



JUNIPER

One network for all demands

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2-3-7: JUNIPER'S BUSINESS STRATEGY

2 Customer Segments



Service Provider



Enterprise

3 Businesses



Routing



Switching



Security

7 Domains



Core



Edge



Data Center



WAN



Access & Aggregation



Campus & Branch

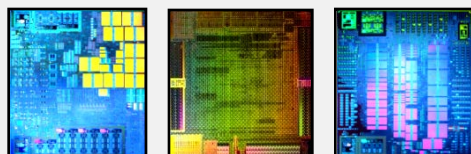


Consumer & Business Device

CLEAR MISSION AND FOCUSED STRATEGY

Connect everything; empower everyone

Silicon



Systems



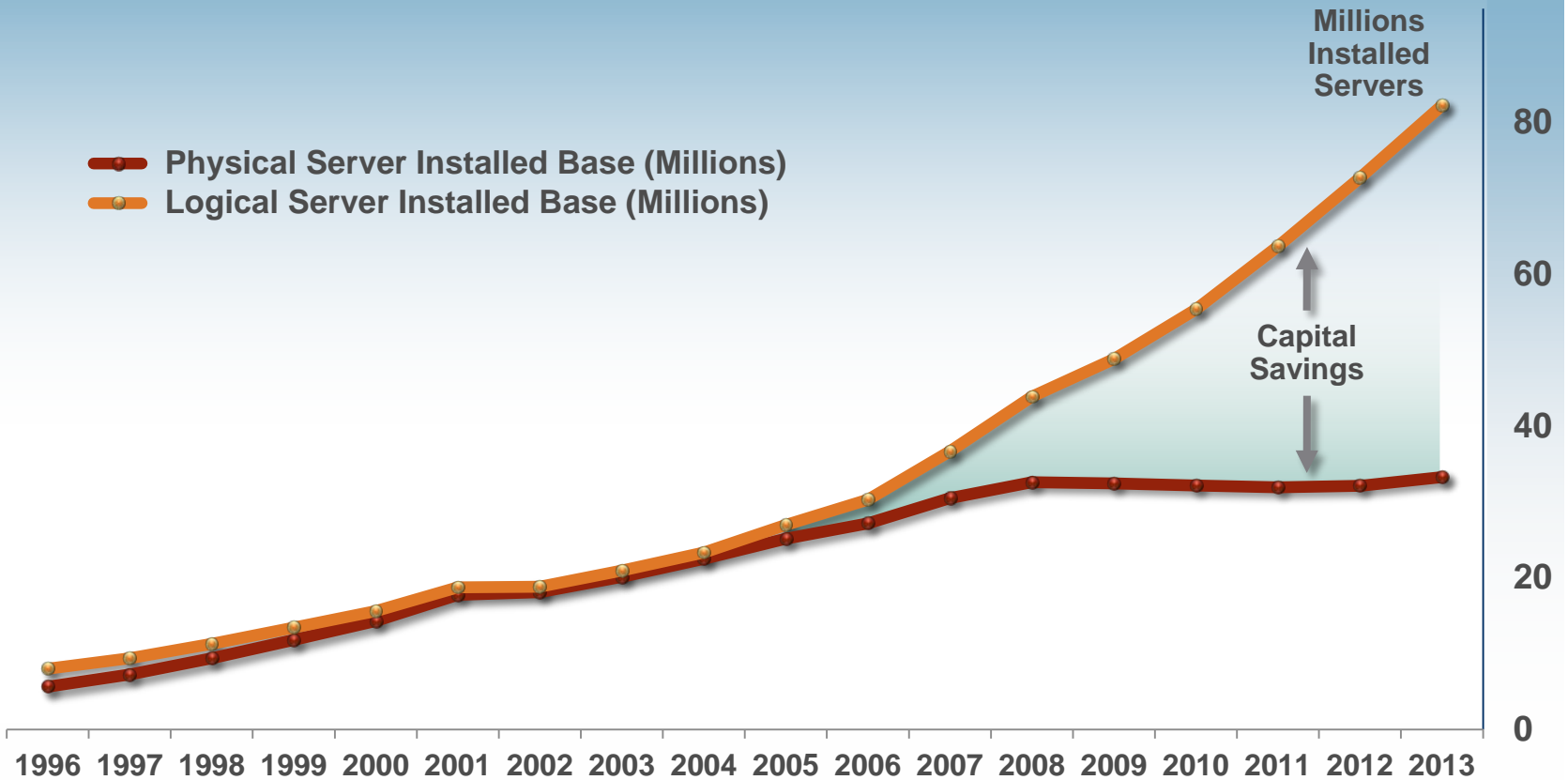
Software



Through high-performance network and industry innovation

