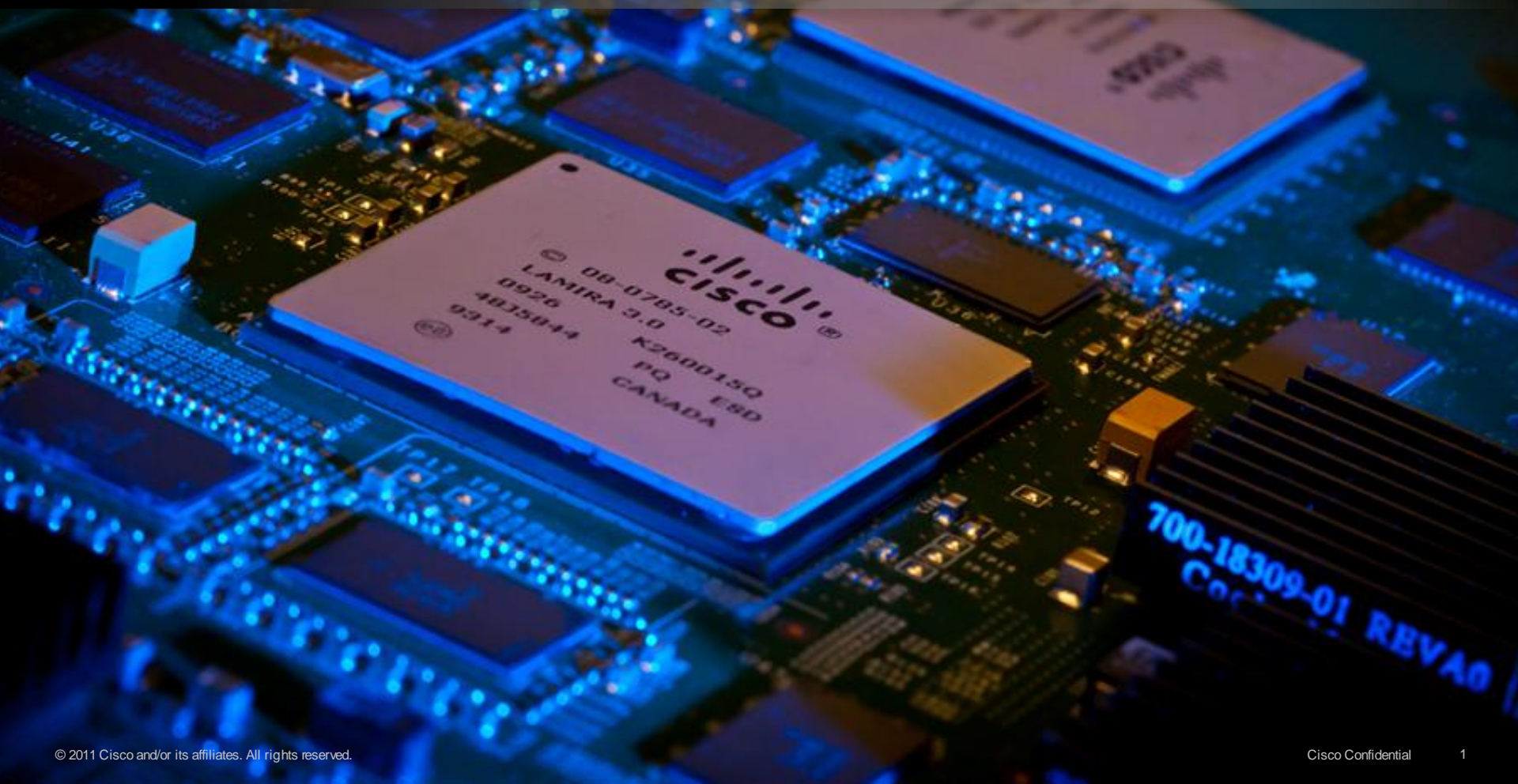


Switch-On “2T”

