



Cisco Switching Update



Even Solberg
Product Manager



Agenda

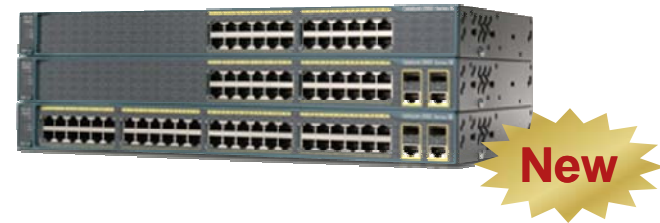
- Catalyst 2960
- Catalyst 3560-E / 3750-E
- Catalyst 4500-E
- Catalyst 6500-E & VSS
- Nexus 7000

Cisco Catalyst 2960 Series Switches

Catalyst 2960 LAN Base Series



Catalyst 2960 LAN Lite Series



- Fast Ethernet and Gigabit Ethernet in 8-, 24-, and 48-port configurations for entry-level enterprise and mid-market customers
- Offers enhanced Layer 2+ intelligent LAN services:
 - Availability**
 - Enhanced security**
 - Advanced quality of service (QoS)**
- Simplified management and troubleshooting for lower total cost of ownership
- Cisco Network Assistant and Cisco Smartports
- Limited lifetime hardware warranty and software updates at no additional charge

- Fast Ethernet in 24- and 48-port configurations for small branch offices and wiring closets
- Offers standard Layer 2 services with entry-level availability, security, and QoS
 - Scalable and secure network management**
- Simplified management and troubleshooting for lower total cost of ownership
- Cisco Network Assistant and Cisco Smartports
- Limited lifetime hardware warranty and software updates at no additional charge

Uses Cisco ASICs for superior quality and hardware and software integration

Cisco Catalyst 2960 LAN Base Series — Model Overview

Catalyst® 2960G-24TC-L



- 20 10/100/1000 ports
- 4 dual-purpose uplink ports

Catalyst 2960G-48TC-L



- 44 10/100/1000 ports
- 4 dual-purpose uplink ports

Catalyst 2960G-8TC-L



New

- 7 10/100/1000 ports
- 1 dual-purpose uplink port
- Compact form-factor with no fan

Catalyst 2960-24TC-L



- 24 10/100 ports
- 2 dual-purpose uplink ports

Catalyst 2960-48TC-L



- 48 10/100 ports
- 2 dual-purpose uplink ports

Catalyst 2960-8TC-L



New

- 8 10/100 ports
- 1 dual-purpose uplink port
- Compact form-factor with no fan

Catalyst 2960-24TT-L



- 24 10/100 ports
- 2 10/100/1000 uplink ports

Catalyst 2960-48TT-L



- 48 10/100 ports
- 2 10/100/1000 uplink ports

Software LAN Base Image

- Enterprise-class intelligent services: Advanced QoS, enhanced security, high availability

Cisco Catalyst 2960 LAN Lite Series — Model Overview

Catalyst 2960-24TC-S



- 24 10/100 ports
- 2 dual-purpose uplink ports

Catalyst 2960-48TC-S



- 48 10/100 ports
- 2 dual-purpose uplink ports

Catalyst 2960-24-S



- 24 10/100 ports

Software LAN Lite Image

- Entry-level QoS, security, and availability with a focus on ease-of-use and lower total cost of ownership

Note: Catalyst 2960 switches cannot be upgraded or downgraded between LAN Base and LAN Lite software

Power over Ethernet Solutions

Cisco Catalyst 2960 PoE

New



- Small branch offices (banks, retail, etc.)
- 24-port 10/100 PoE (15.4W) + 2-port 10/100/1000 or SFP
- 24-port 10/100 (8-port PoE, 15.4W) + 2-port 10/100/1000
- Layer 2–4 ACLs, DHCP Snooping, Web-Auth, and Enhanced Cisco® NAC
- AutoQoS, Trust Boundary, Policing, and Class and Policy Maps
- IP phone detection and LLDP-MED with location
- Cisco Redundant Power System 2300 support

Power over Ethernet Solutions

Cisco Catalyst 2960 Powered Device Compact Switch

New



- Ideal for wiring-constrained conference rooms and hospitality suites
- 8-port 10/100 + 1-port 10/100/1000 PoE input
- Power received through 10/100/1000 uplink port
- 11W (Class 3 powered device) required
- No internal power supply
- External power brick optional

Introducing The Catalyst 3750-E

- Complements the Catalyst 3750 Series
- 24 or 48 10/100/1000 ports
- All models have 2x10 GE uplinks
- PoE and data-only models
- Wire-speed performance
- StackWise Plus
 - Supports original StackWise features
 - Double the throughput of original StackWise
 - Backwards compatible with the Catalyst 3750
- Power
 - Modular power supply and fan
 - Multiple power supply options sizes
 - 48 ports of full IEEE POE in a single rack unit
 - Supported by new and improved redundant power system



Catalyst 3750-E Models

- PoE and data only options
- Any 3750-E model can be connected with another through StackWise Plus
- 3750-E models can be combined in a stack with existing 3750 models in a mixed stack



24 10/100/1000T Ports + 2x 10GE



48 10/100/1000T Ports + 2x 10GE



24 10/100/1000T Ports w/POE + 2x 10GE



48 10/100/1000T Ports w/POE + 2x 10GE

Catalyst 3560-E Models

- The 3560-E is for standalone deployments
- Similar features to the 3750-E, but StackWise is removed
 - Same software features
 - Same PoE options



24 10/100/1000T Ports + 2x 10GE



48 10/100/1000T Ports + 2x 10GE



24 10/100/1000T Ports w/POE + 2x 10GE



48 10/100/1000T Ports w/POE + 2x 10GE

StackWise Plus

- 64Gbps Stacking Throughput*
- Local switching
- Intelligently traffic forwarding
- Backward compatible with the original StackWise
- Fault-tolerant, Bi-directional stack interconnection
- Automated Configuration & Management
- Single network instance (IP, SNMP, CLI, STP Protocol , VLAN)
- Master/secondary architecture with master failover
- Cross-Stack EtherChannel®, cross-stack QoS

**Unified Stacking,
Behaving As a Single Unit**



* For typical traffic patterns, actual performance may be higher or lower

10 Gigabit Ethernet

- Two 10GE uplink interfaces
- Wire rate forwarding performance
- Supported X2 Transceivers
 - *LX4 (MMF - 300m SMF - 10km)
LR (SMF 10km)
SR (MMF)
 - *CX4 (Copper)
ER (SMF 40km)
- TwinGig Adapter converts an X2 interface into dual SFP interfaces
- All SFPs supported on 3750 platform are supported with the TwinGig Adapter
- TwinGig Adapters are hot swappable with X2 modules

* Available in February 2007



Field Replaceable Power Supplies

- Wide variety of power supply options
 - 48 port POE, 24 port POE, and data only options
 - DC power available in every model for data only
- With the RPS 2300, a power supply can be replaced without powering down the switch

Cisco Catalyst 3750-E and 3560- E Series Switch	Power Supply			
	C3K-PWR- 1225WAC	C3K-PWR- 750WAC	C3K-PWR- 265WAC	C3K-PWR- 265WDC
Type				
48-Port PoE Switch	✓	✓		
24-Port PoE Switch	✓	✓		
48-Port Switch	✓	✓	✓	✓
24-Port Switch	✓	✓	✓	✓
RPS 2450	✓	✓		



