



Catalyst 4500/6500 Update



Cisco Danmark – Tech Update

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Agenda

Strategic Direction

Catalyst 4500 Update

Catalyst 6500 Update

Catalyst 4900 Update

Catalyst 3560/3750 Update

Small Business Architecture

Cisco Network Fabric - Campus

Desktop: VDI
Services: VRF-Aware, Virtual Contexts
Network: MPLS and Multi-VRF

Virtualization

Voice: IPT Integration with Identity, DPI

Video: ISSU, Monitoring, Medianet

Mobility: Location, Seamless Roaming

Collaboration

Operations

Automation: EEM, IP SLA, Smart Call Home

Energy Sustainability: EnergyWise, Power Policing

TCO: Predictable Releases, 7-10 year Lifecycle

Expect More - Get More - Save More

3

Cisco Network Fabric - Datacenter

Server Virtualization

Services: VRF-Aware, Virtual Contexts

Network: MPLS and Multi-VRF

Virtualization

Unified IO

Unified Fabric

VM Mobility/ VN-Link

Consolidation

Automation

Automation: EEM, Fast provisioning, Smart Call Home

Energy Sustainability: EnergyWise, Power Policing

TCO: Predictable Releases, 7-10 year Lifecycle

Expect More - Get More - Save More



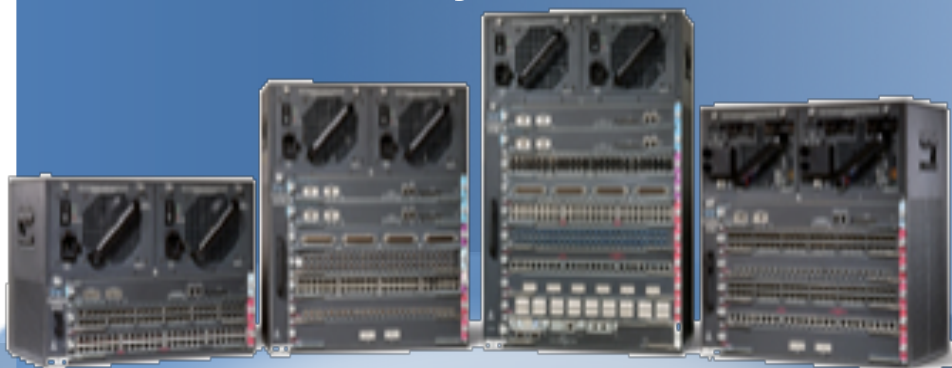
Catalyst 4500 Update



Cisco Catalyst 4500 Series

Innovation and Investment Protection
for Converged Networks

Cisco Catalyst® 4500 Series



530,000+ chassis shipped

70+ million ports shipped

Drives Virtualization

- Desktop Virtualization
- VRF-lite
- Non-stop communications

Enables Collaboration

- PoEP ready
- Mobility
- MediaNet

Optimizes Operations

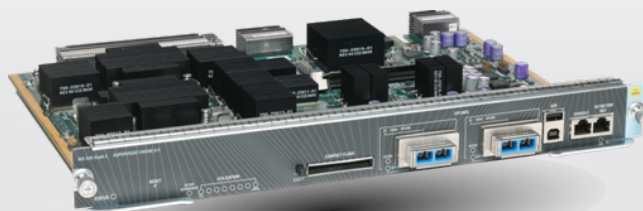
- Automatic Management
- Energy Efficient
- Low TCO

Catalyst 4500 E-Series Supervisors

Performance and Next Generation Services
with Investment Protection

Enhanced L3

- Enterprise Services IOS
- IP Base IOS



WS-X45-SUP6-E
List \$19,995

Full L3

High Density (upto 384 ports)

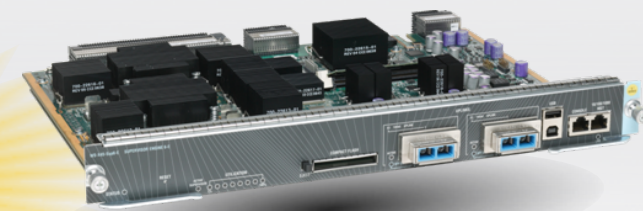
High Perf and Scalability

Premier Feature Set (VRF-lite, VRF-aware services etc)

Basic L3

- IP Base IOS

New



WS-X45-SUP6L-E
List \$11,995

Basic L3

Density (upto 240 ports)

Rich Wiring Closet Feature Set (EnergyWise, ISSU, Identity & NAC, Advanced QoS, EEM, Location etc)

**E-Series Supervisors: 24-Gbps/Slot, TwinGig Uplinks, IPv6 in HW
Back Compatible with Classic LCs**

Introducing Catalyst 4500 Supervisor Engine 6-E Lite

Performance and Next Generation Services with Investment Protection

WS-X45-SUP6L-E
Listed at \$11,995



Enhances Services

- Security—Identity based security and flexible authentication. NAC and TrustSec (software) support for compliance. CoPP to protect against attacks
- PoE Plus Ready—30W/ port on E-series and classic line cards to power new devices
- Resiliency—Minimum downtime SSO/NSF/ISSU

Enables Collaboration

- Performance—24G/ slot, 280 Gbps Switch Fabric Capacity, IPv4 (225Mpps), IPv6 (112Mpps) in H; 64K FIB entries, 32K security/ QoS, 4K VLAN/SVI Support, Superior multicast for video
- Memory—512 MB and 1 GB SDRAM options
- Uplinks—2 active 10GbE ports or 4 active SFPs in redundant mode

Optimizes Operations

- Backward Compatible—E series and Classic linecards and chassis
- Flexibility—Twin Gigabit connectors for 10G migration
- Power optimized—Low power consumption; support for EnergyWise
- Automatic management—EEM, SmartPorts for deployment, SmartCall Home Support

IP Base (Basic L3) and LAN Base* IOS images—12.2(52)XO, 12.2(53)SG * LANBase Image available only with bundles

Catalyst 4500 Supervisor Comparison

Features	SupII-Plus-10GE	Sup6L-E	Sup6-E
Switch Fabric Capacity	108 Gbps	280 Gbps	320 Gbps
CPU	667 MHz	1 GHz	1.3 GHz
L2 Forwarding Rate	81 Mpps	225 Mpps	250 Mpps
L3/L4 Forwarding Rate	81 Mpps	225 Mpps	250 Mpps
Total VLANs Supported	2,048	2,048	4,096
VLAN IDs	2,048	4,096	4,096
Number of SVIs Supported	2,048	2,048	4,096
Number of Routes	32,000	64,000	256,000
Input ACL Entries	16K	16K	64K
Output ACL Entries	16K	16K	64K
Chassis Support	3 , 6, 7R chassis	3 , 6, 7R chassis	3 , 6, 7R, 10R chassis
Active redundant 10G uplinks	2	2	4
Max DRAM	512MB	1GB (option)	1GB (option)
USB ports available	No	No	Yes

Catalyst 4500—10/100/1000 Line Cards

Leadership with Investment Protection

Inline Power

\$11,995

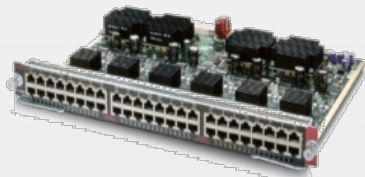
- PoE Plus Ready (30W/port inline power)
- PoE 802.3af and Cisco ePoE support
- PoE Policing and Monitoring
- Energywise

38% Price Reduction
WS-X4648-RJ45V+E

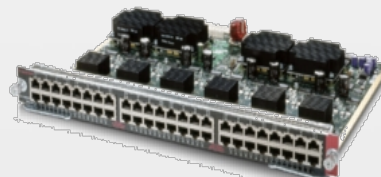


WS-X4648-RJ45V-E

\$9,495



WS-X4548-GB-RJ45V

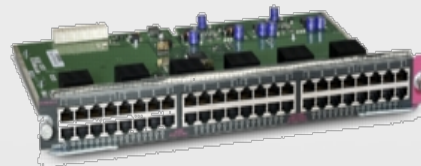


WS-X4548-RJ45V+

\$7,495

Data

\$5,495



WS-X4548-GB-RJ45

- Jumbo frame support on E-Series Line Card

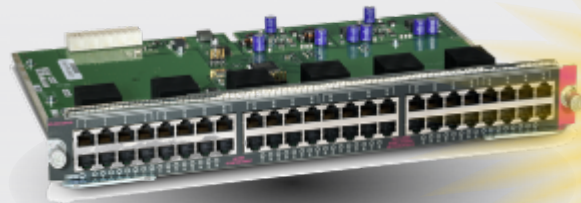
6G (Classic)

24G (E-Series)

Upcoming PoEP Standard and Devices

New Standard—IEEE802.3at for 30W/Port

Industry
First



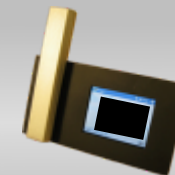
WS-4548-RJ45V+

30W
Capable
TODAY!



WS-X4648-RJ45V+E

Next Gen PoEP Devices Expected CY2009 Onwards



Catalyst 4500 E-Series Core/Distribution Line Cards

WS-X4606-X2-E



Shipping
Since
Nov '07

- 6-Port 10GE Line card
- Support 6 X2 optics
- Supports twin-gig modules

WS-X4624-SFP-E



Shipping
Since
May '08

- 24-Port SFP Line Card
- Supports all GE SFP optics
- Line rate on all ports

24GB/Slot Linecards—Mix with Classic Cards with No Performance H

IOS Features Comparison—LAN Base vs. IP Base

Features	LAN Base Image	IP Base Image
10G Uplink Use	Yes - \$4k License	Yes
SPAN (# of Sessions)—Port Mirroring	2 sessions	8 sessions
Energywise	No	Yes
Location Services	No	Yes
SmartCallHome	No	Yes
HSRP and VRRP	No	Yes
GLBP	No	Yes
L2PT and Q-in-Q	No	Yes
Auto QoS	Yes*	Yes
EIGRP Stub	No	Yes
PIM SM/DM	No	Yes
MLD Snooping	Yes*	Yes
Flex Link	Yes*	Yes
PVST+ & RPVST+	Yes*	Yes
EEM	No	Yes
Smartports (Role-Based MACRO)	Yes*	Yes
ePoE	Yes*	Yes
Multihop SXP (CTS)	No	Yes
	Ships with 4506/4503-E Bundles	Upgrade (\$10,000)

*12.2(53)SG Release: FCS July 2009

Catalyst 4500 6000 Watt PoEP Power Supply

Efficient, Flexible, Scalable, Protects Investment

Flexible and Scalable

- Auto-sensing 110V (15A) /220V (20A)
- Up to 2800W Data and 4200W PoE(P) Power
- 1:1 Redundancy
- Powers fully loaded 4507R-E Chassis with Class 3 devices

Energy Efficient

- Highest average efficiency rating for Catalyst 4500 series power supplies
- Measures true power consumption, integrates with EnergyWise

Investment Protection

- Dual Input power supply scales with growth in power needs
- Compatible with E-Series and classis chassis