Introducing the New Cat6k



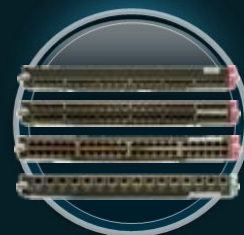
The New 2 Terabit Catalyst 6500-E



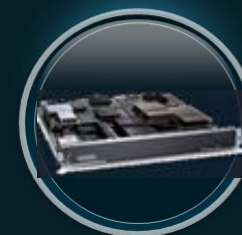
Sup2T and 6513-E



69xx Series 80Gbps
8p 10G
4p 40G/16p 10G
Built-in DFC4



68xx/67xx
Series 40Gbps
1GbE Fiber: 24p/48p
10/100/1000: 48p
10GBASE-T: 16p
10G Fiber: 16p
Built-in DFC4



Service Modules
WiSM-2
ASM-SM
NAM-3
ACE-30

Innovation

Cat6500-E

Investment Protection

ALL E-Series
Chassis

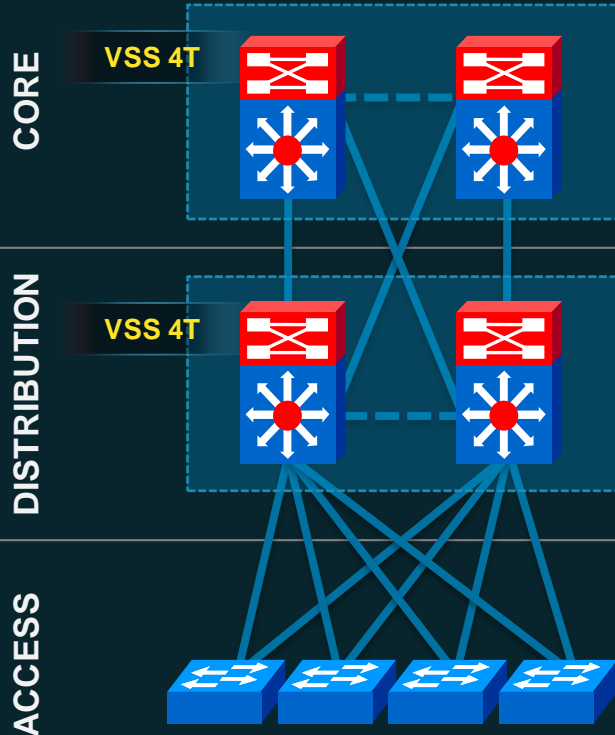
Upgrade Option
for 67xx Line Cards

All 61XX
POE/POE+

Legacy Service
Modules

Catalyst Portfolio Campus Refresh

Performance with Network Services



CORE

VSS 4T

Next Gen
Cat6k/Sup2T

4T VSS (with Quad-Sup VSS*)
40G Ready
Tunnels, L3VPNomGRE
L3SGT For TrustSec Interoperability
OTV, Trill Ready
Sampled Netflow

DISTRIBUTION

VSS 4T

Next Gen
Cat6k/Sup2T

4T VSS
Integrated NG Svcs (WisM2, ASA, NAM, ACE-30), Multicast HA
Smart Install Director*
OTV, Trill Ready
Flexible Netflow, Egress Netflow

ACCESS

Next Gen
Cat4k/ Sup7-E
Cat3k/ 3750X
Cat2K/2960S

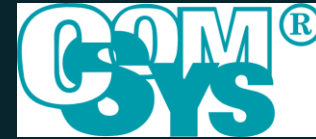
TrustSec
EnergyWise
NGPoE (60W) Ready
Flexible Netflow
IPv6 First Hop Sec.

