

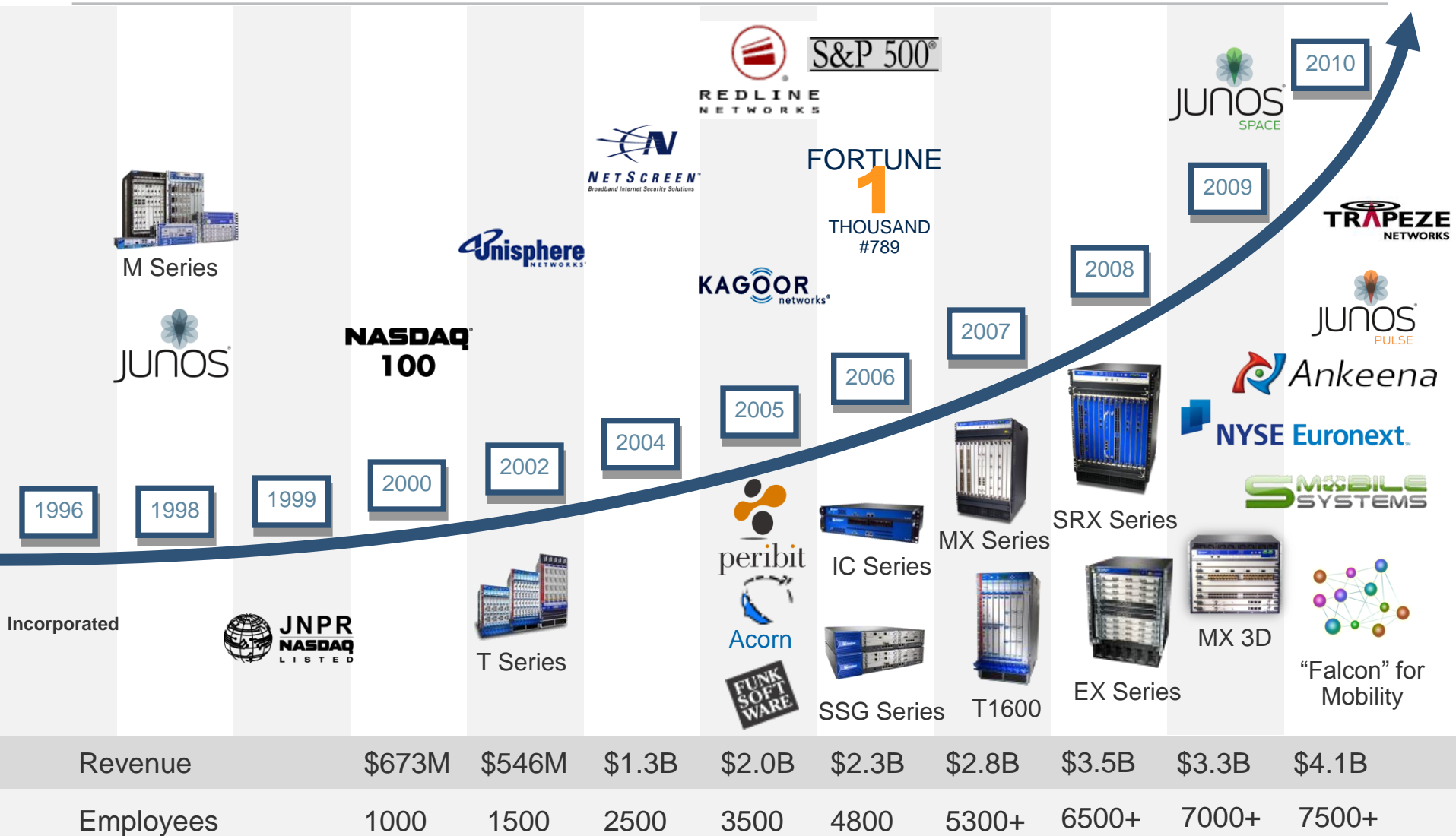
THE NEW NETWORK IS SIMPLIFIED

IT security seminar “Stallion IOIII”, Tallinn

Jukka Piirainen

November 10, 2011

JUNIPER NETWORKS – A DECADE OF INNOVATION



PRODUCT PORTFOLIO POWERS THE NEW NETWORK

SECURITY



SSG, ISG & SRX Series



SRC Series

SA Series & UAC

SBR Enterprise Series

SWITCHES



EX & QFX Series

WLAN



