



JUNIPER SKY ENTERPRISE

Simple, secure cloud-based management

JUNIPER
NETWORKS

Engineering
Simplicity



AGENDA

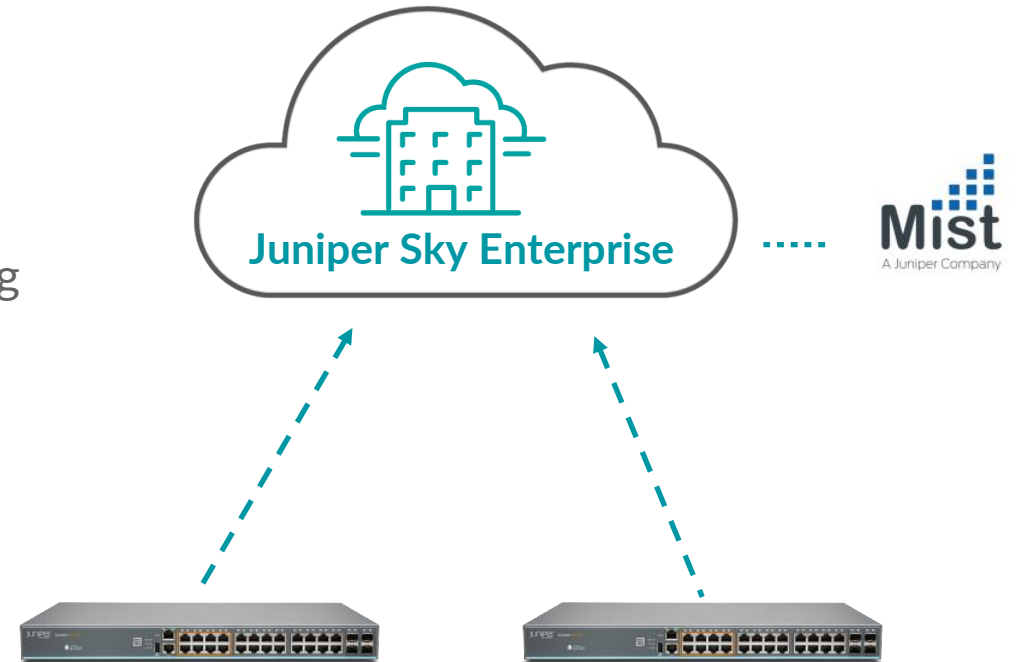
AGENDA

- Sky Enterprise Overview
 - Demonstration
- New Features
 - Demonstration
- SD-WAN Update
 - Demonstration
- Coming soon
- Customer References
- Ordering Guide
- Q&A

POWERFUL CLOUD-BASED MANAGEMENT FOR JUNOS DEVICES

Juniper Sky Enterprise delivers centralized visibility and control from the cloud.

- No Junos experience needed
- SaaS delivered
- Simple deployment, no Professional Services required
- Intuitive UI for configuration, management and monitoring
- Zero Touch Provisioning
- Simple Mist WiFi API integration
- Supports EX, SRX, vSRX, QFX and NFX
- Multi-tenancy and role based access



SKY ENTERPRISE BUSINESS USE CASES



RETAIL

- Distributed enterprise, small HQ
- Single IT Admin, Low CAPEX/OPEX
- Secure router, 1-3 switches/site



SMALL TO MEDIUM ENTERPRISE

- < 500 employees
- Limited IT staff, Low CAPEX/OPEX
- 2x medium firewall, 5-30 switches/site



SLED (STATE, LOCAL, EDUCATION)

