

EMEA PARTNER CONFERENCE

IDEAS/Connected
Spain // May 9-11, 2016

#JuniperIDEAS



Winning with Campus
& Branch

Rahul Vir & Steve Brodie

Disclaimer

This statement of product direction sets forth Juniper Networks' current intention and is subject to change at any time without notice. No purchases are contingent upon Juniper Networks delivering any feature or functionality depicted on this statement.

Agenda

| | |
|---|----------------------------------|
| 1 | MARKET OPPORTUNITY AND STRATEGY |
| 2 | JUNIPER STRATEGY |
| 3 | UNITE - CLOUD ENABLED ENTERPRISE |
| 4 | NEW PRODUCTS AND DEMO |
| 5 | NEW AND UPCOMING |



OUR COMMON THREAT

EMEA Switching Market Shares & Growth

- #3 switching vendor
- \$4B+ switching sales
- 25,000+ customers
- Strategic focus & growth area
- Market growth (est.)
 - 2016 \$6.5B to 2017 \$7.1B

| EMEA switch market (Layer 2/3 only) | | | |
|-------------------------------------|---------------|---------------|--------------------------|
| Vendor (top 5) | Q4 2015 (\$M) | Q4 2014 (\$M) | Sales Growth Q4'15/Q4'14 |
| Total | \$1,892 | \$1,923 | -1.60% |
| Cisco | #1 | #1 | -0.10% |
| HPE (Aruba) | #2 | #2 | -9.30% |
| Juniper Networks | #3 | #3 | 9.90% |
| D-Link | #4 | #4 | 3.70% |
| Extreme Networks | #5 | #5 | -13.30% |
| Others | | | -1.30% |

Source: Canalys estimates, © Canalys 2016



Enterprise Campus Outlook

Drivers for network upgrade



IT automation: Doing more with less



Secure connectivity across enterprise



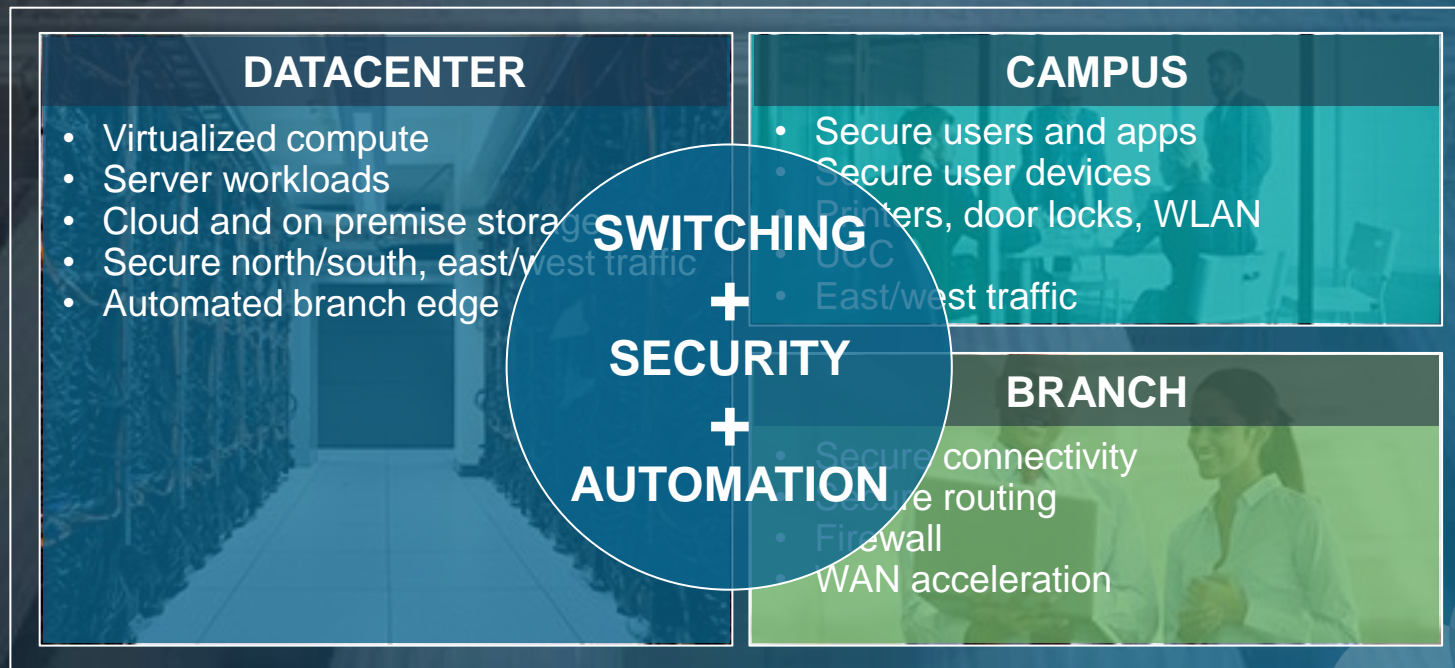
WLAN 802.11ac APs, POE+/POE++ (100W)



Virtualization of branch network functions

Uniting & Securing the Enterprise Network

Fusion Enterprise and Cloud Enabled Branch (Cloud CPE)



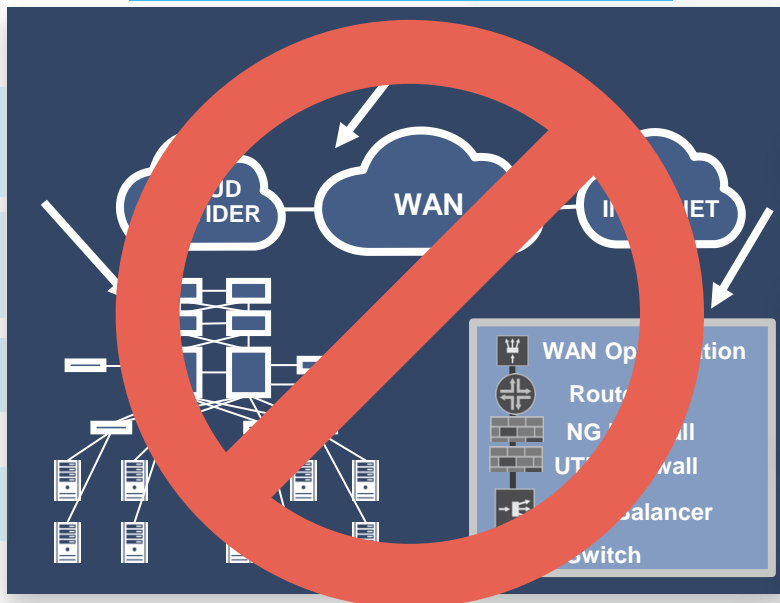


Unite Architecture

Challenges in the Enterprise Network Today

Today's Enterprise

Campus, Data Center and Branch



Campus

Branch

Today's enterprise:
Changes can break something or open a security gap!

Lacks scale, reliability and visibility

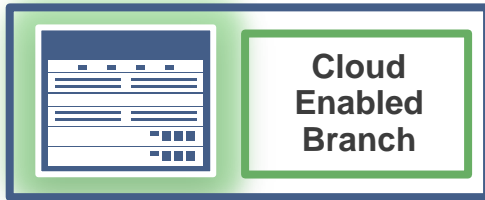
Too complex: layers of switching and VLANs, multiple appliances