WL Series

ROUTERS



E Series



T Series



J Series



M Series

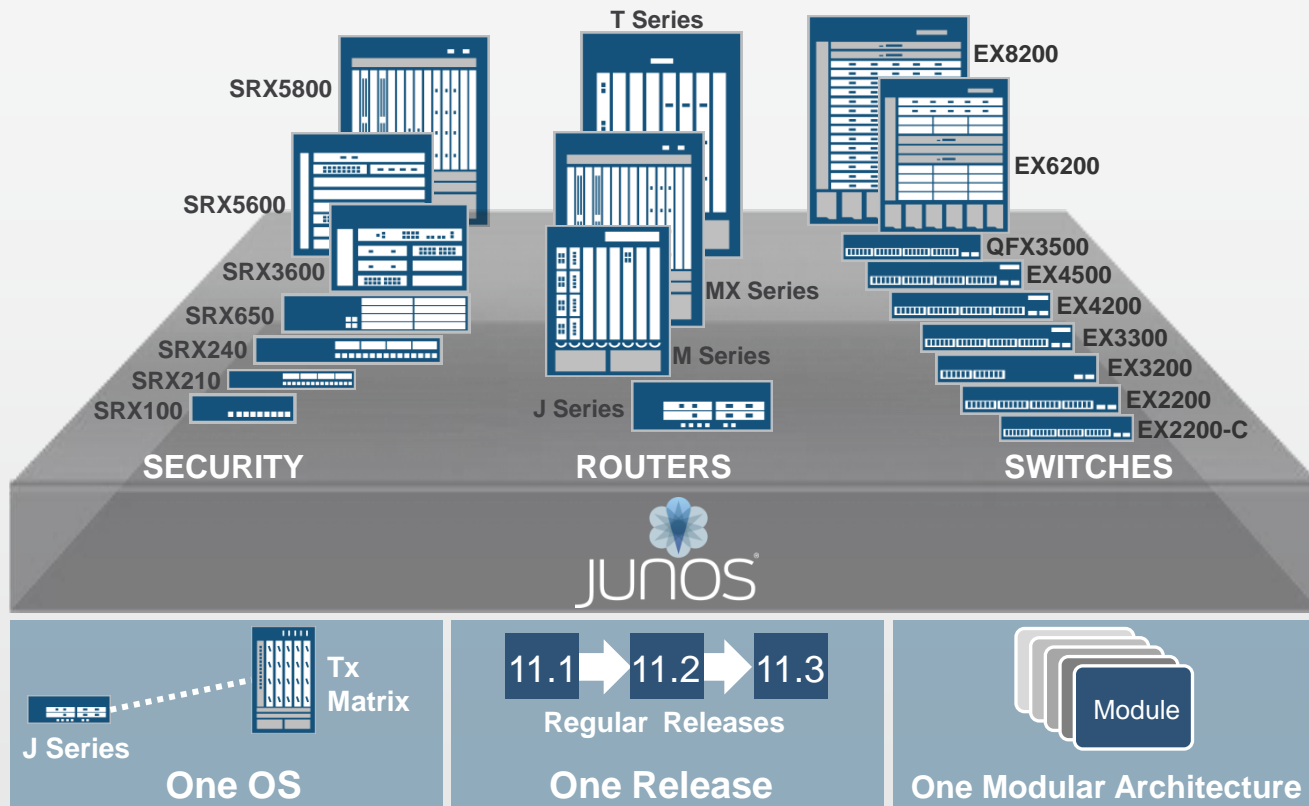


MX Series



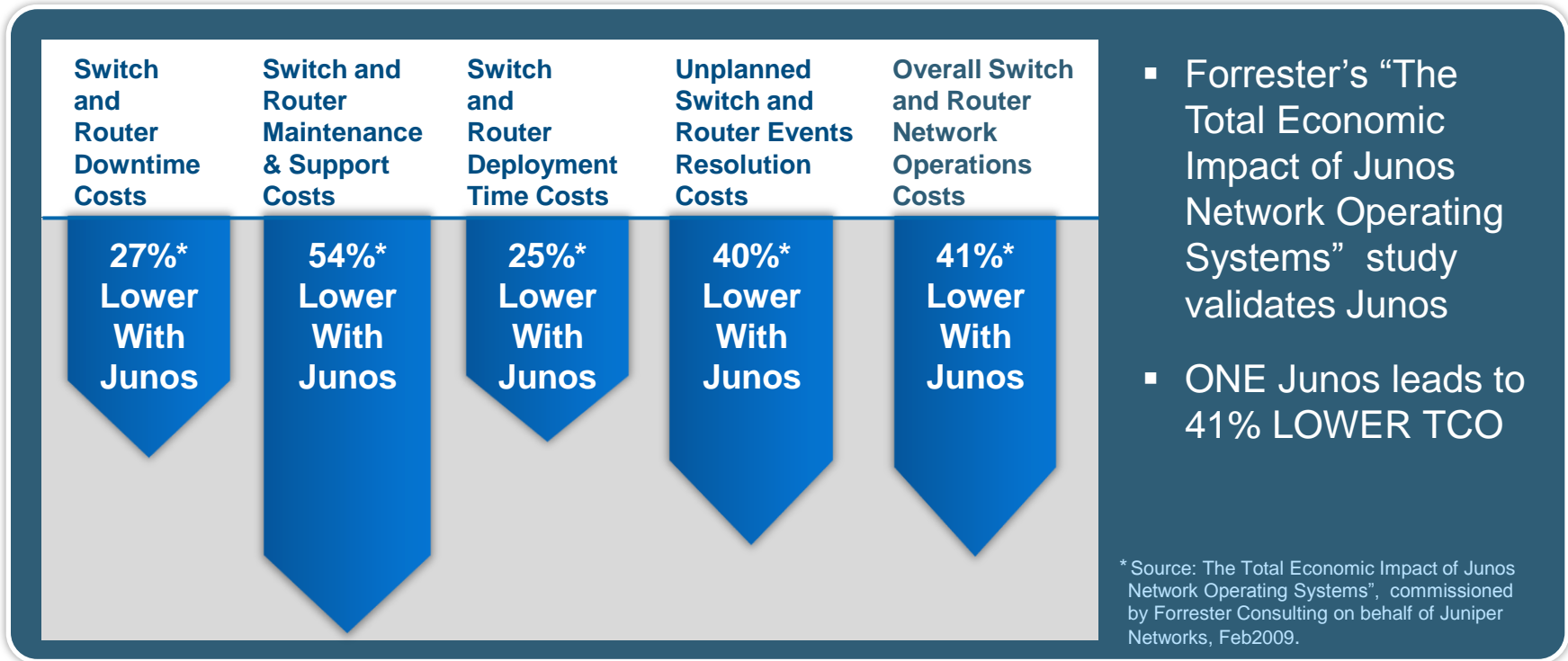
JUNOS: ONE OPERATING SYSTEM

JUNOS: ONE OPERATING SYSTEM



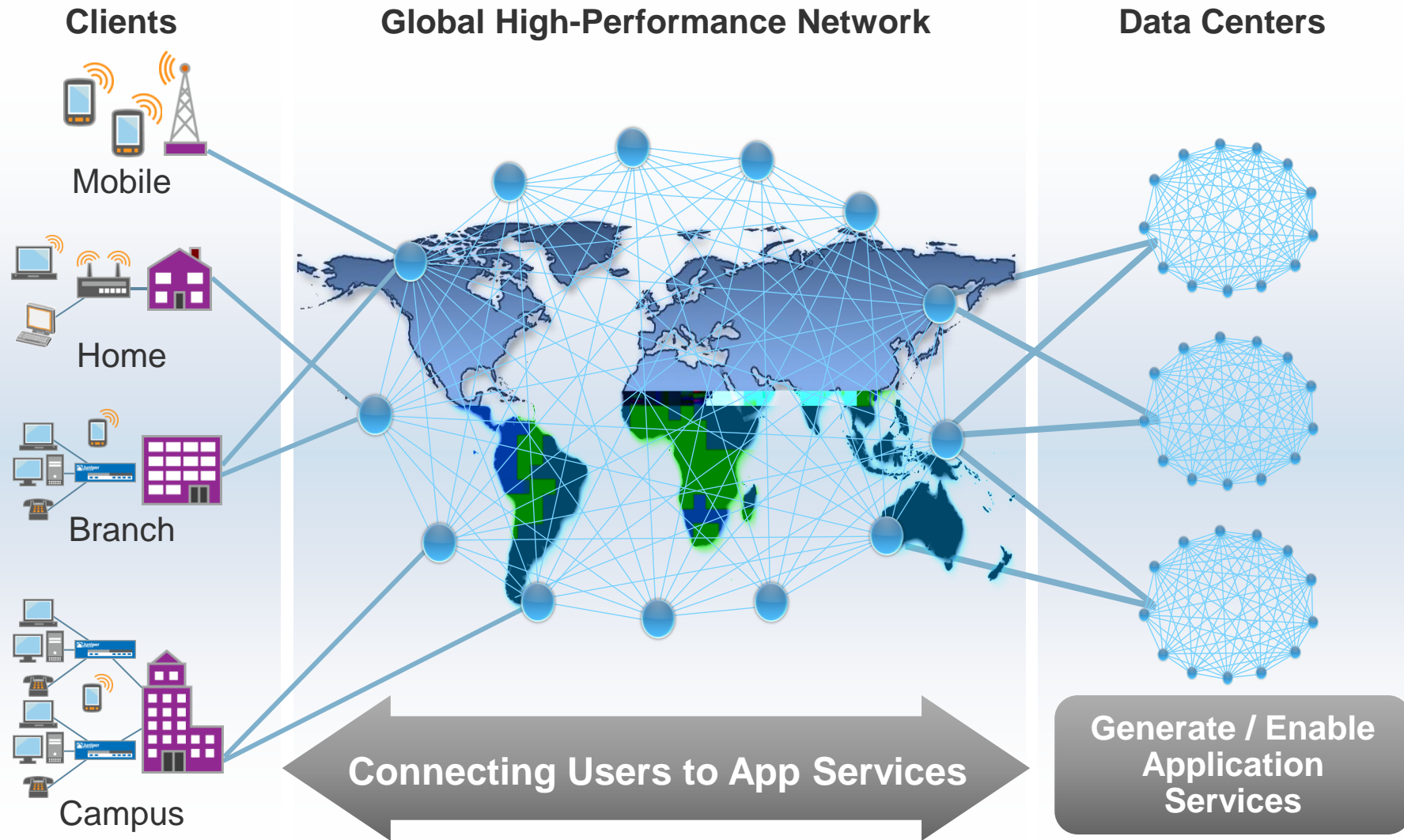
Juniper enables single operating system that runs across all of the elements for the new network