Secure Robust Simple VDI Ready

The New Catalyst 6500

Resilient Virtualized Video Optimized Turn Key IPv6

Catalyst 6500 Unique End-to-End Value



Investment Protection Play to the Wiring Closet

CORE FABRIC Feature Set

720 → 2T

Robust Scalable Core Fabric

4T VSS
40G ready
L3VPN or mGRE

Network Virtualization

VRF-Lite, L3VPN, L2VPN, EVN*, LISP*

High Availability

VSS Quad Sup SSO*

IPv6 and Multicast

Tunnels, URPF, 256K mcast Groups

Netflow

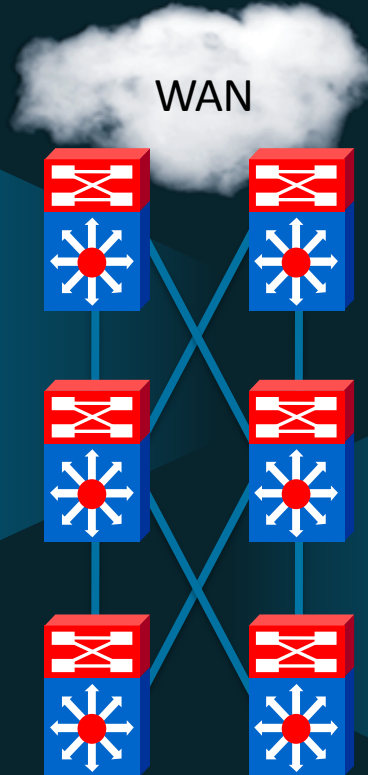
Flexible, Egress, Sampled

Security

TrustSec, L3 SGT,

High Performance Services

WisM2*, ASA SM*, NAM*, ACE30



COMPLETE Access Feature Set

Sup32 → 720 → 2T

PoE+ Capabilities
Smart Install*

EnergyWise

Medianet

TrustSec Identity Kit
TrustSec Reflector
IPv6 First Hop Security

DHCP Snooping
Dynamic ARP Inspection

IP Source Guard

PACL

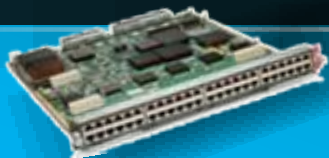
Autosecure

Smartports/Auto QoS

Auto Smartports*

OSPF Router Acces

* Roadmap



NEW and Shipping POE+ Capable WS-X6148E-GE-45AT

Next-Generation Sup2T At-a-Glance

PID: VS-S2T-10G, VS-S2T-10G-XL



Improved Switch Fabric providing 80G/slot

New PFC4 featuring improved levels of performance and scalability along with new enhanced hardware features



New MSFC5 supporting dual core CPU and single IOS image

Connectivity Mgmt Processor (CMP)