Brittle and manual, difficult to keep secure

Cumbersome to deploy and troubleshoot

Transform Your Enterprise Network

Your Entire Network



Tomorrow's enterprise:
Simplified
architecture that
scales

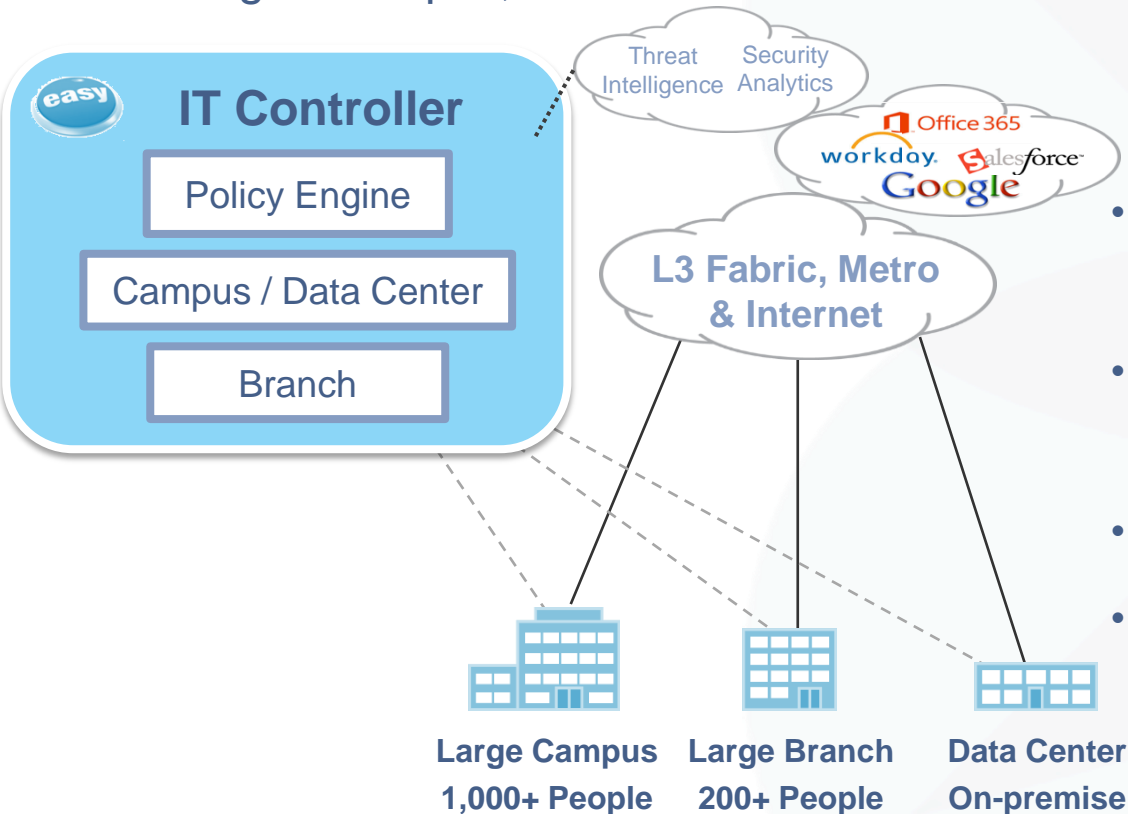
Virtually collapse core,
distribution and access

Virtualized services and connectivity

Central visibility, control,
management, and policy

Cloud Enabled Enterprise Architecture

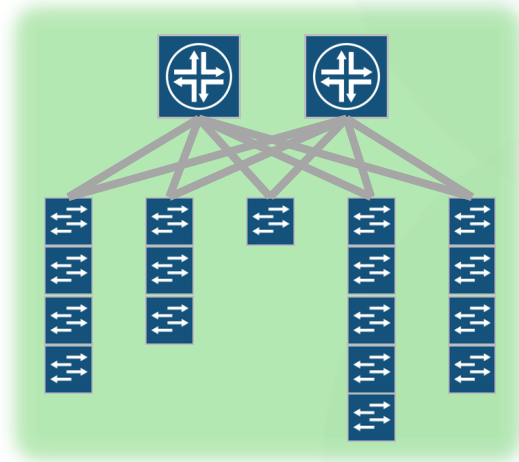
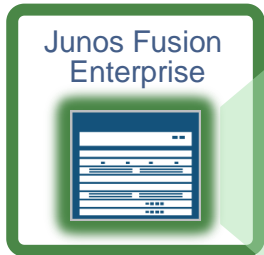
Converged Campus, Branch and Data Center



Simple and Secure

- “Easy Button” campus and branch automation
- Coexistence of traditional and new architectures
- Software defined secure networks
- Open Convergence Framework

Junos Fusion Enterprise



Simple **Smart** **Flexible**

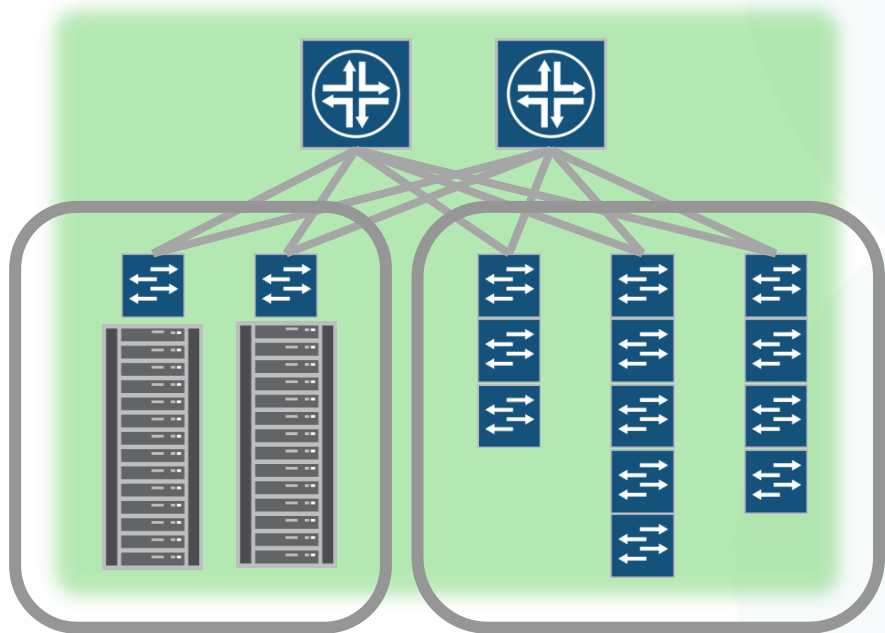
Tomorrow's enterprise:
Simple, **Smart**,
Flexible

Simple: one logical device to manage, plug-n-play, zero touch

Smart: open APIs, highly resilient, intelligent software upgrades

Flexible: investment protection, use current topology, flexible deployment models

Your Entire Enterprise



**On Premise
Data Center**

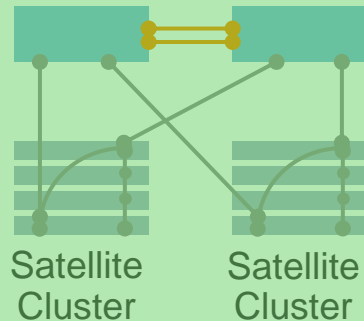
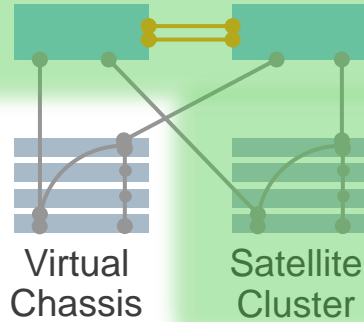
**Campus
Wiring Closets**

Common Core: Enterprise Campus & Data Center

Consolidated, Centralized
Operations = Reduced OPEX

Enterprise campus + data center =
one managed device

Junos Fusion Enterprise - Migration



- Hybrid mode supported
 - MC-LAG/Access Switches and Fusion/SD
 - Maintains independent distribution function
- Script to deploy Fusion ready MC-LAG
- Automate configuration conversion for access layer switches
 - Migrate to Fusion one closet at a time
 - Scales up to 6,000 ports w/ full 4K VLANs
 - Flexible topology