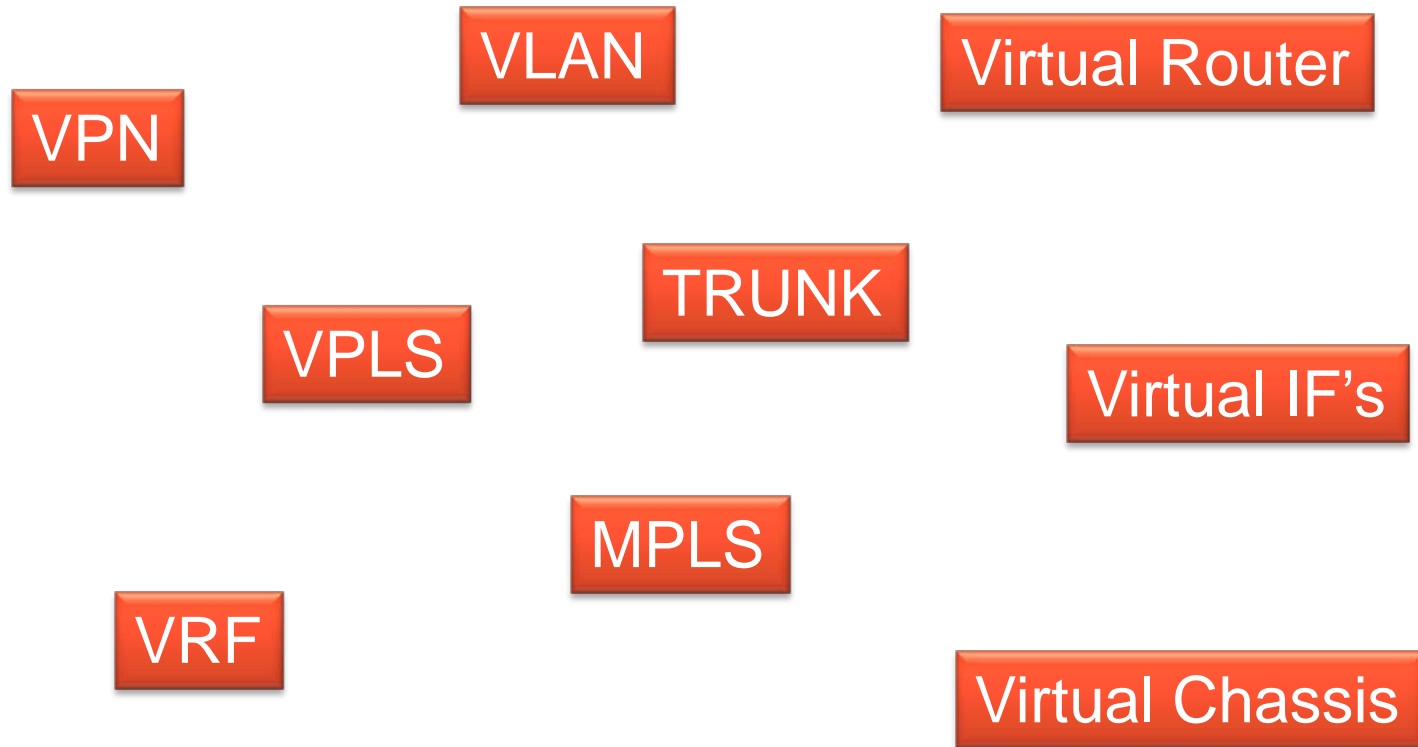
JUNIPER'S VIRTUAL DATA CENTER

MEGA TREND – SERVER VIRTUALIZATION

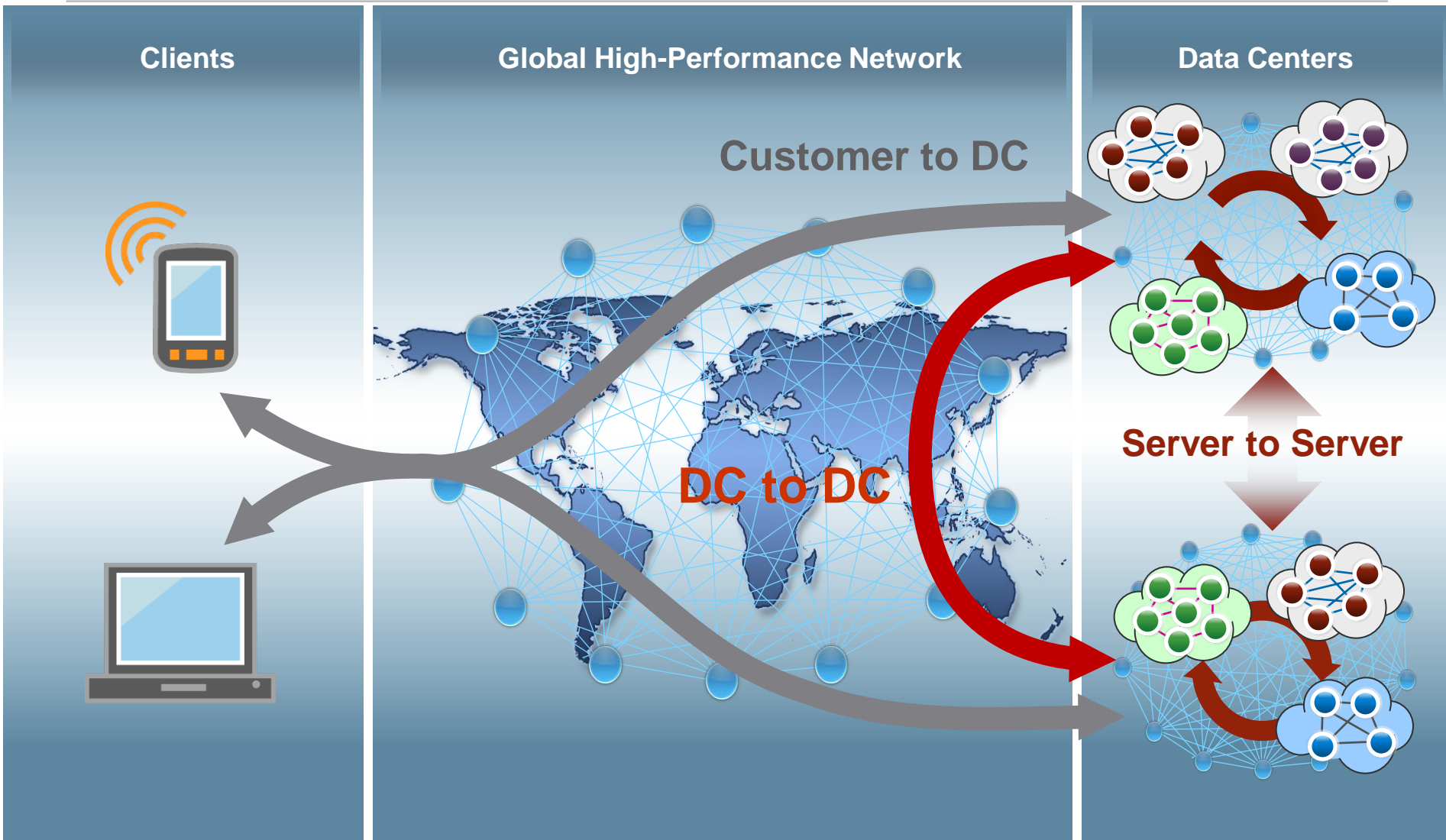


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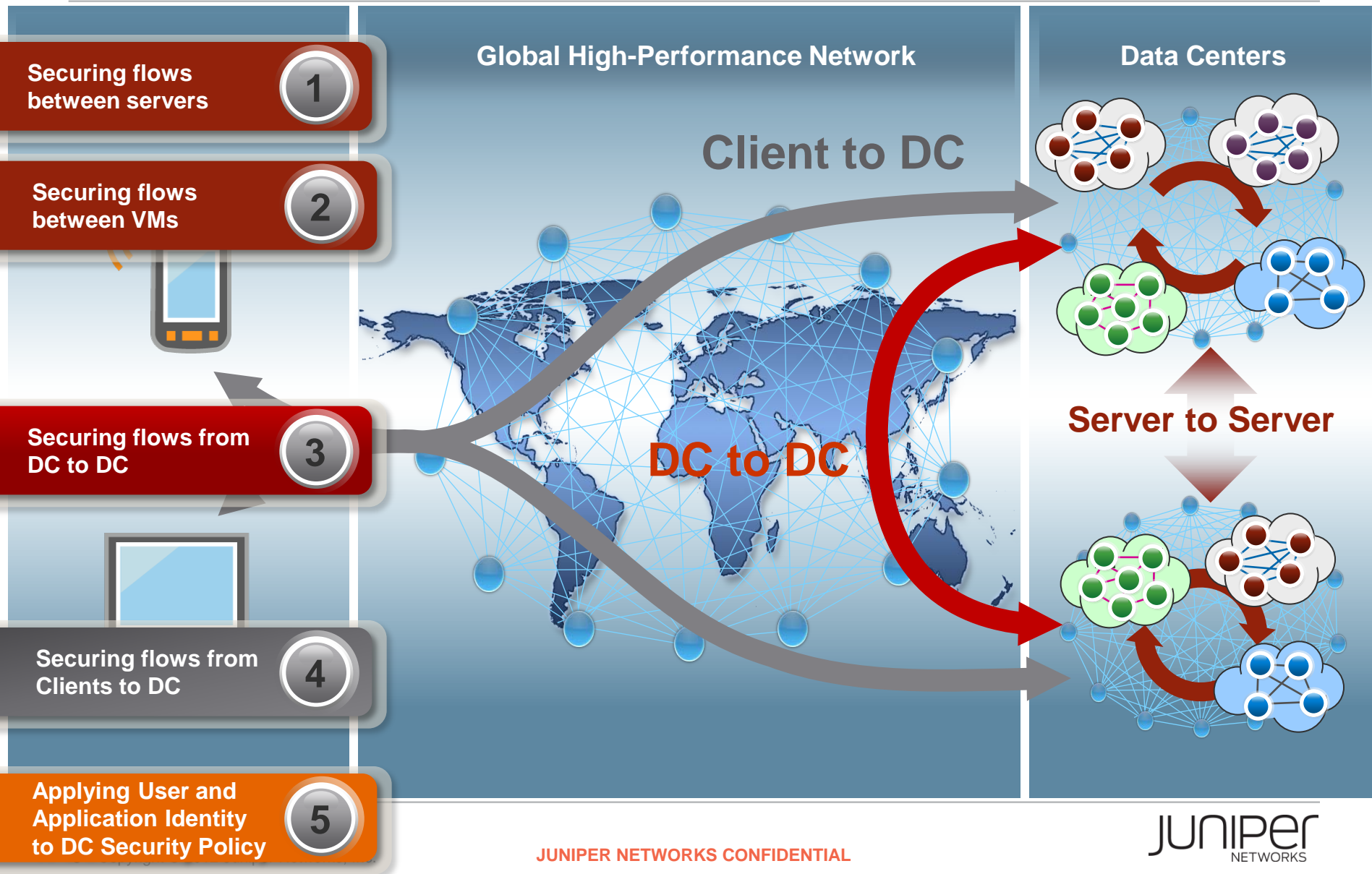
TREND? - THE NETWORK IS VIRTUAL !