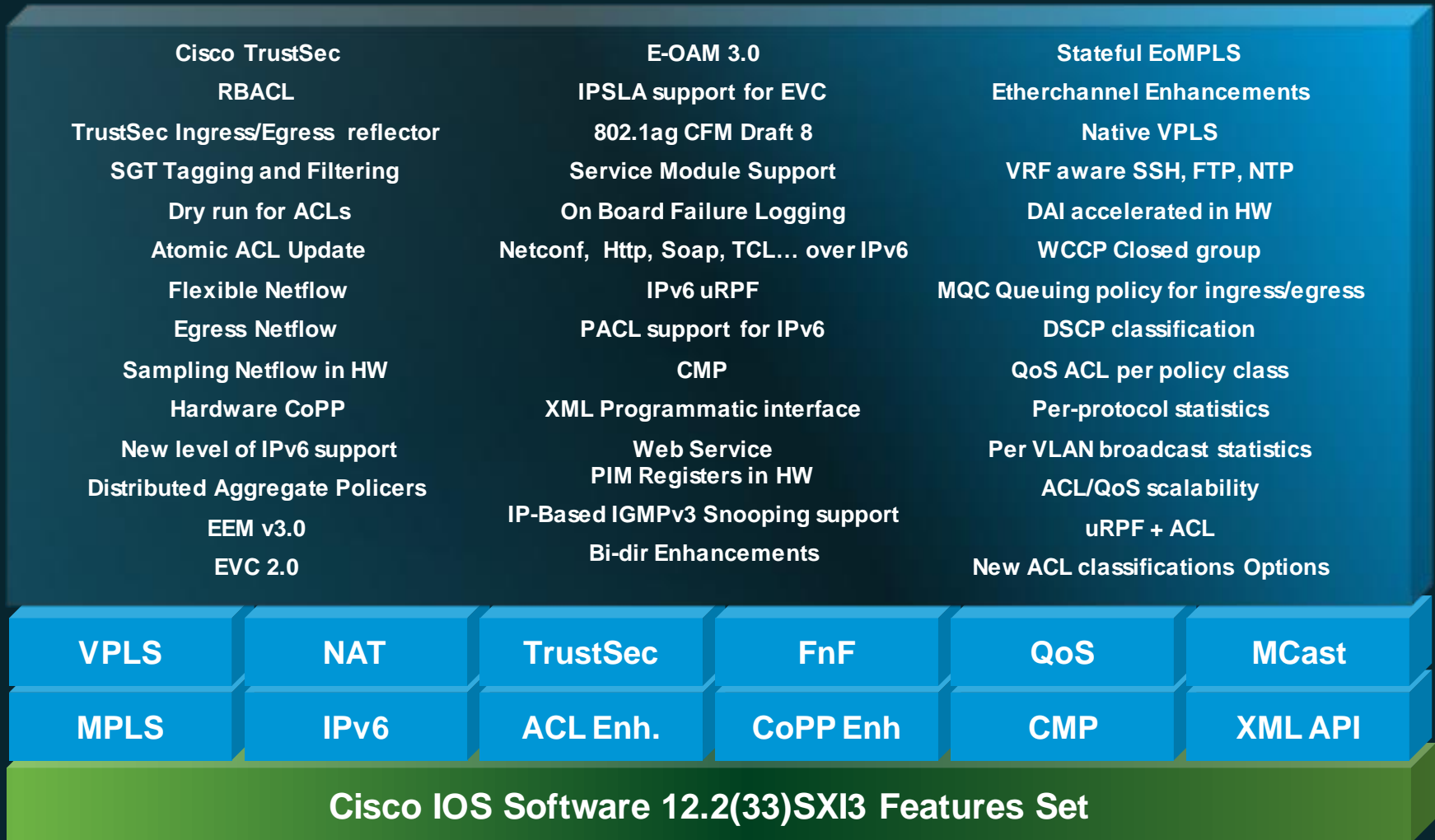
USB based console support

Sup2T
the Superman
of all Supervisors 😊

Scalability Performance

	PFC3/DFC3	PFC4/DFC4
L2 MAC Table	96K	128K
Bridge Domains	4K	16K
MacSec/SGACL	-	Y
Etherchannel Hash	3 bits	8 bits
L2/IPv4 Mpps	48	60
FIB Table	256K/1M	256K/1M
L3 Interfaces	4K	128K
Netflow Table	128K/256K	512K/1M
Security ACL Table	32K	64K/256K
QoS ACL Table	32K	Programmable
ACL Labels	4K	16K
Port ACLs	2K	8K
Aggregate Policers	1K	8K
Shared uflow Policers	63	512

Sup2T Software Innovation



...and more than 200 **NEW** features!

Catalyst 6513-E Series Chassis



The Foundation of the 2 Tbps Catalyst 6500 Infrastructure

Scalability

80G/slot on all 13 slots w/ Sup2T

PoE/PoE+ Capacity

2 Tbps system performance 4 Tbps with VSS

Ease of Manageability

Up to 180x10GE ports and 534x1GE ports

500+ PoE/ePoE Support per System

Maximum Power 14,500 W Combined

Rear-serviceable fan tray

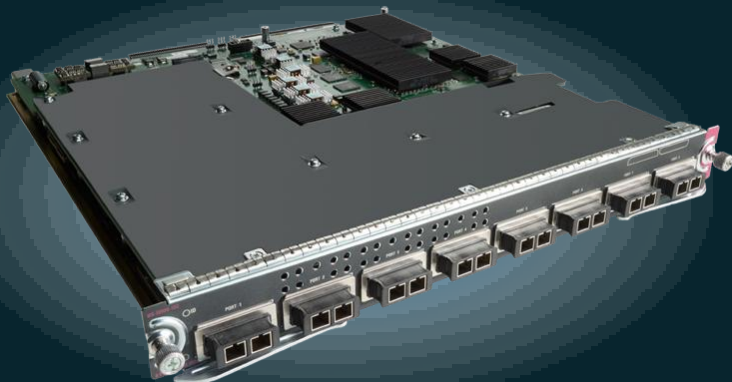
Ideal for deployment in 2-post racks



69xx Series—80G Line Cards



8p 10G Line Card



4p 40G or 16p 10G Line Card



- Two SKUs: regular and XL tables (DFC4)
- X2 Transceiver or SFP+ w/ adapter
- Wire Rate MacSec (IEEE 802.1AE)
- Large packet buffers (256MB/port)
- Virtual Switch Link (for VSS)
- OTV and LISP ready*

