TOMORROW starts here.
Catalyst 6800 Update
CiscoLive, Orlando
June 2013
Session ID: PSOCRS-2001

Hasan Siraj,
Director Product Management, Enterprise Backbone Group
Agenda

6800 for Campus Backbone

6800 HW Update

6800 SW Update

Competition and Key Takeaway
### Switching Requirements
Differ Between Campus and Data Center

<table>
<thead>
<tr>
<th>Campus</th>
<th>Data Center/Cloud</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Catalyst Family: IOS 15.0</strong></td>
<td><strong>Nexus Family: NX-OS</strong></td>
</tr>
<tr>
<td><strong>User Access Control/Segmentation</strong>&lt;br&gt;802.1X / Easy Virtual Networks</td>
<td><strong>Cloud Security and VM Awareness</strong>&lt;br&gt;Nexus 1000v, VSG, ASA</td>
</tr>
<tr>
<td><strong>Video Intelligence</strong>&lt;br&gt;Medianet</td>
<td><strong>VM Mobility</strong>&lt;br&gt;LISP, VXLAN, OTV</td>
</tr>
<tr>
<td><strong>Wired/Wireless Convergence</strong>&lt;br&gt;Wireless Controller Integration</td>
<td><strong>LAN/SAN Convergence</strong>&lt;br&gt;Unified Ports, FCoE</td>
</tr>
<tr>
<td><strong>Application Visibility</strong>&lt;br&gt;Flexible NetFlow, Network Analysis Module</td>
<td><strong>Fabric Scale and Resilience</strong>&lt;br&gt;FabricPath, vPC, Wire Speed 10/40/100G</td>
</tr>
<tr>
<td><strong>Power over Ethernet</strong>&lt;br&gt;UPOE, EnergyWise</td>
<td><strong>Data Center Consolidation</strong>&lt;br&gt;VDC, FEX, DCNM</td>
</tr>
</tbody>
</table>

**FOUNDATION:** HA, TrustSec, IP SLA, QoS, MPLS, VPLS
Unified Access Value Proposition and Reference Design

Differentiating Characteristics of One Network

- **Wireless APs**
- **Cisco Catalyst 6500/6800** for Campus Core/Dist
- **Cisco Catalyst 4500E and 3K-X** for Campus Wired Access
- **Cisco Unified Wireless Network**

**Cisco Prime Infrastructure**

- **Identity Services Engine**
- **WLC**
- **WISM2/WLC**

**TrustSec**
- Secure Group Access to Simplify the Network and Enable Virtualized Data Center Services

**Application Visibility and Control**
- Application-Aware Networking to Enable Collaboration, Video, and Other Apps

**Resiliency**
- Maximized Network Availability with Virtual Switching and Stateful Switch Over

**Smart Operations**
- Reduce Operating Expenses and Improve Network Application and Service Delivery

**OS Consistency: IOS 15.0**

**Cisco Validated Designs for Campus Deployment**
Next Generation Enterprise Backbone

The New Catalyst 6K: Tomorrow Begins Here! But the Past is Not Forgotten

Cat 6500E

Cat 6807-XL

Cat 6880-X

Cat 6800ia
Catalyst Backbone 10G Portfolio

Cisco Catalyst 6K Extensible Fixed

- Cisco Catalyst 4500-E
  - Dense 1 1/10GE Aggregation
  - Fixed Space Constrained 10G Aggregation
  - Improved 10G Economics

- Cisco Catalyst 6500/6807-XL
  - Industry-Leading Campus Backbone Platform
  - Comprehensive Borderless Feature Set
  - Highest Performance and Scalability
  - Lower TCO
  - Lead Platform to Enable Video, Cloud, and BYOD

Competitive Feature Set at Compelling Prices
- Baseline Backbone Features
- Collapsed Access

Industry’s Most Scalable and Feature Rich Extensible Fixed Campus Backbone Platform

