Cisco Unified Access Roadshow
SE Track Access Switching

Rick Afonso – Systems Engineer
Agenda

- Industry Trends and Unified Access
- Access Switching Portfolio
- Catalyst 3850 and Converged Access
- Intelligent Access Features
- Software Roadmap
- Converged Access Deployment
- Migration and Competitive Update
Evolving User Workspace
Megatrends

IT Requirement

Deliver an Uncompromised User Experience on Any Workspace

BYOD
- Secure access
- Customized experience
- Guest access

Mobility
- Seamless roaming
- Optimal client performance
- Cloud access/VXI

Video
- Multicast streaming
- Video conferencing
- Reliable performance
Wireless Standards – Past, Present, and Future

- **Early 2000**: 802.11a, 802.11b 11 Mbps
- **2002**: 802.11g 54 Mbps
- **2004**: 802.11n 450 Mbps
- **2006**: 802.11ac-1 1 Gbps
- **2008**: 802.11ac-2 3.5 Gbps
- **2010**: 802.11ac 10 Gbps
- **2012**: 10 Gbps
- **2014**: 802.11n 450 Mbps
- **Future**: Future

**Clients / Bandwidth**

- **Nice to Have**
- **Pervasive**
- **Media Rich Applications**
- **Mission Critical**
IT Top of Mind

1. How do I manage complexity to reduce costs?
2. Can I offer secure, mission critical wired/wireless access services?
3. Am I investing in an architecture future-proofed for scale?

Is Your Network Ready?
Unified Access

Uncompromised User Experience on Any Workspace
Converged Access Mode

- Best In Class Access Platform
- Integrated wireless controller
- Distributed wired/wireless data plane (CAPWAP termination on switch)
Catalyst 3850 & Converged Access
NEW Catalyst 3850 Switch (FCS Jan 2013)

- Built on Cisco’s Innovative “ESPM” ASIC
- The Intelligent Switch for the World Connected

- FRU Fans, Power Supplies
- Up to 2000 Clients per Stack
- SGT/SGACL*
- Granular QoS/Flexible NetFlow
- Stackpower
- 480 Gbps Stacking Bandwidth
- Up to 50 APs/2000 clients per stack, and 40G per switch
- Wireless CAPWAP Termination
- 40 Gbps Uplink Bandwidth
- Full POE+
- Line Rate on All Ports

* Roadmap
Converged Wired/Wireless Access – Benefits

- **Single platform** for wired and wireless
- **Network wide visibility** for faster troubleshooting
- **Consistent security and quality of service control**
- **Maximum resiliency** with fast stateful recovery
- **Scale** with distributed wired and wireless data plane

**Unified Access - One Policy | One Management | One Network**
Single Platform for Wired and Wireless

20+ Years of IOS Richness – Now on Wireless

**Features:**
- 802.11n
- CleanAir
- VideoStream
- Radio Resource Management (RRM)
- Wireless Intrusion Prevention System (WiPS)
- 802.11ac Ready

**Benefits:**
- Built on **UADP ASIC** – Cisco’s Innovative Flexparser ASIC technology
- Eliminates operational complexity
- Single Operating System for wired and wireless

**Features:**
- Stacking
- Stackpower
- Flexible Netflow
- Granular QoS
- Trustsec*/Identity
- AVC/Medianet*
- Smart Operations
- EnergyWise*

Note: All features may not be available on new platforms at introduction but are expected to be added within 12-18 months.
Network Wide Visibility for Faster Troubleshooting

Converged Access Deployment

Benefits

- Track applications at every hop
  - CAPWAP Tunnel terminated at the access switch
- Root cause issues quickly

- App level visibility – Flexible Netflow, Wireshark*
- Media Troubleshooting – Medianet*

Device Identification
- Device Profiling*

Employee joins webex call on iPhone
Employee iPhone connected

AP CAPWAP Tunnel

* - Software Roadmap - within 12-18 months after FCS
Consistent Security and Quality of Service Control
Support for Mission Critical Apps

Unprecedented Hierarchical Bandwidth Management

Per AP
Per Radio
Per SSID
Per Client
Per Application*

*Based on L3/4, L4-7 within 9 months after FCS

Security

• Identity
• Device Profiling*
• SGT/SGACL*
• Control Plane Policing
• MACSec Ready*
• Port Security
• DHCP Snooping and IP Source Guard
• Wireless Intrusion Prevention System (WiPS)