Unifying Enterprise Networks

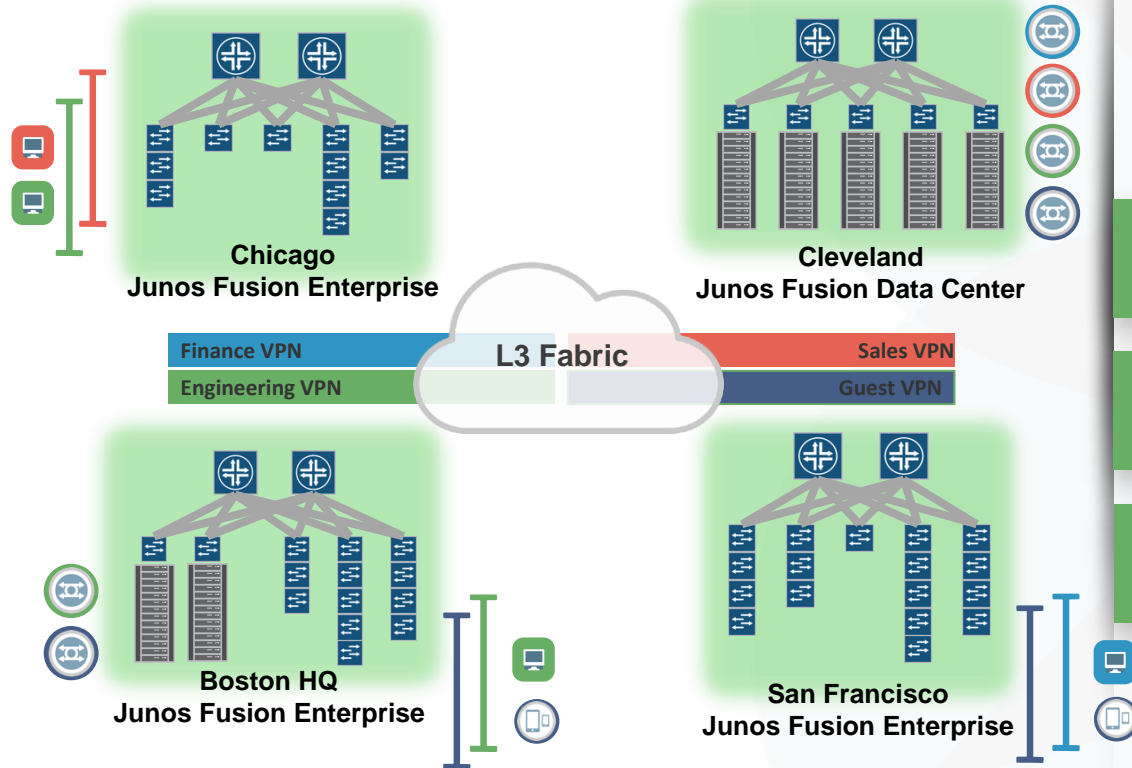
Simple Smart Flexible

Junos Fusion Enterprise elegantly **unifies the enterprise**

Consistent segmentation across all sites

Extends EVPN capabilities to the access

Uniform VLANs, configuration and policies

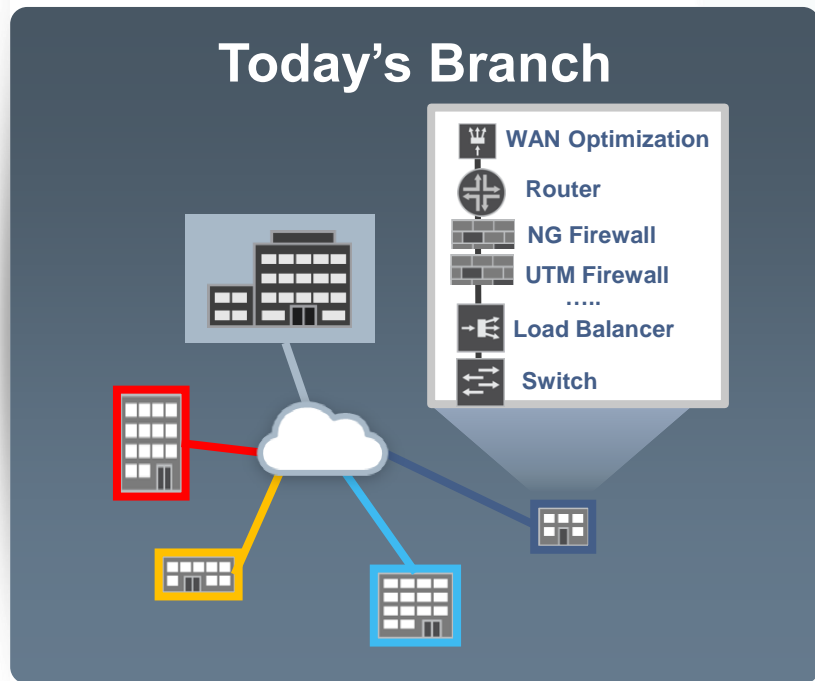


It's **simple**
to make
things **COMPLEX**
& it's
COMPLEX to make
things **simple.**



What About Your Branches?

Little or No IT Expertise at Branches



Today's branch:
Replication across sites challenging

Expensive complex all-in-one box or many vendor inline boxes

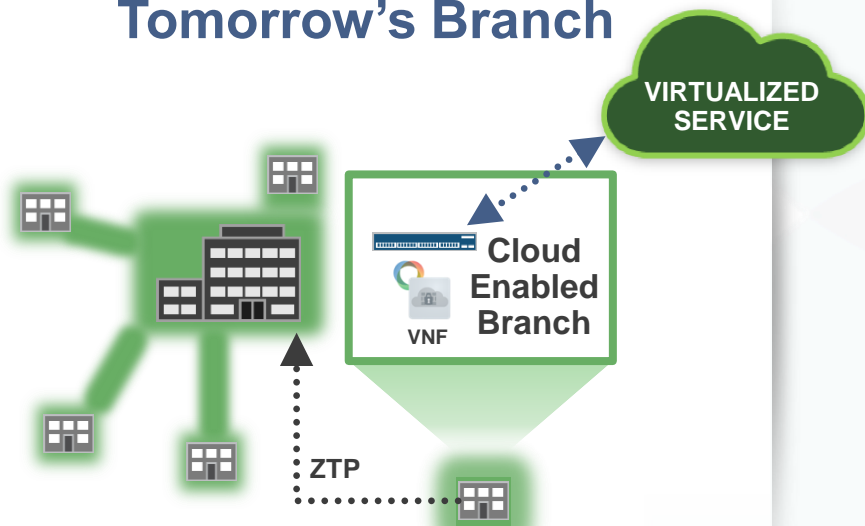
Cumbersome to replicate or customize

Requires massive refresh every 3 – 5 years

Cloud-Enabled Branch

Easily Extend Your Agile, Secure Enterprise Campus Network

Tomorrow's Branch



Your enterprise campus is the network services platform for your branch locations

Tomorrow's branch: Easily connect to any cloud service

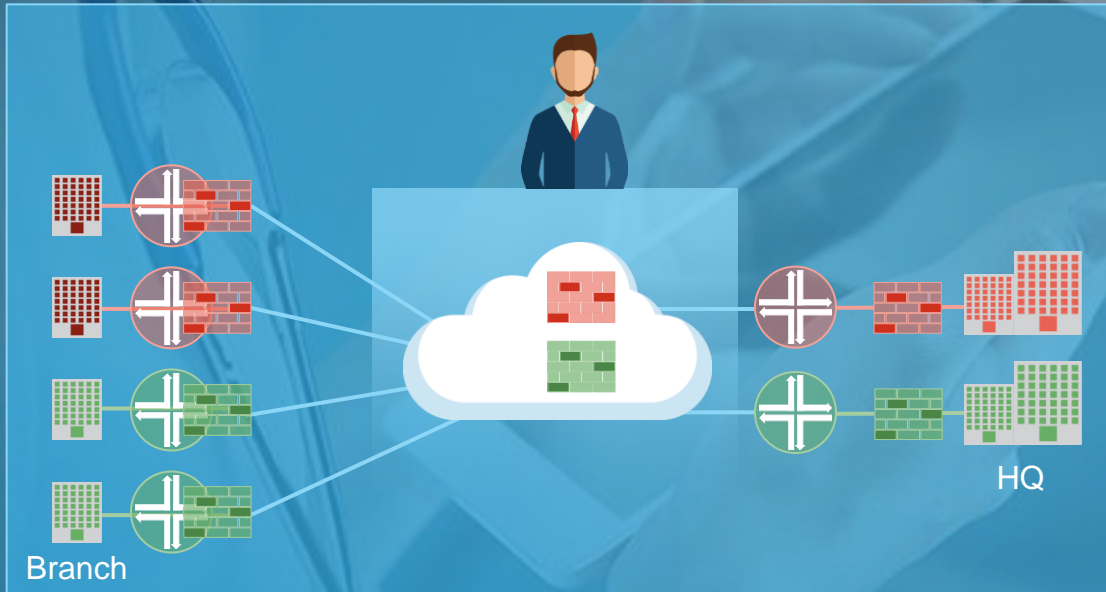
DC, private or public cloud is the services platform for branches