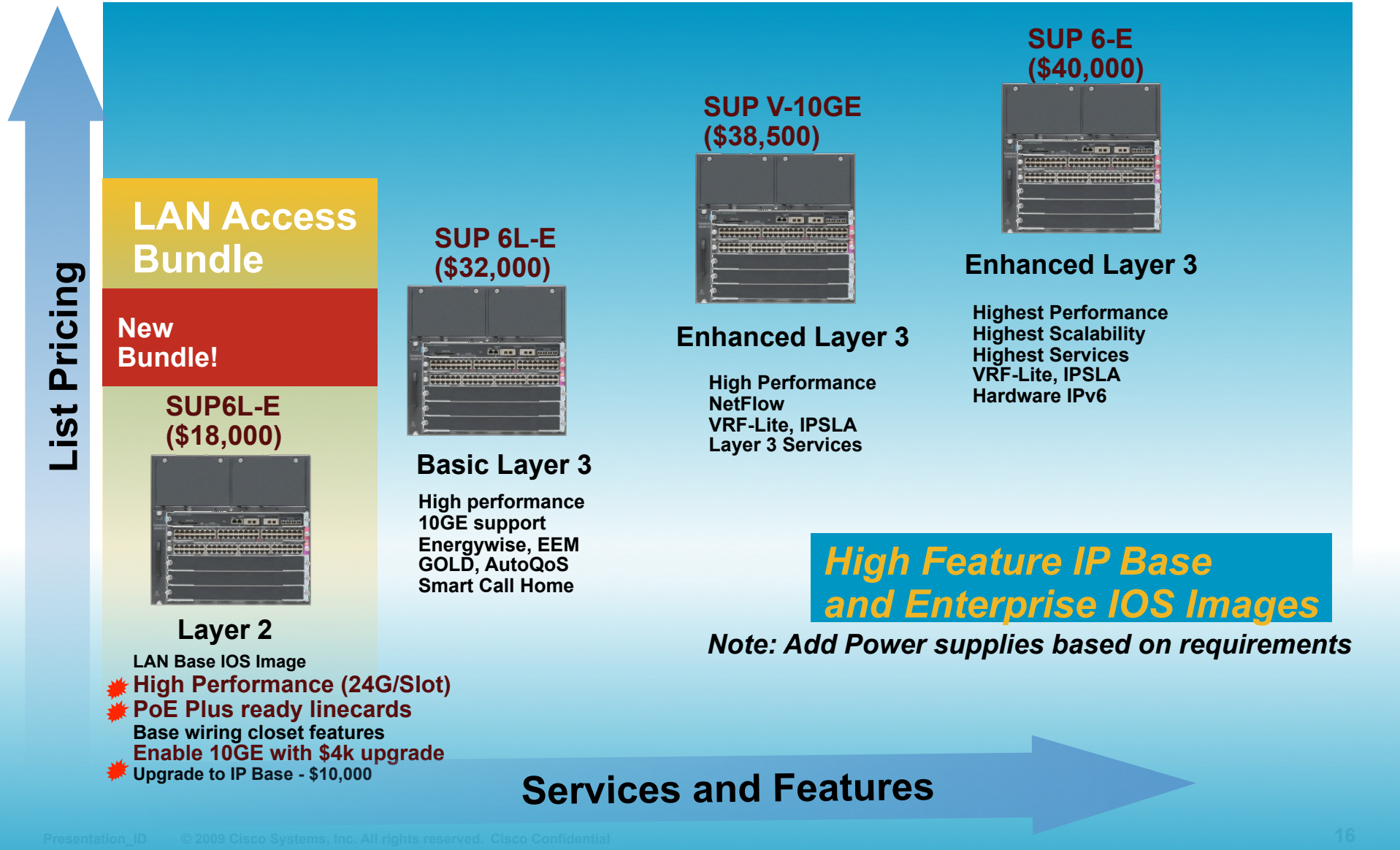
Input Voltage	Line Connected	Output Power	Max # Poe PD (Class 3)	Max # PoEP PD (30W)
220 VAC	Both	6000 W	289	148
	Single	3000 W	144	74
110 VAC	Both	2100 W	111	57
	Single	1050 W	55	28

Competition vs. the Catalyst 4500



Catalyst 4506-E 10GE Configurations

96 Port 10/100/1000 PoE Plus Ready with 10GE Uplinks



Catalyst 4506-E Bundle – PoE Plus Ready

High Performance, Scalable, Unified Communication

WS-C4506E-S6L-96V+

New



Maximizing Flexibility
Maximum Investment Protection
PoEP-ready platform

4506-E Series Chassis

- 24gig per slot, 48gig per slot ready
- Scalable to 240 Ports
- 15.4watts on all 240 ports

Power Supplies

- Configurable to meet unique needs
- 6000 watts PS support

Supervisor 6L-E

- 4-GE or 2-10GE* Uplinks (TwinGig)
- Ships with LAN Base IOS Image
- Upgradeable to IP Base Image (\$10k)

(2) 48 Port E-Series 10/100/1000 PoE

- E-Series PoE Plus ready (up to 30w)
- 802.3af support

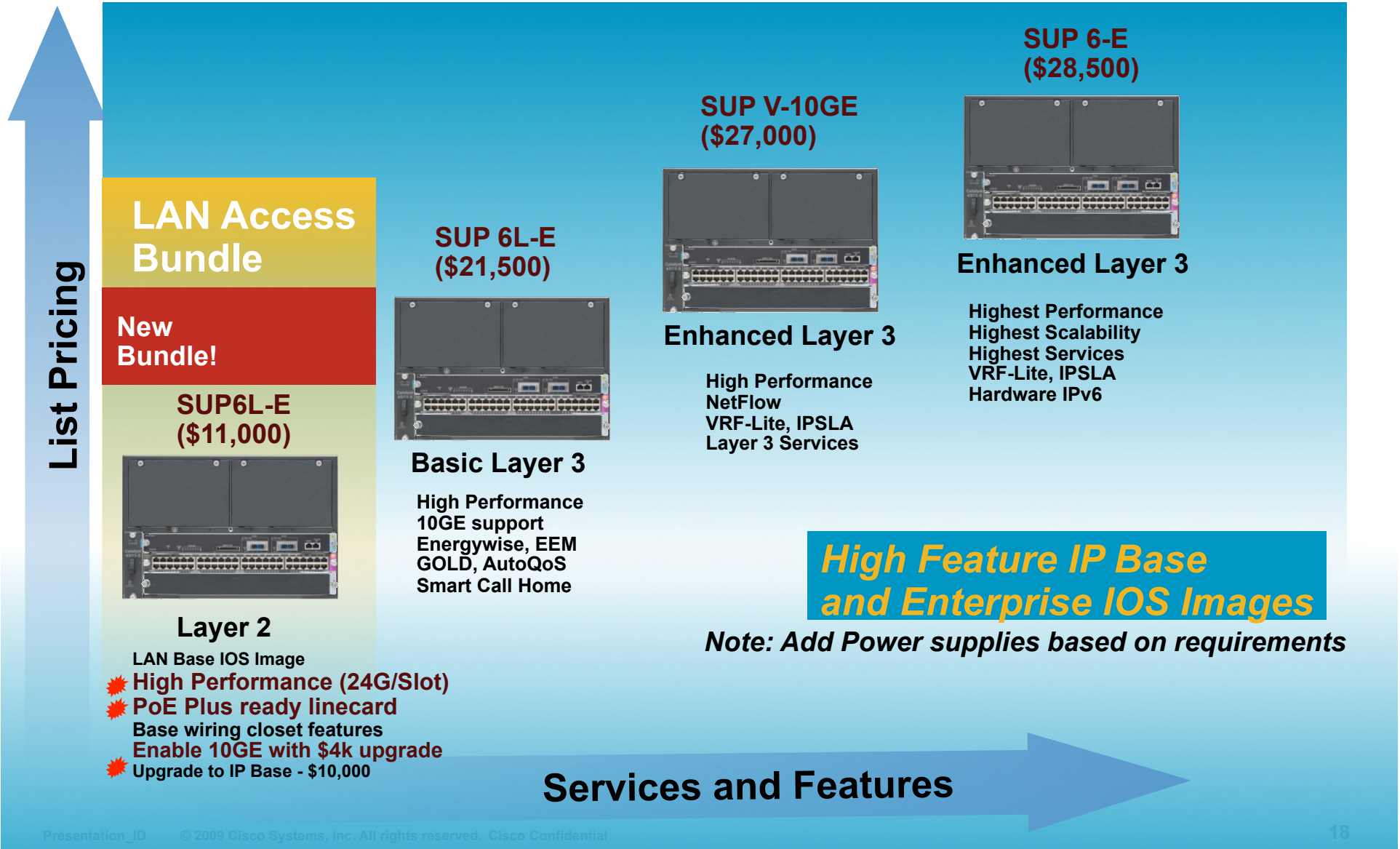
3 Open Slots

- Add any 4500 Line cards
- Scalable to 240 ports or 32 10GE ports

* To enable 10GE — Upgrade to IP Base or 10G Licence (\$4k)

Catalyst 4503-E 10GE Configurations

48 Port 10/100/1000 PoE Plus Ready with 10GE Uplinks



Catalyst 4503-E Bundle – PoE Plus Ready

High Performance, Unified Communication

WS-C4503E-S6L-48V+

New



Maximizing Flexibility
Maximum Investment Protection
PoEP Ready Platform

- **4503-E Series Chassis**
 - 24gig per slot, 48gig per slot ready
 - Scalable to 96 Ports
 - 15.4watts on all 96 ports
- **Power Supplies**
 - Configurable to meet unique needs
 - 6000 watts PS support
- **Supervisor 6L-E**
 - 4-GE or 2-10GE* Uplinks (TwinGig)
 - Ships with LAN Base IOS Image
 - Upgradeable to IP Base Image (\$10k)
- **48 Port, E-Series 10/100/1000 PoE**
 - E-Series PoE Plus ready (up to 30w)
 - 802.3af support
- **Open Slot**
 - Add any 4500 Line card
 - Scalable to 96 ports or 14 10GE ports

* To enable 10GE — Upgrade to IP Base or 10G License (\$4k)

Catalyst 4500 Identity Innovations

Simplifying Identity Deployment



Flexible Roll Out

- Ease of deployment with Flexible Auth: One configuration fits all
- Automated device profiling with NAC Profiler
- No disruption with low impact Open Access mode



Infra Integration

- IP Telephony: Multi-Domain Auth, MAC move
- PXE boot: Open Access
- Shared Media Access Multi-auth



Comprehensive Policy

- VLAN (PVLAN, Guest, Auth Fail), dACL, filter-ID & per-user ACL*, ACS 5.0

* Available on Catalyst 4500 with IOS 12.2(52)SG

Business Value

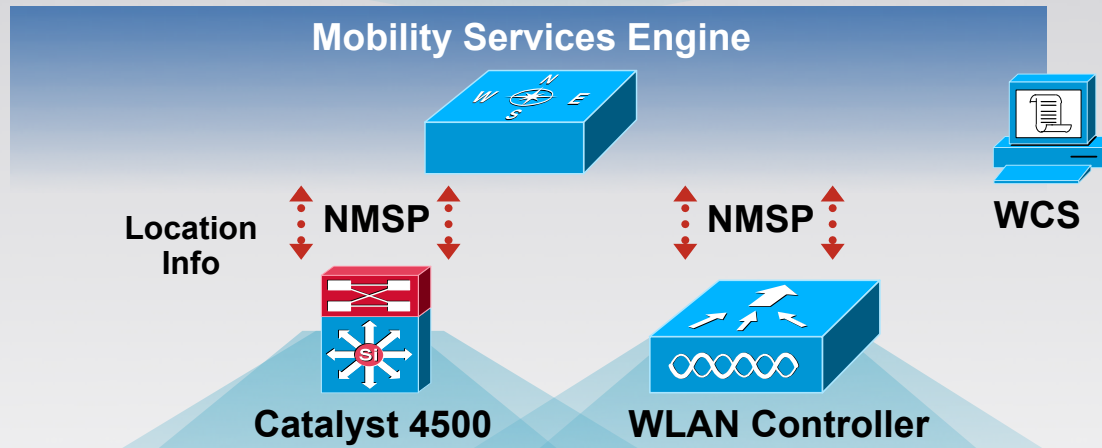
- Simplified identity configuration
- Flexible roll out to support heterogeneous environment
- Minimum disruption to existing infrastructure
- Reduced operational cost

Unified Campus Location Services

Seamless Across Wired and Wireless Endpoints



Open API



- Determine Location of intruder getting access to network (wired and wireless)
- Track assets (wired and wireless)—central inventory for audits and compliance

Available on Catalyst 4500 with IOS 12.2(52)SG

Cisco EnergyWise Architecture

Best of Interop 2009
Winner!

Management applications for IT or Facilities



LMS



Switches and routers communicate through Management API

Management API

Cisco network aggregates status and power measurements

Client Protocol communicates with end points



EnergyWise Domain

Wireless
Controller
APs



Building Field
Controller

EnergyWise Entities



Wireless
Client

Phase 1 available on Catalyst 4500 with IOS 12.2(52)SG

Hvad kræver det?