* Software Roadmap – within 9-18 months after FCS
Hierarchical Bandwidth Management

**Converged Access**

- **Deterministic SSID bandwidth**
  - **Guest**
  - **Enterprise**
  - 10% min BW
  - 90% min BW

**Fair Sharing**

- **Usage based fair bandwidth allocation**
  - **Enterprise**
  - **Heavy Hitter (BW hog)**
  - **Fair BW allocation**
Resiliency - StackWise-480

• Improved Stack Bandwidth:
  • 240 Gbps bi-direction
  • 480 Gbps with spatial reuse

• Stateful Switch Over (SSO):
  • Faster Convergence (vs 3750-X)
  • Active-Standby model
  • Improved Central synchronization on Active Switch for Wired+Wireless

• Tunnel SSO ensures AP, MA-MC connectivity during failover

• No Backward Compatibility with 3750 series
Delivering Unprecedented Power Availability and Flexibility

- **Power Resiliency** - Adaptable “pool of power” available to all stack members
- Provides “Zero-footprint” RPS i.e. power supply redundancy without an RPS
- **Intelligent power shedding**— turn off low priority PoE end devices in the event of a power supply failure
Increased Wireless Bandwidth with Converged Access

**Campus (3840 users)**

- Total Wireless Bandwidth (Tbps): 0.0
- Number of Switches: 80
- 40G on Every Switch

**Small Campus or Branch (192 users)**

- Total Wireless Bandwidth (Gbps): 0.0
- Number of Switches: 4
- 40G on Every Switch

**Future Proofing your Network for 802.11ac and beyond**
Access Switching Portfolio
Change in Catalyst Access Switching Portfolio

Unified Workspace

- Scale & Performance
- Security
- Lower TCO

Catalyst 2960-S

- Scale & Performance
- Security
- Lower TCO

Converged Access*
Catalyst 4500E – Lead Modular Access
Building BYOD, Collaboration Ready Networks!

**Supervisor Engine 7-E**
- 848Gbps Switching Capacity
- 4 x SFP+/SFP uplinks
- 384 10/100/1000 Ports

**Supervisor Engine 7L-E**
- 520Gbps Switching Capacity
- 2 x 10G SFP+/SFP uplink
- 240 10/100/1000 Ports

<table>
<thead>
<tr>
<th>48G</th>
<th>24G</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data</strong></td>
<td><strong>PoE</strong></td>
</tr>
<tr>
<td>WS-X4748-RJ45-E</td>
<td>WS-X4748-UPOE+E</td>
</tr>
<tr>
<td>WS-X4648-RJ45-E</td>
<td>WS-X4648-RJ45V+E</td>
</tr>
<tr>
<td>• UPOE 60W, IEEE</td>
<td>• UPOE 60W, IEEE</td>
</tr>
<tr>
<td>• 30W/port on all 48 ports</td>
<td>• 30W/port on 24 ports</td>
</tr>
</tbody>
</table>

**UNDISPUTED MARKET LEADERSHIP**
- 110M+ Ports, 800K+ Systems
- 70% PoE/PoEP Port share
- 80% Adoption by Cisco Top Customers

**3rd party validation**
- “Powerful stuff: New Cisco switch delivers 60 watts to the desktop”

**Dual Supervisor**
- <200ms ISSU
- POE, POE+ and Cisco UPOE
- Dual Core CPU for 3rd Party Apps (Wireshark)
- 1+1 Power Redundancy
- N+1 Fan Redundancy
- Scales up to 384p POE/PoEP & 192p of UPOE

**Single Supervisor**
- 4503-E: 2 LineCards
- 4506-E: 5 LineCards
- 4507R+E: 5 LineCards
- 4510R+E: 8 LineCards
Make your investment count with Modular

Catalyst 4500E - Cisco’s Leading Modular Access

$4B Opportunity!