Q4 CY13

Cisco Catalyst 4500-E

Scale
- Fixed
- Modular
Catalyst 6800 Portfolio Fit: “Large/Medium/Small”

- **240p**
  - 6513E
  - 6509E
  - 6509VE
  - RP Redundancy
  - Up to 240x10G
  - Service Modules
  - 10G/1G/Cu

- **80p**
  - 6506E
  - 6504E
  - 6503E
  - Non-Redundant RP
  - Semi-modular
  - Up to 80x10G

- **40p**
  - 4500-X
  - Fixed 1RU
  - Up to 40px10G
  - Lowest cost 1G FEX/CTS w/E8

- 32/8p 10/40GE w(Adapter)
- 16/4p 10/40GE w(Adapter)
The New Catalyst 6807-XL
Taking Catalyst 6500 to 880G/Slot

- 7 Slots 10 RU
- NG Asic Ready
- N+1 power Supply Redundancy—Add as You Grow
- Backwards Compatible Connectors
- Catalyst 6500 DNA
- Investment Protection—Compatible with Sup2T, 67xx, 68xx, 69xx and Service Modules
- 880 G/Slot Capable

FCS Q4 CY13
6500-E → 6807-XL Portfolio
Investment Protection

Cisco Catalyst 6500-E
- Optimized for 1G/10G

Sup2T, 69xx, 68xx, 67xx
Service Modules
New 10G/40G/100G

Cisco Catalyst 6807-XL
- Optimized for 10G/40G/100G

Investment Protection
Catalyst 6807-XL Bundling Options

List Price: $38,000

36% savings over A-La-Carte

Chassis

Fan Tray

2 x Power Supply

Sup2T

IP Services
Premier Features

Most Scalable L3 Routing tables (up to 2M IPv4) in Cisco Switching Portfolio

Highest 10G Density Switch with MPLS Support in Cisco Fixed Switching Portfolio

All 3000+ Cisco Catalyst 6500 Features Working DAY 1

Mature, Proven Deployed @ Scale

Highest 10G Density Fixed Switch with Instant Access Support

Only Platform in Industry to Support from 10 Mbps to 40 Gbps Ethernet on Every Port

Premier Feature Set with Radically Improved 10G Economics in Fixed Form Factor
The New Catalyst 6880-X
CK6 Based “Extensible” Fixed Platform

Low Power
Low Noise Fans

Platinum EFF
Redundant AC and DC PS

Four 100G-Ready Port Slots, Front Serviceable Power Supplies, and Fan Tray
NEBS Level 3-Compliant Platform

Up to Eighty 1G/10G Ports
or Twenty 40G Ports*

MACsec, VSS, Instant Access, MPLS, VPLS,
LISP, SGT, 1588(*) Capable on Every Port

Sixteen 10/100/1000/10G
or Up to Four 40G ports

Fixed Module Sixteen
10/100/1000/10G or Up to Four
40G X86 2 GHz CPU 4 GB DRAM
### Catalyst 6880-X Hardware Components

#### Base System

<table>
<thead>
<tr>
<th>HW Scale</th>
<th>Standard (LE)</th>
<th>Large Tables</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPv4/v6 Routing Capability</td>
<td>256K/128K</td>
<td>2M/1M</td>
</tr>
<tr>
<td>Multicast Routes (IPv6)</td>
<td>64K</td>
<td>256K</td>
</tr>
<tr>
<td>Number of Adjacencies</td>
<td>256K</td>
<td>1M</td>
</tr>
<tr>
<td>MAC</td>
<td>128K</td>
<td>128K</td>
</tr>
<tr>
<td>L3 Interfaces</td>
<td>128K</td>
<td>128K</td>
</tr>
<tr>
<td>Security and QoS ACL</td>
<td>64K</td>
<td>256K</td>
</tr>
<tr>
<td>Flexible NetFlow (per 16 ports)</td>
<td>512K</td>
<td>1M</td>
</tr>
<tr>
<td>Microflow Policers</td>
<td>512</td>
<td>512</td>
</tr>
<tr>
<td>Aggregate Policers</td>
<td>8K</td>
<td>8K</td>
</tr>
</tbody>
</table>

