WHAT'S NEW FROM JUNIPER?

IT security seminar "Stallion 071112", Tallinn

Jukka Piirainen

Channel Manager

PURE PLAY IN HIGH-PERFORMANCE NETWORKING

First 10 Years Of Juniper: 1996-2006

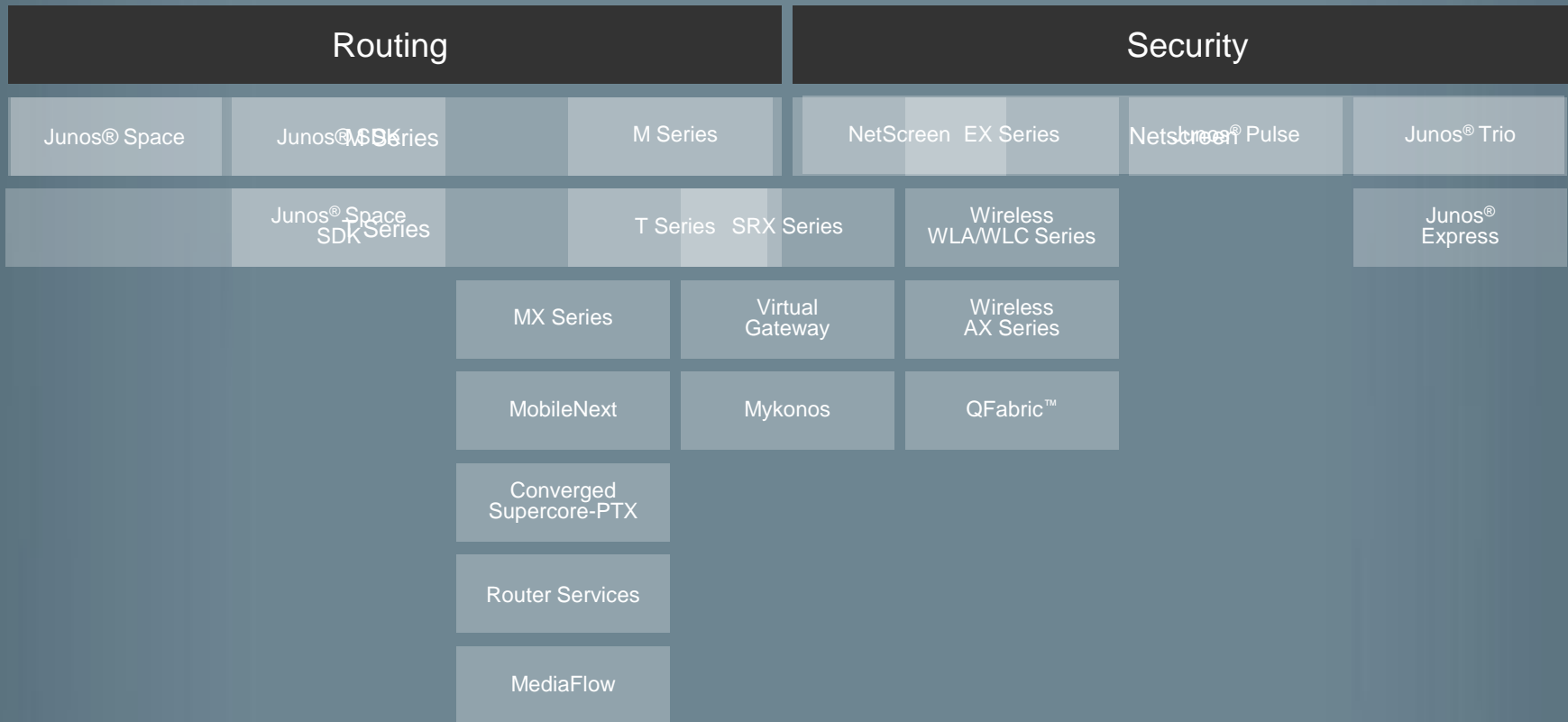| Routing	Security
M Series	NetScreen
T Series	