LOWER TCO WITH JUNOS



NETWORK INDUSTRY TRENDS

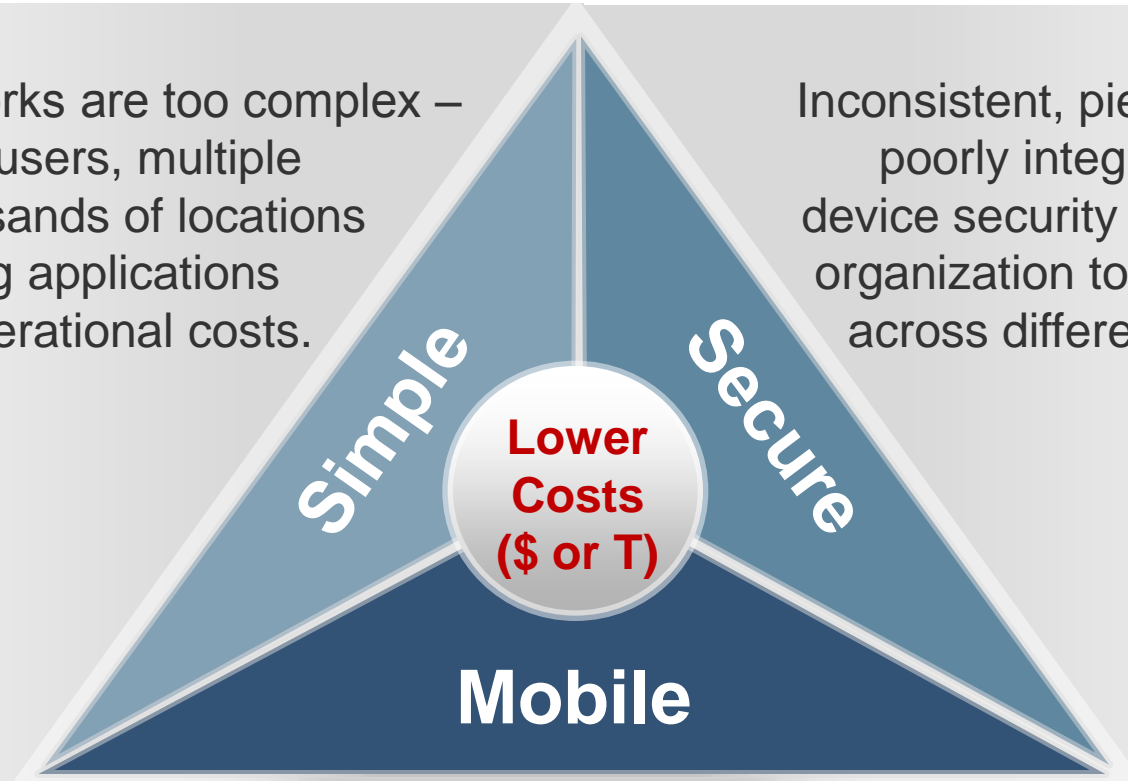
MULTI-YEAR ENTERPRISE TRENDS



CHALLENGES FOR ENTERPRISE NETWORKS

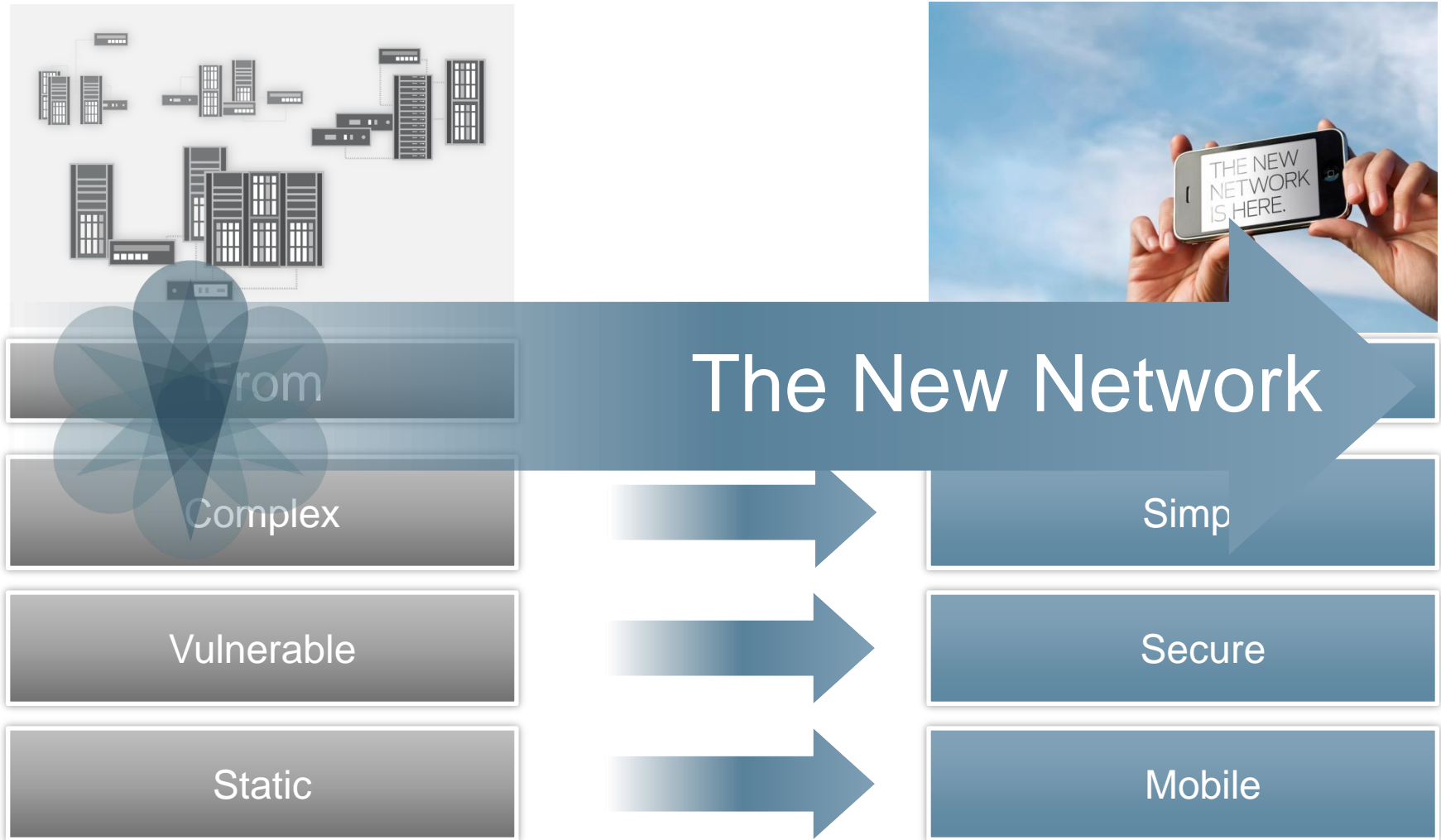
Today's networks are too complex – highly mobile users, multiple devices, thousands of locations and expanding applications mean high operational costs.

Inconsistent, piecemeal and poorly integrated mobile device security exposes the organization to new threats across different locations.



Users are depending on business critical applications using mobile devices and expect continuous availability.

THE NEW NETWORK IS THE BREAKTHROUGH





JUNIPER SWITCHES
KEEPING *IT* SIMPLE

EX SERIES SWITCHES

Deployed Extensively

- Over 3,000 customers, 7M ports
- Data center, campus, branch, SP
- Financials, healthcare, education
- #3 LAN switching vendor



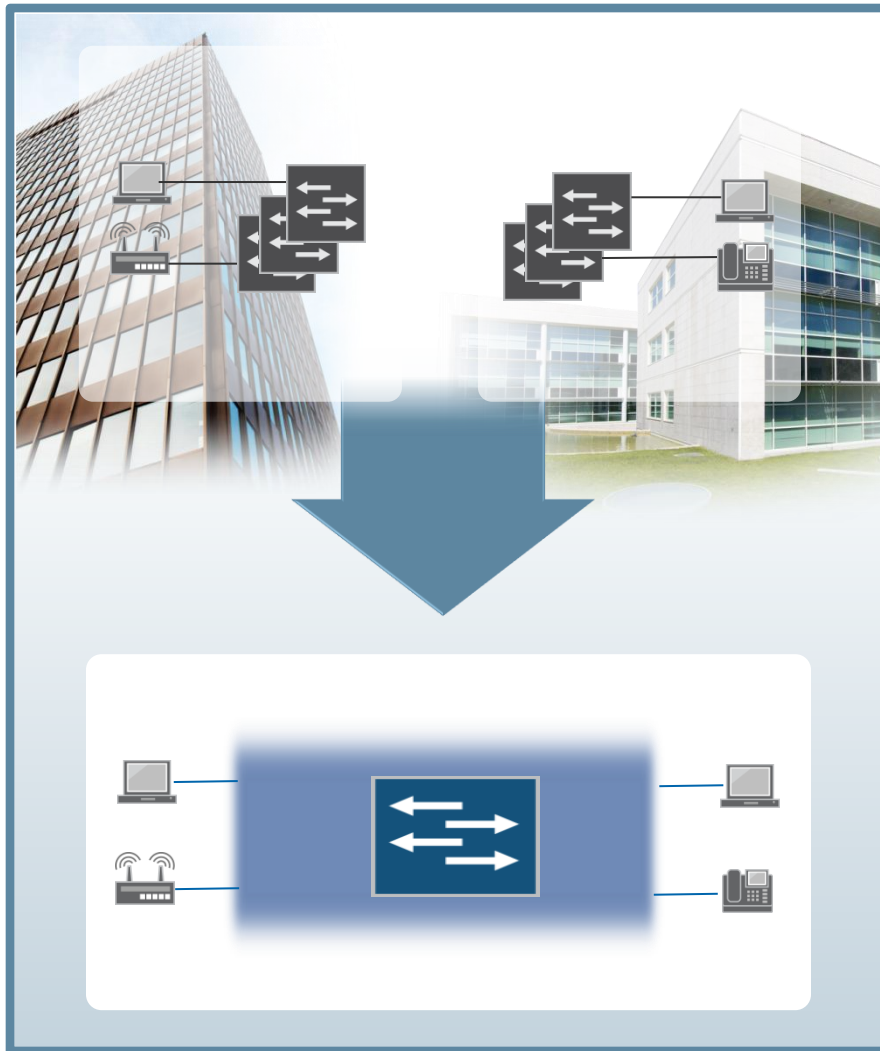
Why We Win

- High performance
- Carrier-class resiliency
- Standards-based open architecture



OPERATIONAL SIMPLICITY

SIMPLIFYING THE NETWORK



Virtual Chassis

Multiple switches acting as a single, logical device

One switch to configure, one switch to manage

Improved resiliency and performance

INNOVATIONS WITH VIRTUAL CHASSIS TECHNOLOGY

**10 switches in
one configuration**

**Industry-
only**



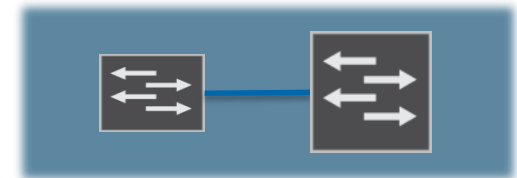
**Virtual Chassis over locations
separated by 100km**

**Industry-
only**



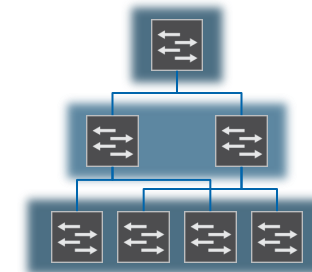
**Different platforms in a single
Virtual Chassis configuration**

**Industry-
only**



**Available in core, aggregation
and access layers of the network**

**Industry-
only**



VIRTUAL CHASSIS TECHNOLOGY BENEFITS



- Network simplification with fewer managed devices
- Reduce TCO



- Improve resiliency and minimize risk with Junos
- Carrier-class reliability with no single point of failure