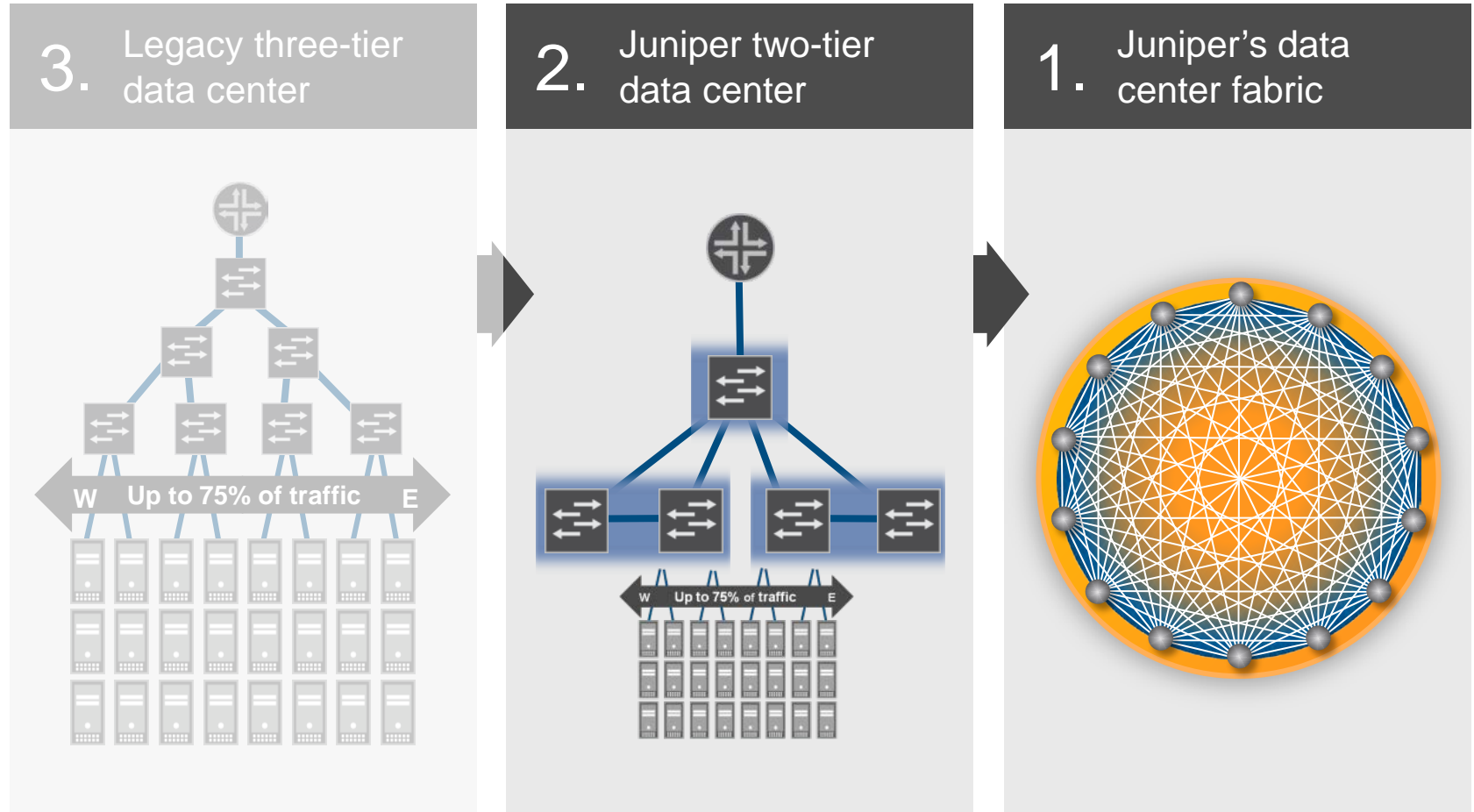
TRAFFIC FLOWS IN THE CLOUD



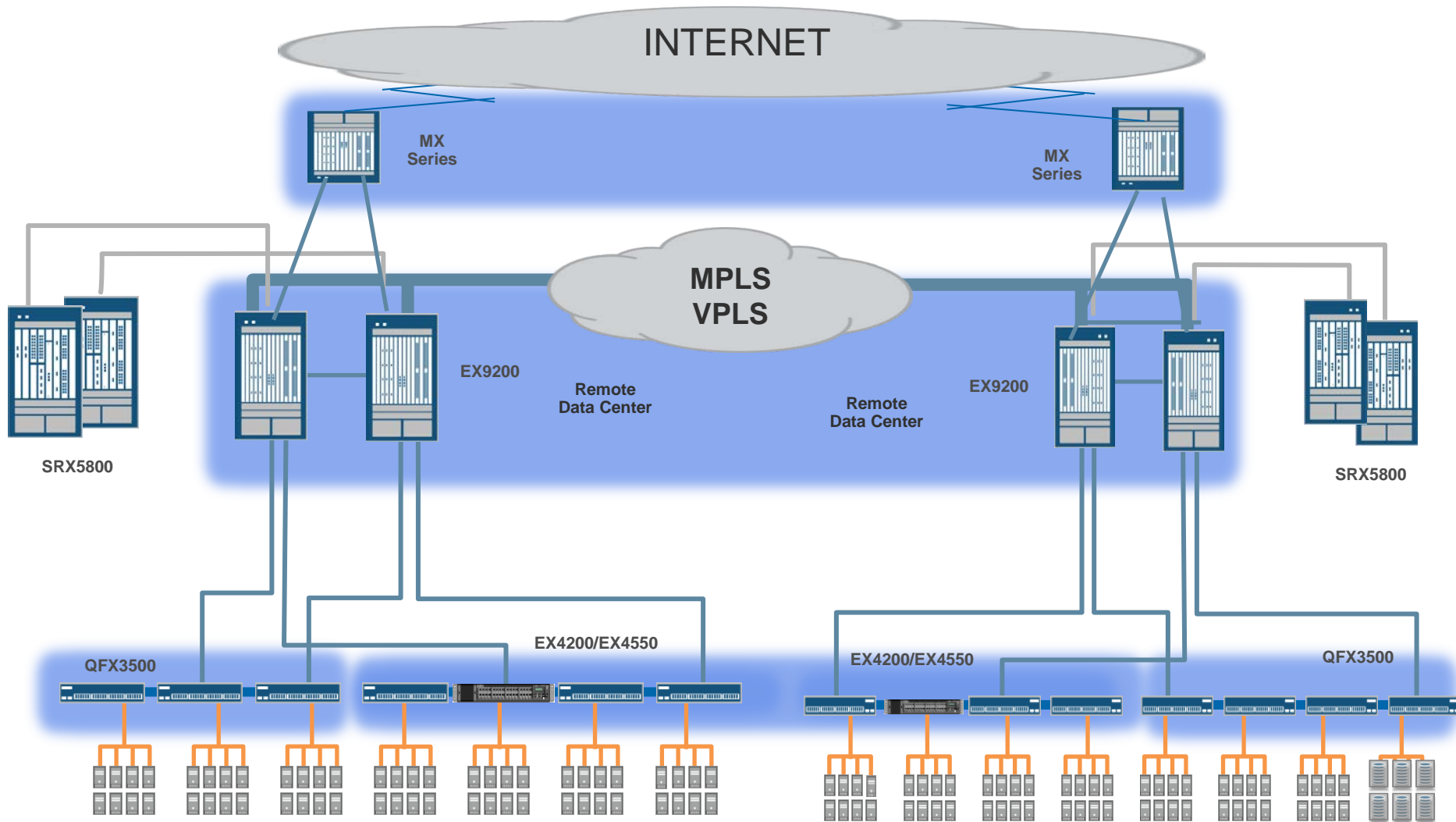
SOLUTIONS TO SECURE THE FLOWS



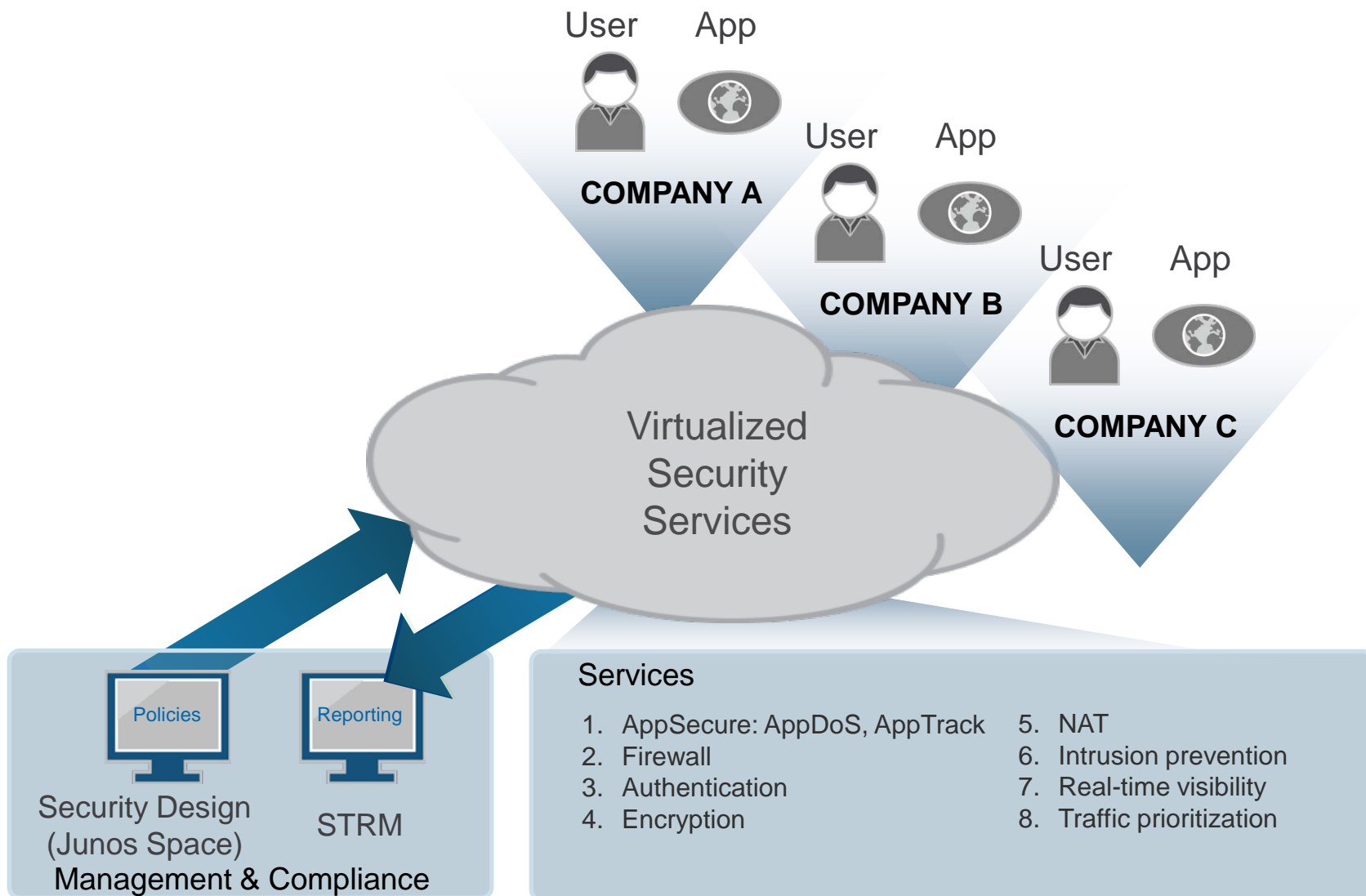
INCREASED VIRTUALIZATION REQUIRES SIMPLIFICATION



VIRTUALIZED DATACENTER

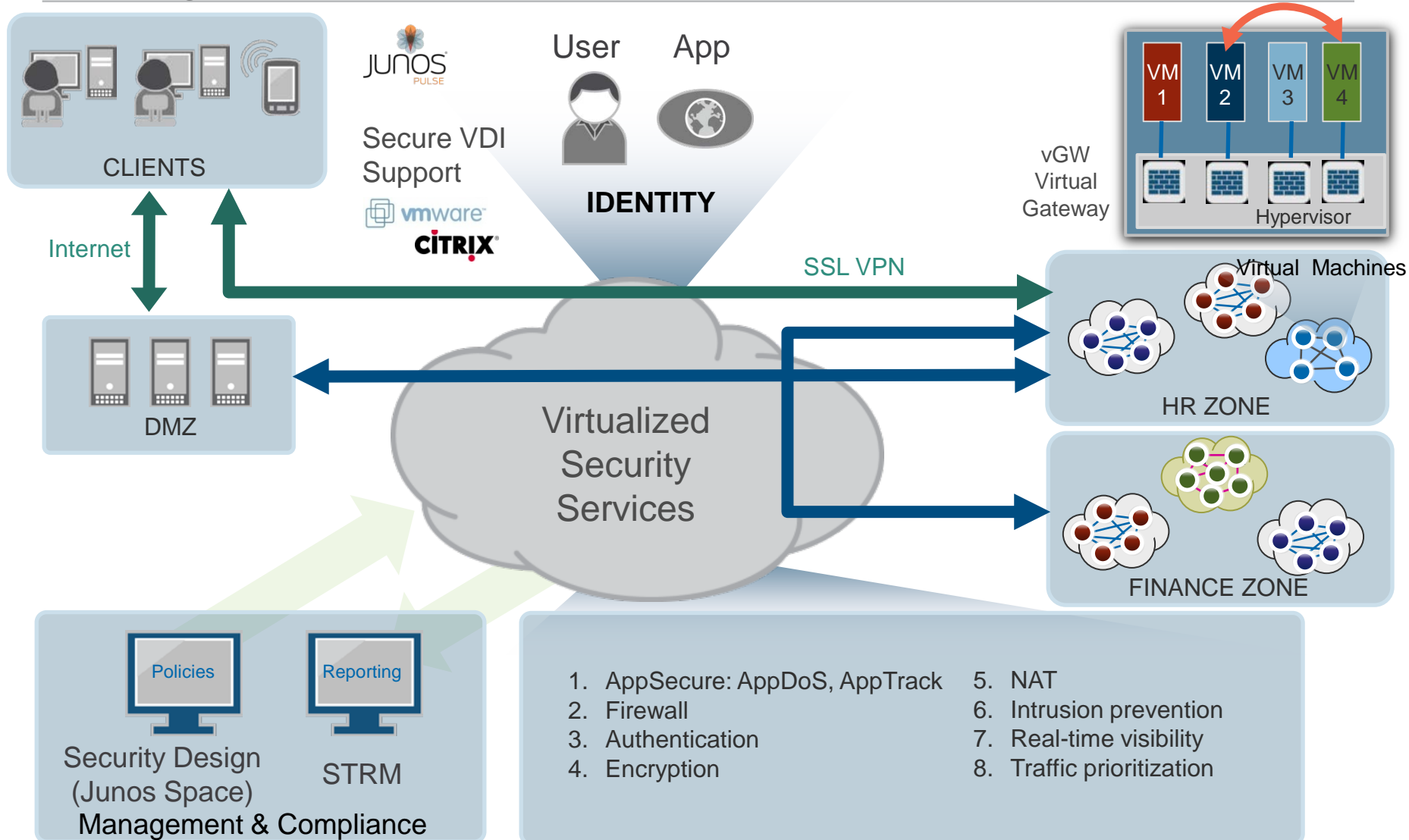


CLOUD-ENABLED SECURITY



CLOUD-ENABLED SECURITY

Securing the Flows



CLOUD-READY DATA CENTER SECURITY SOLUTION

Management and Security Services



Security Design