Switch with 1225WAC Supply



AC Supply



DC Supply

Redundant Power System – RPS 2300

- Seamless failover from switch to RPS when PS fails
- Automatic back-off to switch when its power supply returns
- RPS and switches support dual AC power circuits
- Connect up to six switches
- Two switches can be actively backed up
- Dual modular power supplies allow the RPS to match the switches' supplies
- Field replaceable blower module



Backwards Compatible

Switches: 2950, 2960, 2970, 3550, 3560, and 3750

Routers: 2811, 2821, 2851, and 3825

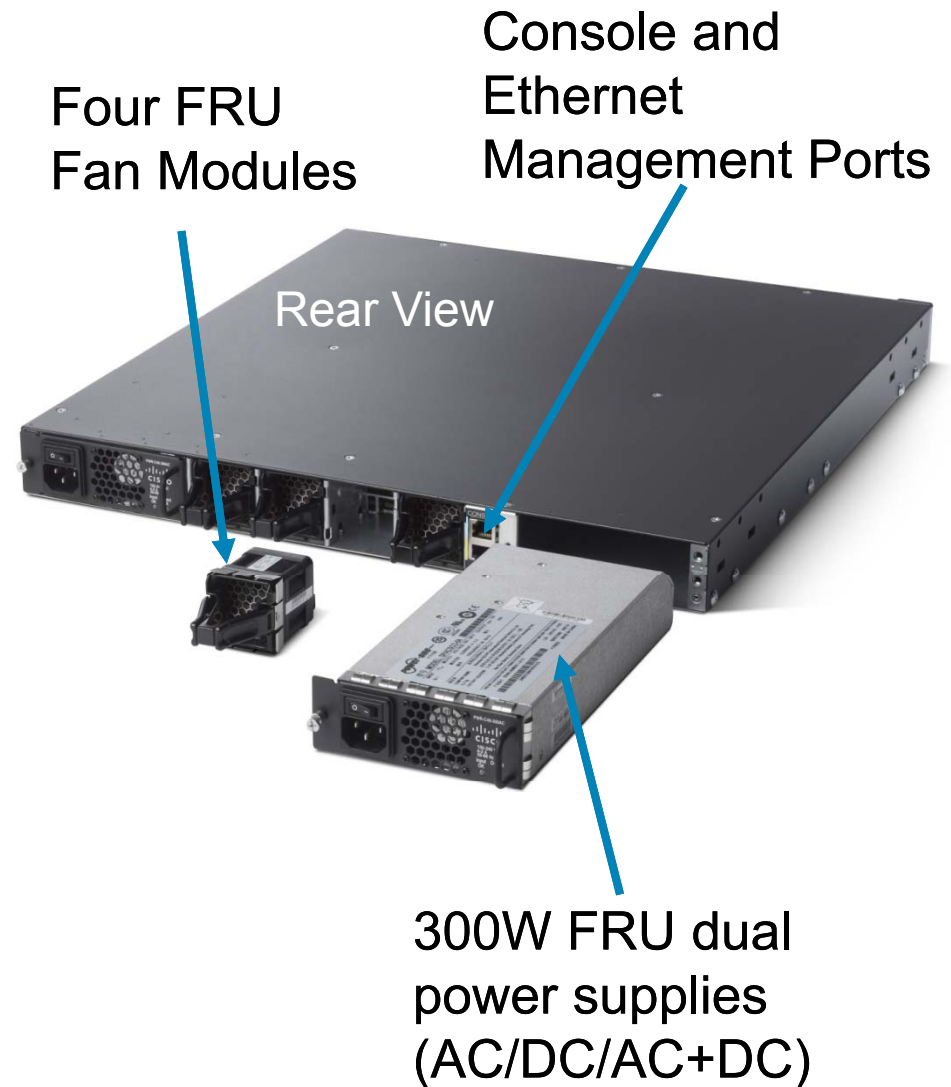
Product Overview – Catalyst 3560E-12D



- 12 10GE X2 ports per switch
- Transceiver support
 - 10GE X2: SR, LR, ER, CX4, LX4, LRM
 - TwinGig Converter Module for mixed GE/10GE environments (No TwinGigs included with switch)
- 2:1 oversubscribed
- Capable of dynamic routing
 - OSPF, EIGRP, BGPv4
- Dual redundant FRU power supplies, including a DC option
- Redundant FRU fans
- Familiar 3750-E and 3560-E features
 - GOLD, QoS, VRF-Lite, Flexlink
- 1 RU standalone switch
 - Ideally suited for space-constrained environments

Availability Features

- Dual hot-swappable power supplies
- Redundant fan modules
- Two management port options
 - RS-232 serial console port
 - 10/100BASE-TX Ethernet port for out-of-band management (The management station can be a few hops away from switch)