- Ingen hardware opgradering, kun IOS software opgradering
- Supporterede platforme

Switch serie	IOS software
Cat 2960, 3560, 3560-E, 3750 og 3750-E	IOS 12.2(50)SE eller nyere (IP Base el. IP Services)
Cat 4500	IOS 12.2(52)SG eller nyere
Cat 6500	Planlagt til første halvår 2010 i IOS 12.2(33)SXJ
Cisco EtherSwitch moduler til Cisco ISR routere	IOS 12.2(50)SE eller nyere (IP Base el. IP Services)

Sådan konfigureres det

Simpel konfiguration af tidsstyret politik: Tænd kl. 7.30 og sluk kl. 16.30

```
Switch(config)# int fa0/1
Switch(config-if)#energywise level 10 recurrence importance 100 at 30 7 * *
*
Switch(config-if)#energywise level 0 recurrence importance 100 at 30 16 * *
*
Switch(config-if)# exit
```

Tidsstyringen kan kontrolleres:

```
Switch# show energywise recurrences
Id   Addr   Class Action Lvl Cron
--   ----   -
1    Fa0/1  QUERY SET    10 minutes: 30 hour: 7 day: * month: * weekday: *
2    Fa0/1  QUERY SET    0  minutes: 30 hour: 16 day: * month: * weekday: *
```


Catalyst 6500 Update



QoS White Paper for 6500 Updated

http://www.cisco.com/en/US/prod/collateral/switches/ps5718/ps708/white_paper_c11_538840.html

Understanding Quality of Service on the Catalyst 6500 Switch [Cisco Catalyst 6500 Series Switc - Microsoft Internet Explorer p

http://www.cisco.com/en/US/prod/collateral/switches/ps5718/ps708/white_paper_c11_538840.html

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SWITCHES

CISCO CATALYST 6500 SERIES SWITCHES

PRODUCT LITERATURE

WHITE PAPERS

Understanding Quality of Service on the Catalyst 6500 Switch

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Please rate this document.

Excellent

Good

Average

Fair

Poor

This document solved my problem.

Yes

No

Just Browsing

Suggestions to improve this

Cisco Catalyst 6500 Series Switches

Understanding Quality of Service on the Catalyst 6500 Switch

Downloads

[Understanding Quality of Service on the Catalyst 6500 Switch](#)

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February 2009

Version 4.07

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[Terminology](#)

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New 12.2(33)SX12 Release

New Hardware Features in Release 12.2(33)SX12

- Content Switching Module (CSM)—See these websites:
http://www.cisco.com/en/US/partner/products/hw/modules/ps2706/ps780/tsd_products_support_model_home.html
<http://www.cisco.com/en/US/partner/products/hw/modules/ps2706/ps780/index.html>
- Content Switching Module with SSL (CSM-S)—See these websites:
http://www.cisco.com/en/US/partner/products/ps6077/tsd_products_support_model_home.html
<http://www.cisco.com/en/US/partner/products/ps6077/index.html>
- OneX 10G X2 to SFP+ Converter (CVR-X2-SFP10G)
- 1-Port 10 Gigabit Ethernet SPA (SPA-1X10GE-L-V2)—See this publication:
http://www.cisco.com/en/US/partner/docs/interfaces_modules/shared_port_adapters/configuration/6500series/76intsw.html#SIP,SSC,andSPACompatibility

New Software Features in Release 12.2(33)SX12

- 802.1ag - IEEE D8.1 standard Compliant CFM, Y.1731 multicast LBM / AIS / RDI / LCK, IP SLA for Ethernet—See this publication:
http://www.cisco.com/en/US/partner/docs/ios/cether/configuration/guide/ce_cfm-ieee.html
- Automated Notification and Detection of LTL/FPOE Problem—The Local Target Logic and Fabric Port Of Exit Static Random Access Memory in various constellation based cards are not protected via Empty Catch Clause. A software based parity table is now maintained and updated in firmware to detect and recover from Static Random Access Memory errors on LAN and Komodo+ cards.
- Filter-ID Based ACL Application—See this publication:
http://www.cisco.com/en/US/partner/docs/switches/lan/catalyst6500/ios/12.2SX/configuration/guide/dot1x.html#Filter-ID_ACLS
- Local forwarding on Standby Supervisor Uplinks—See this publication:
http://www.cisco.com/en/US/partner/docs/ios/interface/command/reference/ir_f1.html#fabric_switching-mode_allow
- SSO - BFD—See this publication:
http://www.cisco.com/en/US/partner/docs/ios/iproute/configuration/guide/irp_bfd.html
- SSO - Etherchannel Traffic Convergence Improvement—See this publication:
<http://www.cisco.com/en/US/partner/docs/switches/lan/catalyst6500/ios/12.2SX/configuration/guide/nsfssso.html#RedundancyConfigurationGuidelinesandRestrictions>
- Subinterface Crypto connect vlan support for E-Flexwan/FE PA—See this publication:
http://www.cisco.com/en/US/partner/docs/interfaces_modules/shared_port_adapters/configuration/6500series/76ovwvsn.html#Interoperability
- VSS - MPLS/IP6 Support—See this publication:
http://www.cisco.com/en/US/partner/docs/switches/lan/catalyst6500/ios/12.2SX/configuration/guide/vss.html#Software_Features

New 12.2(33)SXI1 Release

These sections describe the new features in Release 12.2(33)SXI1, 31 Mar 2009:

- [New Hardware Features in Release 12.2\(33\)SXI1](#)
- [New Software Features in Release 12.2\(33\)SXI1](#)

New Hardware Features in Release 12.2(33)SXI1

None.

New Software Features in Release 12.2(33)SXI1



Note See the following site for information about supported MIBs:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

- 6PE Multipath—See this publication:
http://www.cisco.com/en/US/partner/docs/ios/ipv6/configuration/guide/ip6-mptcl_bgp.html
- 802.1x with user distribution—See this publication:
http://www.cisco.com/en/US/partner/docs/switches/lan/catalyst6500/ios/12_2SX/configuration/guide/dot1x.html#Using_Multiple_VLANs_and_VLAN_User_Distribution_with_VLAN_Assignment
- BGP Support for 4-byte ASN—See these publications:
http://www.cisco.com/en/US/partner/docs/ios/iproute/configuration/guide/irp_bgp_basic_net.html
http://www.cisco.com/en/US/partner/docs/ios/iproute/configuration/guide/irp_bgp_overview.html
- CISCO-IP-IF-MIB Support for IP Helper addresses—See this publication:
http://www.cisco.com/en/US/partner/docs/ios/interface/configuration/guide/ir_ipunnelmibs.html
- Modular IOS Usability - ION Installer Usability Enhancements—See this publication:
http://www.cisco.com/en/US/partner/docs/ios/swmod/configuration/guide/12_2SX/sw_mod_12_2SX_book.html
- Trusted boundary with Cisco device verification—See this publication:
http://www.cisco.com/en/US/partner/docs/switches/lan/catalyst6500/ios/12_2SX/configuration/guide/gos.html#Configuring_Trusted_Boundary_Device_Verification
- VSS Support on IP Base Image—See the "[Feature Set Descriptions](#)" section.

New Features in Release 12.2(33)SXI

These sections describe the new features in Release 12.2(33)SXI, 11 Nov 2008:

- [New Hardware Features in Release 12.2\(33\)SXI](#)
- [New Software Features in Release 12.2\(33\)SXI](#)



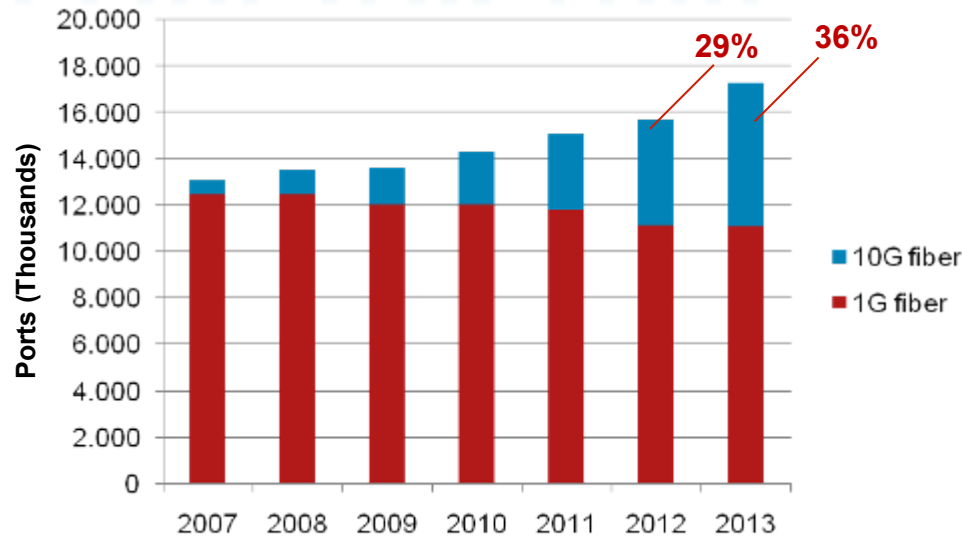
Note • These commands, which are present in the Release 12.2(33)SXI CLI, will be tested and supported in a future release:

- **add prepend** option to **install bind** command
- **add reload** option to **install activate** command
- **add pending** option to **show install running** command

It's a Gig World ... for several more years

Cat6500 cost optimized for high-performance GbE aggregation

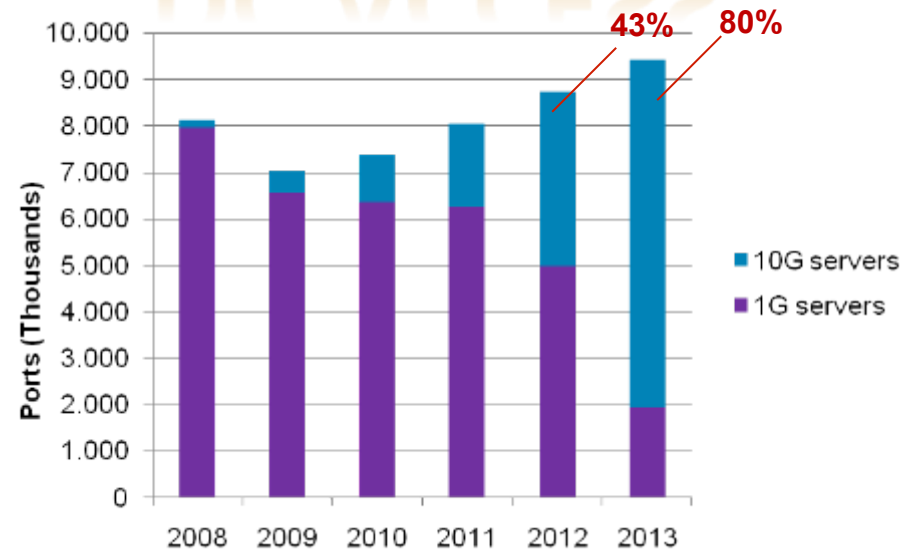
CORE/DISTRIB.