- K-12, local govt. offices
- 2x medium firewall, 30-40 switches/site



CLOUD
PREFERENCE

OPERATIONS
COST SAVING

SIMPLICITY

DAY-TO-DAY
MANAGEMENT

EMPOWER TEAM
OF GENERALISTS

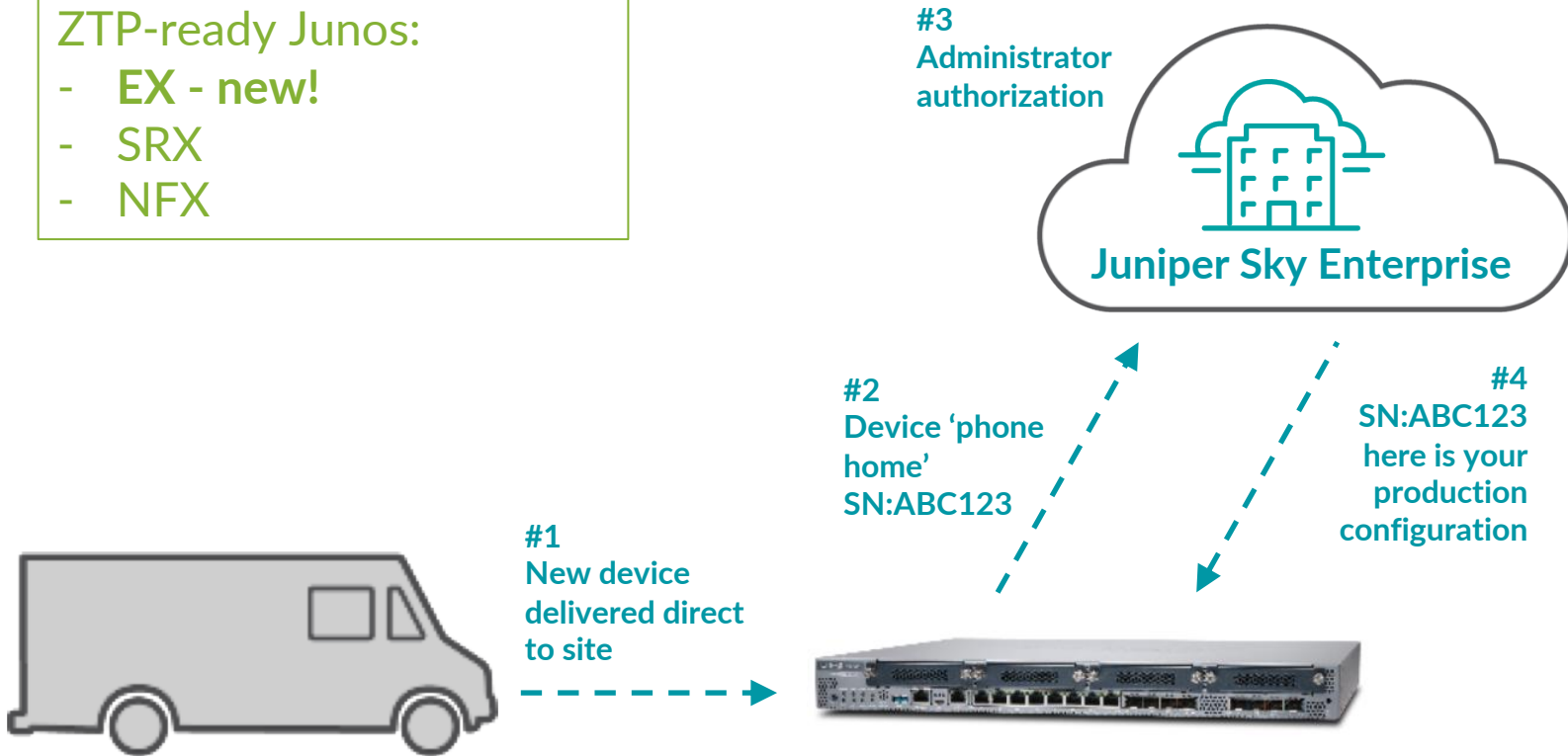
SKY ENTERPRISE HAS 300 CUSTOMERS WORLDWIDE (AND GROWING) – THESE ARE SOME OF THEM