No costly, heavy platforms at every branch

Easy updates and uniform security across every branch

Cloud CPE for Cloud Enabled Branch

Open, Fully Automated Enterprise Platform



Cloud Enabled Automated Branch

Cloud services and software

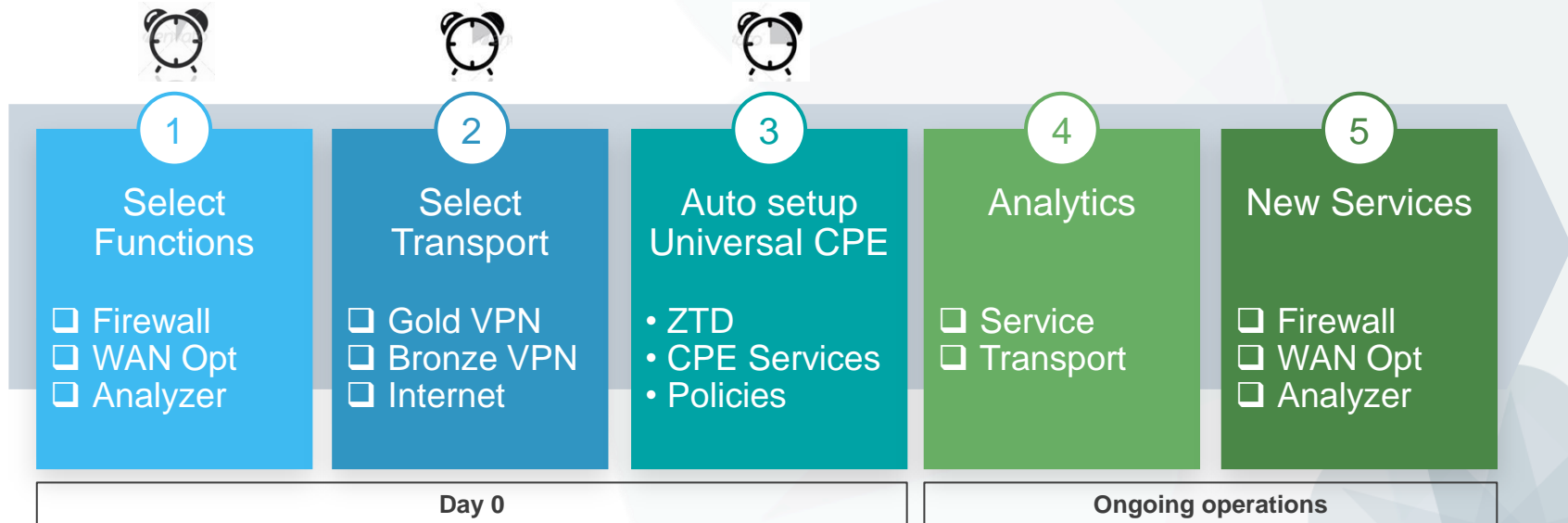
Juniper services and third party

SD WAN as a service

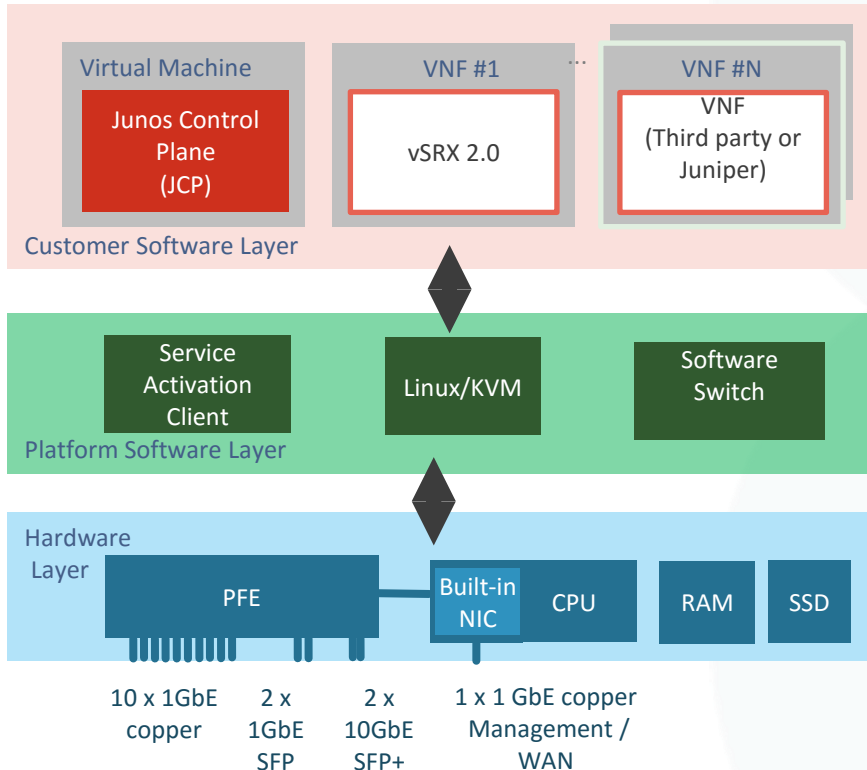
NFX virtualized services system

Cloud Enabled Branch Access

- New site bring-up in minutes
- Point-and-click service addition
- Choice of premium transport or budget OTT transport

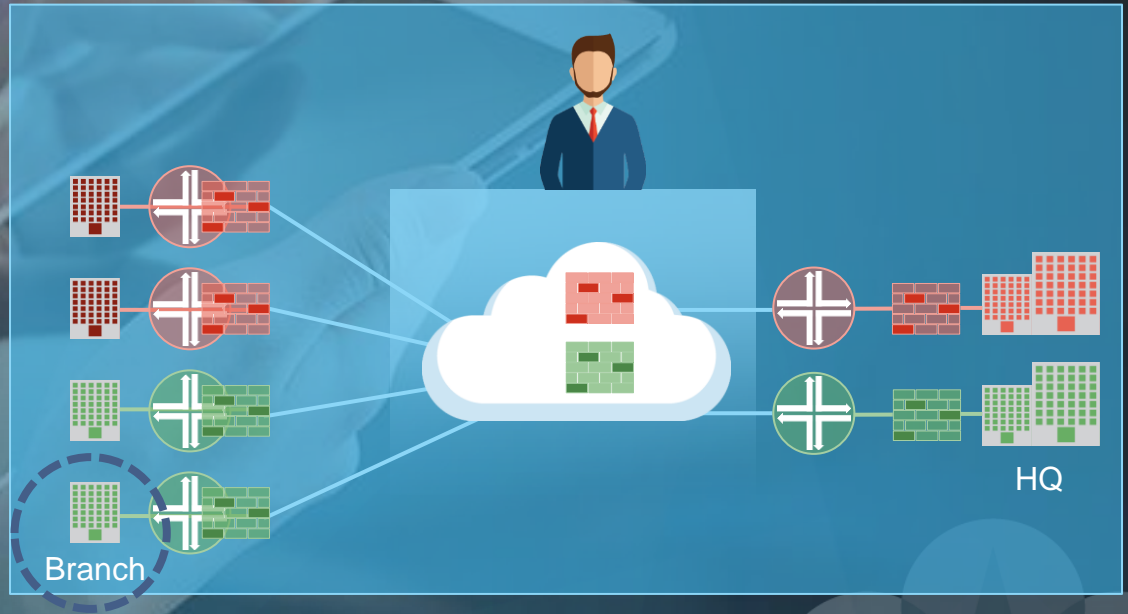


Open Architecture for Innovation



- **Customer Software Layer**
 - Multiple VNFs
 - E.g. vSRX 2.0, third party
- **Platform Software Layer**
 - Linux OS / KVM hypervisor
 - Service activation client
 - Device and VNF lifecycle management
- **Hardware**
 - Intel Xeon D CPU
 - Merchant Silicon based PFE

CLOUD CPE



Expanded Campus Access Portfolio



- 12, 24 and 48 port models
- 10G uplinks or VC ports
- 4-member Virtual Chassis
- Satellite Device in Junos Fusion
- Energy Efficient Ethernet



- 24, 48 port models w/ redundant power
- 10G and 40G uplinks or VC ports
- 10-member Virtual Chassis
- Satellite Device in Junos Fusion
- MACsec and Energy Efficient Ethernet