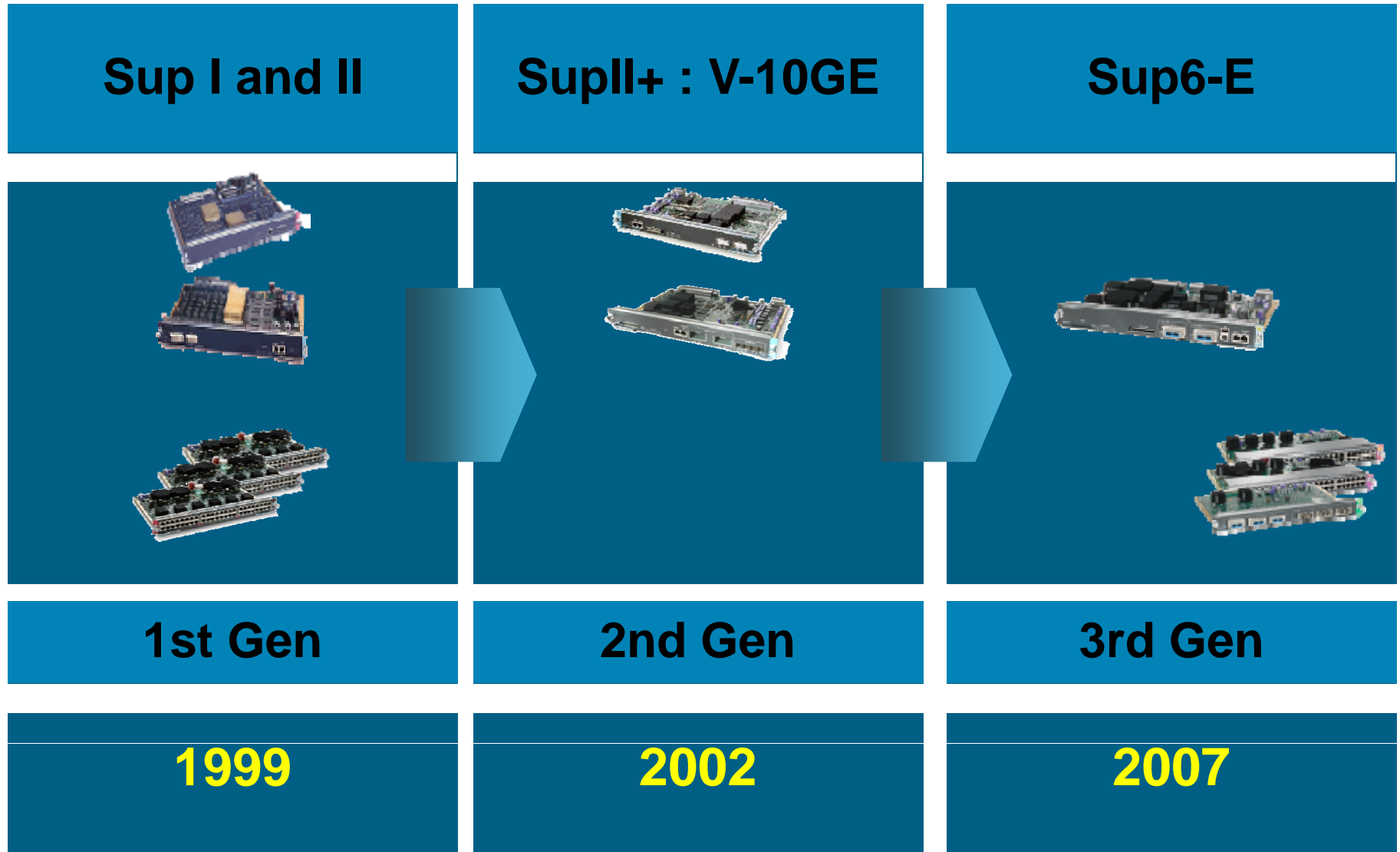


4500 E-Series Chassis

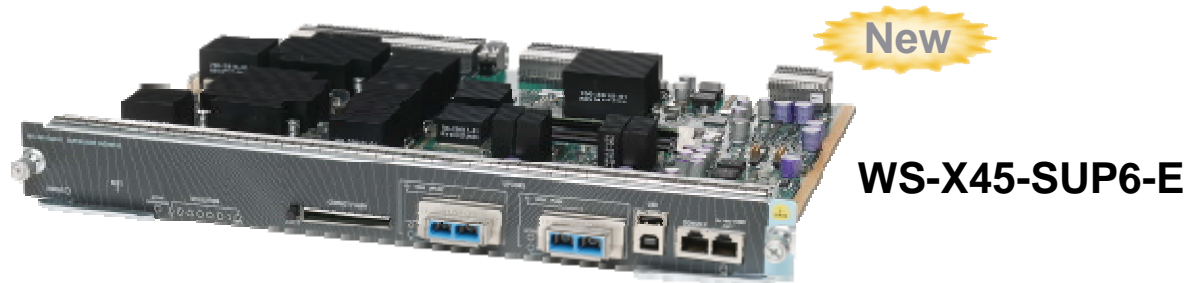


- **24Gig/slot with investment protection for higher slot bandwidth**
- **Support for all shipping classic supervisors & line cards**
- **Same power supplies as classic Cat4500 chassis**
- **Different fan tray (hot swappable) as classic Cat4500 chassis**
- **Slot 1 reserved for Supervisor in 4503-E & 4506-E**
- **Slot 3 & 4 reserved for Supervisors in 4507R-E**
- **Slots 5 & 6 reserved for Supervisors in 4510R-E**
- **Slots 8-10 support classic cards only with Sup6-E (not a chassis limitation)**

Investment Protection Dating to 1999

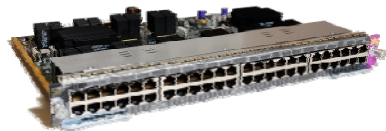


Supervisor 6-E Update



- **Centralized 320 Gbps, 250 Mpps, L2/3/4**
- **IPv4 (250Mpps) & IPv6 (125Mpps) in HW**
- **Dual Wire Speed 10GbE (X2) ports or Four SFP (Twin Gig Ships Standard)**
- **Supports Full Redundancy with SSO/NSF/ISSU (7R & 10R)**
- **4 active 10GbE ports (2:1) or 8 active SFPs (via Twin Gig) in redundant mode**
- **256K FIB Entries, 128K Security/QoS, 512MB DRAM (Upgradeable to 1 Gig)**
- **Cat4503, 6, 7R & 10R Support (E-Series required for 24Gig/Slot)**
- **E-Series & Classic line card support (no performance degradation if mixed)**

E-Series Line Card Update



48-port 10/100/1000
24 Gig/slot (2 to 1)



48-port 10/100/1000 PoE
24 Gig/Slot (2 to 1)
750W/Slot, 15.4W/Port



6-Port 10GbE (X2)
24 Gig/Slot, (2.5 to 1)
Optional Twin Gig



PoE



New

WS-X4648-RJ45V-E
48-port 10/100/1000 PoE
24 Gig/Slot (2 to 1)
750W/Slot, 15.4W/Port. Up to 20W (1H'08)



New

Premium PoE

WS-X4648-RJ45V+E
48-port 10/100/1000 Premium PoE
24 Gig/Slot (2 to 1)
750W/Slot, 15.4W or 30W/Port (2H'08)
Targeting 802.3at compliance (1H'09)

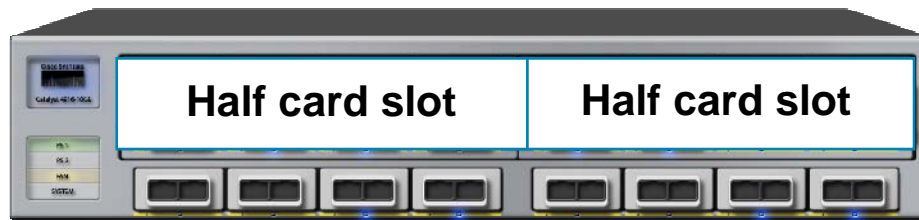
No Change



New

WS-X4606-X2-E
6-Port 10GbE (X2)
24 Gig/Slot, (2.5 to 1)
Optional Twin Gig

Next Gen Extension of Catalyst 4948 Series – Catalyst 4900M



4900M Base Unit
8 10GE Ports (Wire Speed)