- IEEE 802.3ba standard compliant
- Two SKUs: regular and XL tables (DFC4)
- CFP Transceiver for 40G, SFP+ for 10G
- Wire Rate MacSec (IEEE 802.1AE)
- 10G mode via FourX adapter
- Virtual Switch Link (for VSS)
- OTV and LISP ready*

68xx Series Line Cards



1 GbE Fiber and Copper



- Distributed Forwarding Card (DFC4)
- Two SKUs: Regular and XL tables
- 24 ports 1 GbE fiber
- 48 ports 1 GbE fiber and 10/100/1000
- 40G backplane

10GbE Fiber and Copper



- Distributed Forwarding Card (DFC4)
- Two SKUs: Regular and XL tables
- 16 ports 10GbE Fiber (X2 transceivers)
- 16 ports 10GBASE-T
- 40G backplane

Sup2T—Classic Cards and Service Modules

61xx Line Cards

WS-X6148A-RJ-45

WS-X6148A-45AF

WS-X6148-FE-SFP

WS-X6148A-GE-TX

WS-X6148A-GE-45AF

WS-X6148E-GE-AT

Legacy Service Modules

FWSM

ACE 20

WiSM

NAM-1

NAM-2

Next Gen. Service Modules

ASA-SM

ACE 30

WiSM-2

NAM-3

SIP Modules, ES40 and VSPA **NOT** Supported

Next Generation Firewall ASA Services Module



CSM
Management tool

N-way Clustering
Improved
Performance



Performance

20 Gbps (UDP large pkts)
16 Gbps EMIX traffic

Concurrent
Sessions

10 Million

Connections/Sec

300,000

Security Contexts

Max 250

VLANs

1,000

Next Generation Network Analysis NAM3 Services Module



Higher Performance
Precision Scalability



Integrated Application
Performance and Traffic
Analysis

Monitoring
Performance

15 Gbps

ART Conversations

200,000

Storage

600 GB + Ext Mini-SAS,
10GbE FCoE

Precision

IEEE 1588
Synchronization

Advanced Filters

Hardware & Software

Next Generation Load Balancer ACE30 Services Module



ANM
Management Tool



Improved
Capabilities &
Performance

Performance

Up to 16 Gbps

Compression

Up to 6 Gbps

Transactions per
Second

30,000

Virtual Contexts

250

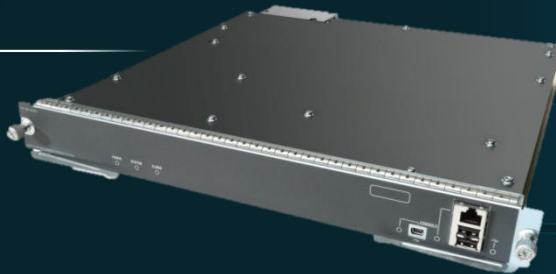
VLANs

250

Next Generation Wireless Controller WiSM Services Module



WCS
Management tool



Improved
Capabilities &
Performance

Performance

Up to 20 Gbps

Number of
Access Points

Up to 500

Clients

Up to 10,000

Concurrent AP
Upgrade/Joins

Up to 100

Mobility
Domain Size

Up to 36,000 APs

Taking VSS to the Next Level



Next Generation
Linecards as
Well as 67XX

Flexible Netflow

TrustSec

Based Infrastructure
of 6500, so VSS 4T
Supports Standalone
Features and More



VSS 4T

Service Modules Support

L2 and L3 MEC Enhancements

Up to 4T bps on up to 388 TenGig Ports



VSS 1440

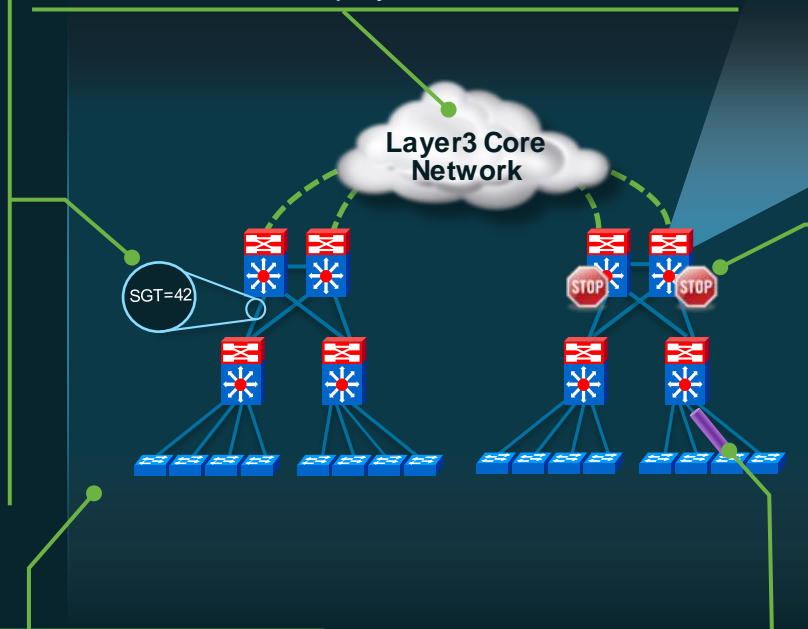
Sup2T TrustSec Toolkit

Security Group Tagging (SGT) and Forwarding

- Current network access control segmentation methods (VLAN, ACL, Subnet) are topology dependent and operationally intensive