ZERO TOUCH PROVISIONING – HOW IT WORKS

Devices shipping with ZTP-ready Junos:

- EX - new!
- SRX
- NFX



Zero Touch Provisioning

'Phone Home' available in new Junos versions

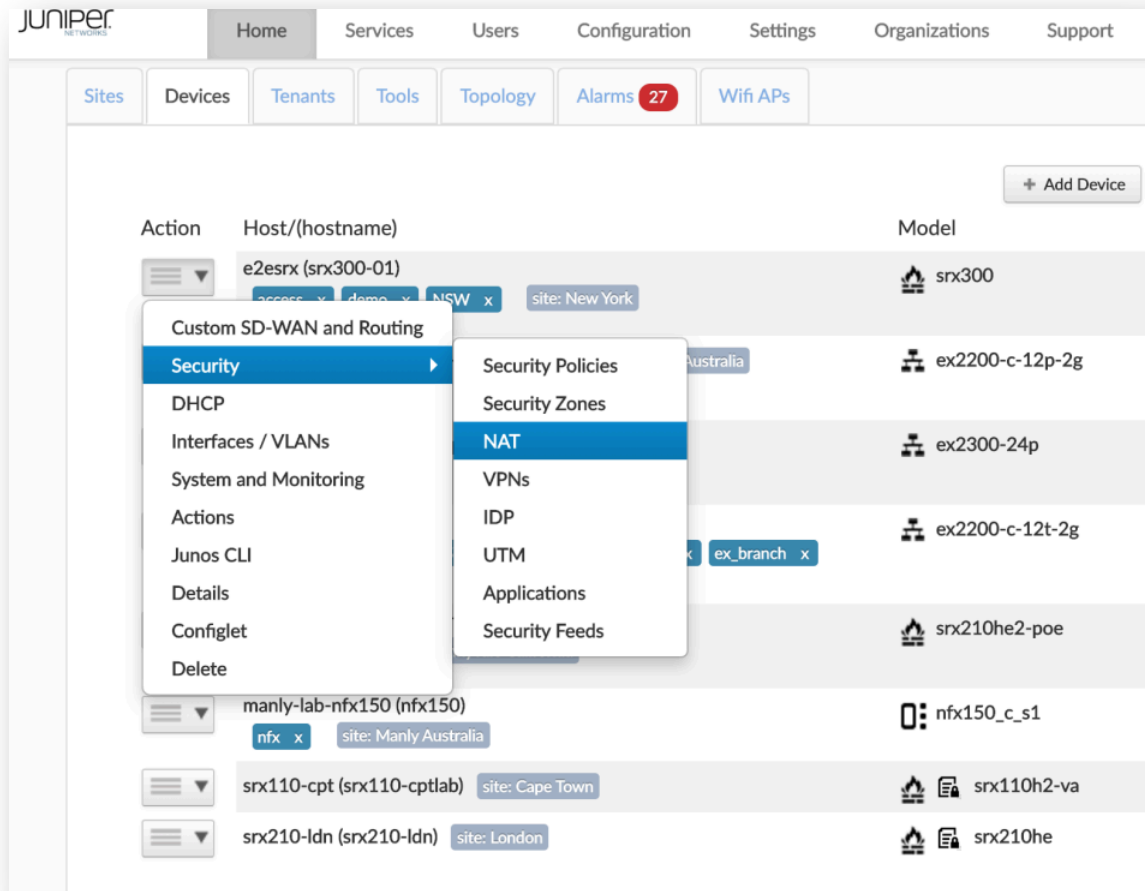
Add serial number to Sky Enterprise and power on

Device calls home, requests configuration

Speed up rollouts, reduce truck rolls

Slash deployment timeframes and costs

INTUITIVE USER INTERFACE



- Configure interfaces, security policies, NAT, zones, ranges and more
- View real-time performance graphs, detailed security reports
- Junos CLI from a browser
- Bulk updates, software upgrades
- View topology, sites map
- Configuration backup, commit audit
- App routing, per interface app reporting, real time monitoring and link failover

REAL TIME TOPOLOGY VIEWS

View real time topology maps, drill down into devices and interfaces, launch graph views.