Sup Upgrade

Catalyst 4500E Sup7-E/7L-E

BYOD/Collaboration/Cloud

Security with Cisco TrustSec
Device Sensor, Secure Group Access, MacSec

Application Visibility & Control
Medianet, Wireshark, Flexible Netflow

Smart Operations
Auto SmartPorts, SmartInstall, SmartCallHome,

Resiliency & Scale
Non-Blocking Switch, HA, ISSU, UPOE

Rich Roadmap:
SDN/OpenFlow, Campus FEX, 802.11ac Support

75+% of your investment is protected with modular platform

End of Life/Support
Catalyst 6500 (Non-E)
End of Sale
Select 61xx Line Cards
Dec 2008
Catalyst 4500 (Non-E)
July 2010 (6G/Slot)
Catalyst 6500 Sup 1
Mar 2010 (6G/Slot)
Catalyst 6500 Sup 2
Feb 2012 (6G/Slot)
Catalyst 6500 (Sup32)
Mar 2012, Access (32Gbps)

Wired/Wireless
8p of 10GE uplink
Plan for 40G Uplink
LISP Capable

Sup8-E

Rich Roadmap:
SDN/OpenFlow, Campus FEX, 802.11ac Support

75+% of your investment is protected with modular platform
Catalyst 3K – Lead Fixed Access
Building BYOD, Collaboration Ready Networks!

Stackable Switch Portfolio

- **Catalyst 3750 v2**
  - Data or PoE
  - StackWise
  - Fixed 1G Uplinks
  - Single PS
  - LLW
- **Catalyst 3750-X**
  - Data / PoE(+)
  - StackWise Plus
  - Modular 1G/10G Uplinks
  - Dual FRU PS and Fans
  - E-LLW
- **Catalyst 3850 (Wired+Wireless)**
  - Data / PoE(+)
  - StackWise-480
  - Modular 1G/10G Uplinks
  - Dual FRU PS and Fans
  - E-LLW

Fast Ethernet

Gigabit Ethernet

Stand-Alone Switch Portfolio

- **Catalyst 3560 v2**
  - Data or PoE
  - Fixed 1G Uplinks
  - Single PS
  - LLW
- **Catalyst 3560-X**
  - Data / PoE(+)
  - Modular 1G/10G Uplinks
  - Dual PS
  - E-LLW

Fast Ethernet

Gigabit Ethernet

**Network And Service Modules**

**On 3750-x**

- 4 x 1G
- 2 x 10G
- 2 x 10G Base T
- 2x10G Service Module for FNF, MACSec

**On 3850**

- 4 x 1G
- 2 x 10G
- 4 x 10G

**¼ Billion+ Ports and 7 Million+ Units sold worldwide**

- Data Redundancy using Stackwise+/StackWise-480
- Power Redundancy using StackPower
- Field replaceable Power Supplies and Fans
- 9 member switch stack**
- Enhanced video features, e.g., Mediatrace, built-in traffic generation**
- Enhanced Security features, e.g., SGT, Device Sensor**

**available on 3750-X**
Catalyst 2960S Portfolio

**Cisco 2960S Portfolio**

**Layer 2 Only**

<table>
<thead>
<tr>
<th>Cable 2960SF</th>
<th>Catalyst 2960S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1G Uplinks</td>
<td>10G/1G Uplinks</td>
</tr>
<tr>
<td>FlexStack</td>
<td>FlexStack</td>
</tr>
<tr>
<td>Full PoE</td>
<td>Full PoE, PoE+</td>
</tr>
<tr>
<td>E-LLW</td>
<td>E-LLW</td>
</tr>
</tbody>
</table>

**Fast Ethernet**

**Gigabit Ethernet**

**Competitive Features**

- Security with 802.1x Monitor Mode
- Lower TCO with Energy Wise, Smart Operations and Auto QoS
- Static Routing & Priority Queing
- FlexStack 2 x 10G ports (wire speed)

**Upsell Differentiators of 4K/3K over 2K**

- TrustSec: SGT, MACsec, Device Sensor
- Application Visibility: FnF, Mediatrace, Wireshark
- Resiliency: StackPower, ISSU, UPOE
- Scale: Stack up to 9 on 3750X, 10 Slot Chassis 4500E

**Ease-of-Use**

- 60M PORTS

**Energy Efficiency**

- 1.3M+ UNITS

**Lower TCO**
3560C and 2960C Compact Switch
Delivering Zero Touch BYOD Deployments

- UPOE Powered
  - AC Power Option
- Smart Operations
  - Smart Install
  - Auto Smart Ports
- PoE
  - PoE(+) and non PoE Models