PURE PLAY IN HIGH-PERFORMANCE NETWORKING

The Last 5 Years: 2007-2012

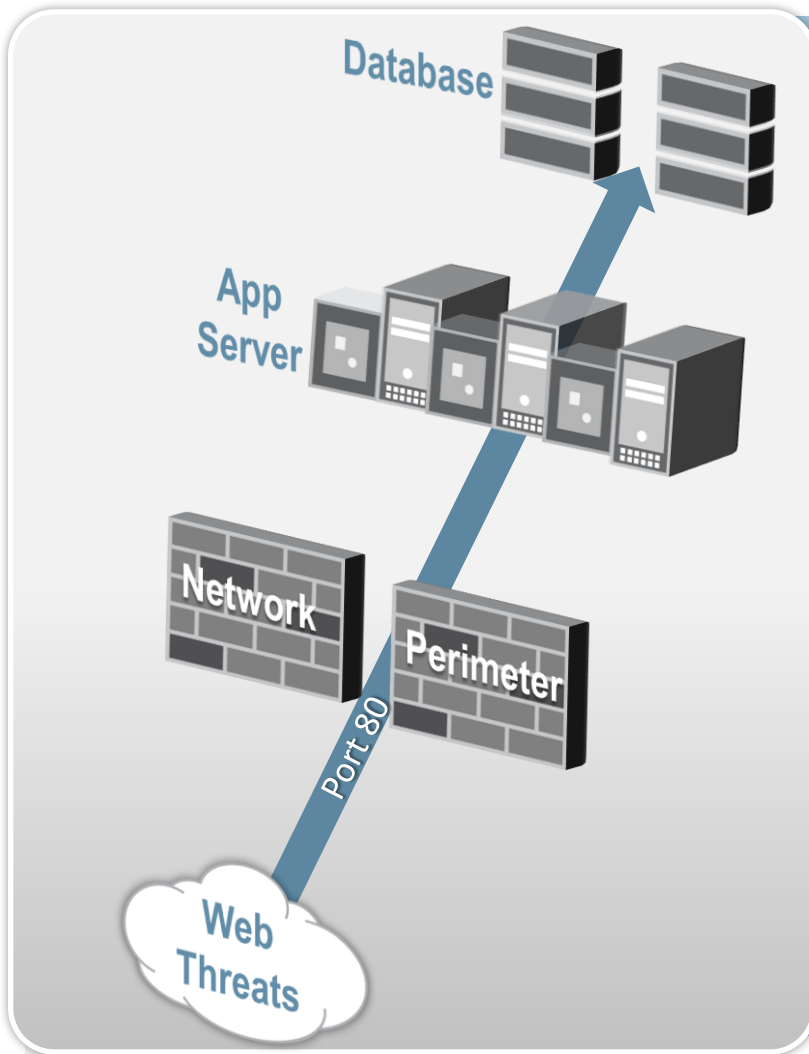| Routing			Security		
Junos® Space	Junos® SDK / MX Series	M Series	NetScreen / EX Series	Netscreen® Pulse	Junos® Trio
	Junos® Space SDK / T Series	T Series / SRX Series	Wireless WLA/WLC Series		Junos® Express
	MX Series	Virtual Gateway	Wireless AX Series		
	MobileNext	Mykonos	QFabric™		
	Converged Supercore-PTX				
	Router Services				
	MediaFlow				

SECURITY

MYKONOS

INCONVENIENT STATISTICS

70%

of ALL threats are at the Web application layer
Gartner

73%

of organizations have been hacked in the past two years through insecure Web apps
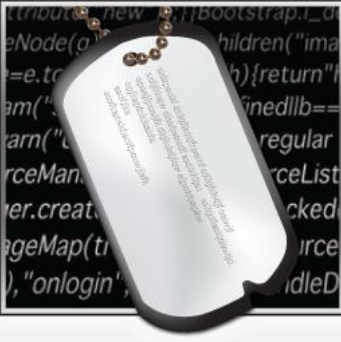*Ponemon Institute*

THE MYKONOS ADVANTAGE
DECEPTION-BASED SECURITY

Detect

"Tar Traps" detect threats without false positives.

Track

Track IPs, browsers, software and scripts.

Profile

Understand attacker's capabilities and intents.

Respond

Adaptive responses, including block, warn and deceive.

RESPOND AND DECEIVE

Mykonos Responses	Human Hacker	Botnet	Targeted Scan	IP Scan	Scripts &Tools Exploits
Warn attacker	●				
Block user	●	●	●	●	●
Force CAPTCHA	●	●	●	●	●
Slow connection	●	●	●	●	●
Simulate broken application	●	●	●	●	●
Force log-out	●	●			●

All responses are available for any type of threat. Highlighted responses are most appropriate for each type of threat.

VIRTUALIZED SRX

Virtual SRX – JunosV FireFly
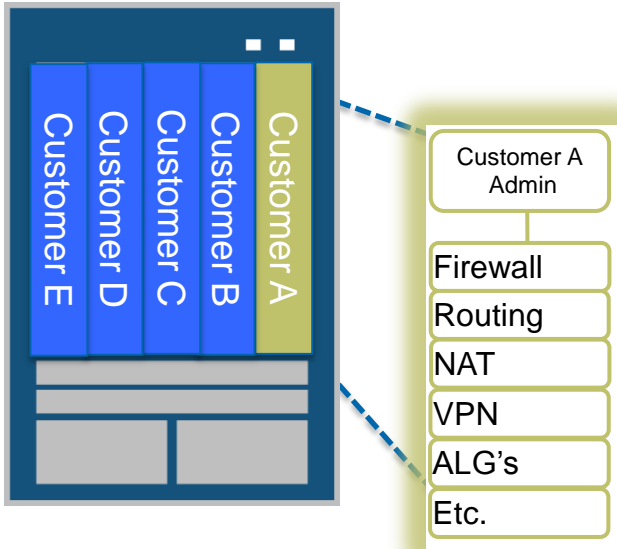
Virtualized Environment