- Innovative and flexible, open system architecture
- Designed for modern data center and campus

JUNIPER SWITCHES CAMPUS OVERVIEW

DRIVERS IN CAMPUS NETWORKS



More Bandwidth



Powered Devices

Integrated Security

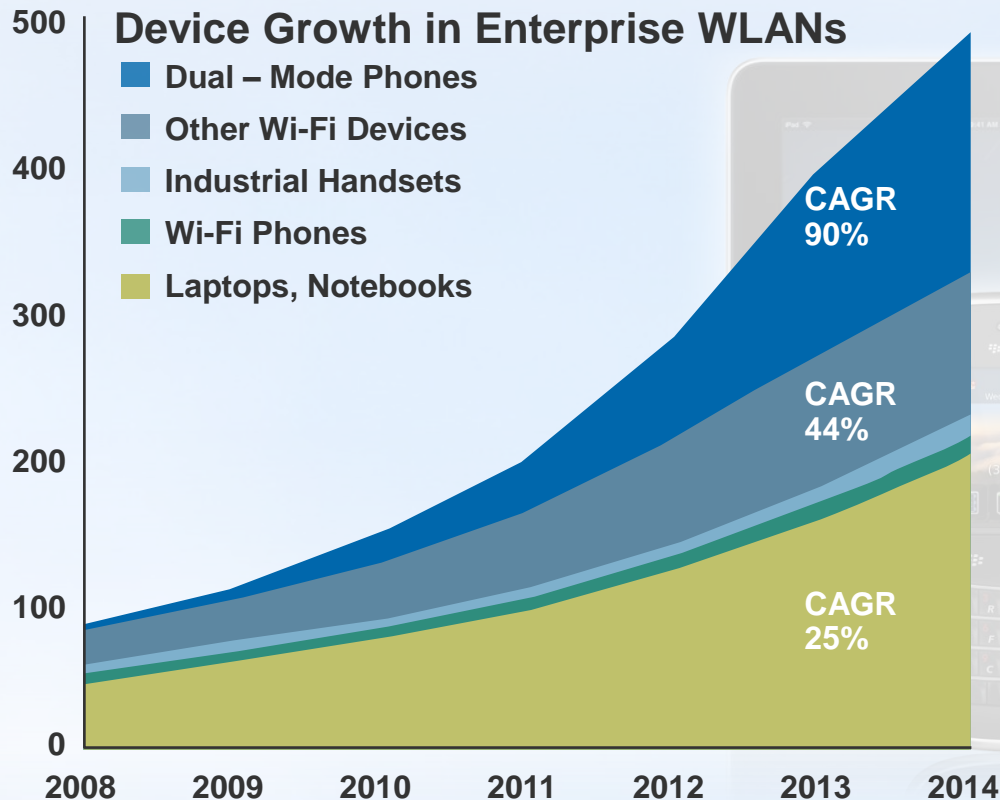


More Applications



THE GAME CHANGERS: MOBILITY

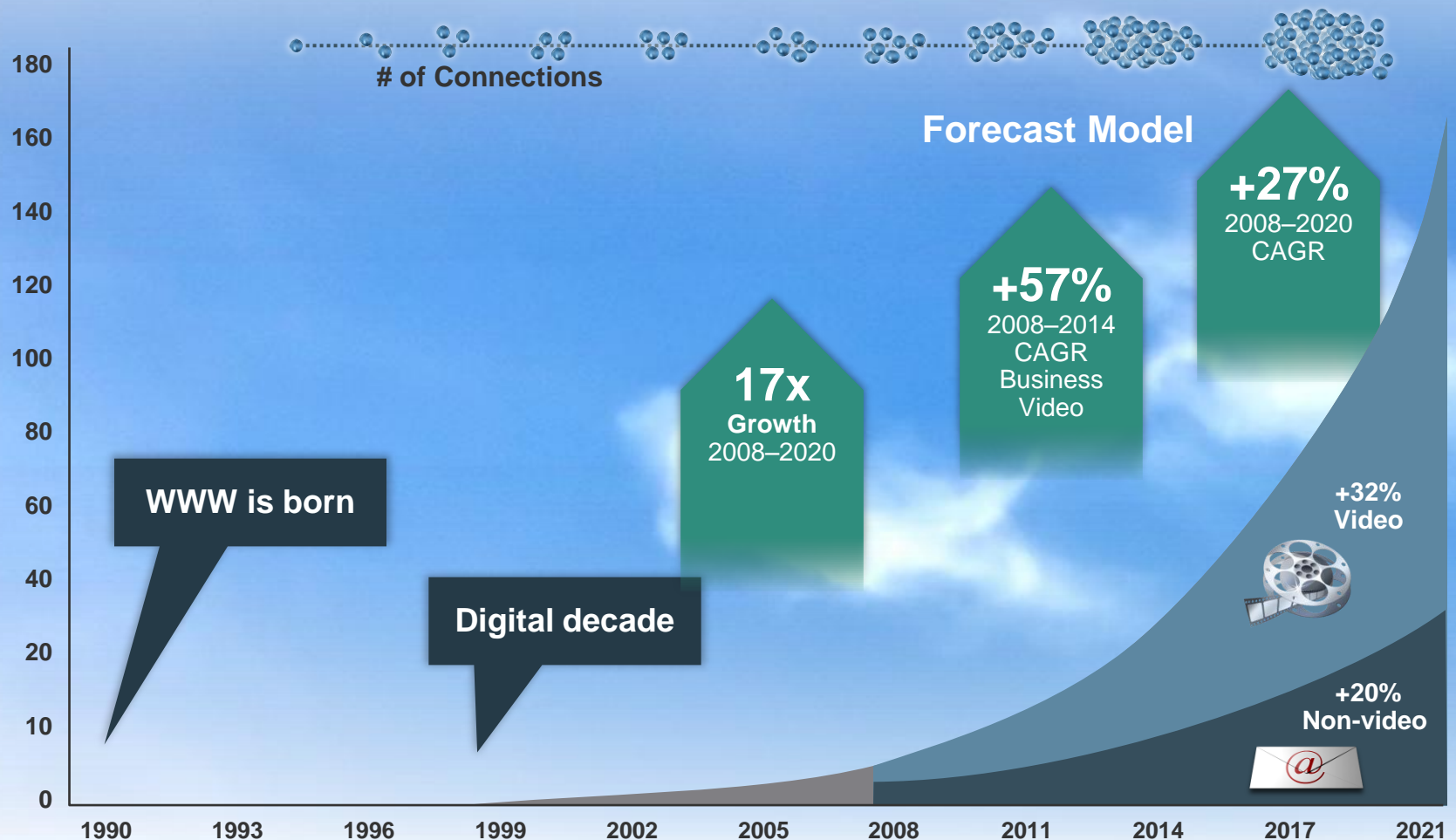
Rapid Device Proliferation (Smart phones and other clients)