#### Multi-rate SFP+ Port Card

<table>
<thead>
<tr>
<th>Two Versions</th>
<th>Standard (LE)</th>
<th>Large Tables</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIB Table IPv4/v6</td>
<td>256K/128K</td>
<td>2M/1M</td>
</tr>
<tr>
<td>Flexible NetFlow</td>
<td>512K</td>
<td>1M</td>
</tr>
<tr>
<td>Security ACL Table</td>
<td>64K</td>
<td>256K</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Port Type</th>
<th>Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/100/1000 Mb/s Copper</td>
<td>16 (via GLC-T SFP)</td>
</tr>
<tr>
<td>1 Gb/s Fiber</td>
<td>16</td>
</tr>
<tr>
<td>10 Gb/s Fiber</td>
<td>16</td>
</tr>
<tr>
<td>40 Gb/s Fiber (w/ Adapter)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Enhanced Scalability with X86 CPU, 2 GHz Dual Core**
6880-X
Supporting Physical Infrastructure

Four High-Efficiency Green Fans

Platinum Efficiency AC and DC Power Supply (3KW)

Selectable In-Reach Depth
21.4” to 11.7”

Two-Post Rack Custom Mount Kit
IOS Strategy for Release 15.0 and Beyond

IOS 15 Releases Bring Consistency to Supported Features, Management, and Release

- Improved Management
- Enhanced Feature/Functionality Consistency Across All Platforms
- Standardized, Predictable Releases Across All Platforms

Cisco ASR-1000 Series
Catalyst 4x00 Series
Catalyst 6500 Series
Catalyst 3x00 Series
Cisco ISR Series

**IOS Feature Sets**

- Multicast
- IPv6
- VPN
- SW License
- Mobile Transport
- HA
- QoS
- Embedded Mgmt
- Routing
- Switching
- Broadband
- Web Services
- IP SLA
- Ethernet Services
- NBAR
- 802.1X
- SNMP
- Policy
- MPLS
- AAA

**Reuse of Common Code**

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Cisco Catalyst 6807-XL/6880-X
All 3000+ Cisco Catalyst 6500 Features Working DAY 1

**MPLS/VPLS**
- 10-Year MPLS Maturity
- L2 VPN
- L3 VPN
- L2/L3 VPN over mGRE
- MPLS TE
- VPLS/A-VPLS/H-VPLS
- Label Switch Multicast

**Next-Gen Campus Solutions**
- I-SAT
- L2 Campus LISP
- L3 Campus LISP
- SDN
- Smart Install Director

**VSS/Virtualization/HA**
- 5-Year VSS Success
- VSS Stalemate Parity
- MACsec on VSL
- 1G VSL
- BFD
- EVN

**IPv4 Unicast**
- OSPFv2/3
- OSPFv3 VRF-Lite
- VRF-Aware Unicast
- IP Tunnel HA
- BFD SVI-GRE
- BGP PIC

**IPv4 Multicast**
- IGMPv3 and MLDv2 Snooping in HW
- PIM-SM “Dual-RPF” in HW
- PIM-DM, PIM-Bidir
- PIM-Bidir, PIM Snooping
- PIM Register in HW
- mVPN, MSR, mcast BFD

**IPv6 Features**
- IPv6–IPv4 HW Parity
- IPv6 in IPv4 Tunnels, VRF-Aware IPv6 Tunnels
- OSPFv3 VRF PE-CE
- BGPv6, IS-ISv6
- MLD, MLD Snooping
- 6VPE and 6PE
- IPv6 Mcast HA
- PIM Sparse Mode (PIM-SM)
- IPv6 SLA, TCLI, LLDP
- IPv6 QoS, PAQL, RAACL