Source: Dell'Oro (January 2009)

The Fiber View

DC ACCESS



Source: x-BU forecast (March 2009)

The Copper View

Complementing Nexus in the DC

Continuous investment to support the customer base

Future in Red

End of Row GbE Access

- Cost optimized for GbE density
- VSS in L2 bundles
- **1000BASE-T > 10GBASE-T transition**

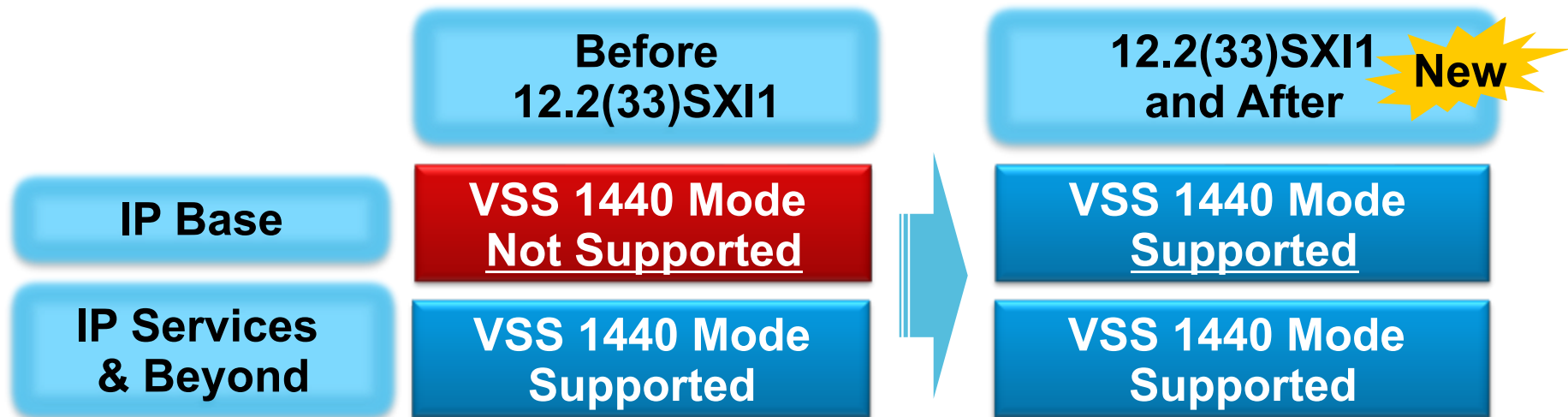
Integrated Services

- SMs as competitive differentiator
- “Services chassis” for Nexus

Data Center Interconnect

- MPLS, 10G+ IPSec, DWDM
- SIP600 DCI bundles
- L2 extension (VPLS, L2oGRE, VSS)

Catalyst 6500 Software Packaging



Starting with 12.2(33)SXI: IPv6 Reformation
IPv6 Feature sets are NOW in parity with IPv4

Advanced IP
Services - (IPv6) –
Prior to 12.2(33)SXI



IP Base image –

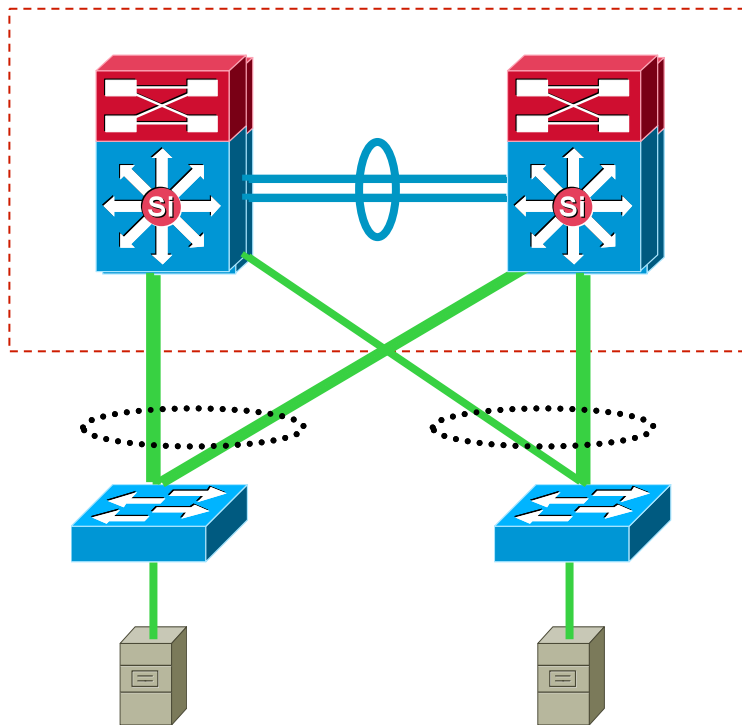
- IPv6 Host features
- Management over IPv6: (Syslog, SNMP, Telnet, SSH)

IP Services image –Key Features include:

- Routing: EIGRPv6, OSPFv3
- IPv6 multicast
- IPv6 tunneling
- DHCPv6

Virtual Switching System (VSS) Innovations

VSS Environment

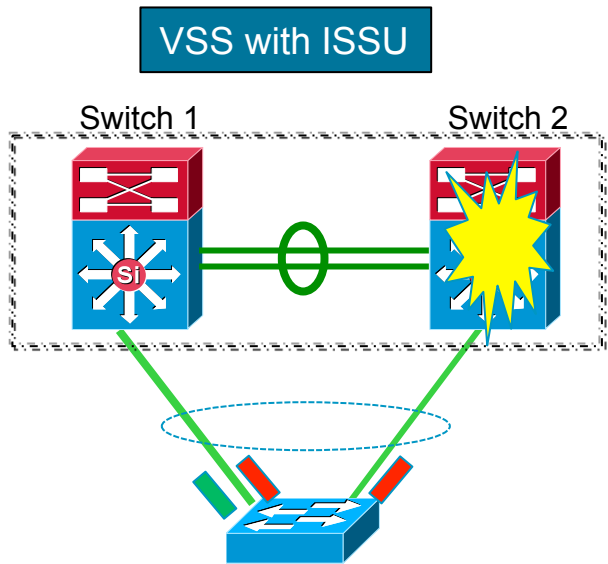


- Increased network availability with ISSU
- PACL support on VSS interface
- Scalable up to 512 Port Channels
- “Services Ready VSS”
 - FWSM
 - ACE
 - WiSM
 - IDSM2
 - NAM (supported in SXH1)
- Extending VSS to IP Base image (with SXI1)
- **Dual Stack IPv4/IPv6 & VSS. [12.2(33)SXI2]**
- **MPLS Support & VSS. [12.2(33)SXI2]**

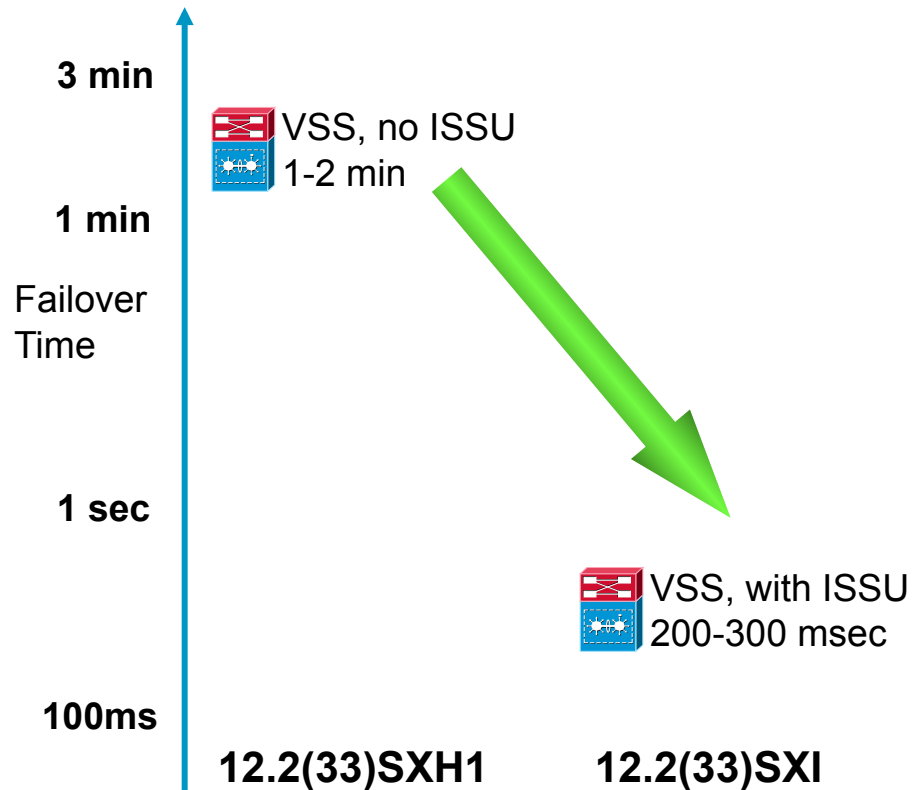
eFSU + VSS = ISSU

Cisco eFSU (enhanced Fast Software Upgrade) & VSS = ISSU

- VSS & ISSU will provide ~200msec upgrade window (assuming dual-homed access devices)
- Very suitable for voice deployments, where acceptable loss of service is close to 200 -300 msec



Network Impact - 200-300 ms



Cisco Catalyst 6500 & 6500-E Series Switches Obtain IPv6 Ready Phase II Logo



**First Cisco switching platform to be
IPv6 Ready Phase II Logo certified !**

IPv6 Ready Logo Program --- By IPv6 Forum

- Certified with 12.2(33)SXI IOS Software Release
- Validate IPv6 readiness on the network devices
- Ensure IPv6 functionalities and Interoperability

- Phase I program --- Core IPv6 Protocols
- Phase II covers entire IETF specifications testing.

http://www.ipv6ready.org/phase-2_approved_list



OneX - SFP+ adapter for Cat 6500/4900M

Making every 10G X2 Port SFP+ capable



CVR-X2-SFP10G

C6K: 12.2(33)SX12 Upcoming

4900M: 12.2(52)SG Now Available

OneX is a converter module that allows a SFP+ to be used in a X2 slot.

OneX fits into a X2 slot and in turn has a slot into which a SFP+ can be plugged in.

Compatible with all 10GE X2 ports on the Catalyst 6500 and 4900M Series Switches

CX1 and SR Flavors supported at FCS

PWR-6000-DC= Power Supply



New Variable Output Supply

6000W – 4 inputs

4500W – 3 inputs

2800W – 2 inputs

High power efficiency ~ 85%

Chassis supported:

WS-6506/6506E

WS-C6509/6509E

WS-C6513/6513E

WS-C6509-V-E

WS-C6509-NEB-A

Announcing support with 12.2(33)SX12, but will support 12.2(18)SXF13, 12.2(33)SXH1, and 12.2(33)SX11

12.2(33)
SX12

Why 10GBASE-T matters

Simple to Understand

- Familiar and well understood RJ45 connectors

Simple to Deploy

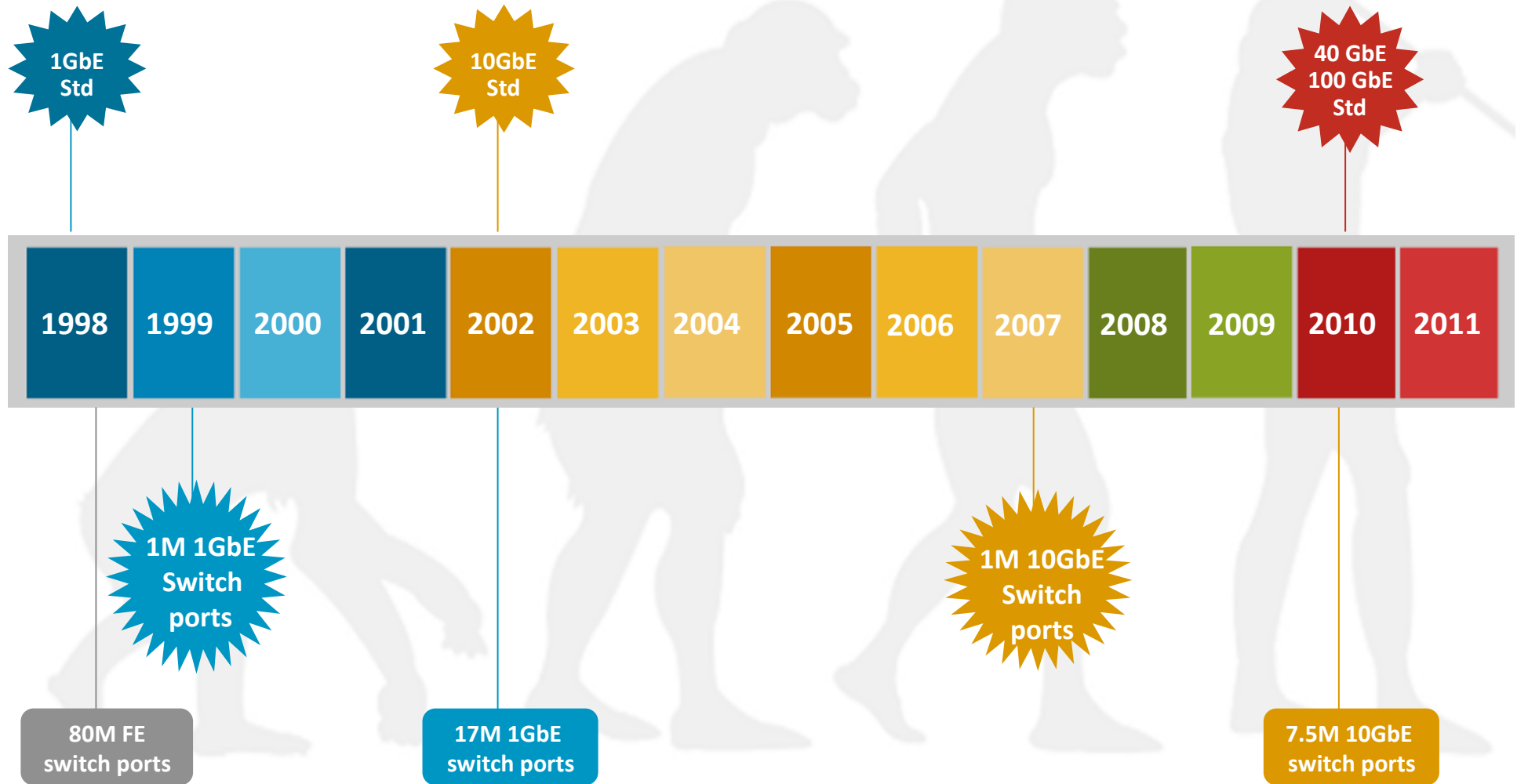
- Leverage structured cabling infrastructure