Source: Gartner 04/2010

THE GAME CHANGERS: VIDEO

Worldwide Internet Traffic, 1990-2020, EB/Month



Source: Juniper, Cisco, MINTS

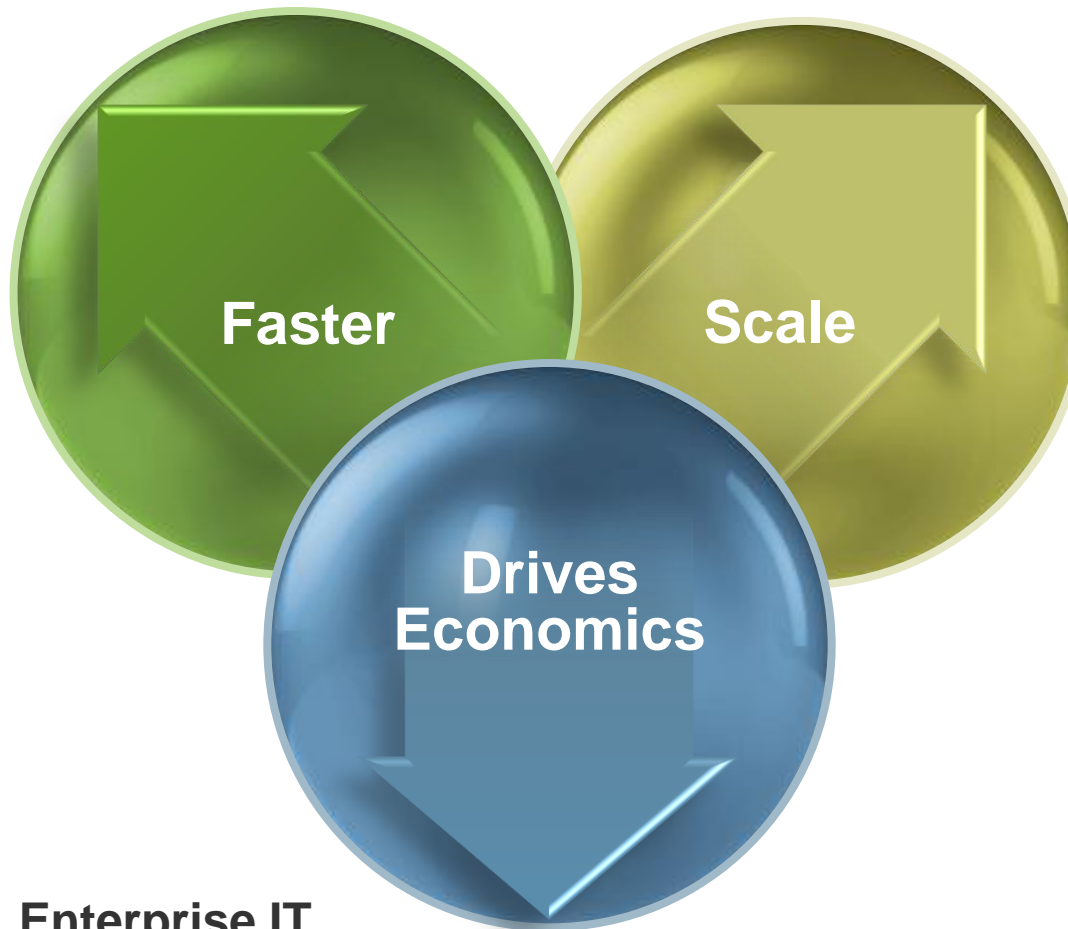
JUNIPER SWITCHES DATA CENTER OVERVIEW

TYPES OF DATA CENTERS

High Performance

- Low latency
- Low jitter

Financial
Services
HPC



Cloud Providers

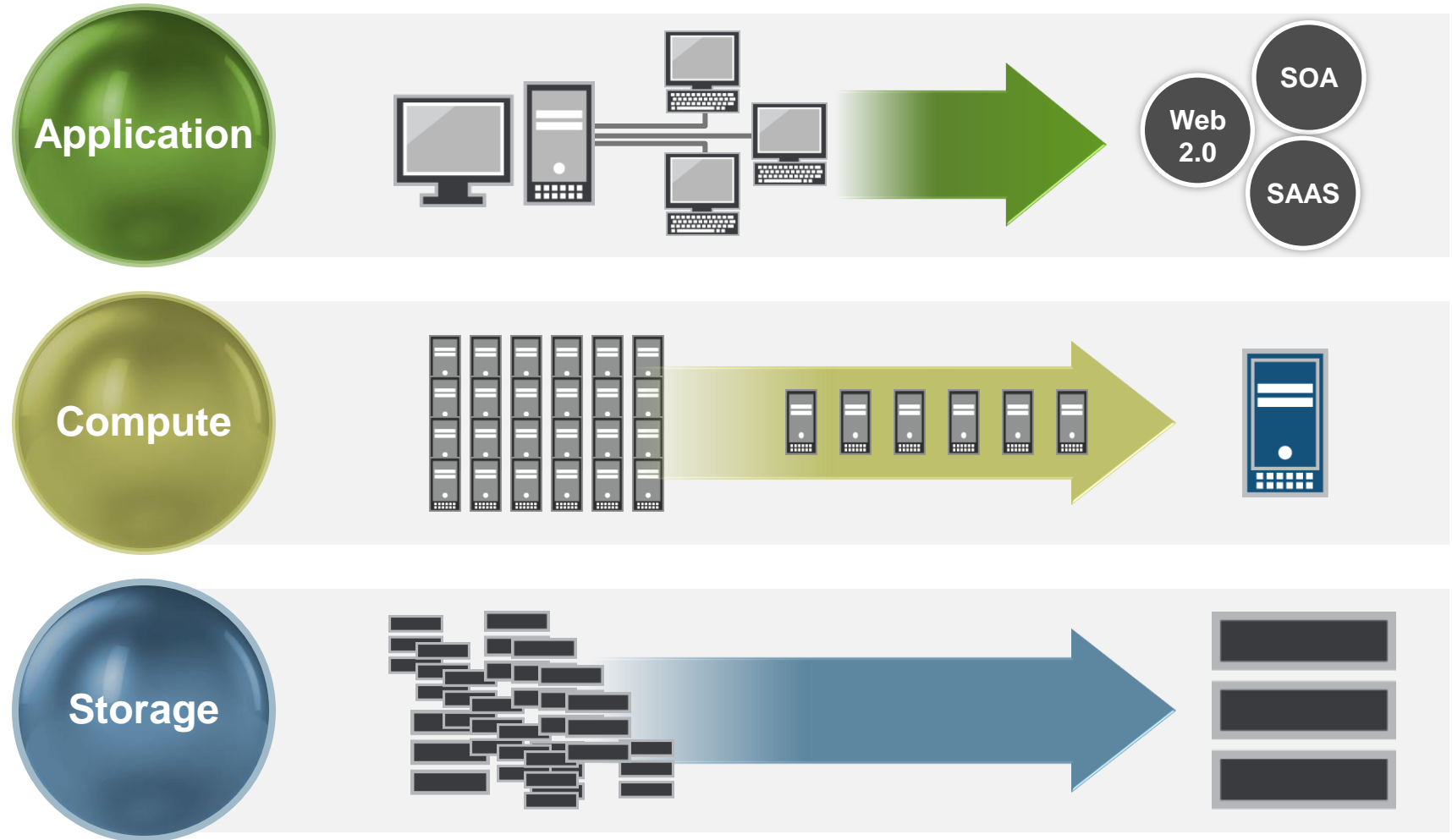
- Massive scale
- At the right price

Content and
Infrastructure
Providers

Enterprise IT

- CAPEX and OPEX optimized
- Support virtualized, converged data centers

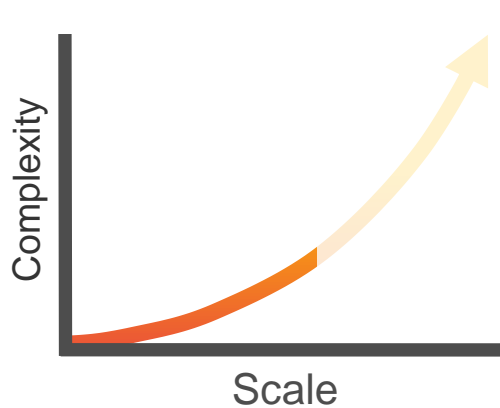
EVOLVING TRENDS



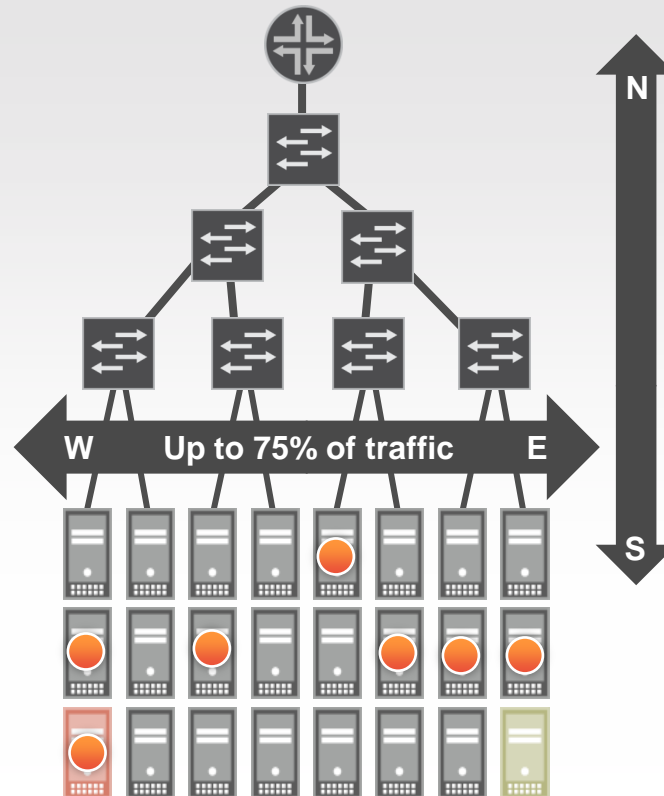
THE NETWORK HAS NOT YET EVOLVED

The challenges

- Too slow
- Too expensive
- Too complex



Multi-tier legacy network

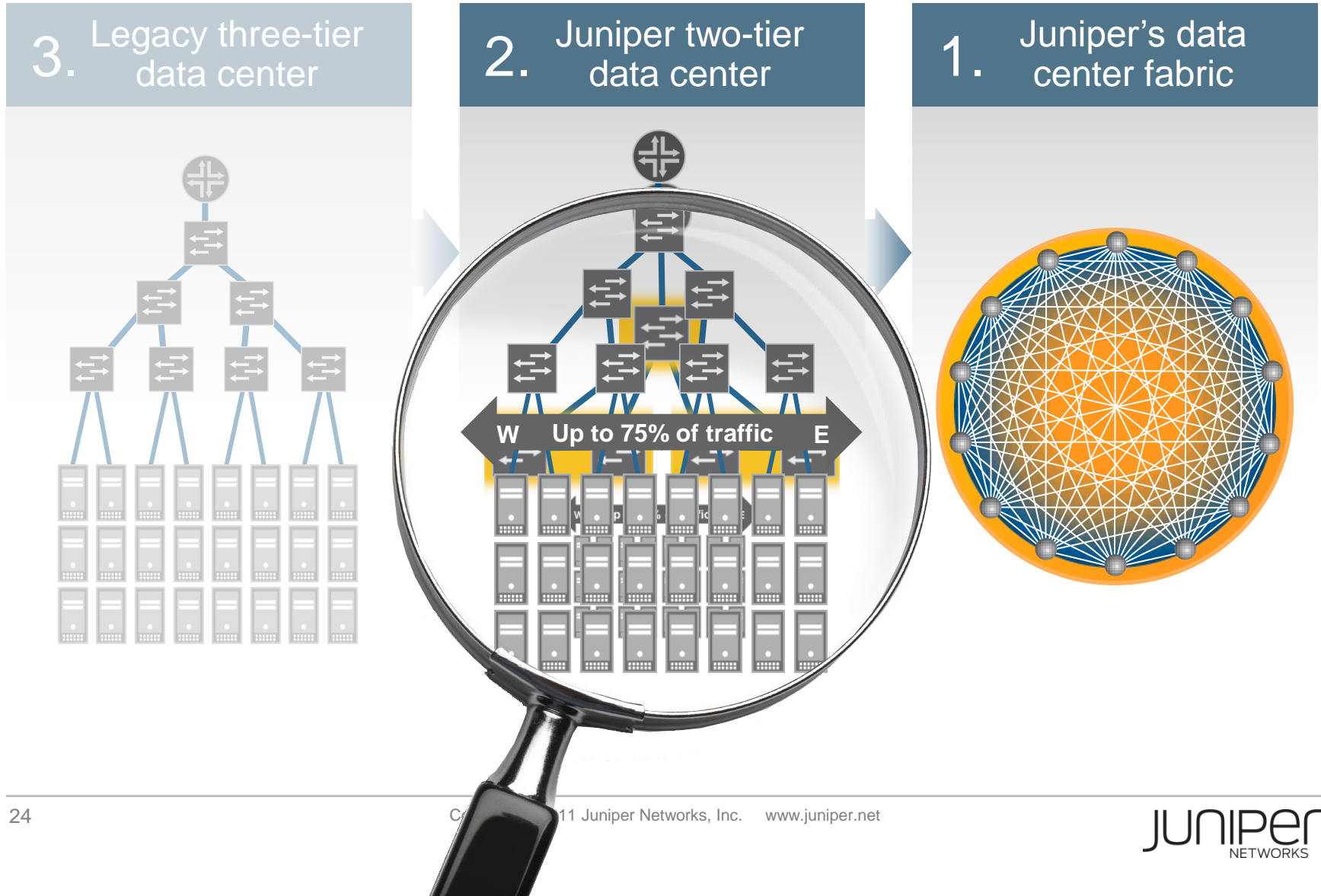


Unnecessary layers add hops and latency

Up to 50% of the ports interconnect switches, not servers or storage

Spanning Tree disables up to 50% of bandwidth

JUNIPER SOLUTION: 3-2-1



JUNIPER EX SERIES SWITCHES

EX SERIES FIXED PLATFORMS



- 12 port 10/100/1000BASE-T
- PoE/PoE+
- Fan-less

EX2200-C



- Fixed power supply and fans
- 24/48 port 10/100/1000BASE-T
- 4 SFP uplinks
- PoE/PoE+ model options

EX2200



- Modular power and cooling
- Field replaceable power and fans
- 4 port GbE SFP uplink
- 2 port 10GbE XFP uplink
- External RPS option
- Full Class 3 PoE
- OSPF, IP multicast in base license

EX3200



- 24/48 10/100/1000BASE-T
- PoE/PoE+
- Data center air flow
- 6 member Virtual Chassis
- Fixed power supply and fans
- MacSec ⌚
- External RPS option ⌚
- 4 port SFP/SFP+ uplinks

EX3300



- 28/48 port wirespeed 10/100/1000BASE-T
- PoE/PoE+
- Flexible uplinks
- Data center air flow
- Field replaceable power and cooling
- 4 port GbE SFP uplink
- 2 port 10GbE XFP uplink
- 10 member Virtual Chassis
- 128 Gbps Virtual Chassis backplane

