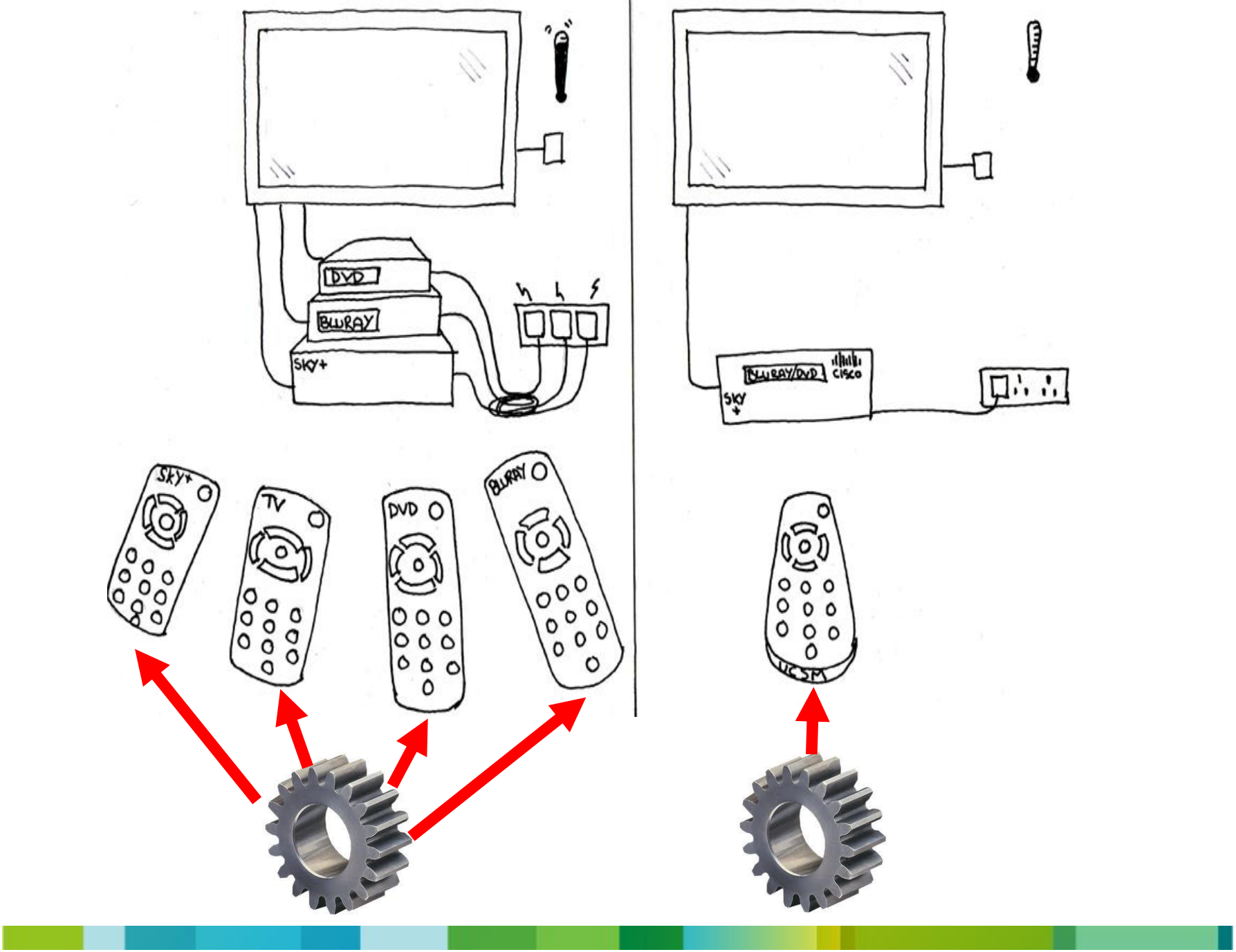
Agenda

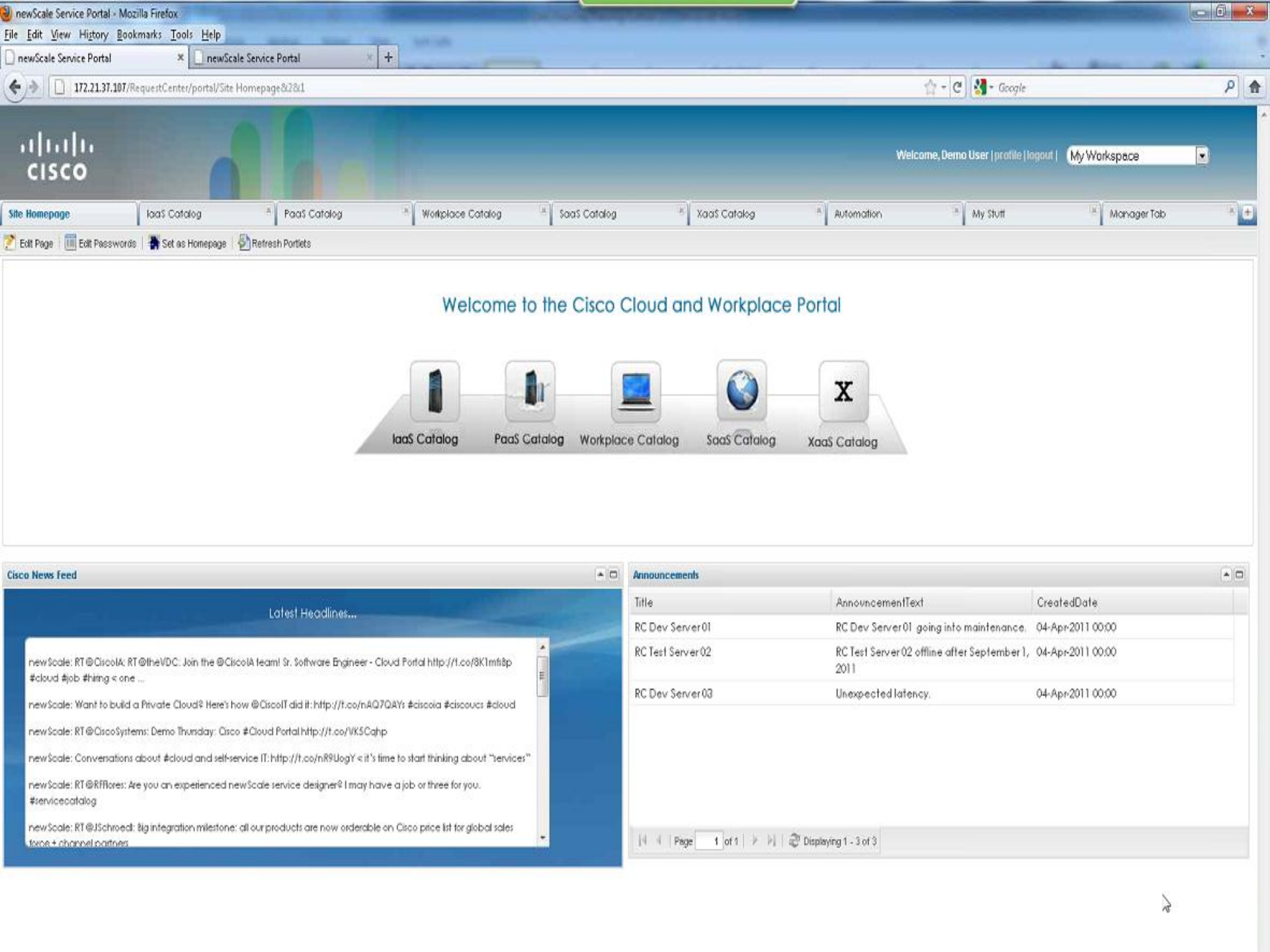


Automatización



- Ecosistema Abierto
  - BMC Cloud Lifecycle Manager
  - VMware vCloud Director
  - HP Ops Manager, IBM Tivoli
  - EMC Ionix UIM
  - CA, Zenoss
  - CISCO Tydal + Newscale
- Estándares Abiertos
  - 10Gb Ethernet, DCB
  - FCoE
  - TRILL
- APIs Abiertas
  - Cisco UCS API (XML)
  - Powershell