Security Threat Response Manager



Physical



SRX Series

Services



Firewall



IPS



DoS Protection



AppSecure

Virtual

SRX

STRM

JWAS

JDDoS

SSL VPN

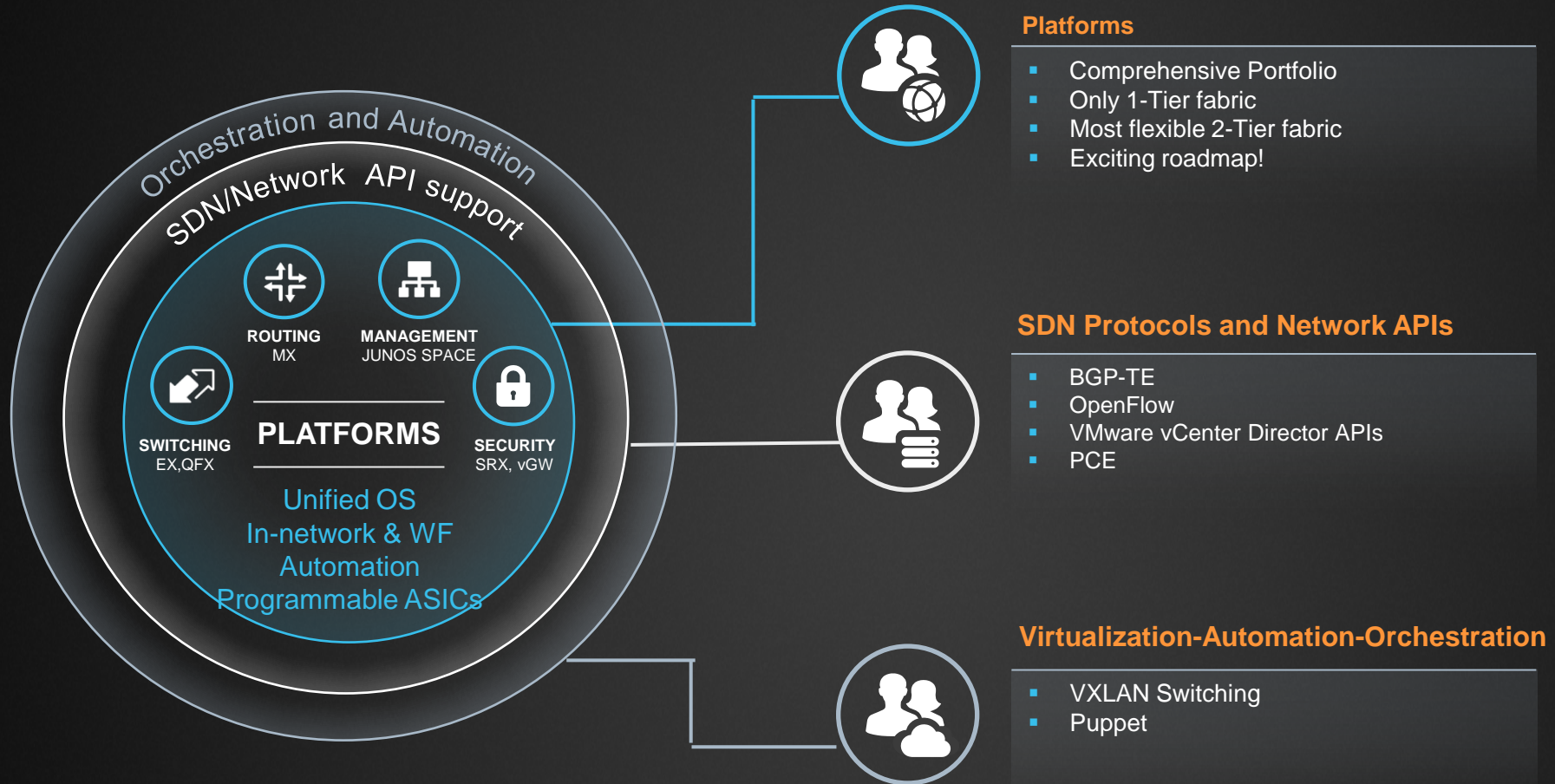
SPACE

BEYOND THE CLOUD

**SDN – SOFTWARE DEFINED
NETWORKS**

SDN IN THE ENTERPRISE DATA CENTER

Shaping the SDN Conversation with a Comprehensive Strategy




SDN USE CASES

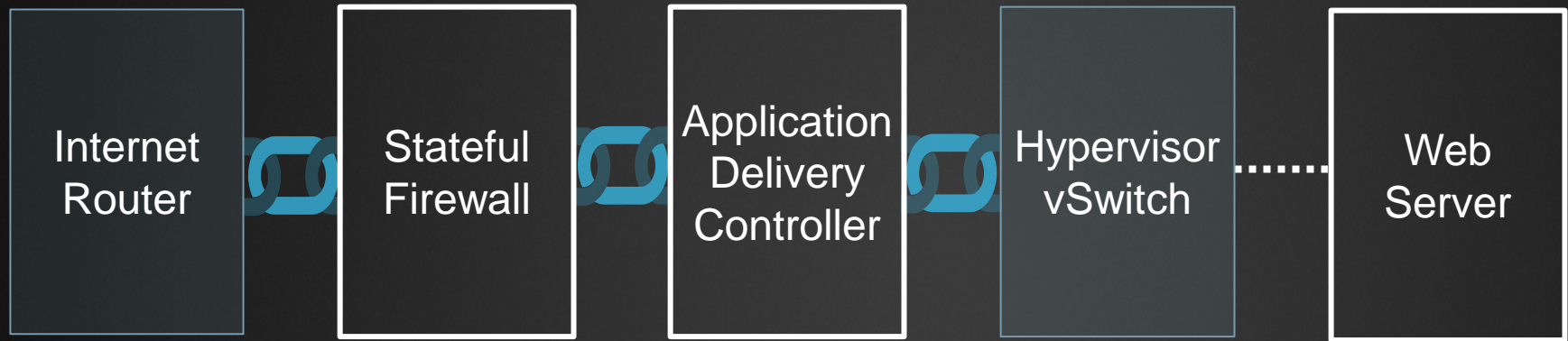
Simplicity, Manageability, Flexibility, Automation

- Multi-tenancy – aka “Network slicing”
 - Segmenting customers in the cloud
- Gateways
 - Ability to connect virtual and physical networks seamlessly
- Application oriented network
 - Design driven by Apps
- Traffic engineering and bandwidth calendaring in the WAN
 - For optimized Data Center Interconnect (DCI)
- Service chaining – aka “Network Function virtualization”
 - Flexibly deploying virtualized services (FW, UTM, Load balancers, SLB, ...)