EX4200



- 40 10GbE fiber ports
- Redundant power and cooling
- Small form factor
- 10 member Virtual Chassis ⌚
- Mixed Virtual Chassis with EX4200
- Line rate

EX4500

⌚ Roadmap

EX SERIES MODULAR PLATFORMS



48x1G



48x1G-PoE

- 10 slot modular chassis
- Redundant SREs
- 64 Gbps per slot with redundant SREs
- 48 port 10/100/1000BASE-T line card
- 48 port 10/100/1000BASE-T PoE+ line card
- Redundant fans
- 6 power supplies

EX6200



48x1G-ES

8x10G



48x1G-Copper

40x10G



48x1G-Fiber

48x1G-POE



- 8/16 slot modular chassis
- Various line card options
- Virtual Chassis support with XRE200
- 320 Gbps per slot
- Fully redundant Routing Engines
- 100GbE ready
- 1.92 Bpps
- MPLS, IPv6

EX8200

“ENHANCED” LIMITED LIFETIME WARRANTY FOR EX SERIES SWITCHES

What is the enhancement to LLW?

1. Lifetime software updates
2. Advance shipment of spares (next business day) from central depots
3. 90-day 24x7 JTAC support

Which Juniper products are covered?

1GbE fixed-
configuration switches:

EX2200-C

EX2200

EX3200

EX3300

EX4200

EX6200



JUNIPER WIRELESS

JUNIPER WIRELESS TODAY

Over 6,000 Customers

1 M+ AP installed base since 2005

- Healthcare
- Education (Higher Ed & K-12)
- Hospitality
- Presence in Fortune 500:
Shell, Chevron, Alcoa, Audi, VW

Many Mission Critical Environments:

- University Minnesota
 - 9,500 AP, 300 Buildings, 1200 Acres
- Belfast Health & Social Care Trust
 - 2,220 AP, 7 hospitals, 22,000 Staff



LARGEST WLAN PATENT PORTFOLIO TODAY

Proven Technology Track Record:

- Simple, Secure, Mobile
- Real Time Location Aware
- 17 issued patents, 49 pending

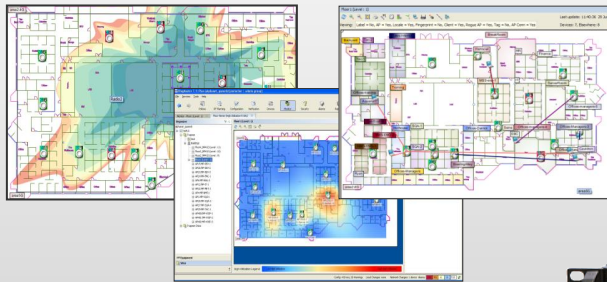
Differentiating WLAN Innovations:

- Seamless roaming
- Life Cycle Management
- Intelligent Switching
- Controller Virtualization
- Identity Based Networking
- Unified Mobility Services