20 Port 10/100/1000 (wire speed)



8 Port 10GE (X2) (2:1)



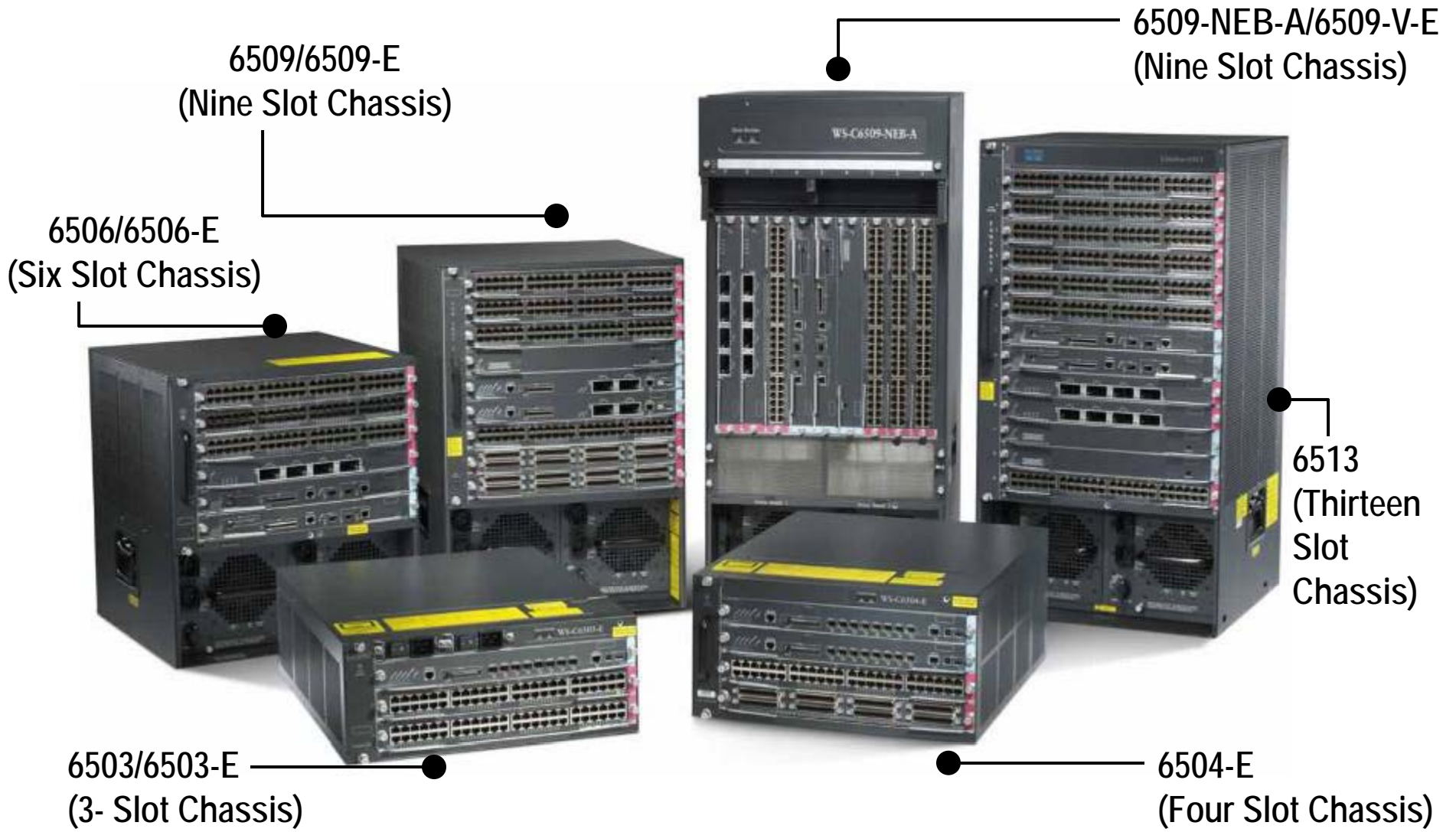
4 Port 10GE (X2) (wire speed)

Catalyst 4900M

- 2RU
- IP Base Image Only
- 1+1 AC or DC pwr
- FRU fan (hot swappable)
- Twin Gig support on half cards
- 16MB Shared Buffer
- Low Latency

Half Cards

Catalyst 6500 Chassis Family



Catalyst 6500 Supervisors

Supervisor 32

The Supervisor 32 is designed for deployment in the Access Layer - there are two Supervisor 32 options, one with 8 GE SFP ports and the other with 2 10GE ports on the front panel...