SDN SERVICE CHAINING

Cloud Application Datacenter

 Runs as a VM



JUNIPER'S SDN STRATEGY: 6-4-1

6 – General Principles



Separate



Centralized



Use the cloud



Common Platform



Standard



Apply Broadly

4 – Juniper Steps



Centralize Management



Extract Services



Centralize Controller



Optimize the Hardware

1 – Licensing Model

JUNIPER SOFTWARE ADVANTAGE

Full Use/Elastic

Transferable

Software
Lifetime Assurance

6 PRINCIPLES OF SDN



Separate

Separate networking into four planes

- forwarding, control, services, and management



Centralized

Centralize management, control, and services



Use the cloud

Use the cloud for

- elastic scale and flexible deployment
- enabling usage-based pricing

6 PRINCIPLES OF SDN



Common Platform

Use common platforms for

- network, security applications and management integration



Standard

Use standard protocols for interoperability across vendors

- OpenFlow, VXLAN, PCE, NVGRE



Apply Broadly

Broadly apply SDN across the networking domains

MANAGEMENT LAYER OF JUNIPER'S SDN STRATEGY

JunosV Contrail SDN Controller



3 

Junos Space SDK & APIs

Programmable interface to customize apps & 3rd party integration

2 

Junos Space Management Applications

Junos Space Network Director, Security Director, Service Activation Director

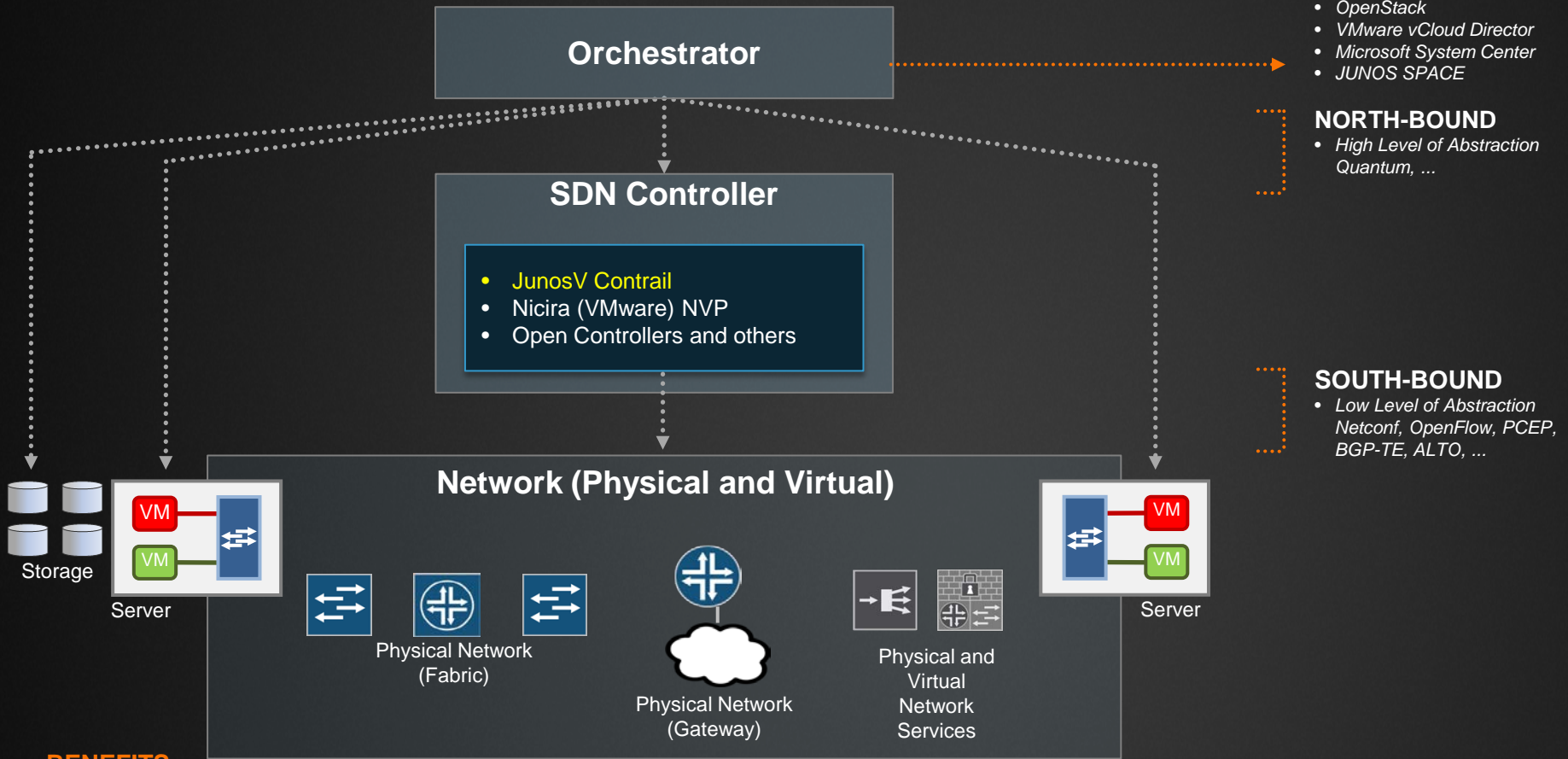
1 

Junos Space Network Management Platform

Element management, provisioning, automation

VIRTUAL SOFTWARE OVERLAY

Use tunnel encapsulation to abstract the underlay network to address all challenges



BENEFITS

- Ease of migration (no need for replacing physical underlay)
- Lower cost/complexity – supported as a x86-based VM, simplifies device-level complexity of physical network
- Modularity, flexibility of software-only approach
- Ability to converge orchestration across physical and virtual network system components (Contrail/Space integration, config, etc.)

SERVICE DELIVERY CHALLENGES



TIME TO SERVICE

- Lengthy service provisioning times of days to weeks
- IP Activation process cumbersome



PRODUCT EVOLUTION

- Lengthy new product introduction & certification times
- Bundles limited by physical infrastructure (eg VAE)



OVER THE TOP THREAT

- OTT cloud providers compete using internet
- Network commoditised



NETWORK TO CLOUD

- Lack integration of Public and Private cloud offerings
- Leveraging network to differentiate