Juniper EX Series Ethernet Switches

Delivering the right switch for the right application across the Campus

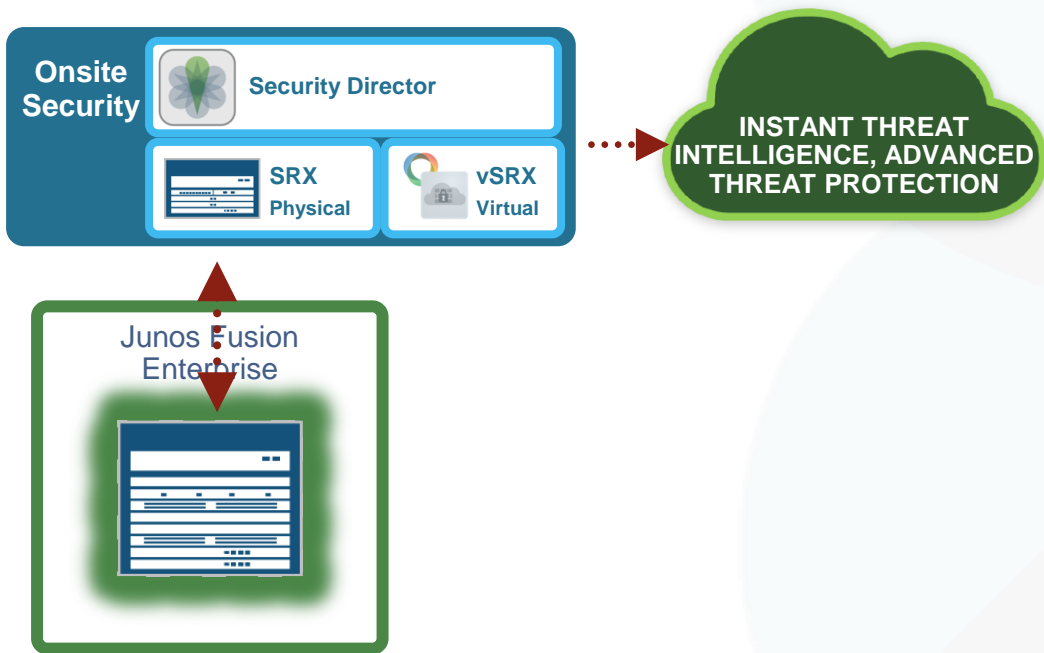


| EX2200-C /EX2200 | EX2300 | EX3300 | EX3400 | EX4200 | EX4300 | EX4550 | EX4600 | EX9200 |
|-------------------------------|----------------------------------|-----------------------------|---|-----------------------------|--|--------------------|-----------------------------------|---|
| Campus Access | Campus Access | Campus Access | Campus Access | Campus Access & Aggregation | Campus Access & Aggregation | Campus Aggregation | Campus Aggregation | Campus Core + Aggregation |
| Up to 28/104Gbps | Up to 196Gbps | Up to 196Gbps | Up to 336Gbps | Up to 136Gbps | Up to 496Gbps | 960Gbps | Up to 1.44Tbps | Up to 13.2Tbps |
| 12-24-48 x GE 2-4 x GE SFP | 12-24-48 x GE 2-4 x 10GE SFP+ | 24-48 x GE 4 x 10GE SFP+ | 24-48 x GE 4 x 10GE SFP+ 2 x 40GE QSFP+ | 24-48 x GE 2 x 10GE SFP+ | 24-48 x GE 4 x 10GE 4 x 40GE QSFP+ | 48 x 10GE | 72 x 10GE SFP+ 12 x 40GE QSFP+ | Up to 320 x 10GE Up to 60 x 40GE Up to 20 x 100GE |
| PoE / PoE+ | PoE / PoE+ | PoE / PoE+ | PoE / PoE+ | PoE / PoE+ | PoE / PoE+ / SFP | N/A | N/A | N/A |
| Virtual Chassis Capable | | | | | | | | MC-LAG |
| | Fusion Satellite | | Fusion Satellite | | Fusion Satellite | | Fusion Satellite* | Fusion AD |

* Under investigation

Securing Your Network Becomes Simpler

Pervasive and Dynamic Security



Comprehensive and nimble: **Centralize and automate security**

Secure at all points, all layers

Instantly update, deploy access policy throughout entire network

Greater visibility allows for faster location and isolation of intruder

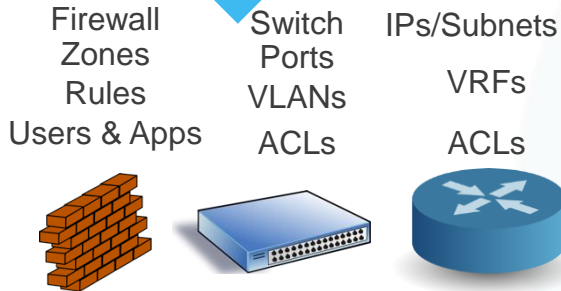
Software Defined Secure Network



Business Needs



IT View



Policy



Create and centrally manage security policy through user-intent based system

Detection



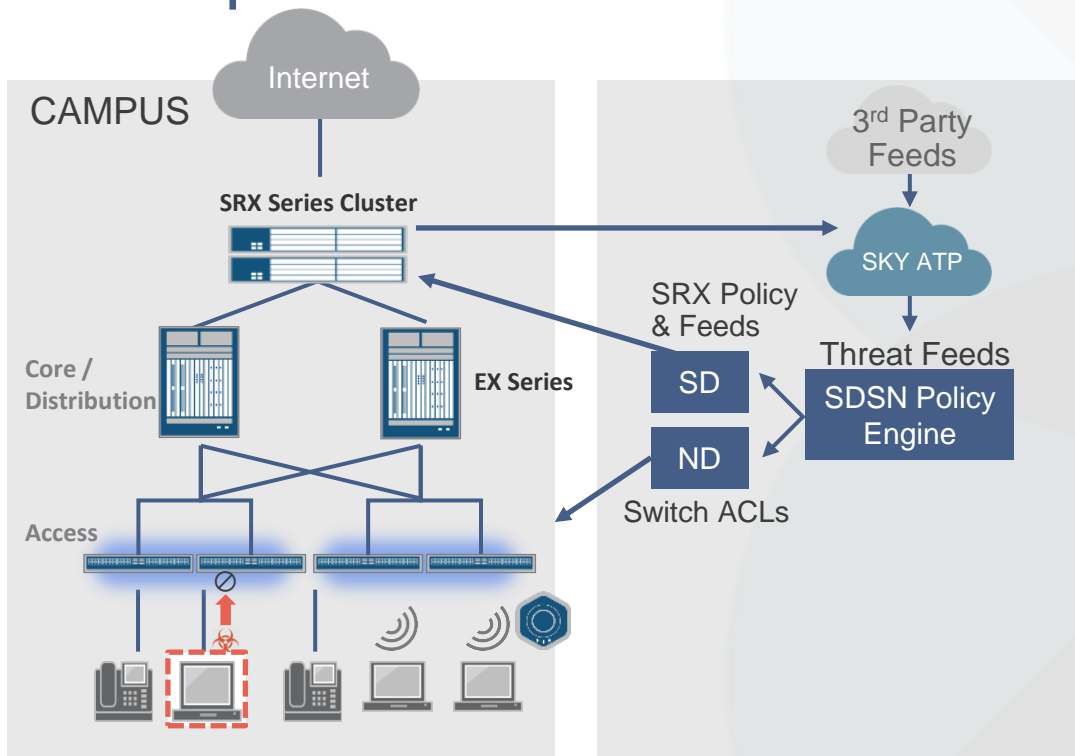
Unify and rate threat intelligence from multiple sources

Enforcement



Enforce policy in near real time
Adapt to network changes

Campus Network: Infected Host Workflow



POLICY

- Policy defined in Policy Engine
- “Infected Hosts with Threat Level >8 should be quarantined”

DETECTION

- Sky ATP Threat Feeds
- Custom Feeds (e.g: Attivo, Vectra)