VM1 VM2 VM3

JunosV FireFly

Hypervisor

The Power of One Junos
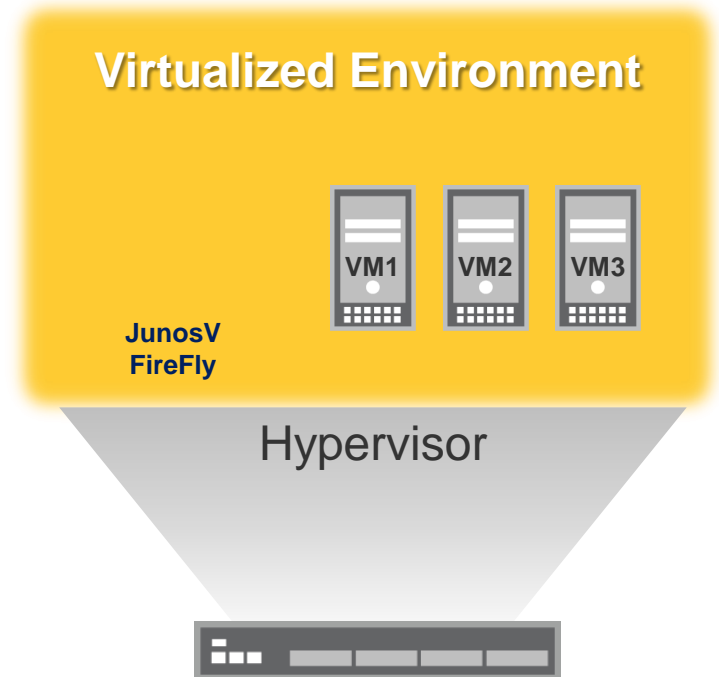
Juniper is delivering its industry-leading Junos OS as a software appliance for deployment in virtualized environments

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SRX VIRTUALIZATION EXAMPLES

Using x86 virtualization for unlimited, dynamic, private firewall scaling

Option 1 (SRX & LSYS)

Option 2 (Hypervisors & FireFly)

Customer E | Customer D | Customer C | Customer B | Customer A

Customer A Admin

- Firewall
- Routing
- NAT
- VPN
- ALG's
- Etc.

FireFly Customer A

FireFly Customer <X>

HYPERVISORS

Separate a single physical SRX into unique virtual instances on the device (Difficult beyond hundreds)
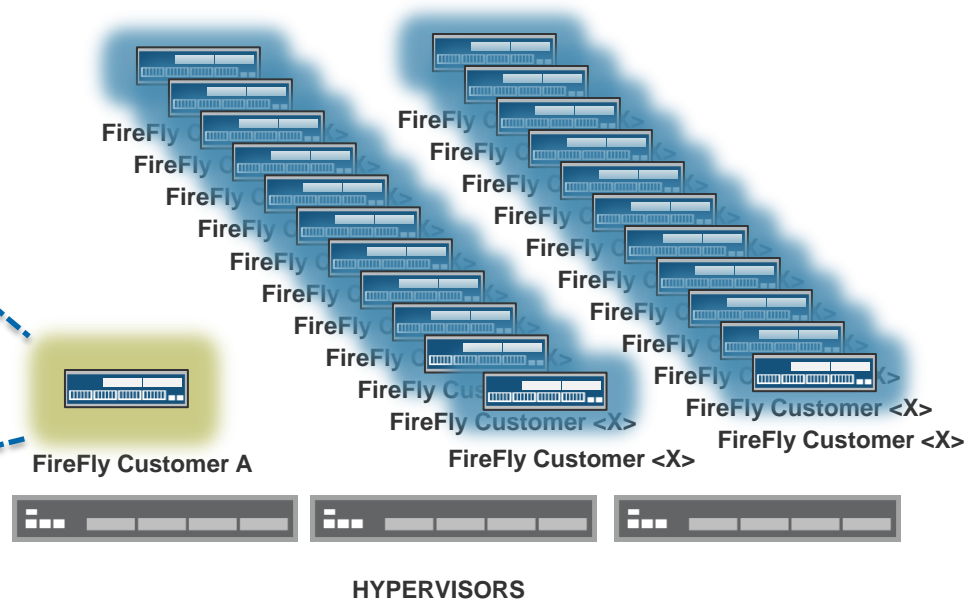
Leverage x86 Hypervisors (KVM, VMware) to build unlimited pools of FireFly's!

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Positioning At A Glance

Branch SRX	High-End SRX	JunosV FireFly	vGW
Remote Branch Connectivity and Security	Site-level Security plus Zoning to separate customer traffic, ALGs for pinholing, IDP for inbound threat protection, etc.	VM-level Security *at an aggregated level* - multi-tenant segmentation	Inter-VM Security and inbound threat protection for all VMs combined
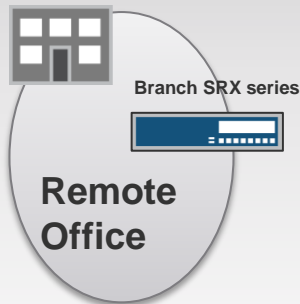
Branch SRX series

Remote Office

High-end SRX

Rack servers

FireFly
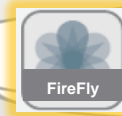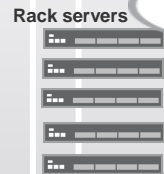
Customer A Virtual Infrastructure

FireFly
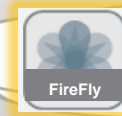
Customer B Virtual Infrastructure