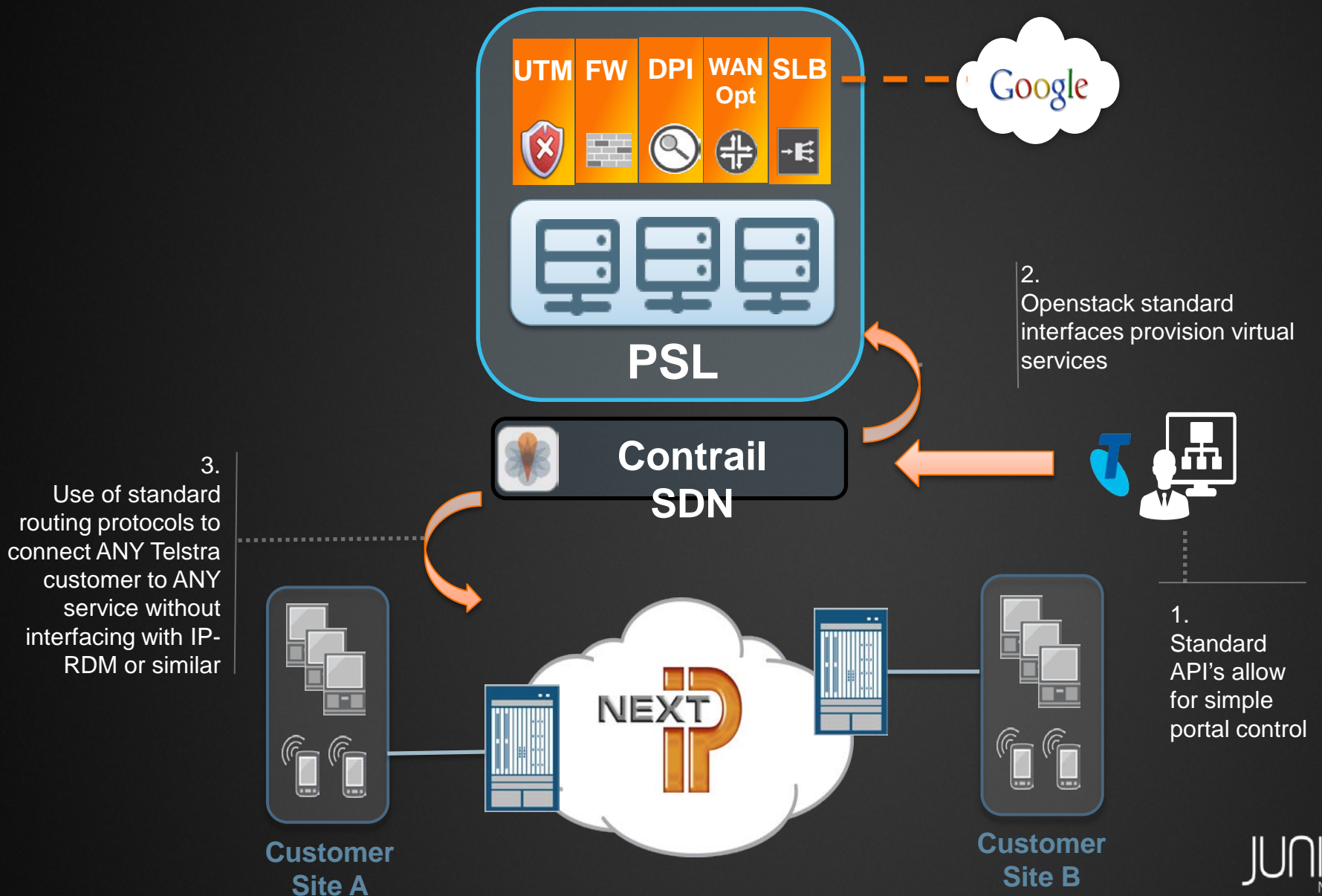


OSS AGILITY

- Expensive to replace or augment current OSS systems

Project Pivot addresses these challenges using existing Telstra assets **without** costly investments in **network refresh** and **proprietary OSS** systems

CONTRAIL – CONNECTING TELSTRA



SERVICE GATEWAY ON / OFF

SUMMARY:

Project PIVOT demonstration takes the Juniper Firefly firewall, and the Contrail SDN software and overlays them into Telstra's own infrastructure to show a working SDN-enabled service chain to ANY NextIP customer



LIVE SERVICE CHAINING DEMO

Contrail Enables “Product-on-Product”



- ❑ NextIP customer logs into VPN via Pulse
- ❑ User is able to browse the company Intranet but not the Internet



- ❑ Telstra Sales Rep logs into Activation portal
- ❑ Turns Gateway ON



- ❑ Contrail system spins up VM and instantiates vFW service
- ❑ Service chains the Internet Service to the FW and then into the IPVPN

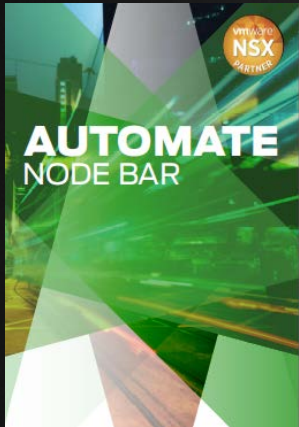


- ❑ Customer is now able to access Intranet & Internet

- **Single-touch** activation and provisioning
- **Standard API's** and SDN interfaces
- **Zero changes** to the IP network
- **Service Established** in minutes

VMWARE INTEGRATION

Automate the Physical and Virtual Network with Network Director



Network Director, integrated with VMware vCenter

Web-based unified orchestration for physical & virtual

Network policies are automatically applied

Automate sync between physical and virtual networks

Virtual machine migration for workload mobility

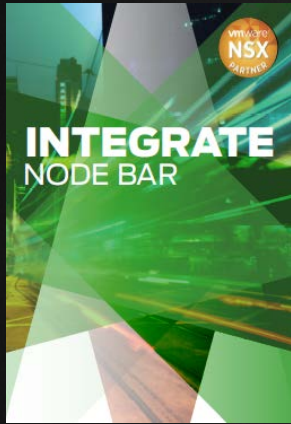
Junos Space Network Director plug-in for VM vCenter

Provide visibility across virtual & physical networks

Simplifying management and automation

Juniper is the **only vendor** visualizing virtual and physical

VMWARE INTEGRATION



Connecting Physical and Virtual Networks – NSX Integration

NSX L2 gateway support Juniper ToR switches

VMware NSX L2 gateway services on
MX Series
EX9200 and
QFX Series

enable connectivity between VMware virtual and physical network environments

VXLAN routing on MX Series and EX9200 platforms to support virtual networks between data centers or need to move applications between NSX clusters within a data center

HOW TO PREPARE FOR SDN TODAY ?

Make sure

- to invest in flexible platforms
- that your systems support open standards
- to build flat any to any networks
- your networking devices have programmable ASIC chipsets
- the network OS supports programmability and multiple SDN protocols

JUNIPER SDN 2013

Platform	JunosV Contrail JunosV App Engine in MX Router Junos Space Management Platform
Management	Junos Security Director for Security Products Junos Network Director for Datacenter and Campus Switches Junos Virtual Director for Firefly and virtual gateway Service Now - Online Service Monitoring and Product Support
Services	JunosV Firefly - Virtual Firewall Junos DDOS Secure - Distributed Denial of Service Prevention Junos WebApp Secure - Intrusion Deception (Mykonos) Junos Spotlight Secure – Global Hackers' Database
Systems	OpenFlow in MX Router, EX & QFX Switches PCE (Path Computation Engine) in MX & PTX Routers BGP, BGP-TE in all Routing platforms

**LET'S
BUILD
THE BEST**

JUNIPER
NETWORKS