ENFORCEMENT

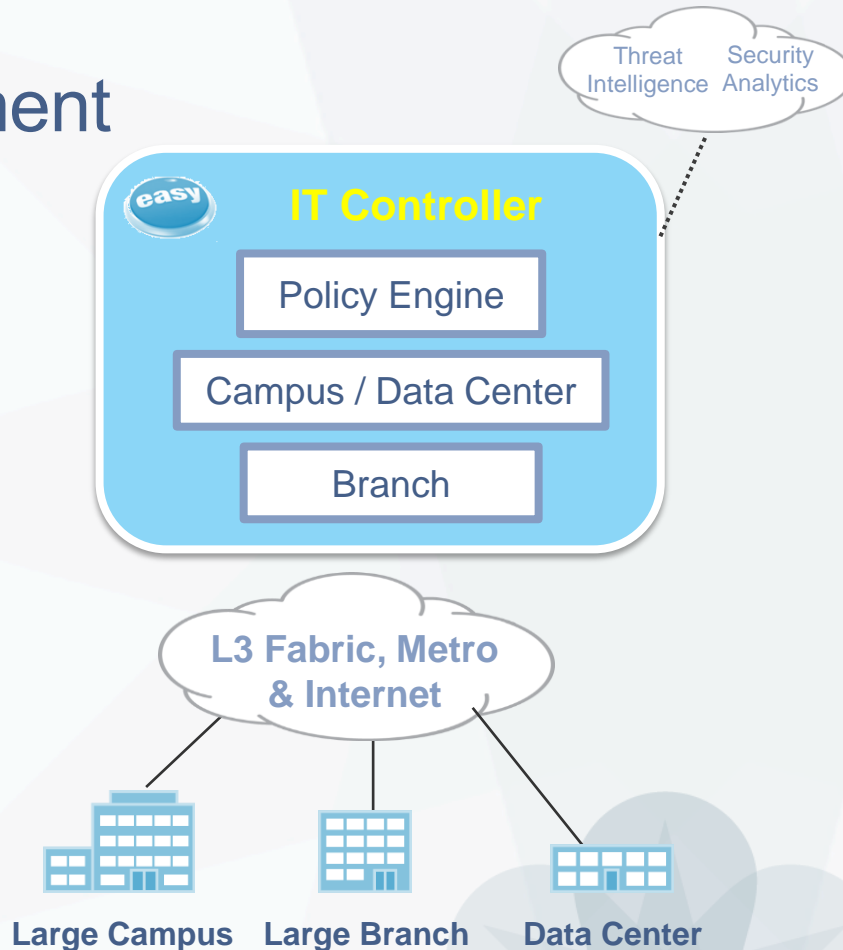
- Access and aggregation switches quarantine infected host
- SRX policy enforcement



Management and Automation

Unite “Easy Button” Management

- Campus and branch visibility and automation
- Overlay networks management
- Software defined secure networks
- Flexible cloud based or on-premise deployment



Junos Fusion Enterprise Management

Create Template

Deployment Type: **Basic Settings** | Advanced Settings | Review

Template Name:

Device Model: EX9208

Chassis: A new chassis | Preview Chassis | Build a new Chassis

▼ Cascade Ports

| Select Ports | | Remove |
|--------------------------|------|----------------------------------|
| <input type="checkbox"/> | FPC | Ports |
| <input type="checkbox"/> | FPC3 | ge-0/0/1 ge-0/0/2 ge-0/0/3 |
| <input type="checkbox"/> | FPC4 | ge-0/0/1 +1 more |

▼ ICL Ports
Applicable only for Multi Home

| Select Ports | | Remove |
|--------------------------|--|----------|
| <input type="checkbox"/> | | Ports |
| <input type="checkbox"/> | | ge-0/0/0 |
| <input type="checkbox"/> | | ge-0/0/1 |
| <input type="checkbox"/> | | ge-0/0/2 |
| <input type="checkbox"/> | | ge-0/0/3 |

▼ Stack Ports
Applicable only for BSA Fabric

| Select Ports | | Remove |
|--------------------------|--------------|----------------------------------|
| <input type="checkbox"/> | Device Model | Ports |
| <input type="checkbox"/> | EX-4200 | ge-0/0/1 ge-0/0/2 |
| <input type="checkbox"/> | EX-4300 | ge-0/0/1 |
| <input type="checkbox"/> | EX-4400 | ge-0/0/1 +1 more |

Software User Group (SUG)

Satellite Image:

Previous | Next | Cancel

- Deploy a new Junos Fusion Enterprise Fabric using Network Builder
- Manage a Junos Fusion Enterprise fabric
- MC-LAG to Fusion migration workflow
- Port auto configuration (Easy Config)
- Targeted for ND3.0 in Q4' 2016

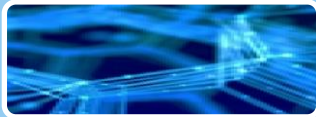
Juniper Cloud Based Management (CBM)



Cloud management of networking, security and services



Consistent experience for campus, branch and data center



Manages Physical and Virtual Network Functions (VNF)



Flexible deployment in public or private cloud



Integrates with select 3rd party components

Holistic Solution for Cloud Enabled Branch

Fully automated and zero touch deployment

Cloud Enabled Branch

Integrated Designer

Services: Security, Networking and VNFs

Topology design with EX, NFX, SRX

WAN connectivity

Template Driven

Design once & instantiate 1000s of branches

Bulk changes to all or selected branches

Automated on boarding

Automated secured on boarding of each device at the branch

Validating device connectivity

Centralized Management

PNF & VNFs orchestration & management

Rebrand-able customer self-service (CSS) portals



Open Convergence Framework

Open Convergence Framework

Ready to deploy best-of-breed enterprise solutions

unite
Cloud Enabled Enterprise


wireless

aruba
NETWORKS

 **ruckus**
Simply Better Wireless.

Aerohive
NETWORKS


security

 **Pulse Secure**

aruba **Attivo**
NETWORKS NETWORKS

VECTRA  **impulse**


ucc

 **Microsoft**
Lync

 **Sonus**
NETWORKS


management

solarwinds
The Power to Manage IT

splunk

 **Microsoft**

BETTER TOGETHER



Shared Strategy

Best in Class Connectivity, Partner Led Organizations, Open to avoid lock-in

Complementary Vision

Wireless



Wired

Shared Automation

Management, failover, redundancy and resilience

Complementary Offerings

Onsite, Cloud Controllers, Controller-less, AP's



Physical Switching, Routing, Security
Virtual Routing & Security

JOINT OPS

Connect Everything

NFV ALLIANCES

Managed Services Cloud CPE

Top NFV Use Case (infonetics)
Capex & Opex Savings

Centralized Cloud CPE

Open & Standard-based

SMB Markets
Volume Deployments

- 3rd Party NIDs
- Juniper & 3rd Party VNFs
- Juniper
Orchestration/CSO

Distributed Cloud CPE

Open & Standard-based
Flexible

Enterprises & Mid-markets
On-prem or Cloud Solution

- VNFs On-premises or in
Cloud (Hybrid)
- Juniper & 3rd Party VNFs
- Juniper Orchestration/CSO

L4 – L7 APPs

Open & Standard-based
Best of Breed

Centralized & Distributed
CPE

- Juniper & 3rd Party VNFs per
customer choice
- Juniper Orchestration/CSO

OSS/BSS

Open & Standard-based
Interoperable

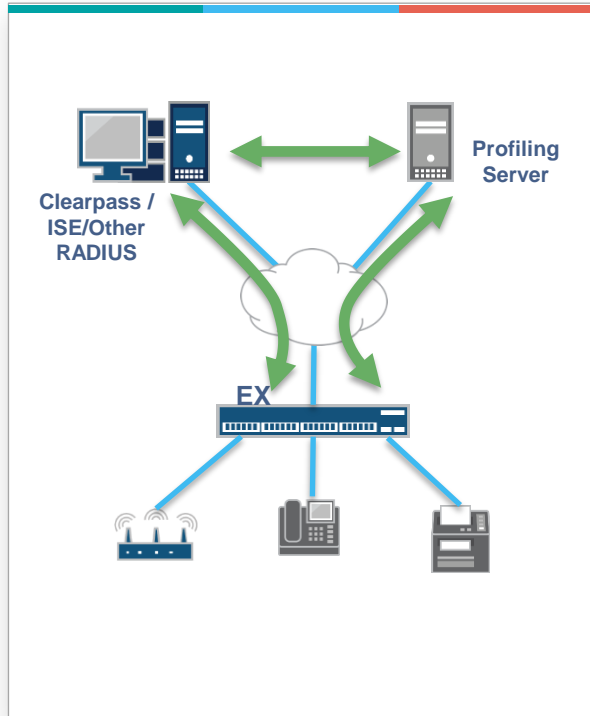
Greenfield, Brownfield

- 3rd Party OSS/BSS
- Open APIs
- Existing & Greenfield
deployments



New and Upcoming

Access Policy Integration



Supported Use Cases

- 802.1X authentication
- MAC authentication
- Guest user authentication*
- BYOD*
- Device profiling
- SRX EX Aruba use cases*
 - UserFW
 - UserFW query
 - Threat detection/mitigation