- Security Group Tags are topology independent and streamline the deployment of role-based access control
- Each packet is tagged in hardware

Only Platform Supporting L3 SGT

- Interoperate with heterogeneous L3 networks
- Phase TrustSec deployments



```
cts role-based permissions from 42 to 51
permit tcp dst eq 443
permit tcp dst eq 80
permit tcp dst eq 22
permit tcp dst eq 3389
permit tcp dst eq 135
permit tcp dst eq 136
permit tcp dst eq 138
permit tcp des eq 139
deny ip
```

Security Group Access Control (SGACL)

- Attribute based access control assigns an SGT to users, devices based on their role
- Security Group ACLs (SGACLs) enforce access policy based on source and destination SGT
- Simplified Control Management with ISE

TrustSec Reflector for Investment Protection

- Economically deploy TrustSec on your existing infrastructure
- Untagged traffic ingress from 67XX or 68XX and is tagged while egressing from the uplinks
- Tagged traffic ingress from the uplinks and is untagged before to egress on the 67XX or 68XX

MACSec Encryption

- Provides data confidentiality and integrity for wired Ethernet throughout the Enterprise
- Strong encryption (128-bit AES-GCM) with 2 configuration lines
- 10Gb line-rate encryption, 40Gb on the roadmap
- 1 box solution for 802.1AE over EoMPLS

Innovation in Control Plane Security

Protect Your Most Important CPUs of Your Infrastructure



Why it matters?

- When under a DOS attack, you want to avoid network meltdown, so you need to keep control on your network

How it protects the CPU?

- Control Plane Policing protects the Switch Control Plane from being Compromised from excessive traffic loads
- Select and limit the traffic that will hit your CPU



What's new with Sup2T?



Sup2T Netflow Innovations

Fits All the Needs for High-Flow Backbone Environments



Optimal CPU utilization with Yielding Netflow Data Export, direct export from linecard

CPU Friendly Export

Flexible Netflow

Increased flexibility and customization by selecting the fields to match and collect

Up to 13M Flows/ System

Bigger tables mean more entries per DFC. Up to 13 million entries with a 13 slot chassis. You can get better visibility in your network

Sup2T Netflow

Allow to use netflow after ingress lookup is done (ex: after DSCP remarking is done)

Egress Netflow

Sampled Netflow in Hardware

To optimize the Netflow tables utilization and minimize load on analyzers

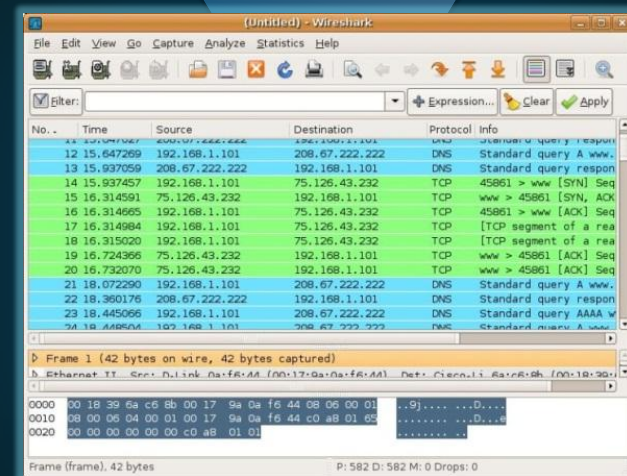
Allow to account for multicast traffic per destination instead of per group