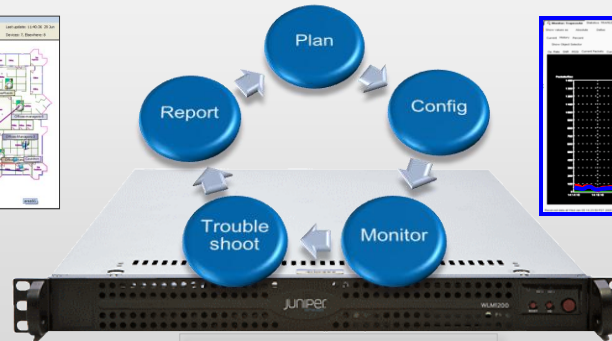


JUNIPER WIRELESS - COMPLETE WLAN SOLUTION

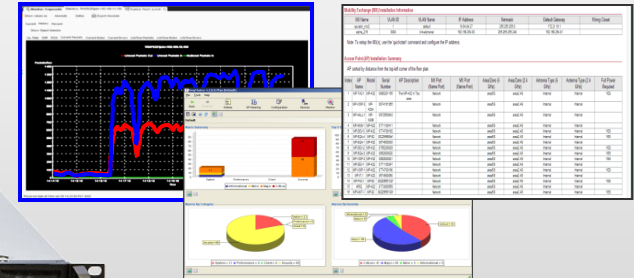
WLM – Management and Access Control



RingMaster



WLM - Appliance



SmartPass

Simple - Secure - Mobile

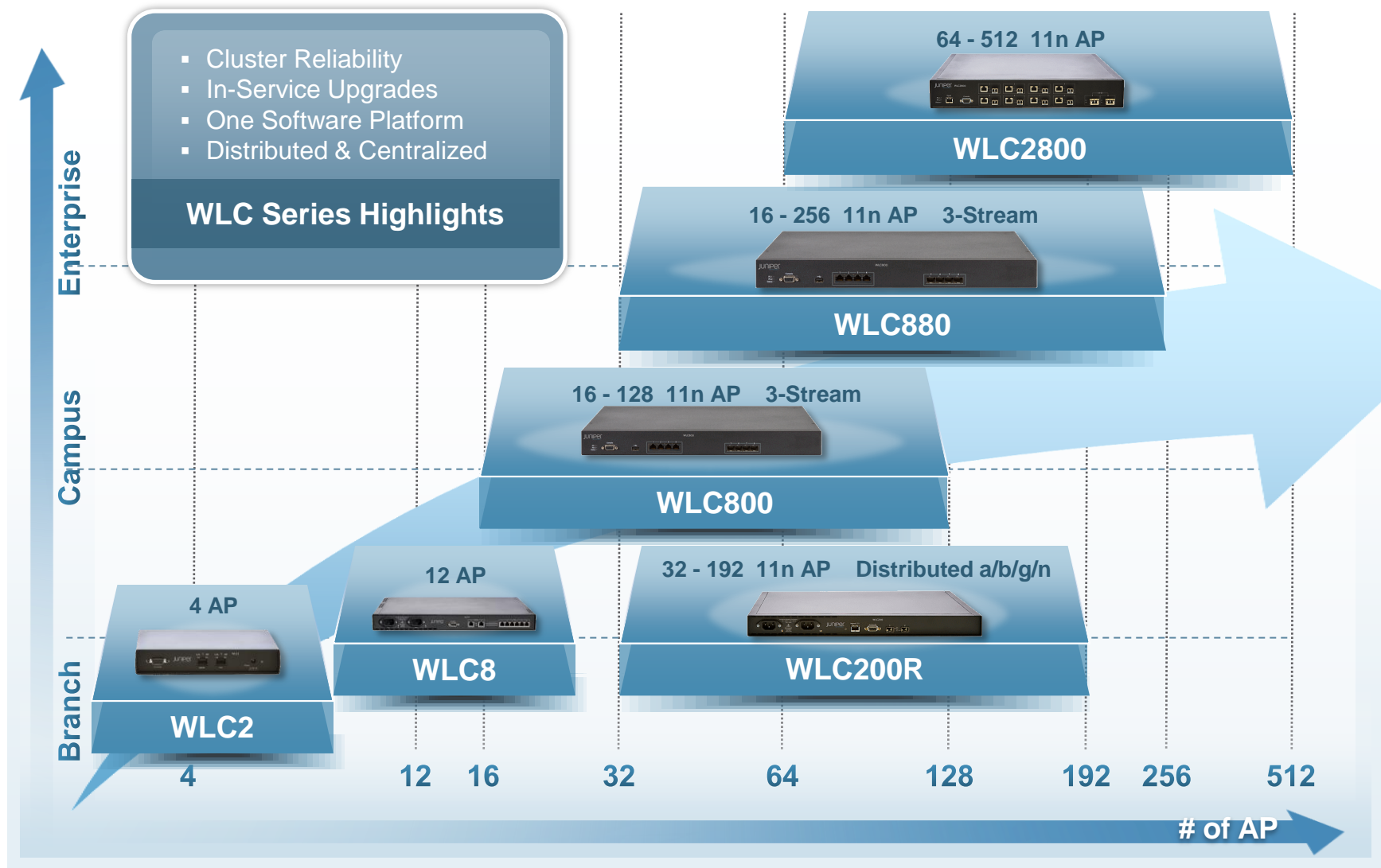
WLA – Access Points



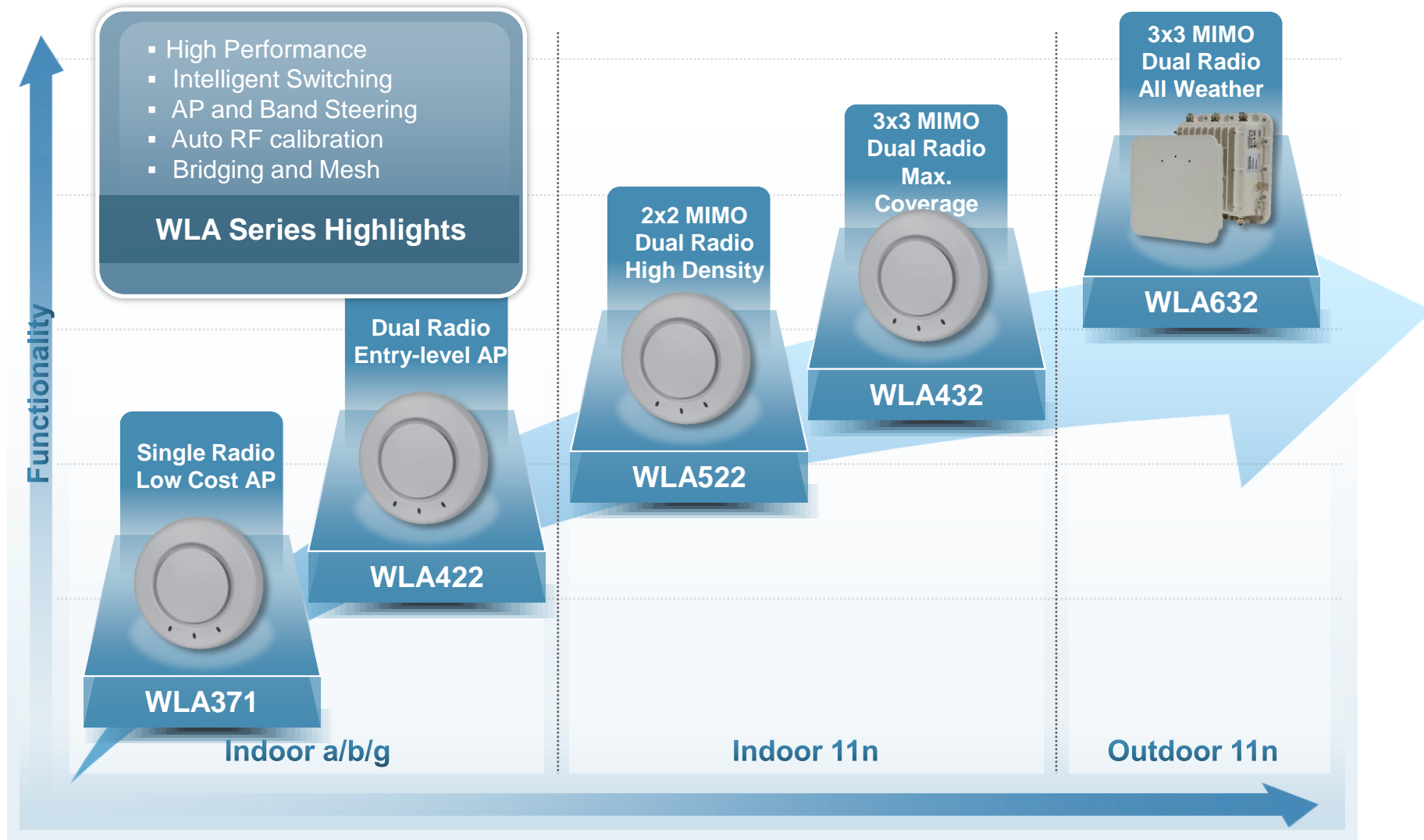
WLC – Controllers



JUNIPER WIRELESS WLC CONTROLLER FAMILY

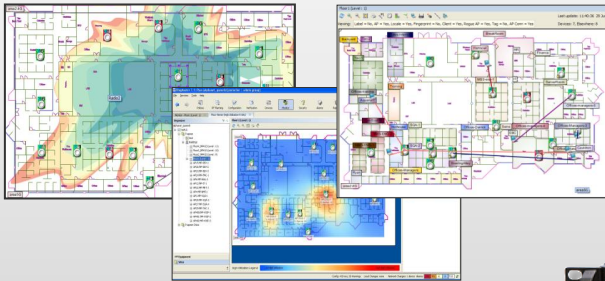


JUNIPER WIRELESS WLA ACCESS POINT FAMILY



WIRELESS MANAGEMENT & ACCESS CONTROL

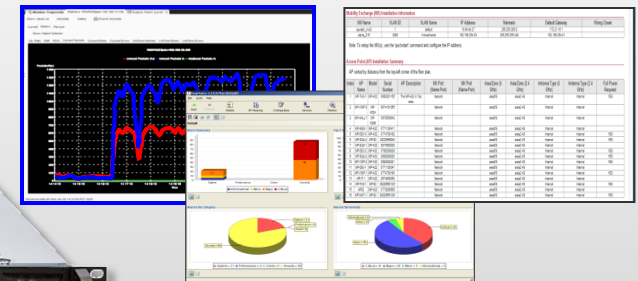
WLM – Management and Access Control



RingMaster



WLM - Appliance



SmartPass

Plan - Configure - Monitor - Troubleshoot - Report

WLM – RMTS

**Software
Licenses**

5 – 1,000 APs

WLM1200 – RMTS

**Optimized Linux
Server Platform**

250 – 5,000 APs

WLM – SP

**Software
Licenses**

**WLAN Access Control
Guest Provisioning**

BEST IN CLASS WLAN LIFE CYCLE MANAGEMENT

RingMaster

Planning and Deployment

- 3D predictive planning tool
- Indoor and Outdoor network plan

Configuration and Verification

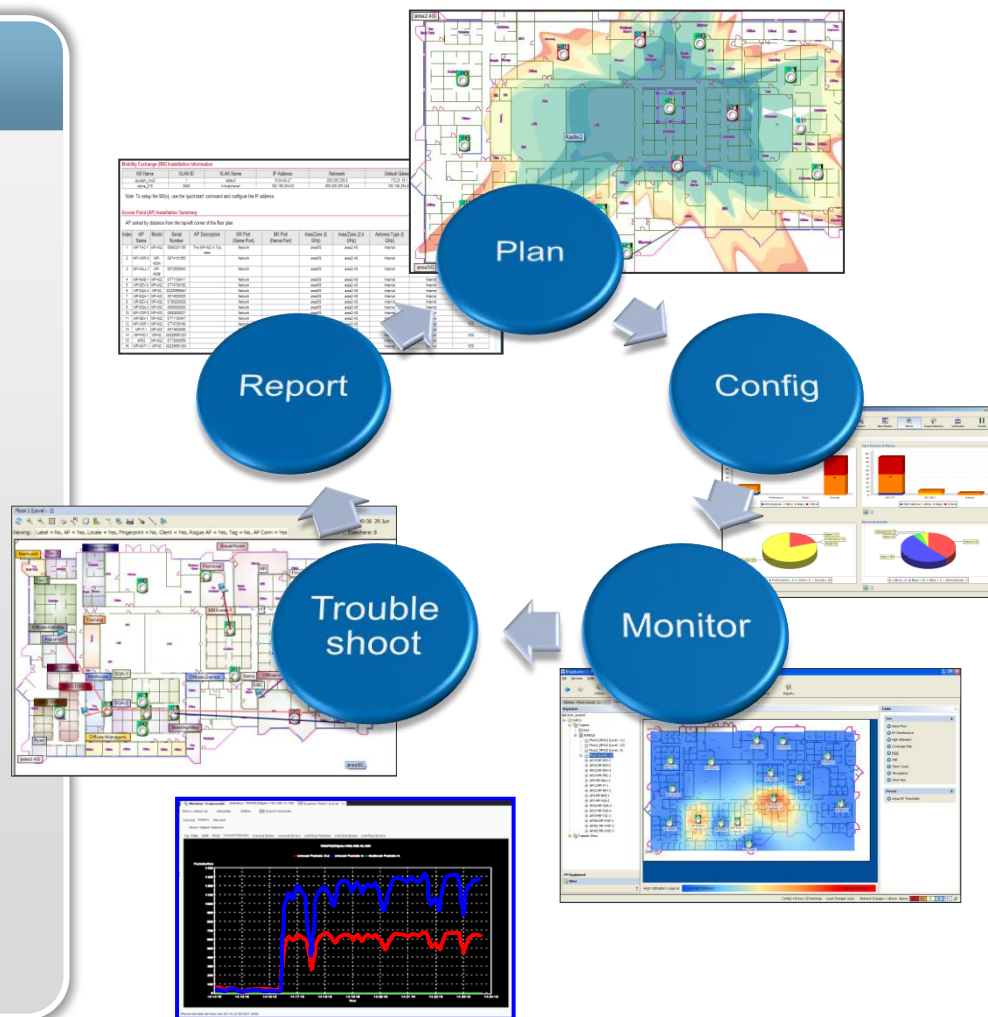
- Complete offline configuration
- System and service wizards
- Pushes configuration to WLCs

Monitoring and Reporting

- By user, radio, AP, WLC, SSID
- 30 day history aids compliance
- WIDS/WIPS integration

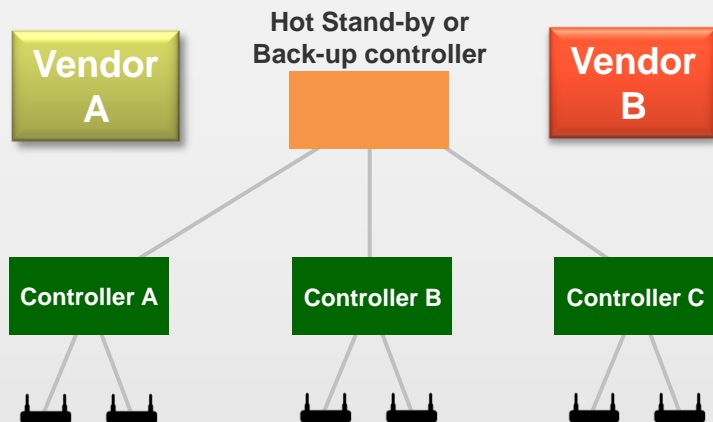
Location Aware

- Search by Location
- Roaming History
- Geo Fencing



CORE DIFFERENTIATOR: CONTROLLER CLUSTERING

Competitors Complex Approach



Discrete controllers operate independently for AP redundancy configuration

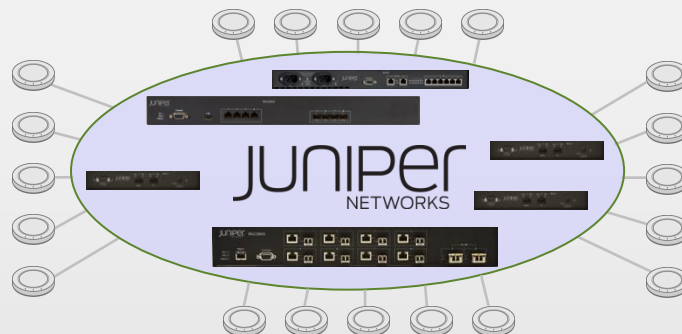
Harder to scale since adding capacity is cumbersome

Limited resiliency – APs mapped directly to controller & resets upon network/device failure

Limited reliability – N+1 (limited to number of designated back-up switches)