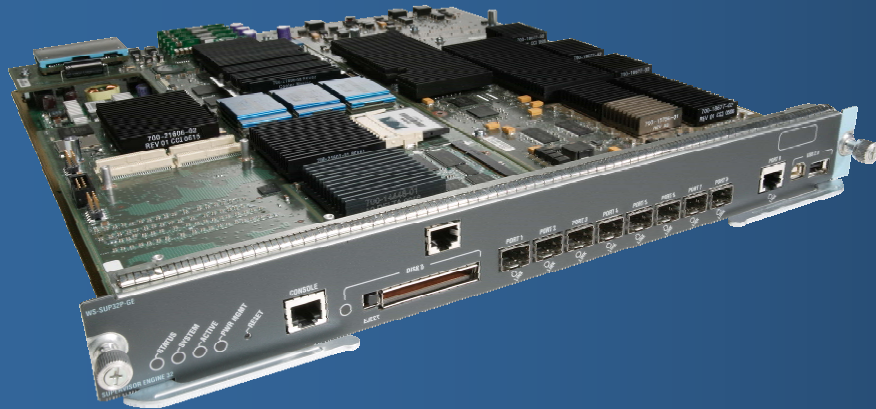
Sup32-8GE



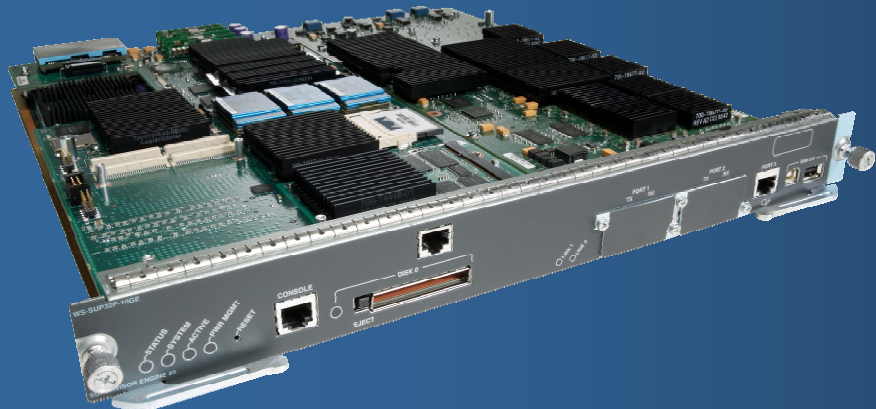
Sup32-10GE

Catalyst 6500

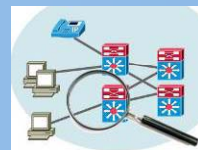
Supervisor Engine 32 PISA Overview



Supervisor Engine 32 PISA
8x1GE Uplinks + 1x 10/100/1000



Supervisor Engine 32 PISA
2x10GE Uplinks + 1x 10/100/1000



► NBAR

Application awareness and intelligent classification

Multigigabit Performance



► Flexible Packet Matching

Rapid Security Protection

Multigigabit Performance



► Programmable architecture

Seamless new service adoption



► Full Integration with

IPv4 & IPv6 in hardware

Advanced multicast & MPLS

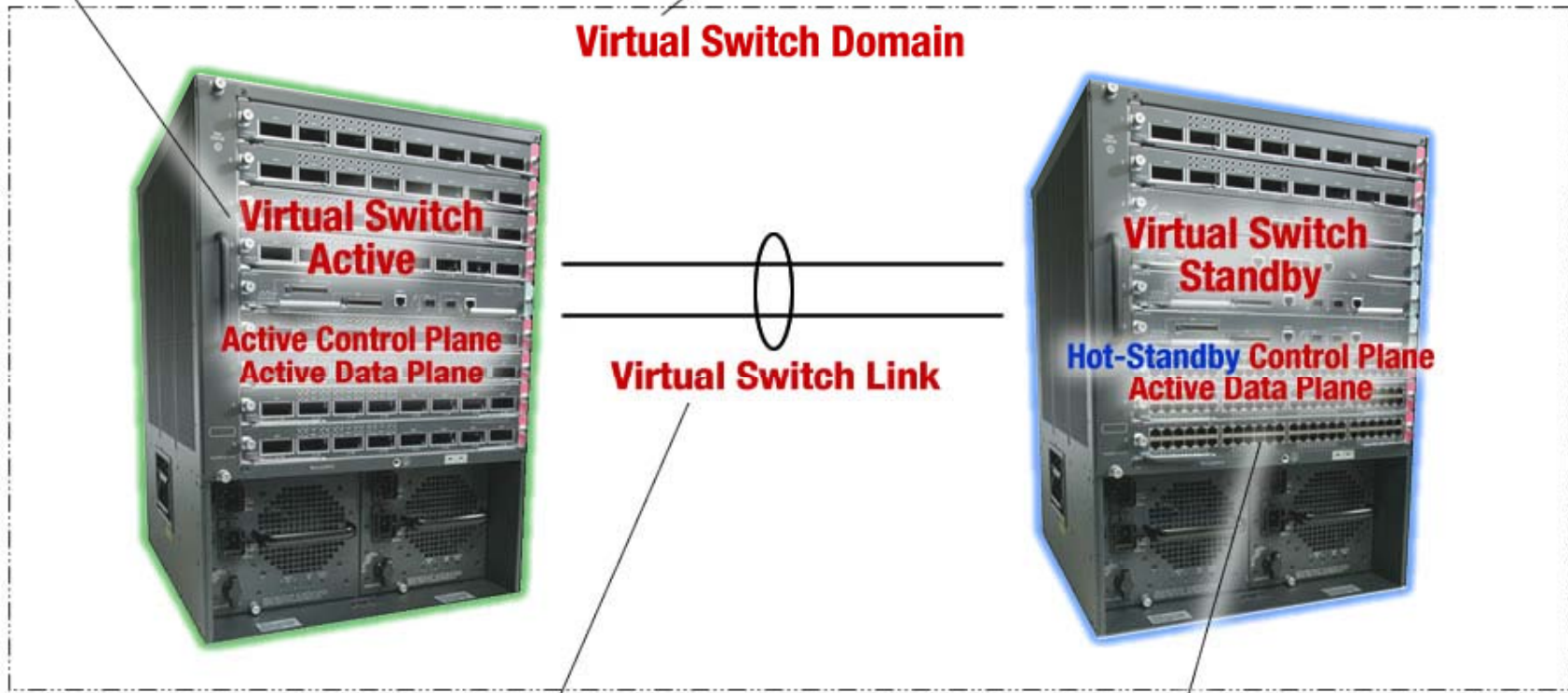
Enhanced Manageability

HA with NSF/SSO and more

Introduction to Virtual Switch Concepts

Catalyst 6500 that operates as the Active Control Plane for the Virtual Switch

Defines two Catalyst 6500's that are participating together as a Virtual Switch

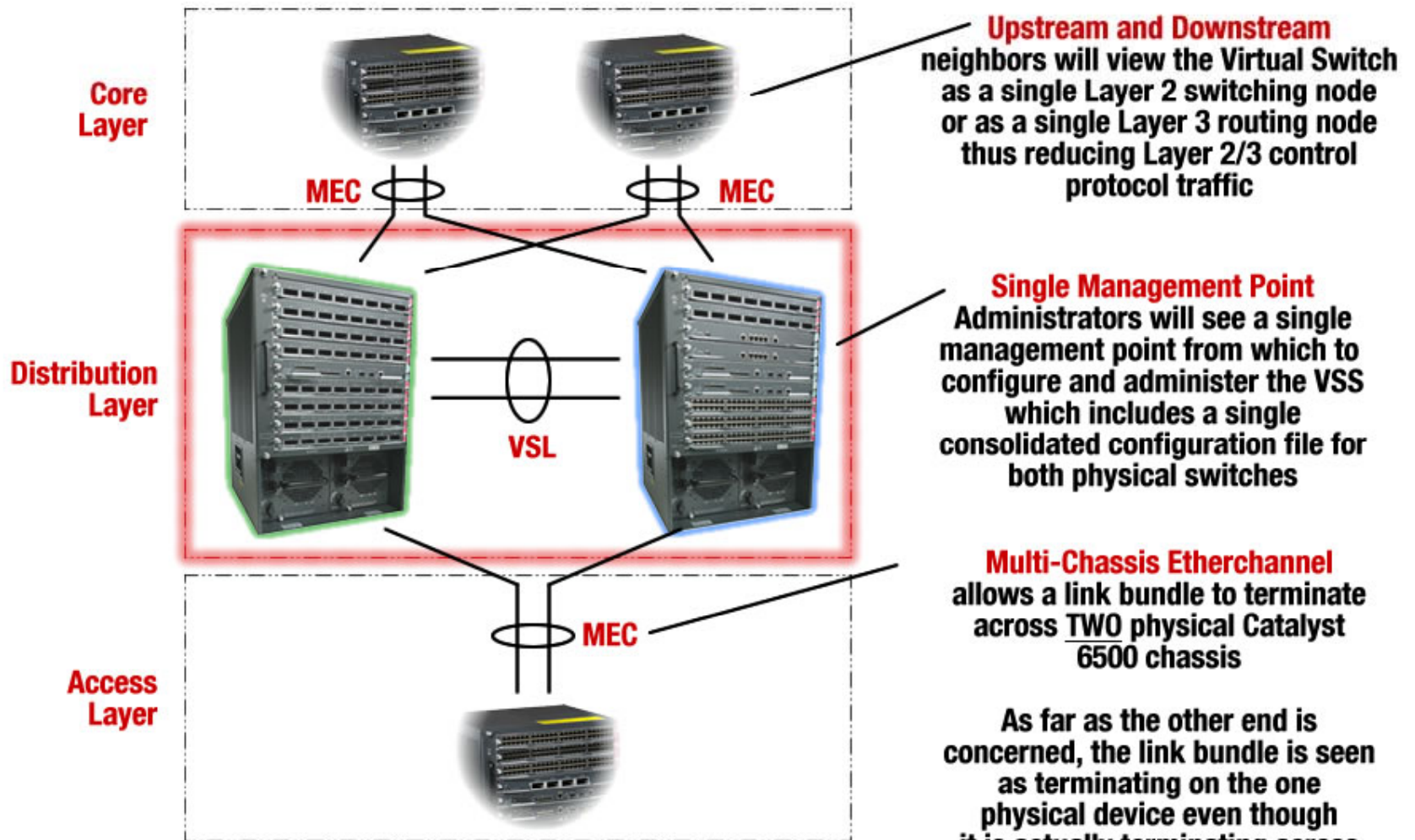


Special 10GE link bundle joining the two Catalyst 6500's allowing them to operate as a single logical device

Catalyst 6500 that operates as the Standby Control Plane for the Virtual Switch

Virtual Switch

Virtual Switch System Benefits



Upstream and Downstream neighbors will view the Virtual Switch as a single Layer 2 switching node or as a single Layer 3 routing node thus reducing Layer 2/3 control protocol traffic

Single Management Point
Administrators will see a single management point from which to configure and administer the VSS which includes a single consolidated configuration file for both physical switches

Multi-Chassis Etherchannel allows a link bundle to terminate across TWO physical Catalyst 6500 chassis