Simple for Servers

- De facto choice for upcoming (2010/11) 10G on server LAN-on-motherboard
- 100/1000/10000 multi-speed is key to decouple server buying cycle from network infrastructure

10G copper set to grow from 6% to 50% of 10G ports by 2013 driven by 10GBASE-T
(Source: Dell'Oro)

Evolution of High-Speed Ethernet

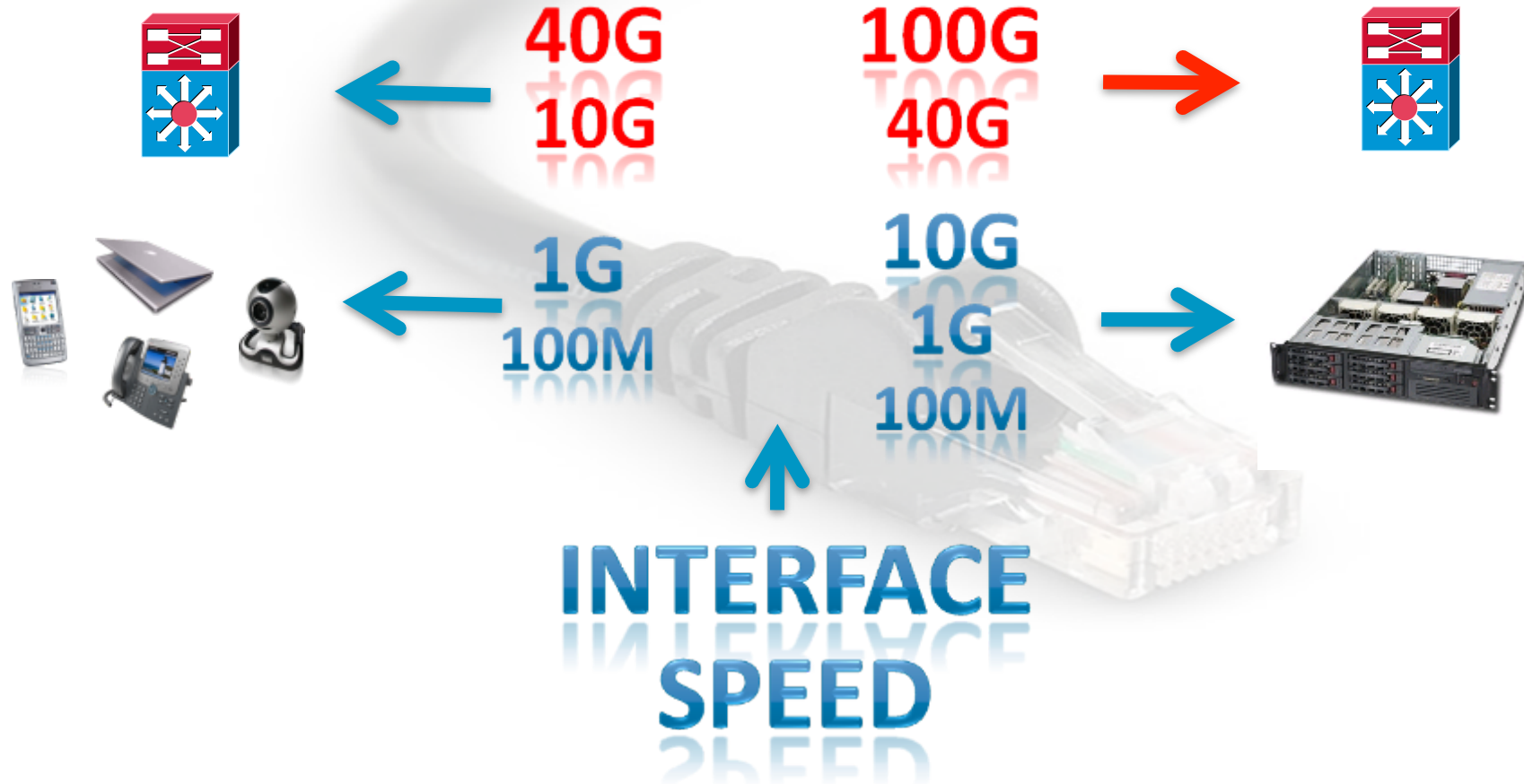


The faster the speed, the longer the adoption

Bandwidth needs in the Enterprise

CAMPUS

DATA CENTER



Catalyst 6500 eWAN

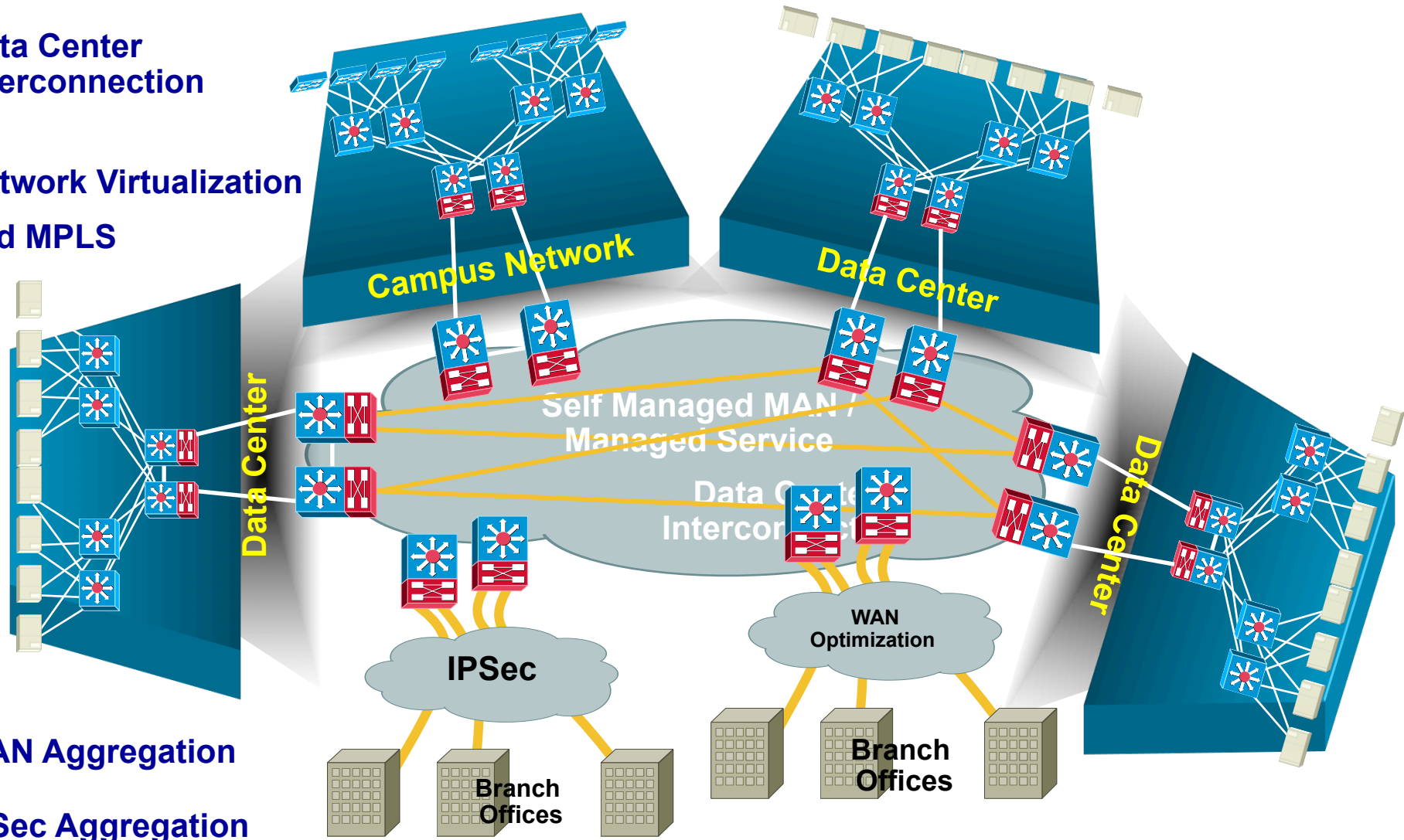
The Heart of the Enterprise End-To-End Solutions

Data Center interconnection

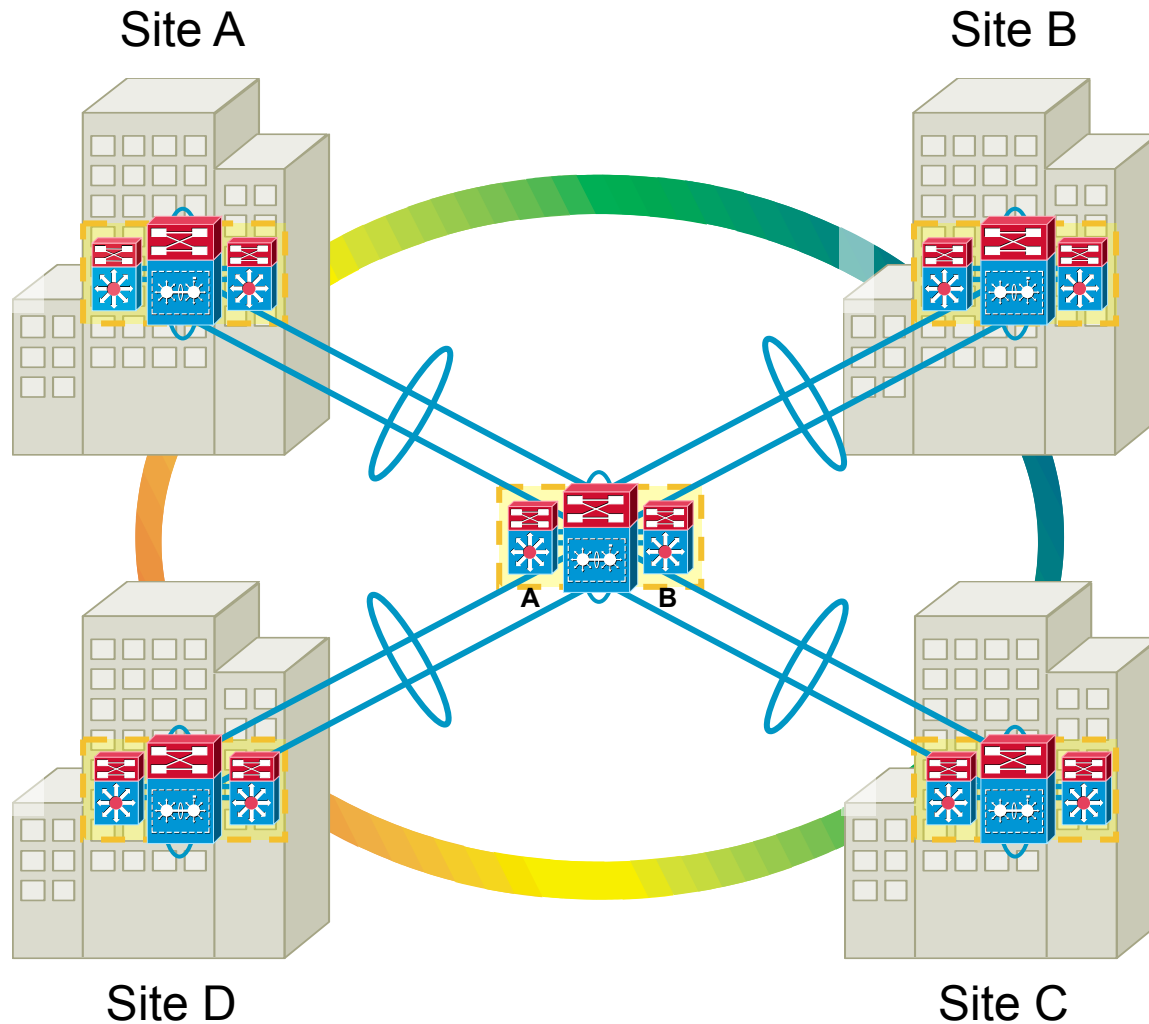
Network Virtualization and MPLS

WAN Aggregation

IPSec Aggregation



DC Interconnect LAN Extension



- From a layer 2 perspective this is a **star topology**
- Etherchannel is used to provide load balancing
- Distance limited by DWDM
- Use 8 Lambda