VM-A VM-A VM-A

vGW vGW vGW

VM-B VM-B VM-B

vGW vGW vGW

Physical Data Center

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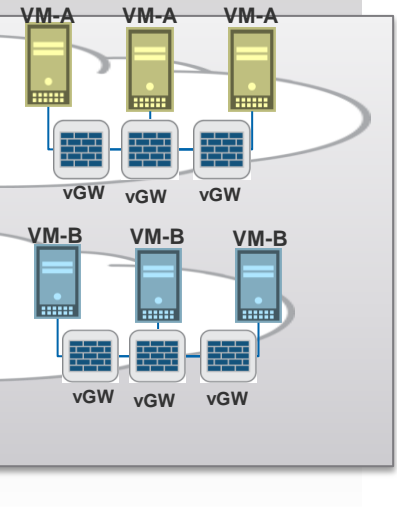
SWITCHING

NEW EX4550

INTRODUCING EX4550
WITH VIRTUAL CHASSIS TECHNOLOGY

1U 32-port 1/10GbE Switch

- Wire-rate performance on all ports
- 2 expansion slots
- 8x1/10GbE SFP/SFP+, 128 Gbps Virtual Chassis module
- 1/10BASE-T module ⊕
- 2x40G QSFP+ module ⊕
- ~2us Latency
- Front-back and back-front airflow
- SFP+ version is MACSec capable

Virtual Chassis Technology

- 256 Gbps virtual backplane (up to 320 Gbps with 40GbE module ⊕)
- Manage up to 10 as a single device
- Extend over 10GbE uplinks (40GbE ⊕)
- Virtual Chassis with EX4200 & EX4500

Software Parity with 12.1

- MPLS (L2VPN, L3VPN)
- RE-SDK ⊕

⊕ Post FRS

**FRS
September
2012**

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EX VIRTUAL CHASSIS ENHANCEMENTS

VIRTUAL CHASSIS IS BETTER BECAUSE..

Simplification

Managed devices

Image upgrades

Design flexibility

Resiliency

Robust design
(h/w & s/w)

High Performance

Convergence when
something changes

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KEY DIFFERENTIATING FEATURES OF VIRTUAL CHASSIS

	Features		**Proof Points**

Simplification

Managed devices
Image upgrades
Design flexibility

Managed Devices	→	Works on multiple switches and all EX8200 cards and chassis
Image upgrades	→	One-line automated upgrade with future NSSU support
Design Flexibility	→	Mix-and-match EX switches and tier aggregation: Ac+Ag, Ag+Co

Resiliency

Robust design
(h/w & s/w)
High Performance
Convergence when
something changes

Robust Design	→	No single point of failure and superior backplane capacity
High Performance	→	Up to 10-member chassis and multiple intra-VC hops
Convergence	→	No traffic loss during internal RE switchover

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EX SERIES VIRTUAL CHASSIS ENHANCEMENTS

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Carrier-Class Reliability

Integrated Security

Operational Simplicity

EX2200-C

EX2200

EX3300

EX3200

EX4200

EX45x0

EX6200

EX8208   EX8216

- Branch & Small Wiring Closet Access

- Small Wiring Closet Access
- Metro Deployments

- Wiring Closet Access
- Data Center Access

- Aggregation and Core

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EX2200 LINE OF ETHERNET SWITCHES - VIRTUAL CHASSIS LITE

12-24-48 port access switch

- PoE/PoE+ model options
- Fixed power supply and fans
- 4 SFP uplinks
- Available in compact, fanless models

L2 and RIP in base license; OSPF, PIM in enhanced license

Virtual Chassis Lite

New

- **4-members**
- **GbE backplane using fiber uplinks**
- **Requires Enhanced Feature License (EFL)**

Redundant power system for 24-48 port SKUs

Flexible deployment options with compact model (rack, wall, magnet mounting)

# Ports	Port Type	PoE+ Ports	Fixed Uplinks	Max Power Consumption (PoE Power)
12	10/100/1000B-T	0	2DP	50 (0)W
12	10/100/1000B-T	12	2DP	150 (100)W
24	10/100/1000B-T	0	4 SFP	50 (0) W
24	10/100/1000B-T	24	4 SFP	550 (405) W
48	10/100/1000B-T	0	4 SFP	100 (0) W
48	10/100/1000B-T	48	4SFP	550 (405) W

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EX3300 LINE OF ETHERNET SWITCHES – 10 MEMBER VIRTUAL CHASSIS

24-48 port fixed-configuration access switch

- PoE+ model option
- 4 SFP/SFP+ uplinks
- Fixed power supply (AC/DC) and fans
- Data center airflow
- RPS support

Virtual Chassis technology

- 10-member Virtual Chassis
- Virtual Chassis over 10GbE uplinks
- Virtual Chassis between switches up to 80km apart

New

Proven Juniper technology

- Junos operating system
- Layer 3 (OSPF, PIM)$^{\oplus}$

SKU	Description
EX3300-24T	24 port 10/100/1000 BASE-T Ethernet Switch
EX3300-48T	48 port 10/100/1000 BASE-T Ethernet Switch
EX3300-24P	24 port 10/100/1000 BASE-T POE Ethernet Switch
EX3300-48P	48 port 10/100/1000 PoE BASE-T Ethernet Switch
EX3300-24T-DC	24 port 10/100/1000 BASE-T Ethernet Switch with DC Power
EX3300-48T-BF	48 port 10/100/1000 BASE-T Ethernet Switch Back to Front Airflow