**Large Tables and Scalability**
- IPv4 Routing Capability
  - 64K-2M
- Multicast Routes (IPv4)
  - 64K-256K
- Number of Adjacencies
  - 256K-1M
- MAC
  - 128K
- ECMP (v4 and v6)
  - 16
- Security and QoS ACL
  - 64K-256K
- Flexible Netflow
  - 128K-5M
- MPLS Label Push/Pop in 1pass
  - 5/3
- Aggregate Policers
  - 8K
- VPN
  - 16K

**QoS and Security**
- MACsec/SGT
- DHCP Snooping
- SGACL and L3 SGT
- Dynamic ARP Inspection
- Ingress/Egress ACL
- Span with ACL
- Time-Based ACL
- Identity
- ACL Statistics
- ACL-Based QoS Classification
- Port Security
- Marking (DSCP/COS)
- IPv6 FH Security
- Microflow Policing
- ACL Atomic Commit/Dry Run
- Advanced CoPP
- IPv6 uRPF
- IPv6 VACL

**Rich Media**
- Flexible NetFlow
- Egress NetFlow
- Sampled NetFlow
- NDE
- Video Monitoring
- Mediatrace
- Metadata QoS
- Multicast Service Reflection (MSR)

**Management/Services**
- WCCPv3
- PBR IPv4/IPv6
- NAT
- GRE
- ERSPAN
- GOLD
- ISE
- Cisco Prime
- Mini Protocol Analyzer

**IPv4 HA/OSPFv3**
- OSPFv2/3
- OSPFv3 VRF-Lite
- VRF-Aware Unicast
- IP Tunnel HA
- BFD SVI-GRE
- BGP PIC

**OSPFv2/3**
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- IPv6 Mcast HA
- PIM Sparse Mode (PIM-SM)
- IPv6 SLA, TCLI, LLDP
- IPv6 QoS, PAQL, RAACL
## C6K Enterprise Backbone Technology Pillars
Cisco IOS Software Release 15.1(2)SY*

### Cisco Catalyst 6807-XL/6880-X for Campus Backbone

<table>
<thead>
<tr>
<th>Smart Operations</th>
<th>Security and Virtualization</th>
<th>Application Visibility and Control</th>
<th>Resiliency</th>
<th>Routing and Switching</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Smart Install Director</td>
<td>• TrustSec Per Policy CoA</td>
<td>• WCCPv2 - IPv6 Support</td>
<td>• VSS Quad Sup SSO (VS40)</td>
<td>• LISP Locator/ID Separation Protocol</td>
</tr>
<tr>
<td></td>
<td>• L3SGT For TrustSec</td>
<td>• Egress Microflow Destination-Only Policing</td>
<td></td>
<td>• High Quality Video</td>
</tr>
<tr>
<td></td>
<td>• SGACL Monitor Mode (Dry Run)</td>
<td>• QoS Policer Rate Increase to 256G</td>
<td></td>
<td>• Multicast Service Reflection</td>
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<td></td>
<td>• VPLS PIM and IGMP Snooping (LAN Interfaces)</td>
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<td></td>
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<td>• MPLS TE - Bundled Interface Support</td>
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<td>(EtherChannel and MLP)</td>
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**OS Consistency: IOS 15.0 for End-to-End Campus Feature Deployment**

*Future Release*
C6K Technology to Build Comprehensive Enterprise Networks
6800 Platforms Delivers the Same Flexibility to Do It All
Scale Operations
With Cisco Catalyst 6807-XL/6880-X

VSS

Simplify Network Topology
Reduce Management Points in Core/Agg.