newScale Service Portal - Mozilla Firefox
File Edit View History Bookmarks Tools Help
newScale Service Portal
newScale Service Portal
172.21.37.107/RequestCenter/portal/Site Homepage&2&1
Google
cisco
Welcome, Demo User | profile | logout |
My Workspace
Site Homepage
IaaS Catalog
PaaS Catalog
Workplace Catalog
SaaS Catalog
XaaS Catalog
Automation
My Stuff
Manager Tab
Edit Page
Edit Passwords
Set as Homepage
Refresh Portlets
Welcome to the Cisco Cloud and Workplace Portal
IaaS Catalog
PaaS Catalog
Workplace Catalog
SaaS Catalog
XaaS Catalog
Cisco News Feed
Latest Headlines...
newScale: RT@CiscoIA: RT@theVDC: Join the @CiscoIA team! Sr. Software Engineer - Cloud Portal http://t.co/8K1mfi8p #cloud #job #hiring < one ...
newScale: Want to build a Private Cloud? Here's how @CiscoIT did it: http://t.co/nAQ7QAYs #ciscoia #ciscoucs #cloud
newScale: RT@CiscoSystems: Demo Thursday: Cisco #Cloud Portal http://t.co/VK5Cqhp
newScale: Conversations about #cloud and self-service IT: http://t.co/nR9UogY < it's time to start thinking about "services"
newScale: RT@RfFlores: Are you an experienced newScale service designer? I may have a job or three for you. #servicecatalog
newScale: RT@JSchroedl: Big integration milestone: all our products are now orderable on Cisco price list for global sales force + channel partners
Announcements
Title
AnnouncementText
CreatedDate
RC Dev Server01
RC Dev Server01 going into maintenance.
04-Apr-2011 00:00
RC Test Server02
RC Test Server02 offline after September 1, 2011
04-Apr-2011 00:00
RC Dev Server03
Unexpected latency.
04-Apr-2011 00:00
Page 1 of 1
Displaying 1 - 3 of 3

Provides internal Cisco users with cloud resources when they need them, for as long as they need them.

Welcome to CITEIS VDC

Your Virtual Data Center

Cisco now offers the option to create your own Virtual Data Center. These services allow you to acquire the virtual resources you need for as long as you need them, with an abundance of supporting services, including additional network and storage capacity.

Sign up and manage a VDC — Sign your group up for resources in your own virtual data center.

Order new resources — Get new vApps, VMs, and related services.

Manage your resources — Extend leases, configure, delete, restore VMs...

CITEIS VDC Knowledge Center

Overview | Pricing | FAQ | Maint.

Virtual Data Center Services

- Pre-paid resource pools
- Virtual resources **reserved and guaranteed**
- Tenants allocate and manage resources based on their specific needs
- Minimum one quarter subscription commitment required

TIP: Scroll down this page to see a list of the virtual resources you already own. Click on one to see a list of services you can order for that resource.

newScale Service Portal - Mozilla Firefox

File Edit View History Bookmarks Tools Help

newScale Service Portal | newScale RequestCenter: MyServices ...

172.21.37.107/RequestCenter/portal/Workplace Catalog&1&1

Google

Welcome, Demo User | profile | logout | My Workspace

Site Homepage | IaaS Catalog | PaaS Catalog | Workplace Catalog | SaaS Catalog | XaaS Catalog | Automation | My Stuff | Manager Tab

Edit Page | Edit Passwords | Set as Homepage | Refresh Portlets

Welcome to Workplace Services

Workplace services povide the resources and support required for end user computing, including virtualized desktops, phones, and access to applications.

Highlighted Services

- Onboard a new employee — Start Order
- Order a new laptop — Start Order
- Order a virtual desktop — Start Order
- Order an IP deskphone — Start Order

All Services

- Browse workplace services — Workplace
- Browse the entire catalog — All

Knowledge Center

Cisco Technical Support IP Phone FAQ

What is an IP phone and why do I need one?.