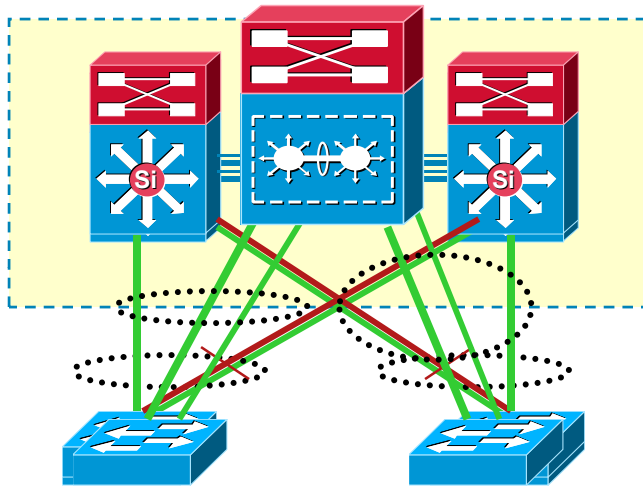
As far as the other end is concerned, the link bundle is seen as terminating on the one physical device even though it is actually terminating across two chassis

Virtual Switch

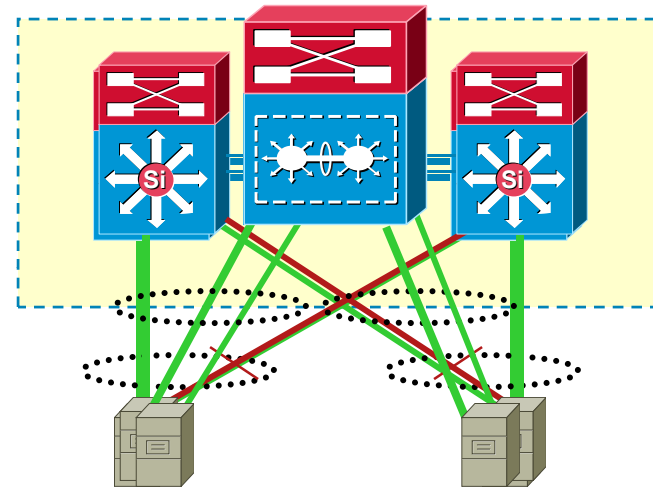
Virtual Switching System 1440

Network System Virtualization

Core/Distribution



Data Center Access



Features

Network System Virtualization

Inter-Chassis Stateful Switch Over (SSO)

Multi-Chassis EtherChannel (MEC)

Benefits of VSS

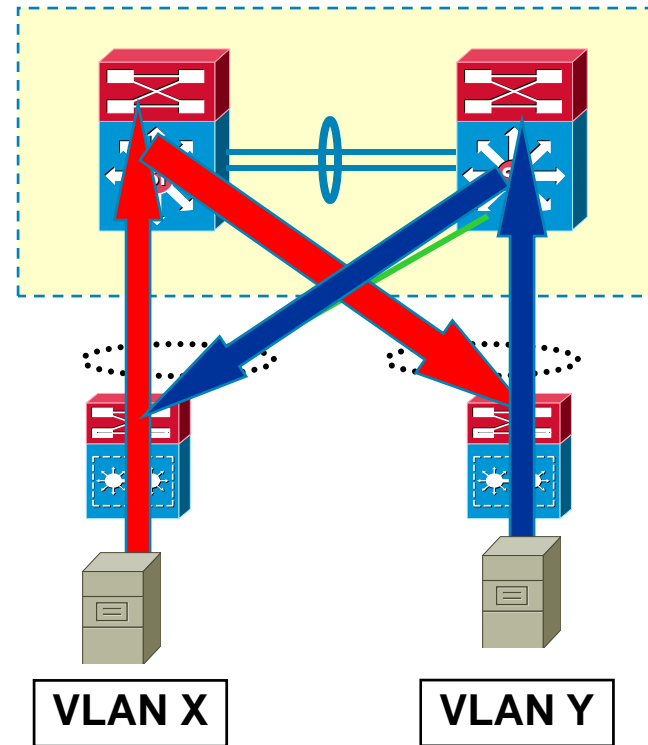
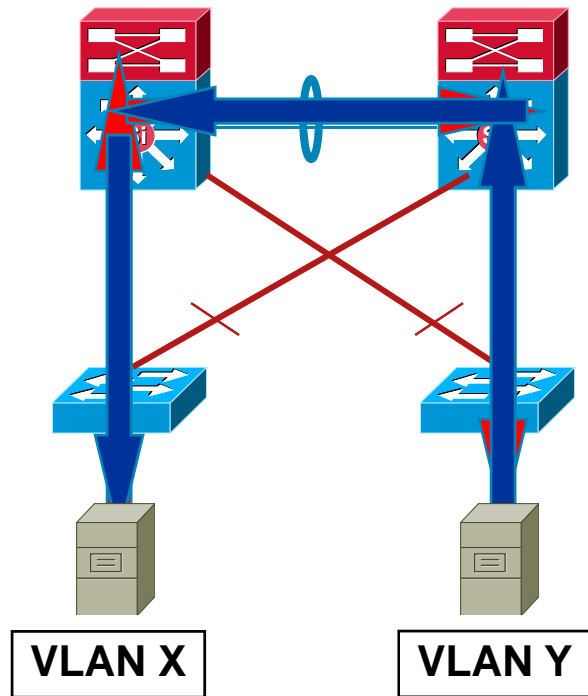
Increased Operational Efficiency via Simplified Network

Boost Non-stop Communication

Scale the System Bandwidth Capacity to 1.4 Tbps

Virtual Switching Reduces Latency by 25%

Traditional L2/L3



VSS Simplifies Intra-Datacenter Traffic Pattern

- **Minimum Hop to Intra-Data Center Destination**
 - Reduced Latency up to 25% and Simplifies traffic pattern
- **All links forwarding** resulting in simple traffic pattern
- **Etherchannel on virtual Switch member enhanced to prefer local link**

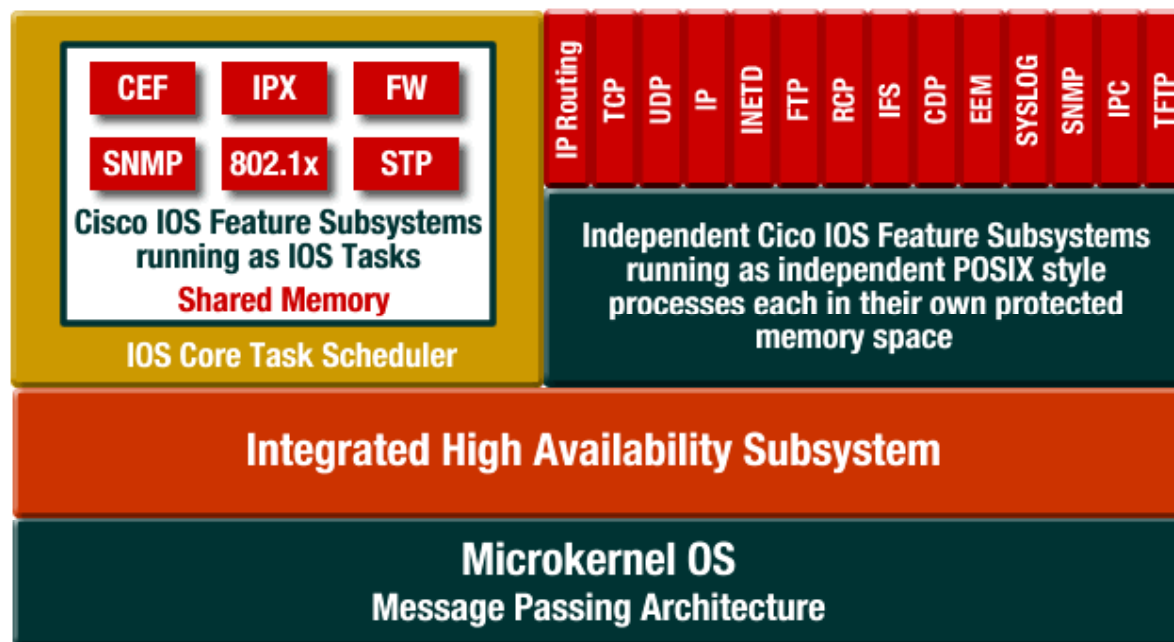
For more information on VSS : <http://wwwin.cisco.com/dss/isbu/tech/vss/>