VSS + Smart Install

Zero-Touch Deployment of Access Switches

VSS + Instant Access

Ultimate Network Simplification
Single Point of Management
Smart Operations
Small Install Director

Smart Install Database
Image File: Image-1
Config File: Conf-1
Image File: Image-2
Config File: Conf-2

Smart Install Director

Client Group 1

Client Group 2

LAN

TFTP/DHCP Server

Plug-and-Play Domain
Smart Install Clients

Smart Install Benefits
Centralized Management
Zero-Touch Installation
Minimize Downtime

Supported with Cisco Prime

Smart Install Clients

15.1(1)SY
Sup2T
Sup720
Support
YES
NO

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PSORRS-2001
Cisco Public
**Instant Access**

**ISE**  
Cisco Prime

Managed Devices = 20+

**Benefits**

- Satellite device capable of **Stacking, POE+**
- Single Point of **Management, Configuration and Troubleshooting**
- **Simplified Network design** for VLANs and port channels
- **Agile Infrastructure** to add new features uniformly across **Access Layer**
- A Single Image to deploy and manage across Distribution Block

**1000 Port Campus Distribution Block**

**REduced TCO**
Instant Access Satellite Capabilities
Differences From Nexus FEX

STACKING

POE+

Connect Compact Switch

Fabric Link

Spanning-tree bpduguard Disable
Deployment Models
Unified Access

- **Cisco Prime**
- **ISE**

**L2/L3 Links**
- Sup7E/3750-X

**L2/L3 Links**
- Sup8E/3850-X

**Fabric Links**
- 6848ia

**TRADITIONAL ACCESS BLOCK**
- Distributed

**CONVERGED ACCESS BLOCK**
- Distributed

**INSTANT ACCESS BLOCK**
- Centralized

<table>
<thead>
<tr>
<th>Wireless</th>
<th>Wired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralized</td>
<td>Distributed</td>
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<tr>
<td>Distributed</td>
<td>Distributed</td>
</tr>
<tr>
<td>Centralized</td>
<td>Centralized</td>
</tr>
</tbody>
</table>
Hardware Components
Instant Access

Parent

Virtual Switching System (VSS)

Supervisor 2T

WS-X6904-40G

Client

6800IA Satellite Device

48x1G, 2x10G, 740W POE+ (List: $9,000)
48x1G, 2x10G, Data Only (List: $7,000)
Catalyst for End-to-End Campus Security
TrustSec: The Right Resources for the Right User at the Right Time

Customer Challenges

Providing Right Level of Access to Multiple User Groups and Devices

Meeting Security Compliance Requirements Such as PCI 2.0, Sox, HIPAA

Easily Maintain Security Policies While Ensuring Business Continuity

VLAN to SGT Mapping New!
Marks Any Traffic Belonging to a Particular VLAN with the Configured SGT Value

Subnet to SGT Mapping New!
Marks Any Traffic with Source Address Within a Subnet with the Configured SGT Value

Layer Identity Port Mapping (IPM) New!
Marks Any Traffic Passing Through a Particular L3 Interface with the Configured SGT Value

Enhanced TrustSec Deployments
Backwards Compatibility with Existing Segmented Networks for Easy Migration
Network Virtualization
Catalyst 6500: The Network Virtualization Platform

Customer Challenges

BYOD

Compliance and Regulations

Mergers and Acquisitions

Partner and Supplier Integration

Path Isolation Between Employee-Owned Devices and Corporate-Issued Devices with EVN

Group Segregation for Regulatory Compliance with Integrated ASA-SM Firewall

Run Overlapping Networks over One Physical Network

Access to ERP for Suppliers over IP with L3VPN o mGRE

Customer Challenges

BYOD

Compliance and Regulations

Mergers and Acquisitions

Partner and Supplier Integration

BYOD

Compliance and Regulations

Mergers and Acquisitions

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Path Isolation Between Employee-Owned Devices and Corporate-Issued Devices with EVN

Group Segregation for Regulatory Compliance with Integrated ASA-SM Firewall

Run Overlapping Networks over One Physical Network

Access to ERP for Suppliers over IP with L3VPN o mGRE
Key Benefits

Flexible Selection
- Flexible Selection of Key Fields for Higher Application Visibility