**DWDM X2
available
12.2(33)
SXI**

SIP400-10GE WAN Connectivity

12.2(33)SXI2
July 09

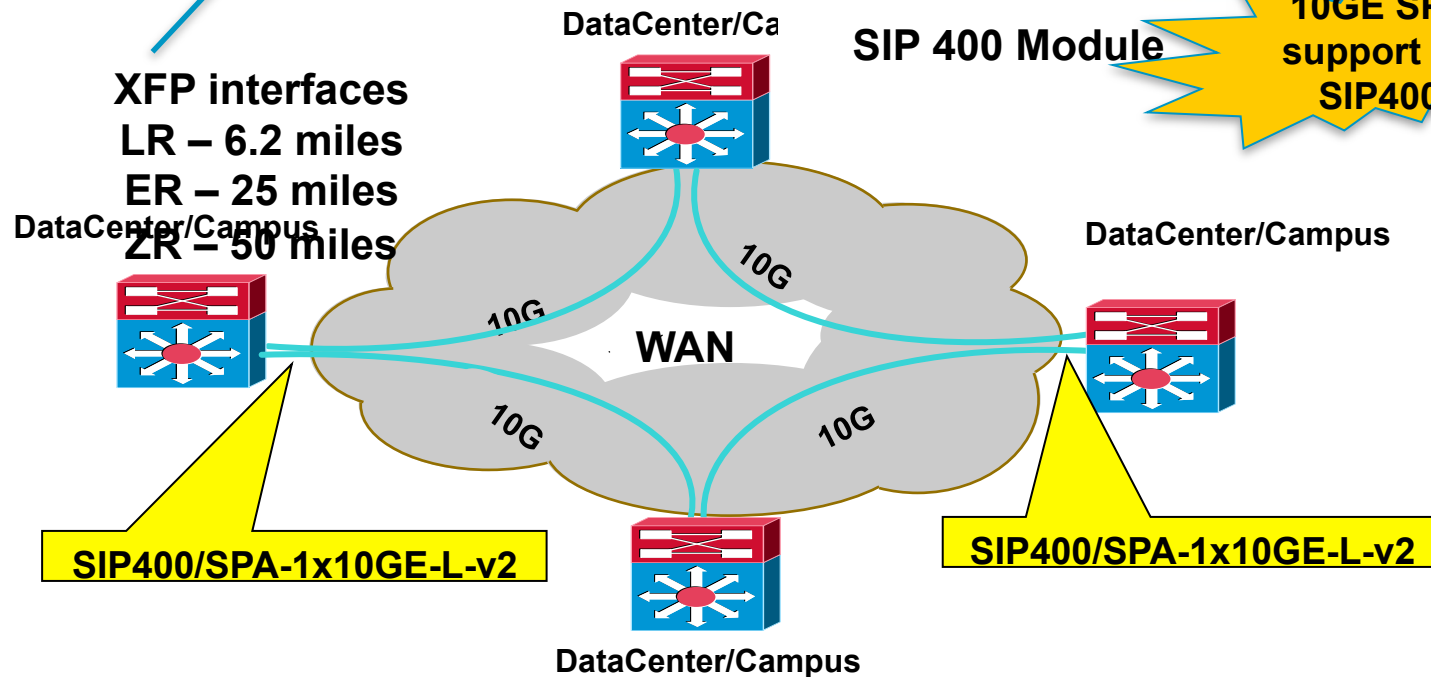
10-GE SPA Module "SPA-1X10GE-L-V2"



Extending the DCI solution

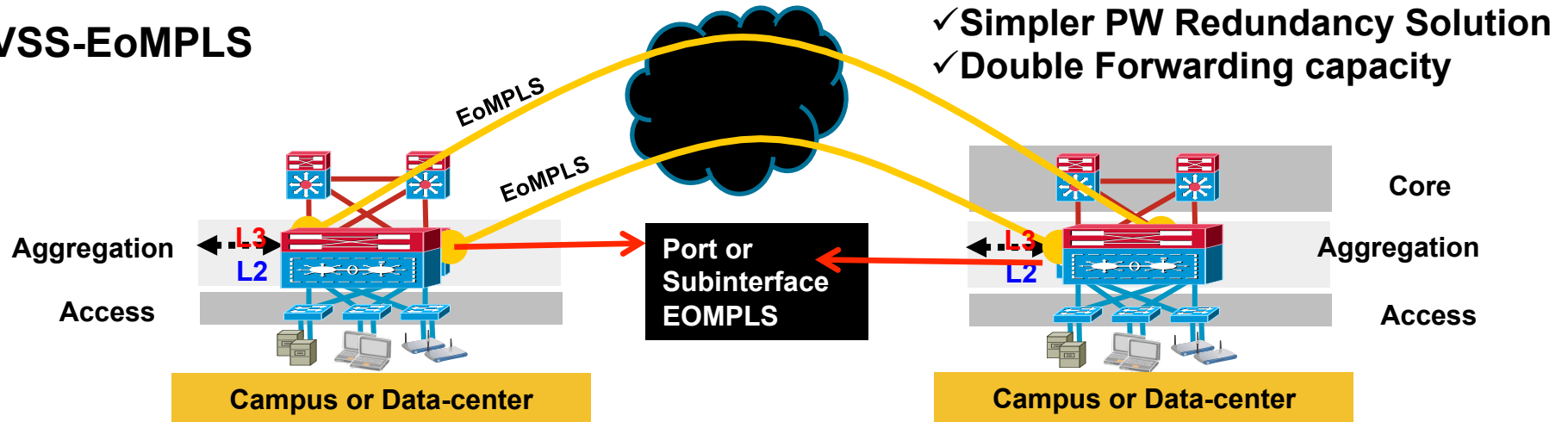


10GE SPA support on SIP400

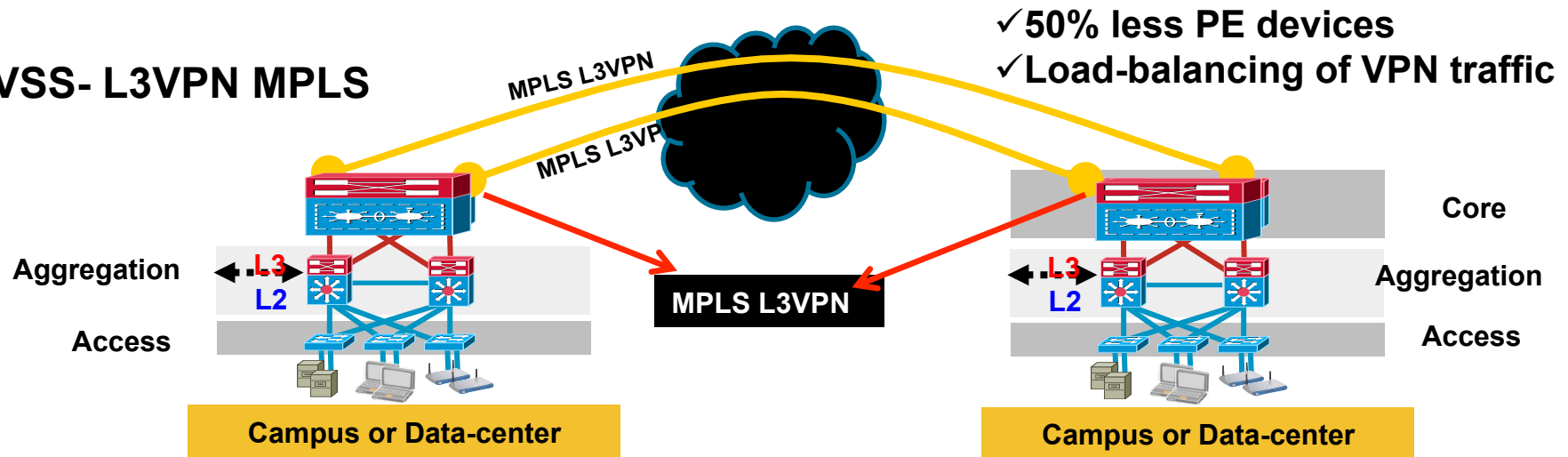


VSS-MPLS (PFC-based)