Fast Growing Catalyst Platform
- 22% Growth in FY12

Scalable and Proven Deployments in Education, Retail & Healthcare

Customer References: For internal use only
Intelligent Access Features and Roadmap
Cisco IOS Software Release 3.4.0SG/ 15.1(2)SG

Innovations for Next Generation Campus Deployments

Cisco Catalyst 4500E, Catalyst 4500-X, 4948E, 4948E-F & 4900M

**Resiliency**
- Virtual Switching Systems
- Multicast HA

**Security & IPv6**
- IPv6 First Hop Security
- IPv6 VACL & SPAN ACL Filtering for IPv6

**Smart Operations**
- Smart Install Director

**Other Features**
- Scoped Zone support for IPv6 BSR
- PBR recursive next hop
- 10GBASE-T X2 Pluggable Module

**OS Consistency: IOS 15.0**
Extended Maintenance (long lived) release
It All Starts at Access

- How to allow personal devices on corporate network?
- How do I authenticate users on my network?
- How can I provide secure access to guests/employees/partners?

**On-Board**
- Device Sensor
- Monitor Mode
- Flexible Authentication
- **Device On-boarding - 3850**

**Segment**
- Security Group Access
- Easy Virtual Network
- **Hierarchical QOS - 3850**
- **Wired & Wireless Guest user Segmentation - 3850**

**Protect**
- MACsec
- First Hop IPv4/IPv6 Security
- Flexible NetFlow
- Hardware-based Control Plane Policing
Delivering High-Quality Experience

- How do I know my network is ready for real time applications?
- What real time applications and devices are running on my network?
- How do I monitor and troubleshoot Application level traffic?

Assess

- IP SLA

Visualize and Control

- Media Services Proxy (MSP)/Metadata
- Flexible NetFlow (Wired + Wireless with 3850)

Monitoring & Troubleshooting

- Mediatrace
- Performance Monitor
How can I make my network resilient to handle business SLAs?
How can I easily onboard my network infrastructure?
How can I reduce IT energy expenses and align with corporate ‘Green’ goals?

Resiliency

- StackPower and Stackwise+(3750-X)/StackWise-480 (3850)
- ISSU, NSF/SSO and VSS

Plug n Play

- Smart Install, Auto QoS, Auto Smart Ports
- EEM, XML, SDN*
- Wireshark
- IPSLA, FnF

Energy Efficiency

- EnergyWise
- EEE (3850)

*Estimates 65% desktops, 35% laptops, 1 AP for every 20 employees, everyone has an IP Phone.
Results vary based on what, if any, energy management solution is previously in place; Assumes $0.12 per kWh (kilowatt-hour).

** Assumes ROI across 5 years; modeled on a 250 employee campus.

- StackPower and Stackwise+(3750-X)/StackWise-480 (3850)
- ISSU, NSF/SSO and VSS

- Smart Install, Auto QoS, Auto Smart Ports
- EEM, XML, SDN*
- Wireshark
- IPSLA, FnF

- EnergyWise
- EEE (3850)
## Software Roadmap
### CAT3850

<table>
<thead>
<tr>
<th>Features/Services</th>
<th>FCS (January)</th>
<th>Darya (Q3CY13)</th>
<th>Amur (Q1CY14) (Not Committed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure/Core</td>
<td>Full L2/L3 features</td>
<td>VRRP/HSRP, Common Criteria, JITC, FIPS, UPOE SKU support</td>
<td>IPv6 Multicast Routing, REP, IPv6 Infrastructure Support (CAPWAP, SNMP, Radius, Mobility, RRM)</td>
</tr>
<tr>
<td>Wireless/Mobility</td>
<td>Integrated IOS based WLC capability. Supported APs: 2nd Gen 11n APs (3600, 3500, 2600, 1600), 1260, 1140, 1040 IPv6 Mobility</td>
<td>11ac/Monitor Module -AP3600, AP3700(11ac), 802.11r and Neighbor List, Management Frame Protection, 802.11n Voice CAC, Wi-Fi Direct, New Alarms, Rogue Enhancements</td>
<td>Indoor or outdoor mesh, Flexconnect, Office-extend modes</td>
</tr>
<tr>
<td>AVC</td>
<td>Flexible Netflow, Granular QoS (Hierarchical Bandwidth Management, Fair Sharing)</td>
<td>Bonjour Services Directory, CARE</td>
<td>Medianet</td>
</tr>
<tr>
<td>SmartOps</td>
<td>SmartInstall Director, Client, AutoSmart Ports, EEE</td>
<td>Wireshark</td>
<td>ER-SPAN, Smart Call Home, EnergyWise</td>
</tr>
<tr>
<td>High Availability</td>
<td>4 member stack</td>
<td>9 member stack</td>
<td>Wireless Client SSO</td>
</tr>
</tbody>
</table>