Difficult to manage, highest cost of ownership

Juniper's Simplified Approach



Clustered controllers– act collectively as single virtual controller for wireless configuration

Easy to scale – Capacity can be added in chunks, anywhere in the network

Highest resiliency – APs dynamically map to controllers– optimized, auto AP load balancing

Always-on reliability – many-to-many redundancy – all switches can serve as back-up

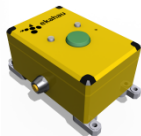
Easiest to manage, lowest cost of ownership

STRATEGIC PARTNERSHIPS: LOCATION

Partners



AeroScout®



Markets

Healthcare



Education



Hospitality



Features

Enhances WLAN ROI with wireless workflow improvements:

- Asset Tracking
 - Improve asset utilization
 - Lower excess inventory
 - Improve maintenance
- Process Visibility
 - Improve workflow
 - Eliminate bottlenecks
 - WIP visibility
- Safety & Security
 - Track in hazard areas
 - Man down motion alerts
 - Panic button alerts
- Compliance
 - Automatic Reporting
 - Heuristics
 - Evidence management

Why Juniper

Seamless integration with leading location services providers:

- Juniper Wireless is Location Aware
- SmartPass expands these solutions with LBS access control
- WLM-1200 improves the solutions with centralized LBS information processing
- RingMaster simplifies these solutions with centralized LBS lifecycle management

SUMMARY: JUNIPER WIRELESS VALUE PROPOSITION

**JUNIPER
WIRELESS
CUSTOMER
EXPERIENCE**

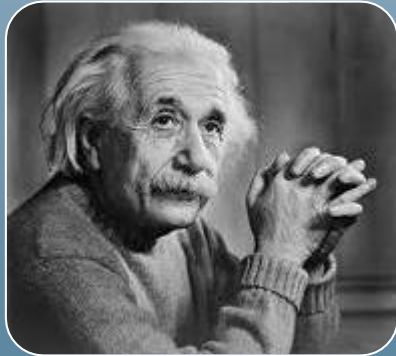
**We empower our customers with
nonstop wireless networking**

**JUNIPER
WIRELESS
VALUE
PROPOSITION**

**Juniper Wireless
=
Simple – Secure – Mobile**

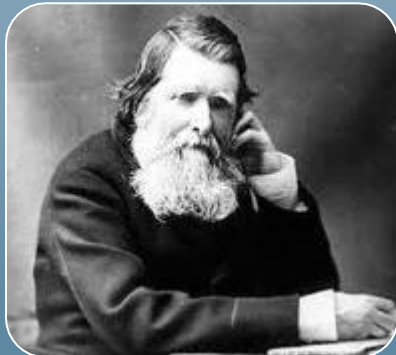


THE POWER OF SIMPLICITY



“All the great things are simple.”

- Albert Einstein



“It is far more difficult to be simple than to be complicated.”

- John Ruskin



everywhere