VSS-EoMPLS



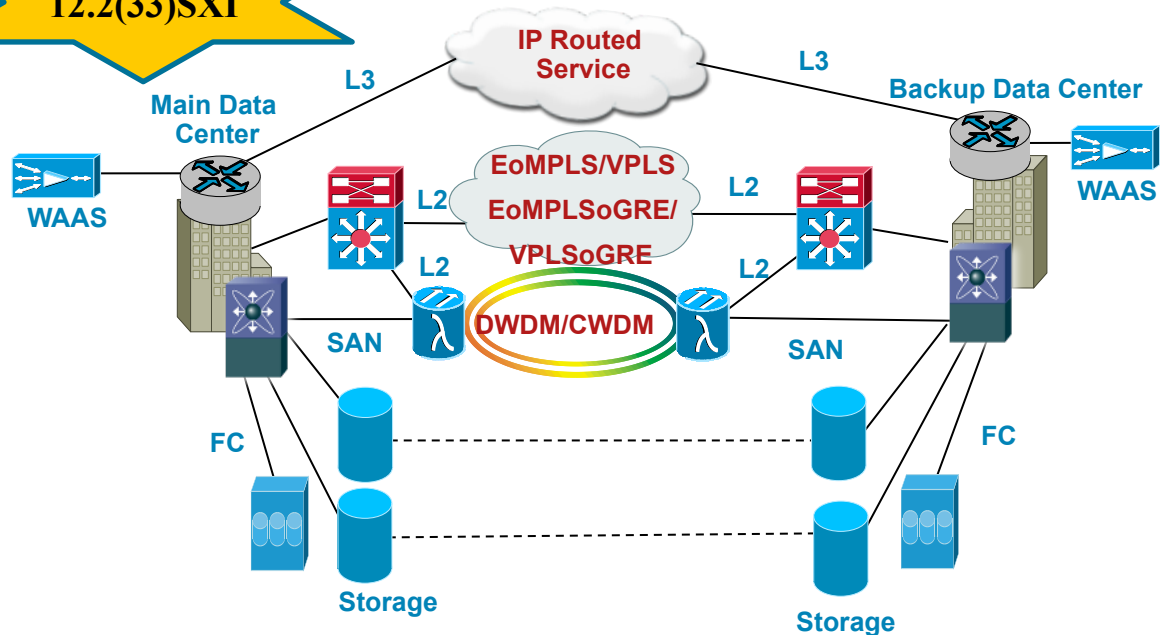
VSS- L3VPN MPLS



6500 DCI Line-rate 10G Line Cards

Shipping Now

12.2(33)SXI



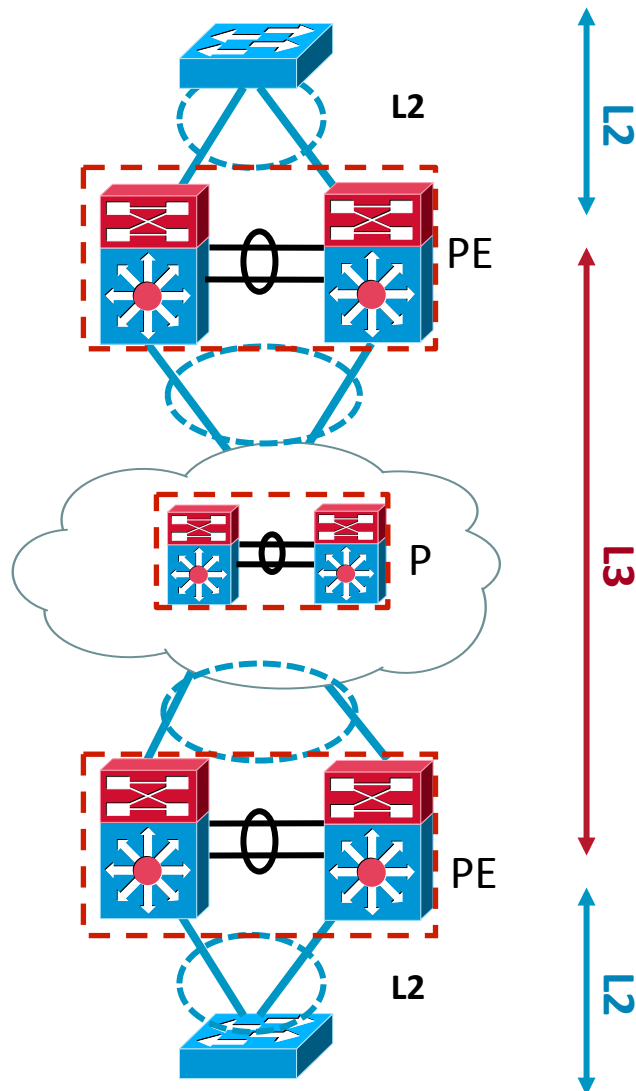
SIP-600 DCI Bundle



SIP600 Bundle Pricing
On C6500!
\$50k List

- SIP600 key selling points (Shipping now)**
- ✓ Special Bundle Pricing \$50k List
 - ✓ PIDs : VPLS-2x10GE-XFP= ; VPLS-2x10GE-LAN= ;
 - ✓ Bundle includes 2xSIP600/1x10GE SPA
 - ✓ 10G Line rate VPLS
 - ✓ HQoS

MPLS Support for VSS



- MPLS feature parity between VSS and standalone systems *
- Leverage MPLS LDP, IGP and MP-BGP graceful-restart to offer sub-second network recovery during VSS member failure
- MPLS deployment with VSS brings advantages both for L2 VPNs and L3 VPNs deployment scenarios

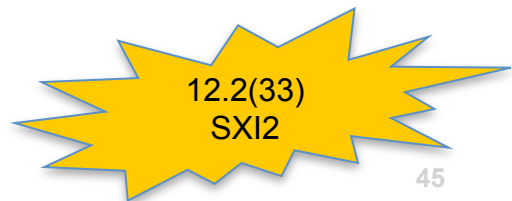
L3 VPNs – MPLS VPN

- Operational simplification
 - 50% reduction in number of PE devices (VRF definition, MP-iBGP configuration, ...)
- No additional configuration required to provide load-balancing for VPN traffic

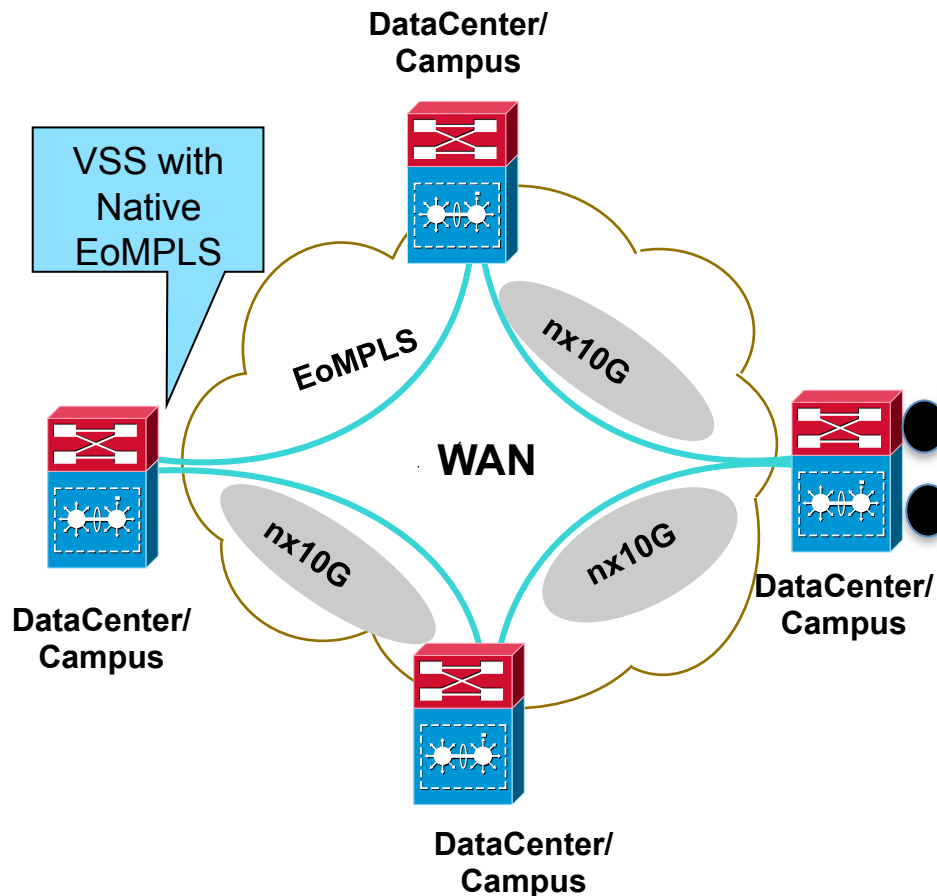
L2 VPNs – EoMPLS

- Operational Simplification
- Simpler PW redundancy solution with doubled forwarding capacity

* SIP Modules are not supported in VSS



MPLS for VSS – L2 VPN



Native EoMPLS features supported in VSS

1) Port-Mode EoMPLS-VSS

```
interface GigabitEthernet1/24
no ip address
xconnect <a.b.c.d> 1 encap mpls
```

2) Sub-interface Mode EoMPLS-VSS

```
interface GigabitEthernet1/4.2
encapsulation dot1Q 3
xconnect <a.b.c.d> 1 encapsulation mpls
```

Eliminates STP loops in access due to MEC

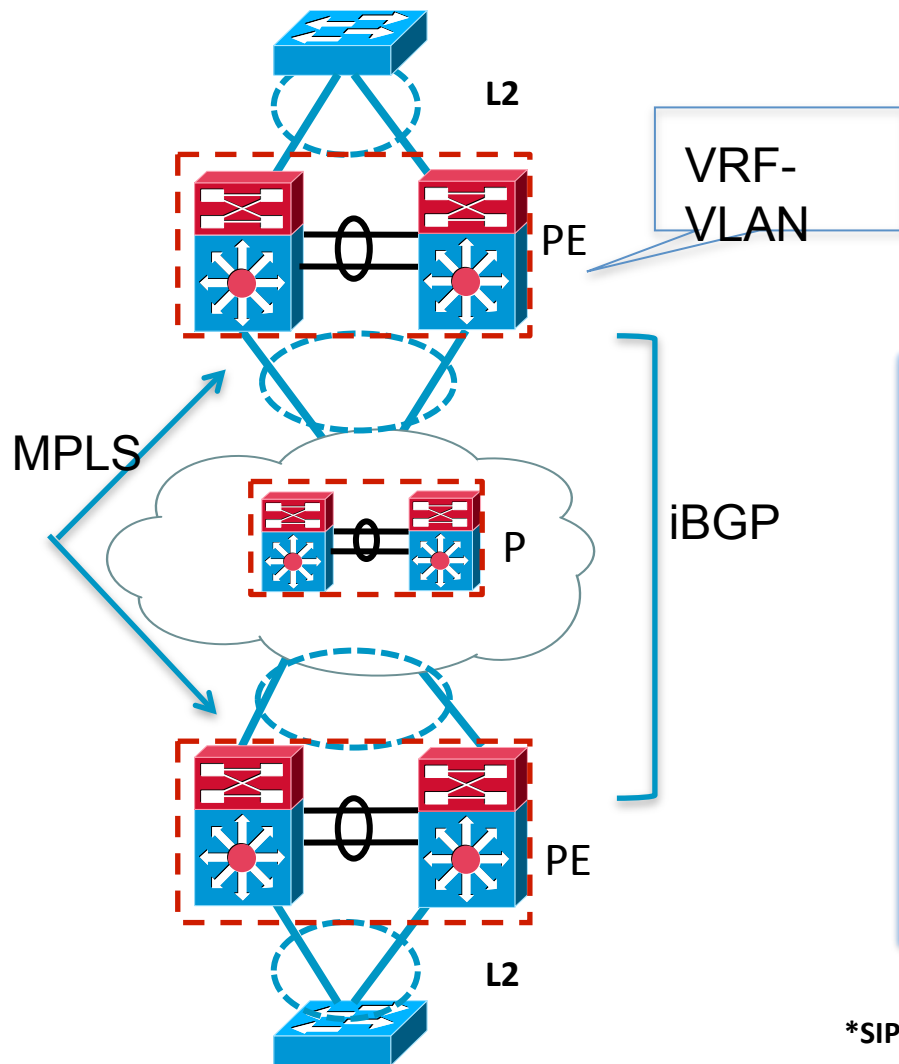
Configuration simplicity
Easier loop avoidance

Eliminates need for Pseudowire Redundancy

Pseudowire remains up with failure of single link/device
Better link utilization due to MEC

12.2(33)
SX12

MPLS for VSS – L3 VPN



1. Define VRF's on the logical VSS pair
2. Map Vlans to VRFS
3. Enable MPLS on L3 links connecting to core
4. Configure MP-BGP

Single point of management

Simplified configuration (>50%)

Efficient IP addressing

One gateway address per CE

Reduction in BGP peering (better resource utilization)

BGP updates/messages etc. reduced by 50%

Less control-plane load

Dual Homed CE simplicity

Efficient PE-CE link utilization

Predictable and faster convergence on link-failure

Eliminates Redundant CE network in VPNv4 table

*SIP Modules are not supported in VSS

12.2(33)
SX12



Cisco Catalyst 4900 Series Overview



June, 2009

Catalyst 4900 Series Overview

Data Center/ LAN Distribution

Catalyst 4928-10GE



**28 1GbE SFP downlinks
2 10 GE X2 uplinks**

Catalyst 4900M



**40 10/100/1000 RJ45
16 ports of 10 GE X2
8 10 GE X2 uplinks**

Data Center Access

Catalyst 4948



**48 10/100/1000 RJ45 downlinks
4 SFP uplinks**

Catalyst 4948-10GE



**48 10/100/1000 RJ45 downlinks
2 10 GE X2 uplinks**

Cisco Catalyst 4948 and 4948-10GE Software Options

Single Cisco IOS® image across all Cisco® Catalyst® 4900 Series switches

- **LAN Base software: Basic L2**
Limited security and QoS features
- **IP Base Software: Basic L3**
- **Enterprise Services: Full L3**
- **Crypto images provide:**
SSH v1
SSH v2

**New
12.2(52)SG**



LAN Base Image

Created for basic L2 needs

Enables Layer 2 Connectivity and supported L2 features.