**Notes:**
- **FCS:** (January)
- **Darya:** (Q3CY13)
- **Amur:** (Q1CY14) (Not Committed)
Converged Access Deployment
Understanding Current Deployment Model
The Wireless LAN Controller

Known Deployment Model

- **Wireless is an Overlay Network**
- **Software components within the WLC today:**
  - **Mobility Agent (MA) is responsible for:**
    - AP CAPWAP termination
    - Maintaining client database
    - Policy enforcement
  - **Mobility Controller (MC) is responsible for:**
    - Client Mobility
    - Radio Resource Management (RRM)
    - WiPS, Spectrum Management
Better Scale and Bandwidth with Converged Access
Separation of MA and MC

- Traditional Controllers continue to play MA and MC
- Catalyst 3850 can play the role of both MA and MC
  - Valid for Branch and small-medium campus type deployments
- Moving the MA only to the Catalyst 3850 (typically in large campus) helps with:
  - Improved Scalability – larger mobility domains
  - Increased wireless bandwidth
  - Uniform wired/wireless policy enforcement
Catalyst 3850:
- Integrated wireless controller
- Distributed wired/wireless data plane (CAPWAP termination on switch)

WLC 5760:
- First IOS Based Wireless LAN Controller

Benefits of Converged Access:
- Single Platform for wired and wireless
- Network wide visibility for faster troubleshooting
- Consistent security and QoS control
- Maximum resiliency with stateful recovery
- Scale with distributed wired and wireless data plane
Delivering Converged Access – Brown Field

Scale:
- Deployments greater than 16k wireless clients and 250 APs
- Up to 72k APs, 864k clients within a Mobility Domain.

Migration:
- Software Update on existing 5508 or Wism2 to release 7.3
- Access Switch Refresh – Catalyst 3850
- Wireless Controller Replacement

Benefits:
- Investment Protection with existing WLC code update
- Works seamlessly with Cisco’s Campus Deployment Best Practices
- Phased Adoption: Interoperable with existing deployment
Branch Deployment with Converged Access

Scale:
- Up to 16k clients and 250 APs

Migration:
- Access Layer Switch – Refresh using Catalyst 3850
- Guest access tunneled to DMZ
- Alternate guest segmentation with separate SSID

Benefits of Converged wired/wireless
- Integrated Controller – Catalyst 3850
- WAN dependency removed
- All WLAN features available locally
- WAN optimization, NetFlow, optimized multicast, Videostream, granular QoS
- Increased resiliency via next-generation stacking
Migration & Competitive

Internal Only

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Catalyst 3850 – new standard for fixed access switching.

Price parity with 3750-X

Catalyst 3850 – Enterprise-class features
Cheaper than 3750G/3750E
Future-proofed