Customized Data Collection
- Customized Data Collection With User-Defined Flow Monitors

User-Configurable
- Multiple Flow Caches Each With User-Configurable Parameters

Multiple Locations
- Export and Analyze Data in Multiple Locations Simultaneously

Onboard Integration
- Onboard Integration with Other Features for Real-Time Alarms/Events

Why Flexible NetFlow?
Deep Application Visibility for BYOD

Cisco Public
Application Visibility and Control (AVC)
BYOD Requires Enhanced Monitoring With Untrusted Devices

The Solution
Highly Scalable Full Visibility Solution with Flexible NetFlow in Hardware
Multicast Traffic Visibility and Simpler Deployment with Egress NetFlow
Full NetFlow as Well as Sampled NetFlow in Hardware to Scale Beyond 13 Million Flows
Catalyst 6500 Network Analysis Module (NAM-3) Software Release 6.0

APPLICATION AWARENESS
L2-L7 Application Visibility (NBAR2)

NETWORK INTELLIGENCE
CAPWAP, TrustSec SGT, LISP, …

PACKET ANALYTICS
Event-based On-Demand Captures

APPLICATION AWARENESS
L2-L7 Application Visibility (NBAR2)

APPLICATION AWARENESS
L2-L7 Application Visibility (NBAR2)

Application Intelligence

cifs
telepresence-media
pcolp
rdp
ssh
shockwave
itunes
oracle-bi
citrix

Performance Analytics

Clients

Client Network

NAM-3

New York

Application Servers

Superior Service Delivery in the Campus
Extracting Value From NetFlow: It’s the Ecosystem

**Network Operation**
- Capacity planning
- Historic data collection and trend analysis
- Network performance analysis
- Unified visibility across networks

**Security**
- Real-time anomaly behavior monitoring
- Eliminate network blind spots
- Reduce time, cost, and complexity for threat detection and response

**Compliance**
- Provides user accountability
- Supplies risk measurability and reporting
- Enables industry and government regulations: PCI, HIPAA, SCA.5DA, SOX, etc.
VSS Quad Sup SSO
Provides Optimal Business Continuity for BYOD/Collaboration

**Traditional VSS**

- **SSO Sync**
- 10GE
- LACP or PagP
- Access Switch or ToR or Blades
- Monitoring Server
- LACP

**Simplified Network Design**
- Spanning Tree and first-hop redundancy protocols eliminated
- Single touchpoint manageability

**Double Bandwidth Utilization**
- With active-active multichasis EtherChannel (LACP/ PagP)
- 1+1 Supervisor redundancy for dual-attached devices

**Deterministic and Automated Recovery**
- Maximize network throughput with VSS quad Sup SSO
- 1:1 (active/standby) supervisor redundancy for single and dual attached devices

**VSS Quad SUP SSO**

- **SSO Sync**
- 10GE
- LACP or PagP
- LACP

<table>
<thead>
<tr>
<th></th>
<th>15.1(1)SY</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sup2T</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Sup720</td>
<td>NO</td>
<td></td>
</tr>
</tbody>
</table>
BGP Prefix Independent Convergence (PIC)
Providing Predictable Subsecond Convergence < 1 Second

BGP Relies on >1 Second Hellos and Then Updates Each Prefix

BFD Provides Subsecond BGPlink State Updates

BGP Prefix Independent Convergence (PIC)
Providing Predictable Subsecond Convergence < 1 Second

Convergence Without BGP PIC and BFD
30–90 Seconds

Convergence with BGP PIC and BFD
50–150 Milliseconds

15.1(1)SY
Sup2T
Support
YES

AS65100
AS65100

10–20K Routes
10–20K Routes
10–20K Routes
10–20K Routes

Campus Backbones May Not Scale and/or Converge Well with Just OSPF or EIGRP
Many Large Enterprises Use BGP (and MPLS) for Simple Core Routing and Traffic EngineeringPIC Allows a Predefined “Backup” BGP Path