EX4200 LINE OF ETHERNET SWITCHES WITH VIRTUAL CHASSIS TECHNOLOGY

24-48 port copper/fiber access switch

- PoE+ model option
- 4-port GbE (SFP) uplink
- 2-port 10GbE (XFP) uplink
- Dual-mode 4-port GbE/2-port 10GbE (SFP+)

Fully redundant power and cooling

Virtual Chassis technology

- 128 Gbps virtual backplane
- Manage up to 10 switches as a single device
- Extend over 10GbE or GbE uplinks

Full OSPF and IP Multicast in base license

Easy manageability—LCD

SKU	# Ports	PoE Ports	PoE+ Ports	PoE Power Budget
EX4200-24T	24	8	0	130 W
EX4200-24F	24	N/A	0	0 W
EX4200-48T	48	8	0	130 W
EX4200-24PX	24	24	24	740 W
EX4200-48PX	48	48	48	740 W

EX4200 & EX45xx VIRTUAL CHASSIS

64Gbps per Virtual Chassis port
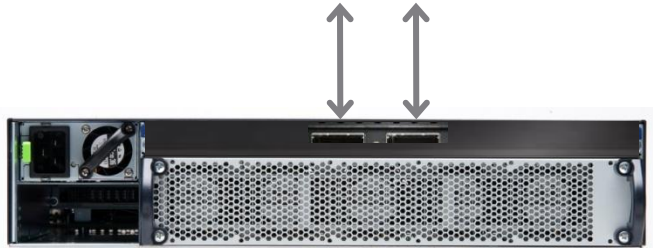
EX4500

64 Gbps per Virtual Chassis port

EX4200

- EX4200 and EX45xx Virtual Chassis
- Up to 10 EX4200 or EX45xx
- Up to 480 GbE ports
- Up to 112 10GbE ports
- Backplane: 128 Gbps

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QFABRIC

QFABRIC: SCALING SINGLE SWITCH MODEL
RICH BRIDGER, SIMPON TRANSPORTE

QFABRIC (QFX3000-G)

QFabric

Director

QFabric

Interconnect

Node
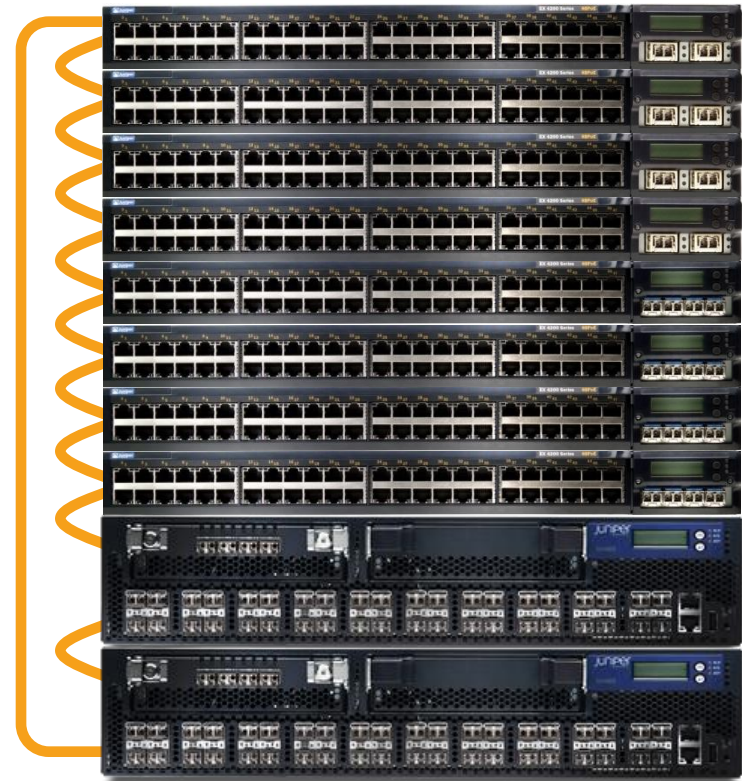
Node

...de: 6,1...
...G fabric
...: avg 5
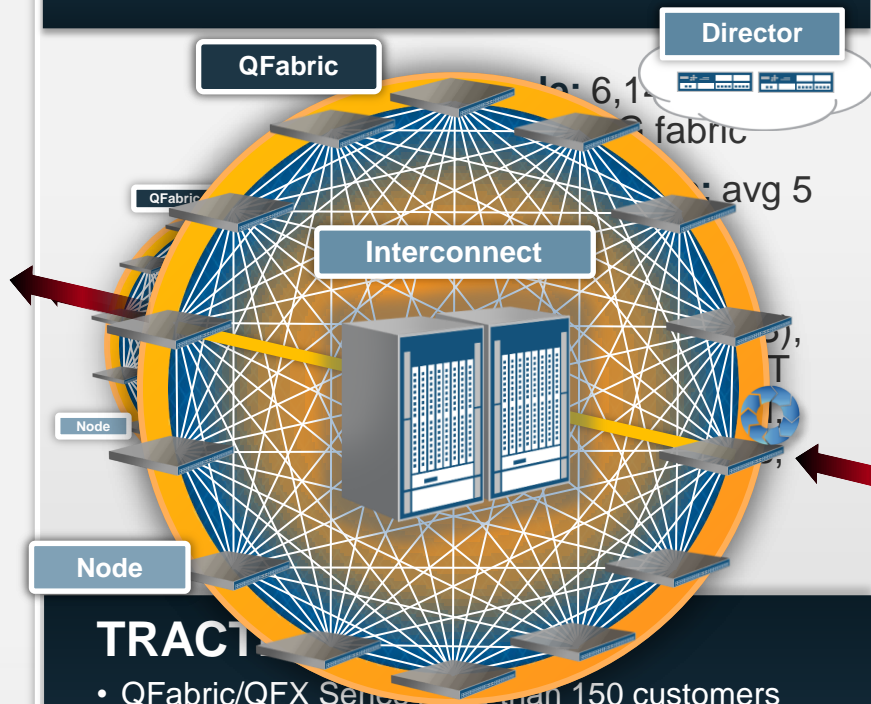
TRACTION