The screenshot displays a network topology interface with the following components:

- Navigation Tabs:** Sites, Devices, Tenants, Tools, Topology, Alarms (8), Mist WiFi, WiFi.
- Connections Panel:** exnew-example: ge-0/0/11.0, OC-Manly-Lab-gateway / cc:e1:7f:46:5c:cc:
- Topology Map:** A central node labeled 'exnew-example' is connected to several other nodes:
 - EX2200-C-12P-new-01 / ac:4b:c8:20:40:00 (Firewall Link)
 - SRX-HQ-example (Firewall Link)
 - ex2200-3 / b0:a8:6e:8d:73:c0 (Switch Link)
 - ex2300 / 84:c1:c1:4e:cd:03 (Switch Link)
 - nfx150 / f0:4b:3a:12:c2:30 (NFX Link)
 - OC-Manly-Lab-gateway / cc:e1:7f:46:5c:cc (Switch Link)
 - ex2300-24p / 58:00:bb:b8:c7:a4 (Switch Link)
 - SRX-BRANCH01-example (Firewall Link)
- Information Panel:**
 - Information (Hover/Click on a node or link to display detailed information)
 - Legend: Firewall Link (orange), Switch Link (blue), NFX Link (green), Unmanaged Host (grey)
 - Refresh Layout button
 - Filter data on sites: All Sites
 - Selected site: exnew-example
 - Device details for exnew-example:
 - Type: switch
 - IP Address: 114.141.102.215
 - Alarms: 0

BULK UPDATES WITH TEMPLATES AND SCHEDULING

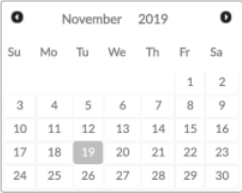

Update one or many devices using bulk updates. Supports templates and scheduling.

New Bulk Update

Schedule update? Yes No Select Devices

Input type: Basic Advanced

Select a template:

  Please select a time:

Update input: Input format: Inputs Table

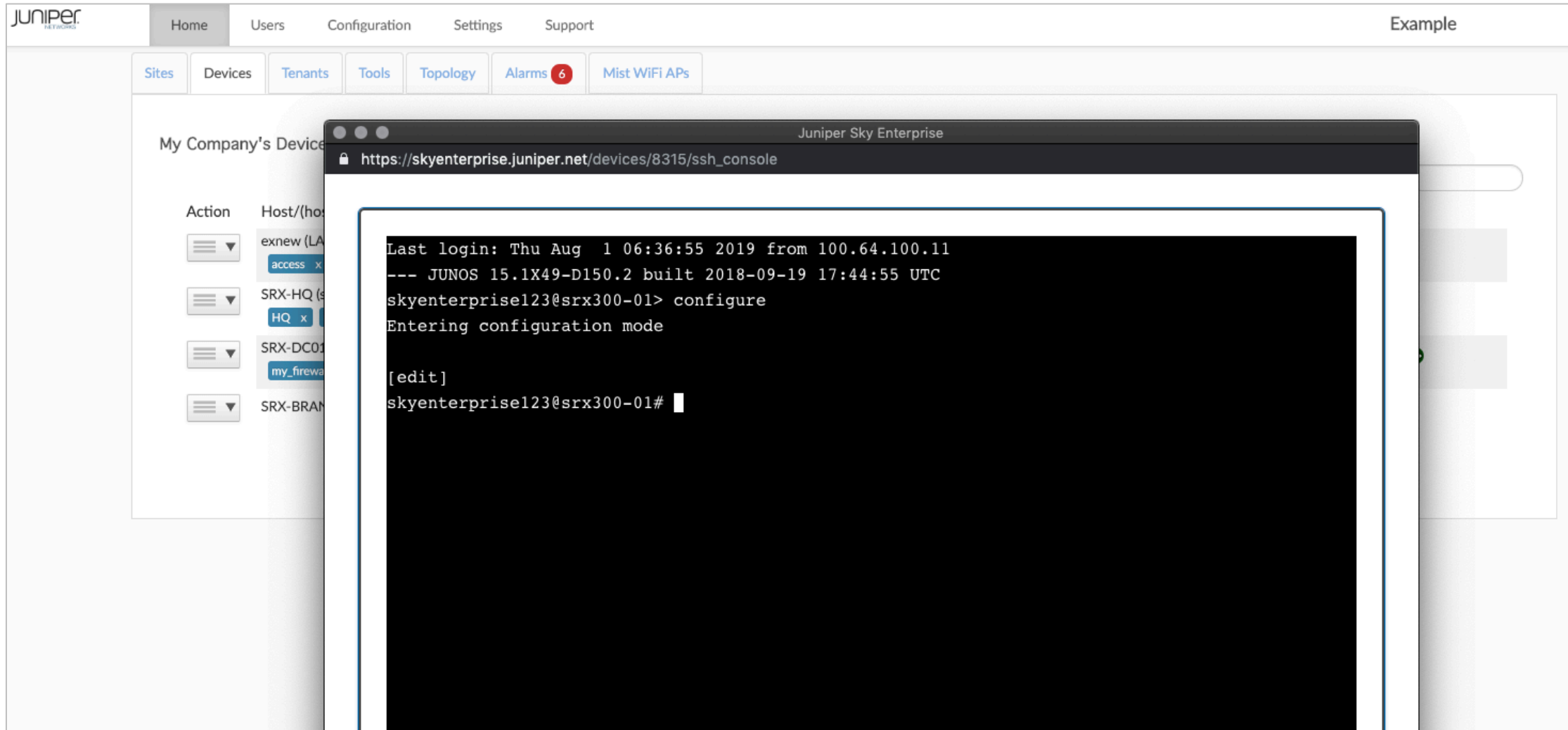
Host ID	name-server-1
device_exnew-example	8.8.8.8
device_SRX-DC01-example	1.1.1.1

DEMONSTRATION - OVERVIEW

- Sites, Topology, Devices
- SRX Management and Monitoring
- EX Management and Monitoring
- Adding a Device: existing device
- Adding a Device: new device with ZTP
- Bulk Updates and Bulk Update Templates
- Commit confirm
- Multi-tenancy
- Mist Integration

NEW FEATURES

NEW FEATURE – JUNOS CLI ACCESS CLI FROM ANYWHERE USING A BROWSER



The screenshot displays the Juniper Sky Enterprise web interface. At the top, there is a navigation bar with the Juniper logo and menu items: Home, Users, Configuration, Settings, and Support. A secondary navigation bar includes links for Sites, Devices, Tenants, Tools, Topology, Alarms (with a red notification badge showing '6'), and Mist WiFi APs. The main content area is titled 'My Company's Devices' and contains a table of devices. A browser window is overlaid on the interface, showing the URL `https://skyenterprise.juniper.net/devices/8315/ssh_console`. The browser window displays a JunOS CLI session with the following text:

```
Last login: Thu Aug 1 06:36:55 2019 from 100.64.100.11
--- JUNOS 15.1X49-D150.2 built 2018-09-19 17:44:55 UTC
skyenterprise123@srx300-01> configure
Entering configuration mode

[edit]
skyenterprise123@srx300-01#
```