Catalyst 6500 High Availability

Resilience - IOS with Software Modularity

Software Modularity supports the ability to restart IOS processes as well as the ability to patch processes without other subsystems incurring downtime...

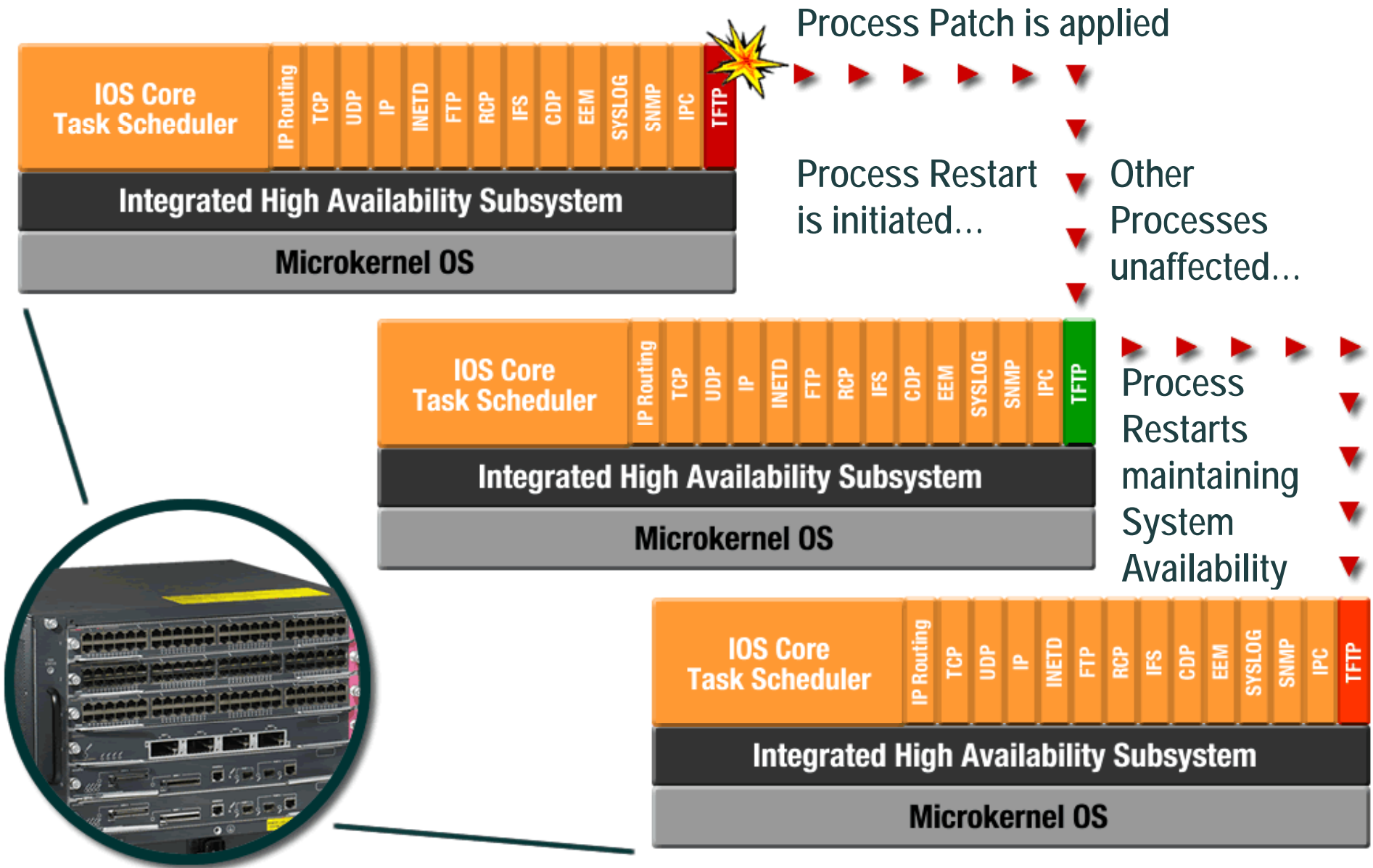
Software Modularity extends **RESILIENCE** and **AVAILABILITY** for the Catalyst 6500...



Subsystem ISSU and patching of Software processes is available as of release of IOS 12.2(18)SXF4...