Migration

3750G/3750E – End of Sale

Catalyst 3750-X

Upsell

Converged Access

Intelligent Access Services

Competitive features

Catalyst 3750-X
<table>
<thead>
<tr>
<th>Position the Catalyst 3850 when:</th>
<th>Position the Catalyst 3750-X ONLY when:</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is an opportunity to refresh the fixed access layer switches</td>
<td>The customer wants to stack more than 4 switches at the access layer before H2CY13</td>
</tr>
<tr>
<td>There is an opportunity to refresh the fixed access layer</td>
<td>The customer wants to enable all Cisco Secure Access/Trustsec/Medianet before H2CY13</td>
</tr>
<tr>
<td>switching and wireless infrastructure</td>
<td></td>
</tr>
<tr>
<td>There is an opportunity to sell access layer switching with</td>
<td>The customer wants to backwards compatibility in stacking with existing Catalyst 3750 series switches</td>
</tr>
<tr>
<td>centralized wireless and turn on converged access mode at a later</td>
<td></td>
</tr>
<tr>
<td>time</td>
<td></td>
</tr>
<tr>
<td>There is a Greenfield switching opportunity</td>
<td>The customer requires the fixed access layer switches to have mandatory FIPs/JITC compliance certifications</td>
</tr>
<tr>
<td>The customer cares about future proofing the network (802.11ac)</td>
<td>Other minor features included <a href="#">here</a></td>
</tr>
</tbody>
</table>
## Catalyst 3850 vs Competition

<table>
<thead>
<tr>
<th>Features</th>
<th>Impact</th>
<th>Catalyst 3850</th>
<th>Aruba S3500</th>
<th>HP 3800</th>
<th>Juniper EX 4200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stacking Bandwidth</td>
<td>Reduce loss of traffic during failure</td>
<td>480 Gbps</td>
<td>10 Gbps</td>
<td>288 Gbps</td>
<td>128 Gbps</td>
</tr>
<tr>
<td></td>
<td>(via uplinks)</td>
<td></td>
<td>(via uplinks)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resiliency (dual PS, Field replaceable, SSO)</td>
<td>High Availability, Flexibility, cost</td>
<td>Dual Fans, PS, - Yes</td>
<td>S3500 – Dual PS, SSO - No</td>
<td>Dual PS - Yes</td>
<td>Dual PS – Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SSO - Yes</td>
<td></td>
<td></td>
<td>SSO - No</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Full L2/L3 ready</td>
<td>Efficient Network Design</td>
<td>Yes</td>
<td>L2 – yes.</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td></td>
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<td></td>
<td>L3 - Limited</td>
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</tr>
<tr>
<td>Security (MACSec, SGA, 802.1x etc)</td>
<td>End user and network protection. Data confidentiality.</td>
<td>802.1x- Yes</td>
<td>MACSec, 802.1x – Yes</td>
<td>802.1x- Yes.</td>
<td>802.1x- Yes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MACSec*, SGA/SGT*</td>
<td>SGA - No</td>
<td>MACSec/SGA - No</td>
<td>MACSec/SGA - No</td>
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<tr>
<td>QOS Buffers per box</td>
<td>Efficient traffic forwarding</td>
<td>12 MB/48 port</td>
<td>Buffer info unavailable.</td>
<td>36 MB/48 port</td>
<td>2 MB/24 port model</td>
</tr>
<tr>
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</tr>
<tr>
<td>Wireless support (y/n)</td>
<td>Lower TCO, Simplified Management</td>
<td>Yes</td>
<td>Yes</td>
<td>N</td>
<td>N</td>
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</tr>
<tr>
<td>Number of AP and Clients</td>
<td>Improved wireless coverage and availability</td>
<td>50 APs/2k clients</td>
<td>8 APs*</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
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</tr>
<tr>
<td>Flexible Netflow Support (y/n/sampled)</td>
<td>Capacity planning, user level tracking</td>
<td>Yes. Line rate</td>
<td>No</td>
<td>Sampled</td>
<td>Sampled</td>
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</tr>
<tr>
<td>Ease of Use (SmartInstall/Auto Smart ports etc)</td>
<td>Lower TCO, easy management</td>
<td>0 touch switch installation and port provisioning</td>
<td>No</td>
<td>Basic vlan assignment for QoS</td>
<td>No</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>SDN ready</td>
<td>Flexible traffic forwarding</td>
<td>Yes</td>
<td>No</td>
<td>Claim</td>
<td>Claims to be ready in CY13</td>
</tr>
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</tr>
<tr>
<td>Energy Efficient features (EEE or EW type)</td>
<td>Lower TCO, Green</td>
<td>EEE ready, EW capable</td>
<td>No</td>
<td>Claims support but issues found</td>
<td>No</td>
</tr>
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</tbody>
</table>