- QFabric/QFX Series ...than 150 customers
- Multiple QFabrics in production networks
- Most QFabric systems in trials/test environments
- Federal (HPC), SP, large enterprise IT

QFABRIC (QFX3000-M) **New**

QFabric

Director

QFabric

Interconnect

Node

Node

...: 768
...G fabric
...: avg 3
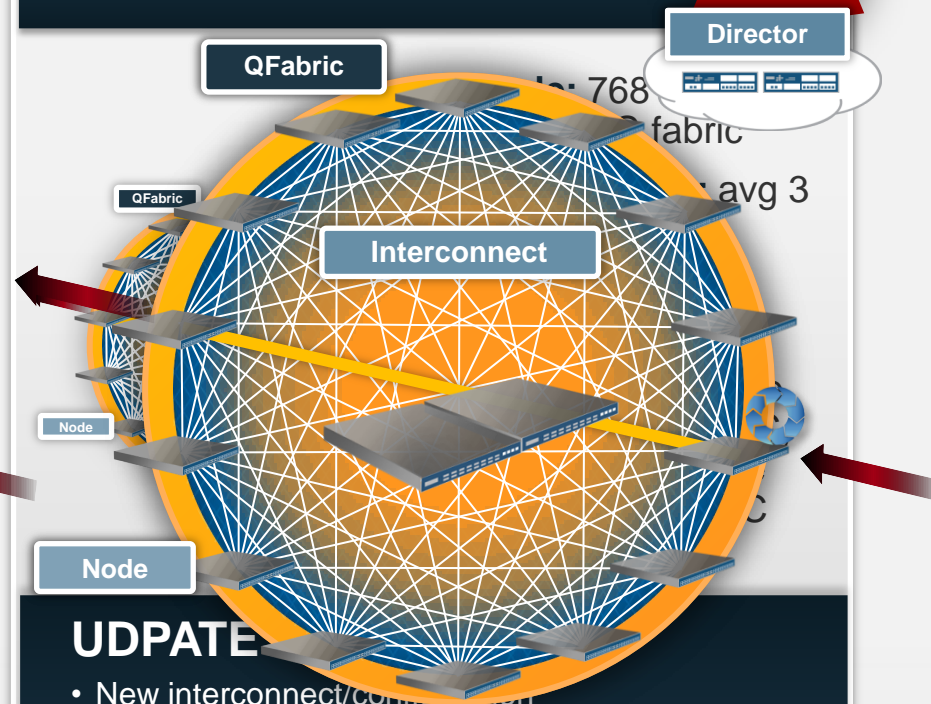
UDPATE

- New interconnect/config swtich
- Feature parity – same fabric
- Same **Nodes, Director** and **control plane** for both fabric models (QFX3000-M and QFX3000-G)
- HPC, Hadoop clusters, mid-tier data center business apps

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WIRELESS

JUNIPER INNOVATES FOR
A BETTER WIFI EXPERIENCE

Differentiating WLAN Inventions:

- **Automated Radio Frequency Management**

  Ensures optimal WiFi performance with highest throughput

- **Proactive Spectrum Analysis**

  Identifies sources of interference

- **Simplified Mobile Device Provisioning**

  Easy on-boarding of BYOD

- **Intelligent Switching Architecture**

  Optimizes traffic flow based on applications

- **Virtualized Controller Clustering**

  Resilient, non-stop enterprise

Large Patent Portfolio And Growing

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JUNIPER WLA SERIES ACCESS POINT FAMILY

WLA Series Highlights

- Highest performance APs in the industry
- Most cost effective APs in the industry
- Full featured Intelligent switching
- Spectrum analysis across the portfolio
- Bridging and mesh

Functionality

New

Single Radio Low Cost AP

WLA321

New

Dual Radio Entry-level AP

WLA322

2x2 MIMO Dual Radio High Density

WLA522

New

3 Stream MIMO Dual Radio Max. Performance

WLA532

3x3 MIMO Dual Radio All Weather

WLA632

Entry level 802.11n

Indoor 11n

Outdoor 11n

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JUNIPER WLA SERIES FLAGSHIP ACCESS POINT
WLA532 INDOOR 802.11N AP

3 Industry Bests

- Highest Performance AP
- Lowest Power Consumption AP
- Smallest Form Factor AP

Mandate this technology in RFP

- 450Mbps data rate (3x3, 3 spatial stream)