Catalyst 6500 High Availability

Resilience - IOS with Software Modularity

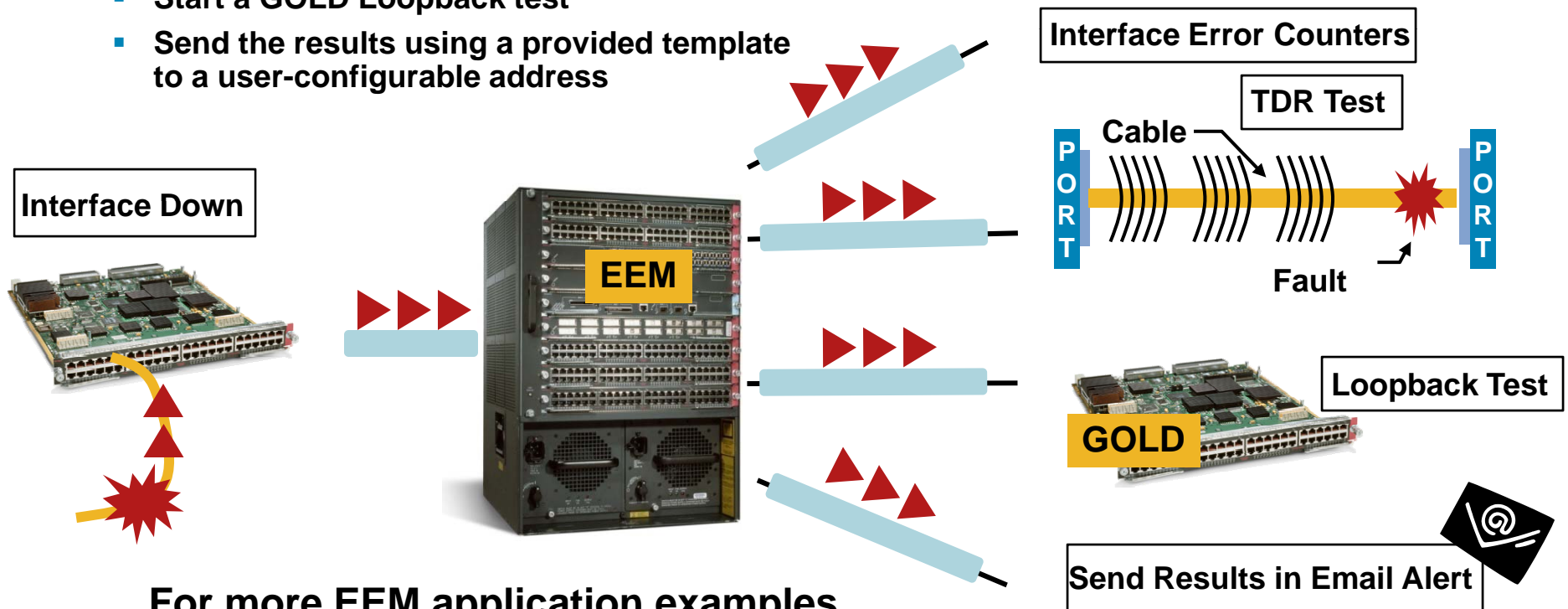


Embedded Event Manager

EEM Application Example

Upon Matching the Provided SYSLOG Message 'LINK-3-UPDOWN', the Switch Performs the Following Actions:

- Display error statistics for the link that has gone down
- Start a Time Domain Reflectometry (TDR) test
- Start a GOLD Loopback test
- Send the results using a provided template to a user-configurable address



For more EEM application examples visit the [EEM Scripting Community](#)

Data Center Chassis-6509-V-E Chassis

Q4CY07

- **Vertical 9 Slot E-Series Chassis**
 - 80 Gbps/slot capable
 - Front-to-Back Airflow
 - Integrated Enhanced Cable Management
 - Redundant and removable fan tray
 - 21 RU (2 Chassis in a 42RU Rack)
 - Supports Sup32 and Sup720 Series
 - Supported in 12.2(18)SXF10 and beyond
- **List Price \$11,995 (includes 2 Fan trays)**

Target Orderability: November 07
Target FCS: December 07



Cisco Nexus 7000 Series

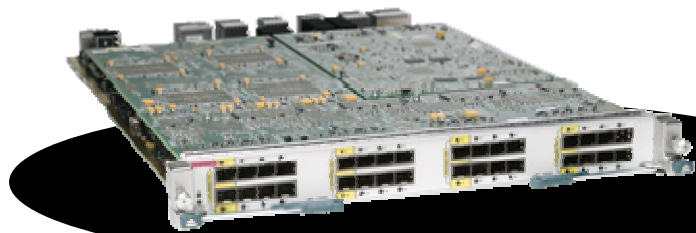
Data Center Class Switches



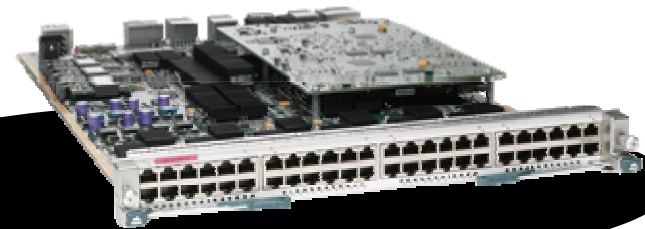
- Zero Service Disruption design
 - Graceful systems operations
- Integrated lights-out management
- Lossless fabric architecture
- Dense 40GbE/100GbE ready
 - Unified fabric
- Virtualized control and data plane
 - 15Tb+ switching capacity
- Efficient physical and power design

Operational
Transpo
nfrast
structure
Continuity
Flexibility
Scalability

Cisco Nexus 7000 Series: I/O Modules



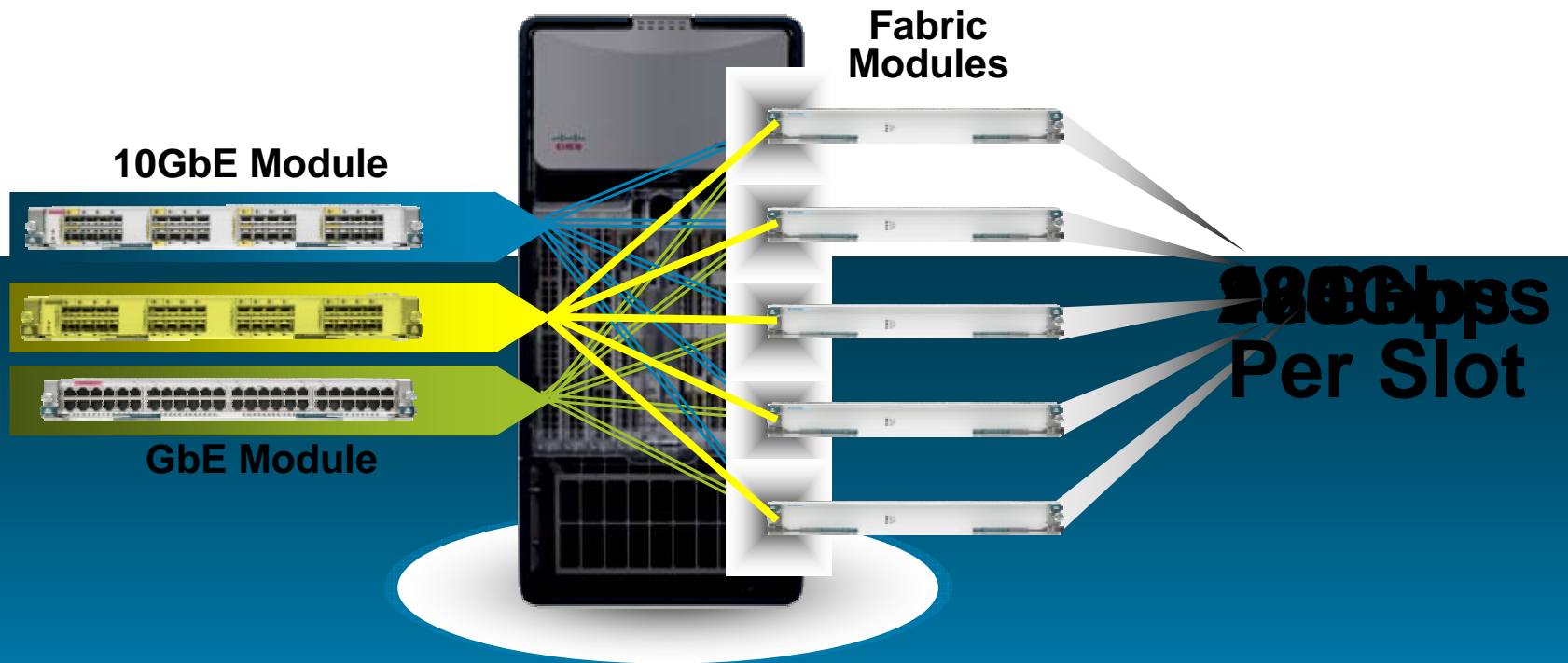
32-Port 10GbE



48-Port 10/100/1000

15Tb+ System Performance

Bandwidth Scales with Each Fabric Module



Investment Protection and Unified Fabric