AS65202
AS65202
AS65202
AS65202

OSPF 1
OSPF 1
OSPF 1
OSPF 1

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AS65100
AS65100

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AS65100
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AS65100
AS65100

10–20K Routes
10–20K Routes
10–20K Routes
10–20K Routes

Sup720
Support
YES
High-Quality Video

**Customer Challenges**

Keep up with explosive growth in video endpoints

<table>
<thead>
<tr>
<th>Video Quality</th>
<th>1080p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandwidth</td>
<td>15 Mbps</td>
</tr>
<tr>
<td>Jitter/Latency/Drop</td>
<td>High Sensitivity</td>
</tr>
</tbody>
</table>

Business videoconferencing will grow **six-fold** over the forecast period. Business videoconferencing traffic is growing significantly faster than overall business IP traffic, at a CAGR of **48 percent** from 2011–2016.

Cisco VNI Global Forecast

**Business IP Traffic**

![Graph showing Business IP Traffic from 2011 to 2016](graph.png)


**Deep Buffers | Two Priority Queues | 40 Gigabit Interfaces**
High-Quality Video

Customer Challenges

- Identify and Prioritize Critical Video Traffic
- Debug and Isolate Video Quality Issues

Performance Monitoring with Mediatrace

Identify and Prioritize Critical Video Traffic

- Debug and Isolate Video Quality Issues

Metadata and QoS
Multicast Service Reflection
Catalyst Powers NBC’s Coverage of Vancouver and London Games

Customer Challenges

- Multiple Event Venues
- 60+ HD Video Streams
- 20+ Mbps per Stream
- Multiple Video Partners

Cisco and NBC Cover the Games
Cisco helps NBC push the boundaries of sports coverage at the 2012 Summer Olympic Games. (3:48 min)

Catalyst 6500 Series Switch with Multicast Service Reflection

- Hardware-based MSR provides flexible, high-performance ‘address translation’ of video streams across provider networks
- Translate multicast Streaming Video from disparate source networks or PIM modes

Label Switched Multicast (LSM)
PIM-Free Multicast VPN Forwarding With mLDP

No PIM+GRE in the Core

Only LDP in the Core

Migrate mPVN From PIM + GRE to mLDP-Based MPLS in the Core

MPLS Capabilities Such as FRR and TE Can Now Be Applied to Multicast

Simple Designs Minimizes Latency for Applications Such as HD Video
OSPF Backbone Enhancements

OSPFv3 VRF-LITE/PE-CE: Network Virtualization for IPv6
OSPFv2 Non-Stop Routing (NSR): HA with Non-Cisco
OSPFv3 Max-Metric LSA: Operational Simplicity for Managed Outages
L3 LISP
Extend VRF Services Over Existing Core

- Extend VRF relevance across sites
- No Changes required in Network Core
EX9200 Is Forklift Upgrade From EX8200

“(The upgrade) sounds drastic, but the EX8200 is successful in lower density markets. We did not have a solution for very high speed densities. **EX8200 will only receive SW Enhancements from here on.**”

Dhritiman Dasgupta, Juniper Senior Director for Product Marketing and Strategy

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**2001**  **2002**  **2003**  **2007**  **2011**  **2013+**

6500-E Chassis

---

6500 Chassis

---

**Investment Protection**

---

**No Module Compatibility**

---

**No Investment Protection**

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**Extended Lifecycle**

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**Same 67xx,68xx,69xx Line Cards and Service**

Summary and Key Takeaways

Innovation
6800 Series Innovations address key Enterprise trend enabling you to build the Next Gen Campus with Investment Protection

Transition
6800 Series optimizes performance while maximizing services for Campus providing transition paths to 10G To 40G and then to 100G

Differentiation
6800 Series portfolio delivers IOS and integrated Network Services for Borderless and Data Center deployments

Lower TCO
6800 Series portfolio provides 10x price/performance improvement with a roadmap to take the platform beyond 2020

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