* Not supported on Cisco ISE

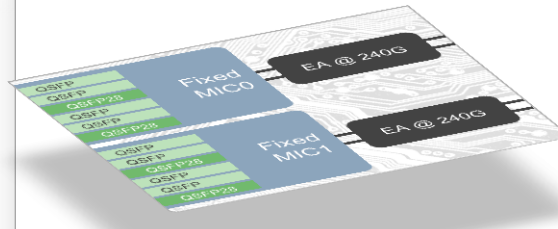
EX9200 Linecards

Modular Linecard



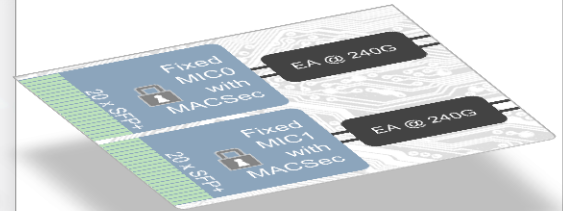
- Flexible configuration
- Lower 10GbE entry cost
- Up to 130Gbps throughput
- Interface cards
 - 20 1GbE SFP
 - 40 1GBASE-T
 - 10 10GbE SFP+

Multi-rate Linecard



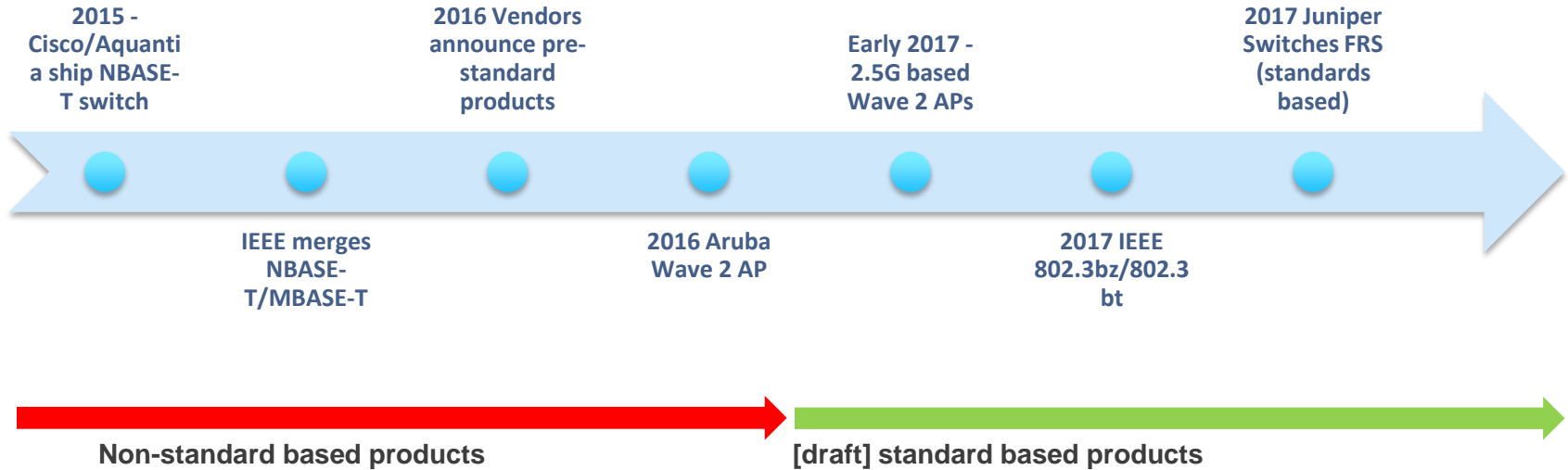
- 480Gbps throughput
- Fixed 12 QSFP ports
- 48 10GE SFP+ w/ BO
- 12 40GE QSFP+
- 4 100GE QSFP28 optics

40x10G MACsec



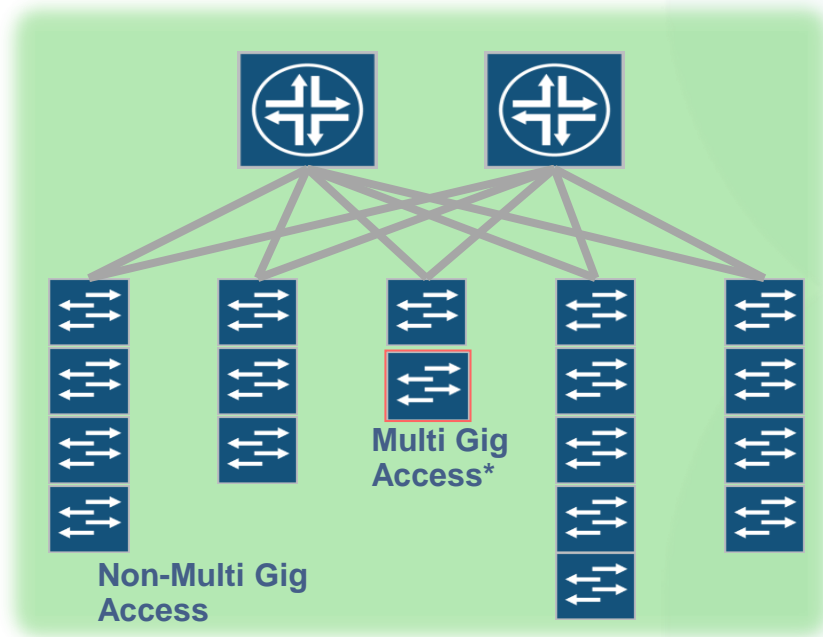
- 400Gbps throughput
- 40 x 10GE ports
- MACSec ready
- MACsec on all 40 ports
- AES 256 support

Multi-Gigabit Related Timelines

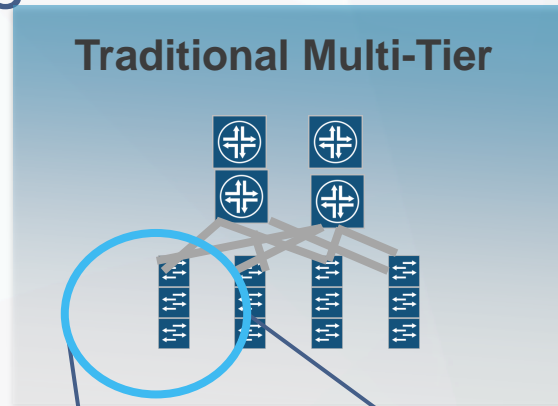


| | Non-standards based | Standards based (JNPR) |
|----------------------------------|---------------------|------------------------|
| All speeds - 100M/1G/2.5G/5G/10G | Some vendors only | Yes |
| Up to 99.9W PoE (IEEE 802.3bt) | Some vendors only | Yes |
| Interop testing with 2.5G APs | No | Yes |