What to know

- Juniper designed Access Point

- Juniper WLAN is 15-20% less expensive when comparing complete BOMs

- Juniper WLA 532 outperforms Cisco and Aruba by up to 35% as validated by Novarum

5 GHz , Client Average

Legend: Juniper, Cisco, Aruba

Y-axis: Throughput Mbps (0 to 300)
X-axis: Range in Feet (0 to 140)
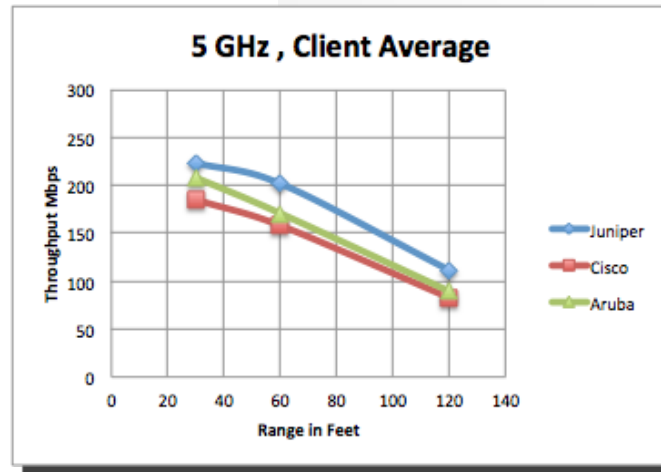
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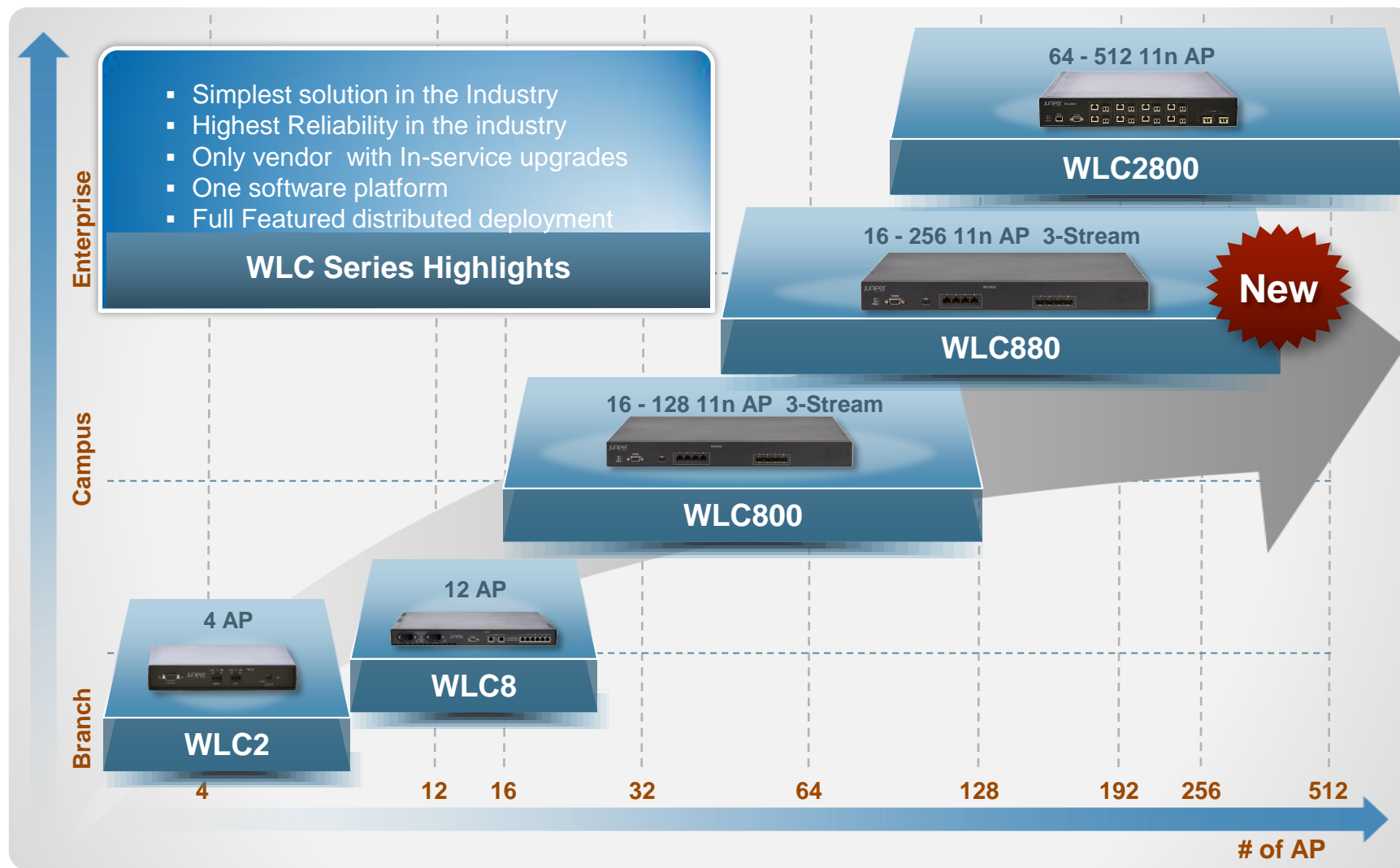# JUNIPER WLC SERIES CONTROLLER FAMILY