*Roadmap*
## Competitive Traps

<table>
<thead>
<tr>
<th>Competition</th>
<th>Cisco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position stackable products for high port density closets</td>
<td>Competition lacks comparable modular portfolio</td>
</tr>
<tr>
<td>Claim price advantage by using unit and not per port pricing</td>
<td>Cisco offers up to 20% additional ports per RU</td>
</tr>
<tr>
<td>Position cheaper products that don’t meet full requirements</td>
<td>Use this tactic to remove Cisco and then upsell to high end products</td>
</tr>
<tr>
<td>Low TCO through no service pricing</td>
<td>Non-Service pricing related OpEx forms 70% of the expenditure</td>
</tr>
<tr>
<td>Dual vendor approach</td>
<td>Lose out on end-to-end architectural advantages</td>
</tr>
<tr>
<td>Flexible Netflow vs. Sflow</td>
<td>Comprehensive visibility vs. incomplete visibility</td>
</tr>
</tbody>
</table>
Cisco UPOE*/Full PoE+
- Power Redundancy with Stack Power
- High Availability with StackWise-480, StackPower
- FRU: Power Supplies and fans

3850 LAN Base

Sup7L-E LAN Base Bundle
- 4x10G Uplinks
- Cisco UPOE/PoE+
- High Availability with ISSU
- Long product lifecycle
- Deep Buffering
- Line Rate multicast

# of Ports

Fixed and Modular
Flexibility of Choice and Form

Customer Wins Against HP

Fixed
- Toyota Motor Corp (Dual power supply, Stackpower)
- University of Damman (10G uplink promo, PoE+)
- Yale/New Haven Hospital (10G uplink promo)
- UK Environment Agency (Trustsec, Stackpower)

Modular
- WellsFargo (Multicast, Resiliency, UPOE)
- Nomura (Multicast, Resiliency, UPOE)
- Capital One (Resiliency)
- PWC (UPOE, FnF, Wireshark)
- GAP (Medianet, Resiliency)
- Adobe (Resiliency, UPOE)
Catalyst Access HP Competitive Win

- $1M+ deal, 35 Access Closets
- Competition: HP A5500, E8200, A7500
- Requirements: Secure and resilient access

**HP Strategy**
- Downplay Cisco features (Medianet, Trustsec)
- Position A5500 to get in doors against 3K-X
- Move to E8200 when confronted with Catalyst 4500 features
- Lead with A7500 for somewhat comparable features

**Cisco Strategy** - **win @45% premium over HP**
- 3750X and 4500-E for access differentiation
- Positioned Mix of Catalyst 4500 10-Slot and 7-Slot dual Sup bundle
- Educated partner about benefits of ISSU, EEE and Wireshark
- Upsell to UPOE line cards and Dual Supervisor with IP Base

“4K BOM generation tool a great plus” Account Team
Catalyst Access Competitive Win

- $3M+ deal
- Competition: Juniper EX4200 and EX6200
- Requirements: Medianet and ease of POS Connectivity

**Juniper Low Cost Threat**
- Juniper EX4200 Stackable
- Alignment with IT Director at Gap, Inc. & Sourcing

**Cisco “Platform for Innovation” Solution** - wins 2x premium deal
- 4500 Series, Dual Sup7E, UPOE for next generation access
- Medianet; end to end collaboration

**Why Cisco Won – Business Value**
- Solved to business needs
- Customer Intimacy / Partnership / Cisco Executive Alignment
- IBM support and operational TCO
Key Takeaways

**Flexibility of Choice**
- Lead with choices in both fixed and modular
- Breadth of the portfolio across 2k, 3k and 4500E

**Win with Unified Access Architecture**
- Architectural and Operational Agility for next gen Campus
- Trustsec
- Smartops
- AVC
- Converged Wired/Wireless Access Catalyst 3850

**Refuse to Lose**
- Position Right Platform
- Aggressively compete against HP to win back mind share and market share
- Engage BU resources proactively
  - ASK Aliases
Roadmap, feat matrix links


Datasheet : http://ecm-link.cisco.com/ecm/view/objectId/090dcae183ad1d4c/versionLabel/CURRENT

Software Feature Matrix: http://ecm-link.cisco.com/ecm/view/objectId/090dcae183a9b92d/versionLabel/CURRENT

Technical and Pre-Sales Support : ask-c3850-pm@cisco.com