Mini Protocol Analyzer

For In- and Outside-the-Box Monitoring



- Built-in hardware span to the RP
- Capture and monitor traffic
- Wireshark compatible tool running on the RP to analyze captured packets
- Dive deeper with full Wireshark compatibility for off the box analysis



Campus Virtualization Gets Better



Sup720

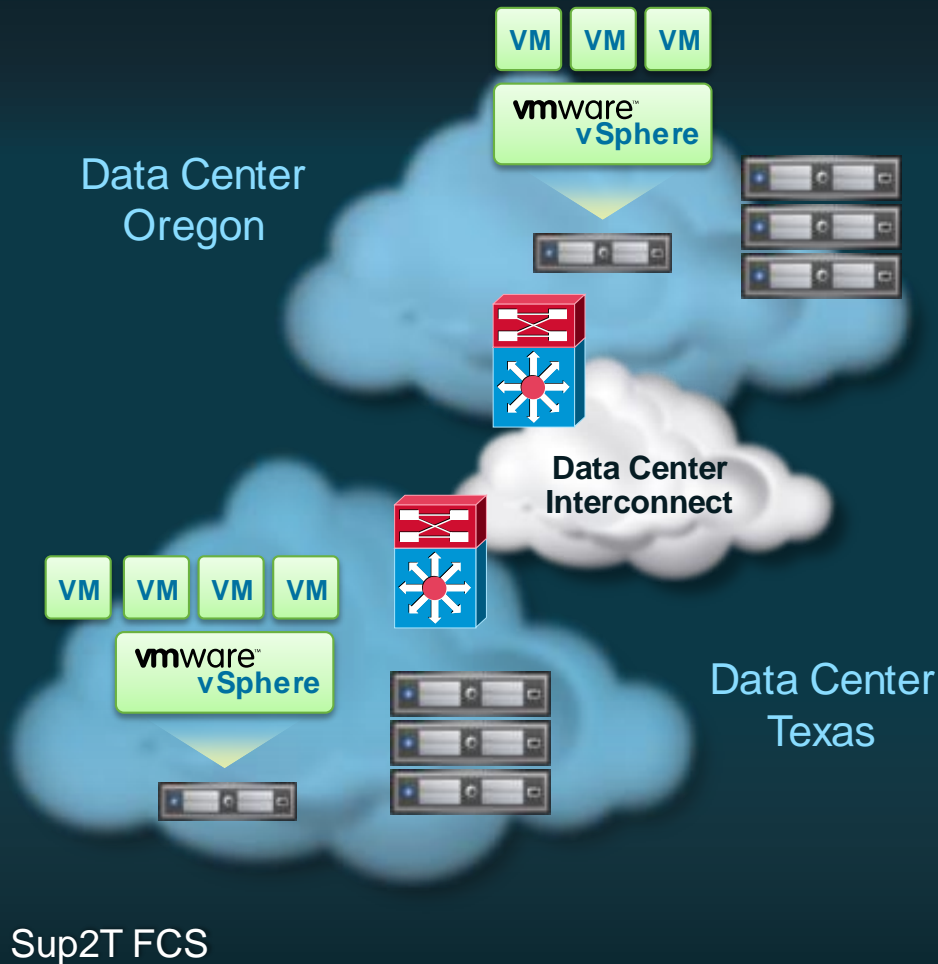
Sup2T

	Sup720	Sup2T
MPLS	<ul style="list-style-type: none"> • 1000 VRF support • MPLS TE, CSC • Multicast VPN 	<ul style="list-style-type: none"> • 4000 VRF support • L3VPN or mGRE • Label Switched Multicast (LSM)*
VRF-Lite	<ul style="list-style-type: none"> • Up to 8 VRFs 	<ul style="list-style-type: none"> • Easy Virtual Networks (EVN)* • 32 VRFs
VRF Services	<ul style="list-style-type: none"> • VRF aware ACLs, VACL, BFD, HSRP, PBR, Syslog, TACACS, Telnet, GLBP, VRRP 	<ul style="list-style-type: none"> • VRF aware: WCCP, NTP, SSH, FTP, IPv6 Tunnels
L2VPN	<ul style="list-style-type: none"> • VPLS on WAN linecards • Advanced VPLS • EoMPLS Native Ethernet 	<ul style="list-style-type: none"> • Native VPLS any Ethernet port • No multicast flooding on VPLS*
Operations	<ul style="list-style-type: none"> • Set syslog to a VRF loopback • MPLS egress Netflow • Call Home email in a VRF • NDE collector in a VRF • IP SLA Phase 1 	<ul style="list-style-type: none"> • MPLS interface counters • MPLS aware Netflow P Router* • Flexible Netflow for MPLS

* Roadmap 2012

Supervisor 2T VPLS on Any Port

Data Center Interconnect



- Native VPLS support
- CapEx Savings: No need for SIP Based linecards
- True Scalable 10 Gigabit Data Center Interconnect
- Application VM mobility
 - Redistribute compute workloads
 - No Service Disruption
 - Capacity management
 - Disaster avoidance
 - Data center upgrades

Supervisor 2T Campus Leadership in IPv6

Sup720

Sup2T

	Sup720	Sup2T
Performance	<ul style="list-style-type: none"> • 24 million IPv6 pps • 512k IPv6 Routing Entries (XL) 	<ul style="list-style-type: none"> • 390 million IPv6 packets/second • 512k IPv6 Routing Entries (XL)