SRX GATEWAY CARD OPTIONS

LTE mini-PIM Card

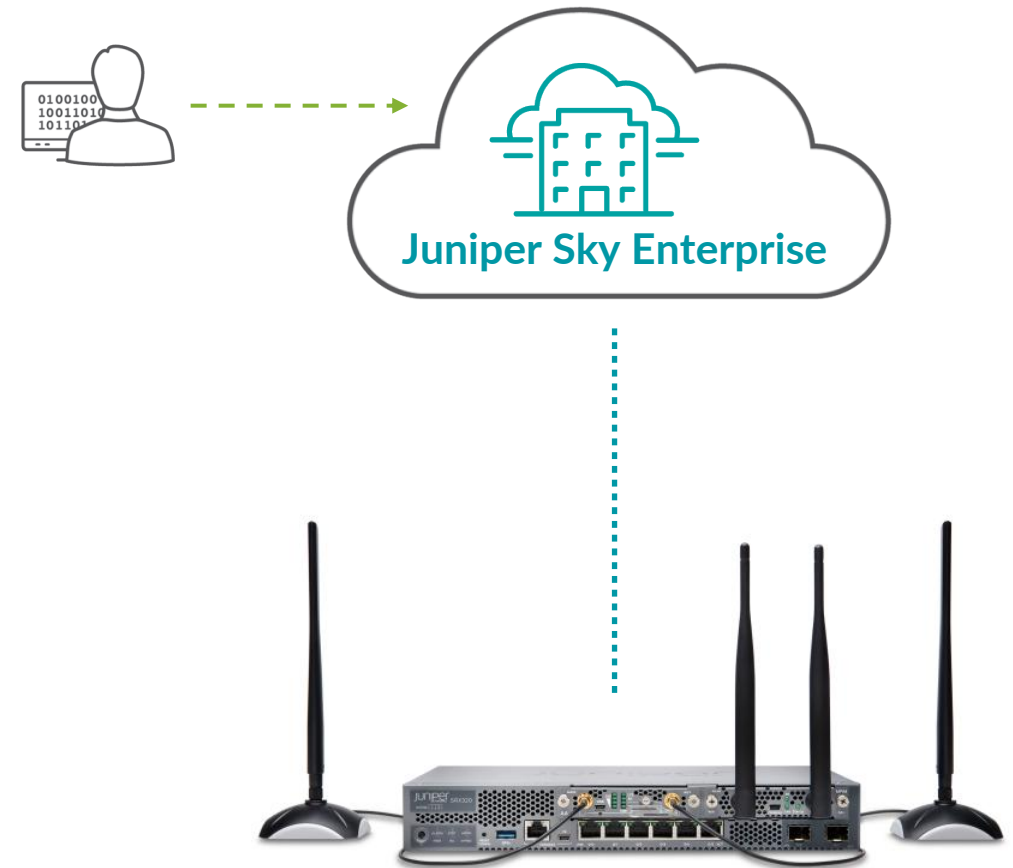


WiFi mini-PIM Card



INTRODUCING 'BRANCH-IN-A-BOX'