Enterprise

- Simplest solution in the Industry
- Highest Reliability in the industry
- Only vendor with In-service upgrades
- One software platform
- Full Featured distributed deployment

WLC Series Highlights

64 - 512 11n AP

WLC2800

16 - 256 11n AP 3-Stream

New

WLC880

16 - 128 11n AP 3-Stream

Campus

WLC800

12 AP

4 AP

WLC8

Branch

WLC2

| 4 | 12 | 16 | 32 | 64 | 128 | 192 | 256 | 512 |

# of AP
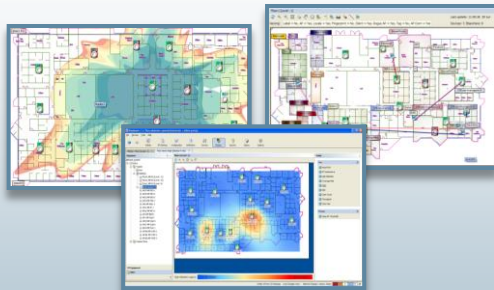
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WIRELESS MANAGEMENT & ACCESS CONTROL

WLM – Management and Access Control

RingMaster	WLM - Appliance	SmartPass
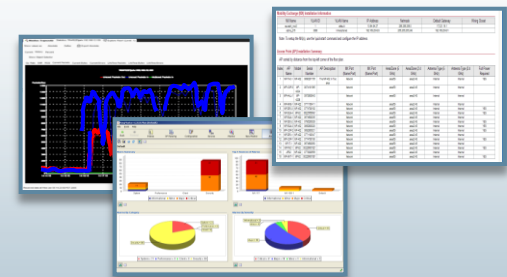
Plan | Configure | Monitor | Troubleshoot | Report

WLM – RMTS	WLM1200 – RMTS	WLM – SP
Software Licenses	**Optimized Linux Server Platform**	**Software Licenses**
5 – 1,000 Aps WLAN Management	**250 – 5,000 APs**	**WLAN Access Control Guest Provisioning**

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ROUTING

FROM J-SERIES TO SRX

J-Series	SRX	Performance	Benefits
J2320	SRX240	**+250%** Forwarding Performance	Improved forwarding performance, switching, POE, zone-based firewall/VPN, Full UTM including IPS (IDP) & ExpressAV; Hardware Content Security Acceleration (CSA), 4 mPIM slots (T1/E1, xDSL, serial, Ethernet); 2G Memory
J2350	SRX240	**+ 200 %** Forwarding Performance	Improved forwarding performance, switching, POE, zone-based firewall/VPN, Full UTM including IPS (IDP) & ExpressAV; Hardware Content Security Acceleration (CSA), 4 mPIM slots (T1/E1, xDSL, serial, Ethernet); 2G Memory
J4350	SRX550	**+ 400%** Forwarding Performance	Improved forwarding performance, switching, POE, zone-based firewall/VPN, Full UTM including IPS (IDP) & ExpressAV; Hardware Content Security Acceleration (CSA), 10 GE ports; 2 mPIM and 6 GPIM/XPIM slots (4xT1/E1, xDSL, serial, DS3/E3, SFP and 10GE Ethernet)
J6350	SRX550	**+ 228%** Forwarding Performance	Improved forwarding performance, switching, POE, zone-based firewall/VPN, Full UTM including IPS (IDP) & ExpressAV; Hardware Content Security Acceleration (CSA), 10 GE ports; 2 mini-PIM and 6 GPIM/XPIM slots (4xT1/E1, xDSL, serial, DS3/E3, SFP and 10GE Ethernet)

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ACX UNIVERSAL ACCESS ROUTERS

ACX1000

ACX1100

ACX2000

ACX2100

ACX4000

ACX Series

- Juniper's Universal Access solution for mobile backhaul (LTE, 2G/3G), business Ethernet services and residential broadband
- Complements Universal Edge
- Fixed and modular platforms all running Junos

THE NEW BENCHMARK FOR ACCESS NETWORKS

- **3x capacity of nearest competitor**
- **Seamless MPLS** provides most flexible service architecture [1]
- **Integrated precision timing** for highest QoE (1588, SyncE)
- **Extensive end-to-end network monitoring**: Latency, jitter, OAM
- **Hardened fan-less design** with 65w Power over Ethernet (PoE+)
- **Open system** for innovation and extensibility

(1) Basic Ethernet connectivity also supported

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EXPANDING THE UNIVERSAL EDGE
INTRODUCING THE MX2000 – THE FUTURE OF THE EDGE HAS ARRIVED

One JUNOS
One TRIO CHIPSET
One UNIVERSAL EDGE

NEW
80Tbps

NEW
40Tbps

8.8 Tbps

4.8 Tbps

1.6Tbps

20Gbps **40Gbps** **60Gbps** **80Gbps**

| MX 5 | MX 10 | MX 40 | MX 80 | MX 240 | MX 480 | MX 960 | MX 2010 | MX 2020 |

REVENUE GENERATION FOR THE NEXT DECADE

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everywhere