Services	<ul style="list-style-type: none"> • IPv6 ACE-30 Load Balancing • IPv6 WISM-2 Wireless Controller • IPv6 ASA Service Module 	<ul style="list-style-type: none"> • IPv6 Flexible Netflow • IPv6 BFD • WCCPv3*
Operations	<ul style="list-style-type: none"> • IPv6 SNMP, Syslog, SSH, • Stateless autoconfiguration • IPv6 NTPv4 	<ul style="list-style-type: none"> • IPv6 interface counters, IPv6 Tunnel MIB • IPv6 Interface MIBs RFC 4292 RFC 4293 • IPv6 SLA, TCL, LLDP • OSPFv3 MaxMetric minimize downtime*
Core Aggregation	<ul style="list-style-type: none"> • EIGRPv6, OSPFv3, IS-IS, BGPv6 • IPv6 VSS support • IPv6 PIM-SSM • IPv6 QoS • DHCPv6 Relay Agent • HSRPv6-Global/GLBPv6 • IPv6 PBR 	<ul style="list-style-type: none"> • IPv6 Unicast and Multicast High Availability • BGPv6 Graceful Restart • OSPFv3 Graceful Restart/IPSec Authentication • OSPFv3 Fast Convergence SPF • IPv6 CoPP, EIGRPv6 VRF-Lite • IGMPv3/MLDv2 Snooping • Unified VRRP* • OSPFv3 VRF PE-CE*
Security	<ul style="list-style-type: none"> • First Hop Security: PACL and RA Guard • IPv6 TACACS+ • IPv6 ACL 	<ul style="list-style-type: none"> • IPv6 First Hop Security: Device Tracking/NDP Inspect • IPv6 uRPF, IPv6 VACL* • IPv6 ACL Atomic and Dry Run • TrustSec
Transition	<ul style="list-style-type: none"> • Dual Stack IPv4/IPv6 • ISATAP and Static Tunnels • 6to4 Tunnels • 6VPE/6PE 	<ul style="list-style-type: none"> • IPv6 in IPv4 tunnels, VRF aware IPv6 Tunnels • L3VPN over multipoint GRE • LISP* • NAT64 with ASA-SM*

* Roadmap 2012

Key Takeaways



Cat 6500 “2T” complete platform refresh focused on Services and Borderless

Unparalleled features set and scalability for Borderless (200+ NEW features @ FCS with 200+ in pipeline)

Uncompromised performance with built-in Distributed Forwarding on ALL NEW line cards (up 720 Mpps)

6500 platform to deliver next generation integrated services FW, ACE, WiSM, Virtual Services Engine