Multi-Gig Ready Architectures



JUNOS Fusion Enterprise



Traditional Multi-Tier



Existing Virtual Chassis

1G Access

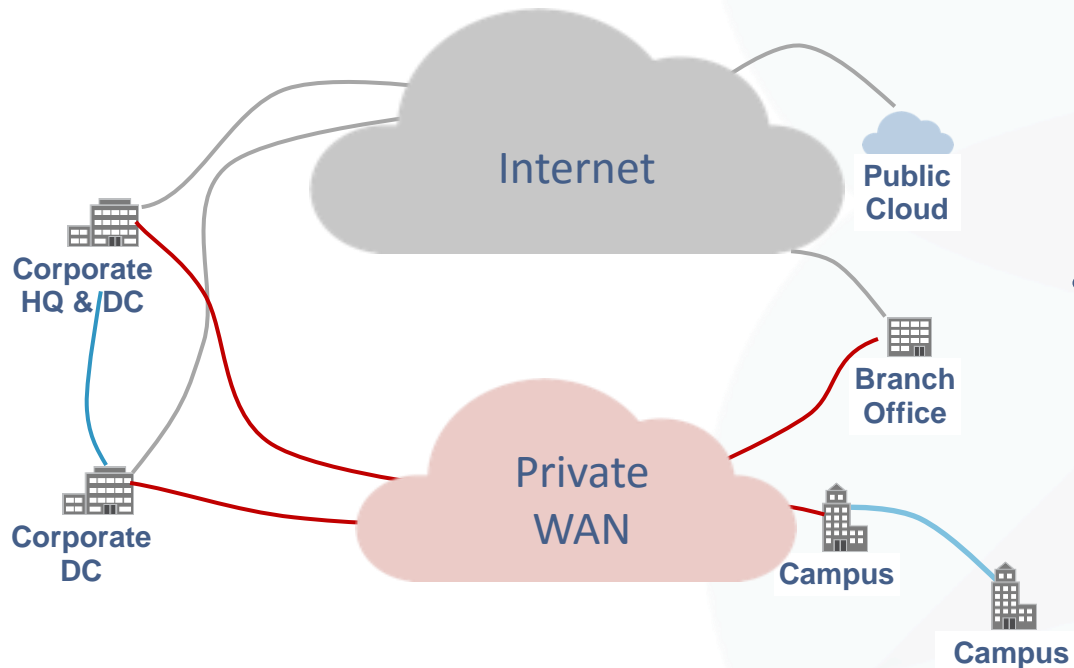


Multi Gig Access*

*Future

Enterprise WAN Connectivity

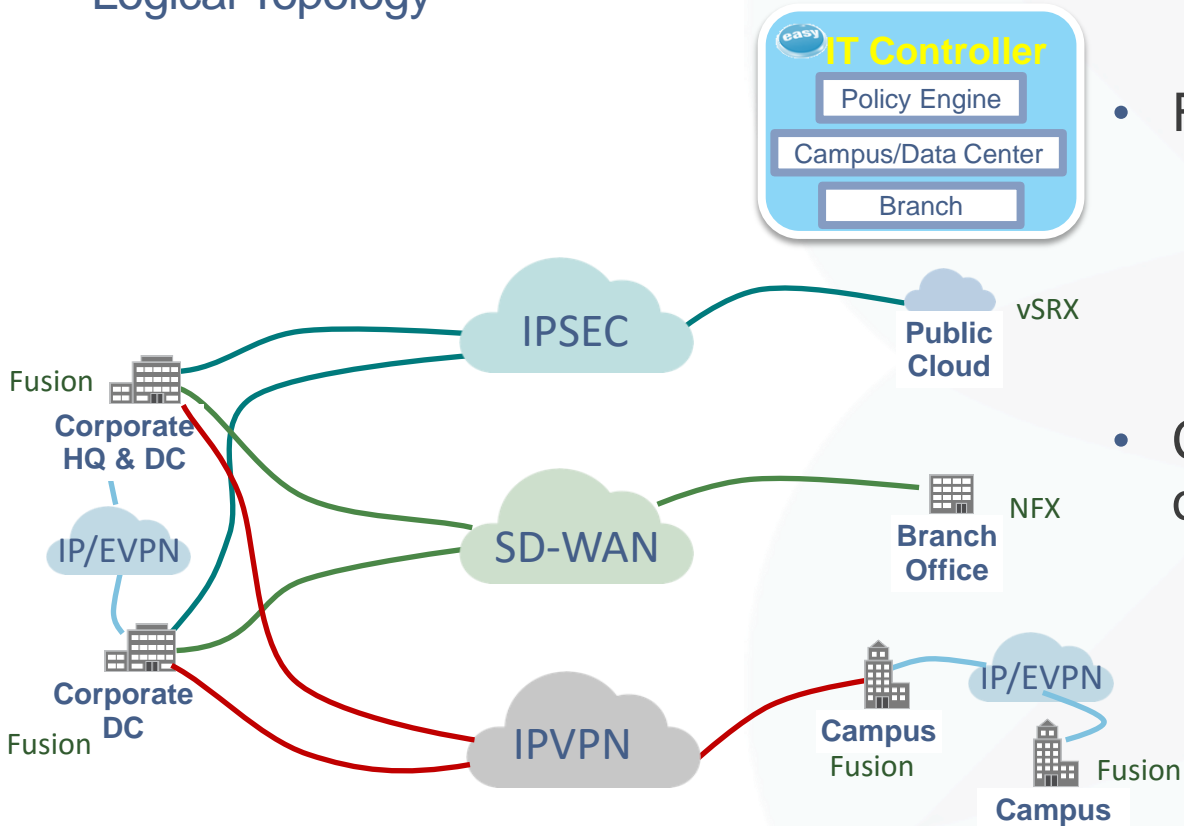
Physical Topology



- Flexible deployments
 - SP: Private WAN
 - Enterprise: IP/EVPN
 - SD-WAN for branch
 - Secure cloud connectivity
- Central management and orchestration
 - Campus
 - Data Center
 - Branch
 - WAN

Enterprise WAN Connectivity

Logical Topology



- Flexible deployments
 - SP: Private WAN
 - Enterprise: IP/EVPN
 - SD-WAN for branch
 - Secure cloud connectivity
- Central management and orchestration
 - Campus
 - Data Center
 - Branch
 - WAN

Guiding principles



Simplicity



Easy to buy
Easy to deploy
Easy to operate
Easy to secure



Flexibility



Deploy in any environment
Proactive
Embrace openness
Security intelligence



Performance

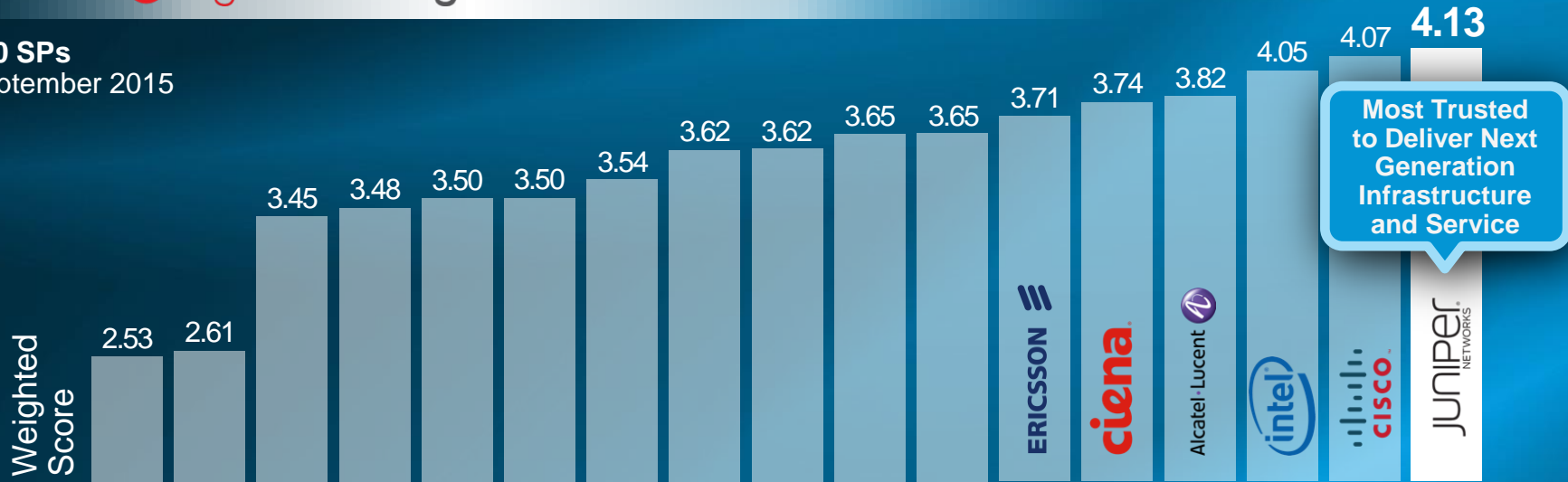


Best in class
Technically & financially
Enable choice

MOST TRUSTED

 **LightReading** Networking the Telecom Community

150 SPs
September 2015



How much do you trust the following vendors to deliver the solutions that your company needs for its next-generation networks and services?

EMEA PARTNER CONFERENCE

IDEAS/Connected
Spain // May 9-11, 2016



THANK YOU