Enables basic security

DHCP snooping, 802.1x & 802.1x enhancements

Number of Security aces supported 4K

Number of QoS filters supported 4K

	Default IOS	Power Supply	List Price
WS-C4948	LAN Base	None	\$7,995 NEW
WS-C4948-S	IP Base	1 AC power	\$10,495
WS-C4948-E	Ent Services	1 AC power	\$14,495
WS-C4948-10GE	LAN Base	None	\$12,500 NEW
WS-C4948-10GE-S	IP Base	1 AC power	\$15,000
WS-C4948-10GE-E	Ent Services	1 AC power	\$19,000

Catalyst 3750E/3560E Software Release Roadmap

12.2(46)SE

August 2008
Shipped

Security

- Identity MIBs
- Local Web Auth Banner

IPv6

- IPv6 DHCP Relay/Server/Client
- HSRP V6

Other

- DHCP Port Based Allocation
- DOM SX, LX and ZX, 3560E
- Disabling MAC learning
- HSRPv2 – Sub second timers
- EOT Reliable Static Route
- VSS Enhanced PAGP

Software Activation

- Evaluation License
- License transfer

12.2(50)SE

FCS – Q1CY09
Shipped

Security

- 802.1x Switch Supplicant
- Multi User Authentication
- Flexible Authentication
- Open1X
- CDP Client Logoff

L2 and Management

- Config download using SCP
- Wireless location integration
- COS/DSCP TLV LLDP
- LLDP MIB
- Auto Smart Ports

IPv6

- IPv6 Packaging Change

Other

- EnergyWise
- ISIS v4

12.2(52)SE

FCS – Q4CY09
Committed

Security

- Identity – MAC move
- RADIUS Change of Authorization
- 802.1X user distribution
- Web Auth – user page customization
- SNMPv3 3DES
- IPSG for static hosts

L2 and Management

- VTP v3
- LLDP-MED MIB
- Auto Smart Ports (enhancements)
- Smart Install
- DHCP option 12 hostname

Other

- EnergyWise 1.5
- MediaNet (Video initiative)
- EEM 3.2
- IPv6 QoS

Catalyst 3750/3560 Software Release Roadmap

12.2(46)SE

August 2008
Shipped

Security

- Identity MIBs
- Local Web Auth Banner

IPv6

- IPv6 DHCP Relay/Server/Client
- HSRP V6

Other

- DHCP Port Based Allocation
- DOM SX, LX and ZX, 3560E
- Disabling MAC learning
- HSRPv2 – Sub second timers
- EOT Reliable Static Route
- VSS Enhanced PAGP

Software Activation

- Evaluation License
- License transfer

12.2(50)SE

FCS – Q1CY09
Shipped

Security

- 802.1x Switch Supplicant
- Multi User Authentication
- Flexible Authentication
- Open1X
- CDP Client Logoff

L2 and Management

- Config download using SCP
- Wireless location integration
- COS/DSCP TLV LLDP
- LLDP MIB
- Auto Smart Ports

IPv6

- IPv6 Packaging Change

Other

- EnergyWise
- ISIS v4

12.2(52)SE

FCS – Q4CY09
Committed

Security

- Identity – MAC move
- RADIUS Change of Authorization
- 802.1X user distribution
- Web Auth – user page customization
- SNMPv3 3DES
- IPSG for static hosts

L2 and Management

- VTP v3
- LLDP-MED MIB
- Auto Smart Ports (enhancements)
- Smart Install
- DHCP option 12 hostname

Other

- EnergyWise 1.5
- MediaNet (Video initiative)
- EEM 3.2
- IPv6 QoS (trust only)

Catalyst 2960/2975 Software Release Roadmap

12.2(46)SE

August 2008
Shipped

Security

- Identity Mibs
- Multi Domain Auth (MDA)
- Voice Aware 802.1x, MAB
- Radius Filter ID Support

Other

- DHCP Port Based Allocation (LAN Lite)
- Disabling MAC learning
- POE Policing

12.2(50)SE

FCS – Q1CY09
Shipped

Security

- 802.1x Switch Supplicant
- Multi User Authentication
- Flexible Authentication
- Open1X
- CDP client logoff

L2 and Management

- Config download using SCP
- Wireless location integration
- COS/DSCP TLV LLDP
- LLDP MIB
- Auto Smart Ports

Other

- EnergyWise

12.2(52)SE

FCS – Q4CY09
Committed

Security

- Identity – MAC move
- RADIUS Change of Authorization
- IPSG for static hosts
- Web auth – user page customization

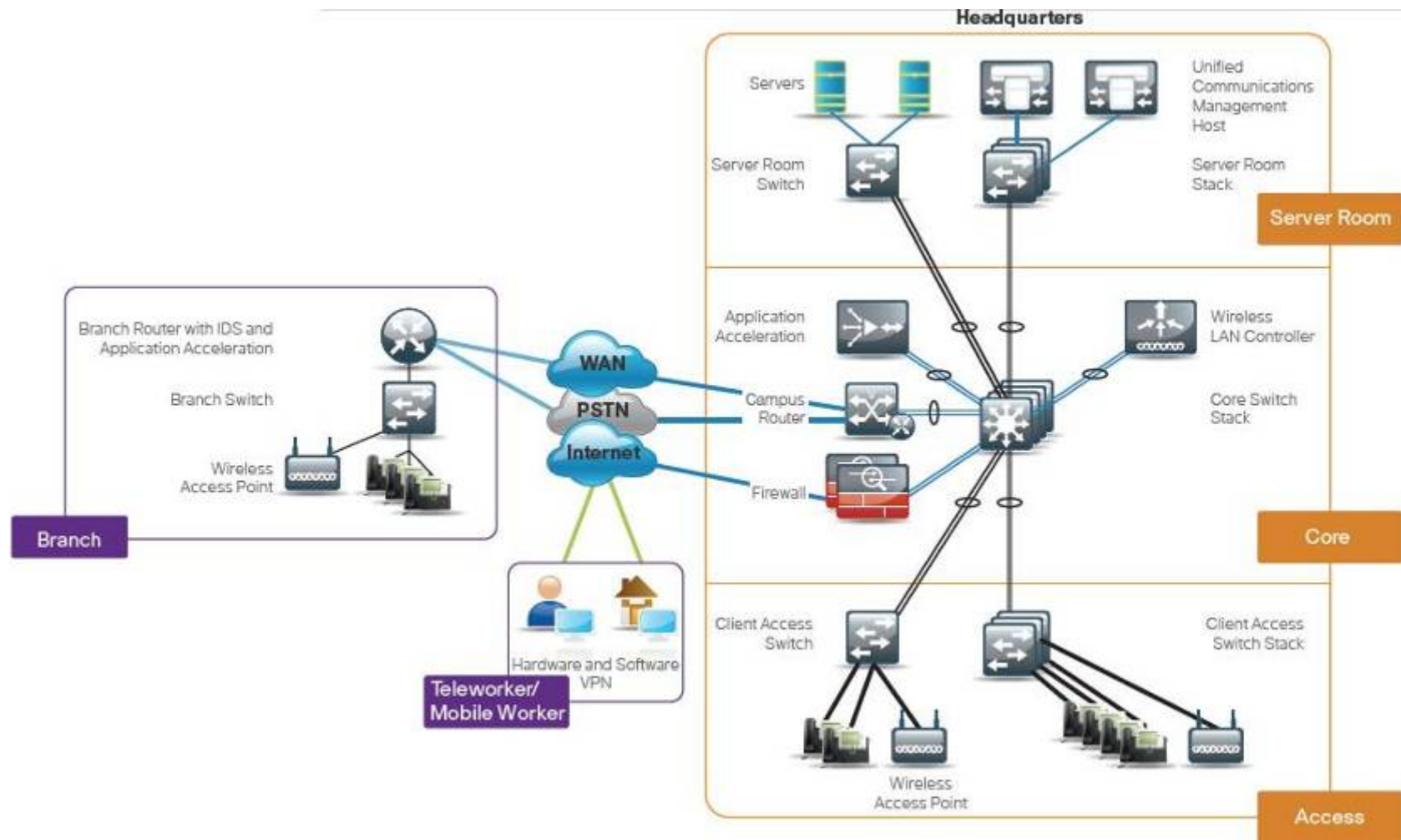
L2 and Management

- VTP v3
- LLDP-MED MIB
- Auto Smart Ports (enhancements)
- Smart Install
- DHCP option 12 hostname

Other

- EnergyWise 1.5

Network Architecture Baseline



Recommended Products & Services

Product SKUs, software versions, and specific configuration files are provided in the guides

Campus Core

- Cisco Catalyst 3750 or 3560
250 – 600 connected endpoints
- Cisco Catalyst 4507R
500 – 1,000 connected endpoints

Campus Access

- Cisco Catalyst 3750 or 3560

Security

- Cisco ASA 5510
- Cisco IPS 4240

Application Acceleration & WAN Optimization

- Cisco WAAS software
- Cisco Wide Area Application Engine (WAE)
502 NM in branch router
- Cisco WAE 512 appliance for Application Acceleration endpoint at headquarters
- Cisco WAE 512 appliance for Central Manager at headquarters

Teleworker /Mobile Worker

- Cisco ASA 5505
- Cisco VPN and Cisco AnyConnect

Unified Communications

- Cisco Unified Communications Manager
- Cisco Unity Connections

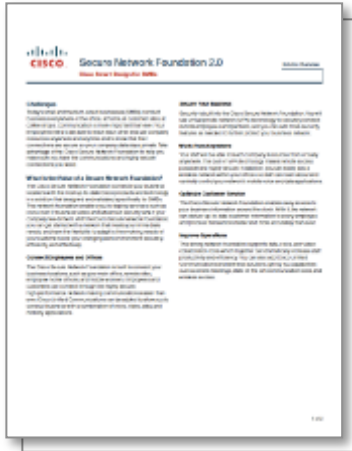
WAN / Branch / Wireless

- Cisco 3845 ISR
- Cisco 2811 ISR w/IPS, AIM, NM
- Cisco WLC 5508
- Cisco AIR-LAP1140

Services from Cisco & Partners

- Cisco Smart Care
- Cisco SMARTnet Service
- Cisco Software Application Support
- Cisco Services for Intrusion Prevention System (IPS)
- Cisco Smart Foundation Service
- Cisco Unified Communications Essential Operate Service
- Partner migration and implementation services⁵⁶

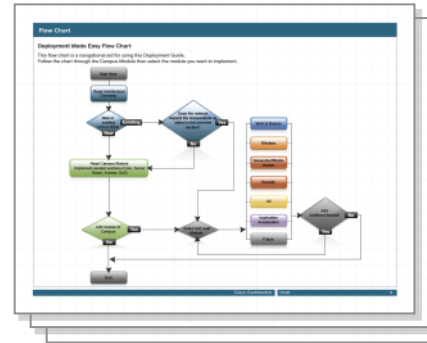
Smart Business Architecture for Midsize Networks Assets



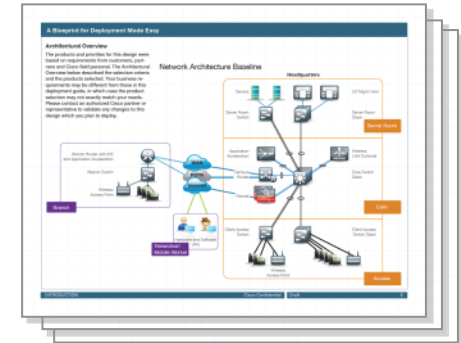
Partner and Customer At-a-Glance
2 pages each



Partner Enablement Assets
At-a-Glance, What's in It for Me, How to Sell, and Customer Presentation



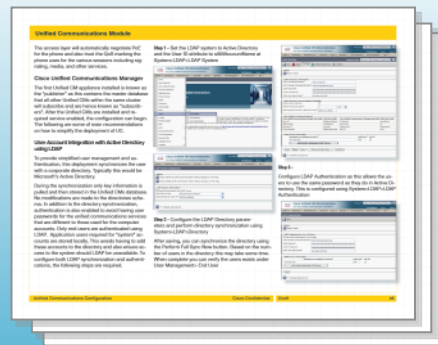
Design Guide
12-15 pages



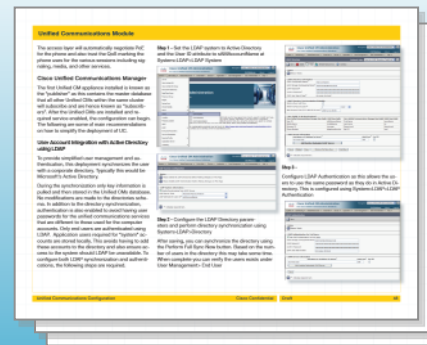
Deployment Guide
50 pages



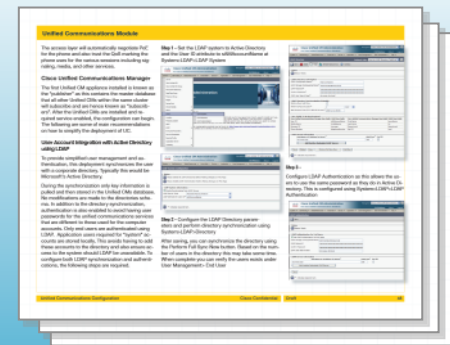
Configuration Reference
50 pages



Network Management Integration Guides



Unified Communications Acceleration Guide
30 pages



Data Center and Collaboration Deployment Guides
(Late 2009)