Welcome, Demo User | profile | logout | My Wor

Site Homepage | IaaS Catalog | PaaS Catalog | Workplace Catalog | SaaS Catalog | XaaS Catalog | Automation | My Stuff

Edit Page | Edit Passwords | Set as Homepage | Refresh Portlets

Welcome to Software as a Service

Software that is provided on demand saves money by allowing resources to be used only when required. This includes application licenses and their supporting enviornments. Use these services request access to hosted applications.

Highlighted Services

- Request acccess to SAP — Start Order
- Request access to Salesforce — Start Order

Request Access to SaaS

All Services

- Browse SaaS services — SaaS
- Browse the entire catalog — All


CISCO
TM

Links Cisco Data Center

- Cómputo: UCS
  - –http://www.cisco.com/go/ucs
  - –Catalogo de servidores Cisco
  - –http://tinyURL.com/CatalogoDeServidoresCisco
- SAN switching para Centros de Datos
  - –http://www.cisco.com/go/mds
- LAN switching para Centros de Datos
  - –http://www.cisco.com/go/nexus
- LAN Virtual para Centros de Datos
  - –http://www.cisco.com/go/nexus1000v
  - –http://www.brighttalk.com/webcasts?q=vizza
- Intelligent Automation
  - –http://www.cisco.com/en/US/products/ps11869/index.html

Links Cisco Data Center

- Canal Youtube
  http://www.youtube.com/ciscodatacenter
- Twitter
  #CiscoDC
  #Cisco_UCS
- **#VCE_Computing**

  VCE YouTube Channel
  <http://www.youtube.com/user/VCEcomputing>

Links Cisco Data Center

- Cisco Validated Designs
  - –http://www.cisco.com/go/cvd
  - –Virtual Desktops
    - •http://www.cisco.com/en/US/solutions/ns340/ns414/ns742/ns743/ns993/landing_dcVirt-vdi.html
  - –Multi Tennant Virtualized Data Center
    - •http://www.cisco.com/en/US/solutions/ns340/ns414/ns742/ns743/ns1050/landing_dcVDDC.html

Recursos adicionales

- Especificaciones de productos:
  - Quick Catalog
  - https://apps.cisco.com/QuickCatalog/home.do
  - Servidor C200 M2
  - http://www.cisco.com/en/US/products/ps10891/index.html
  - Servidor C210 M2
  - http://www.cisco.com/en/US/products/ps10889/index.html
  - Servidor C250 M2
  - http://www.cisco.com/en/US/products/ps10888/index.html
  - Servidor C260 M2
  - http://www.cisco.com/en/US/products/ps11588/index.html
  - Servidor C250 M2
  - http://www.cisco.com/en/US/products/ps11587/index.html
  - Data Sheets
  - http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html
- Descripción de servicios
  - http://www.cisco.com/go/servicedescriptions
  - http://www.cisco.com/en/US/services/ps2961/ps10312/ps10321/Cisco_UC_Warranty_Support_DS.pdf

Recursos adicionales

- Arquitecturas Validadas:
  - http://www.cisco.com/go/cvd
- Aplicaciones:
  - http://www.cisco.com/go/oracle
  - http://www.cisco.com/go/sap
  - http://www.cisco.com/go/microsoft
  - http://www.cisco.com/en/US/netsol/ns1150/index.html
- Benchmarks
  - http://www.cisco.com/en/US/prod/ps10265/industry_benchmarks.html
- Arquitecturas integradas
  - Vblock http://www.vce.com
  - FlexPod *www.cisco.com/**FlexPod***

Links

- *Data Center* Networking Design *Best Practices – Cisco*
- *Unified Computing System*
- *Data Center Architecture Best Practices: How Cisco IT Operates, Manages, and Protects Its Data Center*
- Nexus
- Optimize NetApp SnapMirror over the WAN with Cisco Wide Area Application Services
- VCE (Alianza VMWare, Cisco, EMC)
- *NetApp - FlexPod™* for VMware - Technology