SRX +
WiFi mPIM +
LTE mPIM +
Sky Enterprise =
Branch-in-a-Box

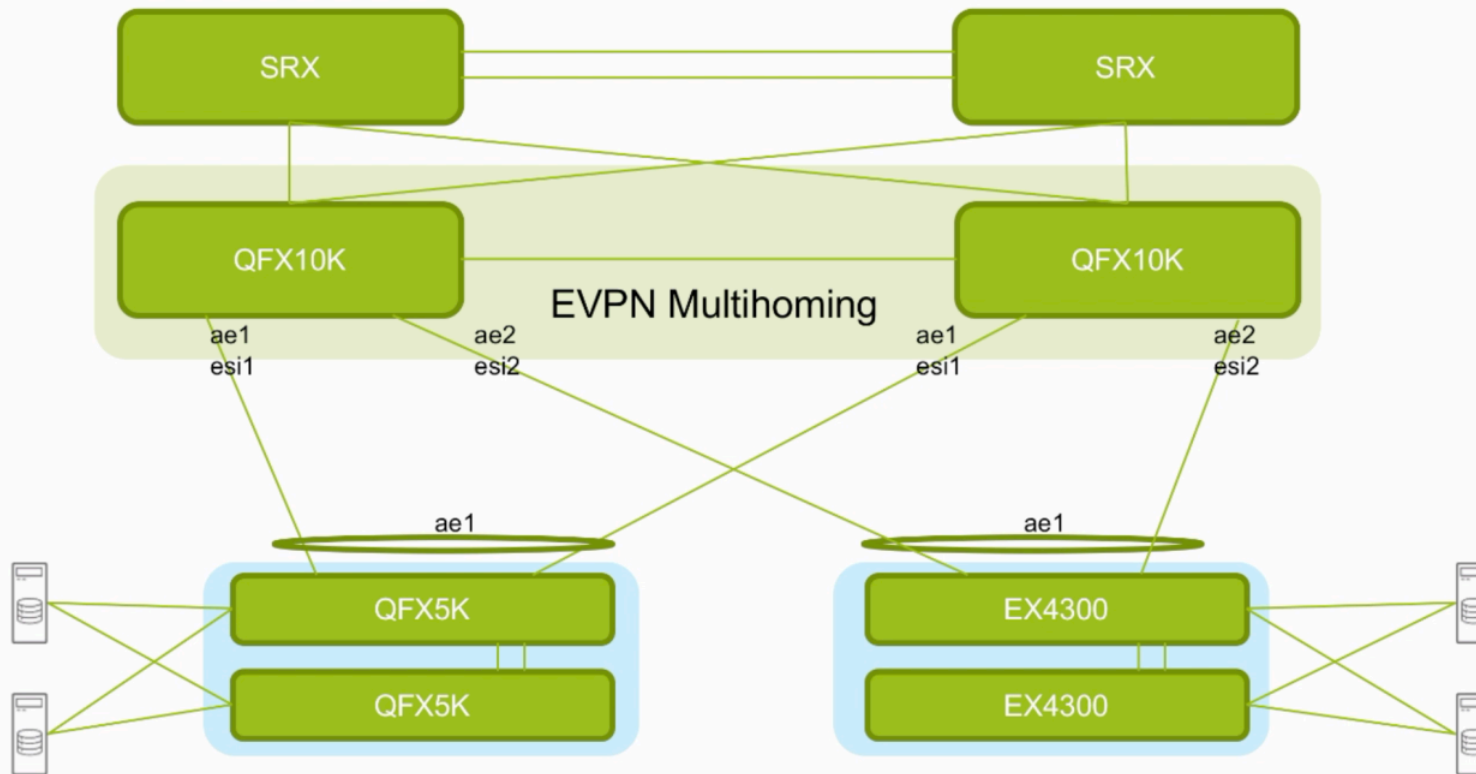


DEMONSTRATION – NEW FEATURES

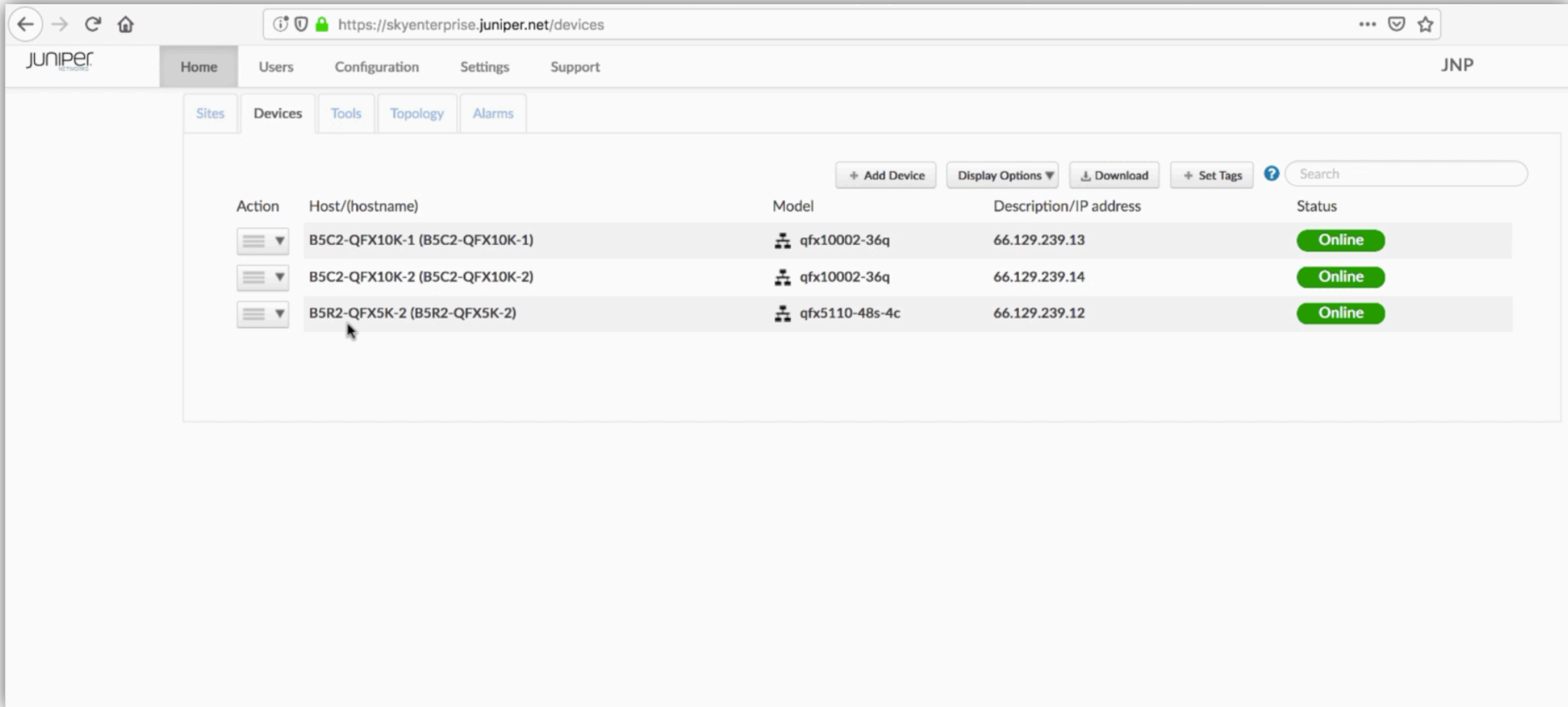
- Junos CLI
- SRX WiFi

Build data centers quickly with Sky Enterprise & QFX







Collapsed Spine with L2 ToR Architecture



Add QFX devices to Sky Enterprise in minutes



The screenshot displays the Juniper Sky Enterprise web interface. The browser address bar shows the URL <https://skyenterprise.juniper.net/devices>. The navigation menu includes Home, Users, Configuration, Settings, and Support. The main content area features tabs for Sites, Devices, Tools, Topology, and Alarms. A toolbar at the top of the device list includes buttons for '+ Add Device', 'Display Options', 'Download', and '+ Set Tags', along with a search input field. The device list table contains the following data:

Action	Host/(hostname)	Model	Description/IP address	Status
	B5C2-QFX10K-1 (B5C2-QFX10K-1)	 qfx10002-36q	66.129.239.13	Online
	B5C2-QFX10K-2 (B5C2-QFX10K-2)	 qfx10002-36q	66.129.239.14	Online
	B5R2-QFX5K-2 (B5R2-QFX5K-2)	 qfx5110-48s-4c	66.129.239.12	Online



Download ESI-LAG templates from GitHub

Why GitHub? ▾ Enterprise Explore ▾ Marketplace Pricing ▾ Search / Sign in Sign up

Juniper / sky-enterprise-templates Watch 8 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Security Insights

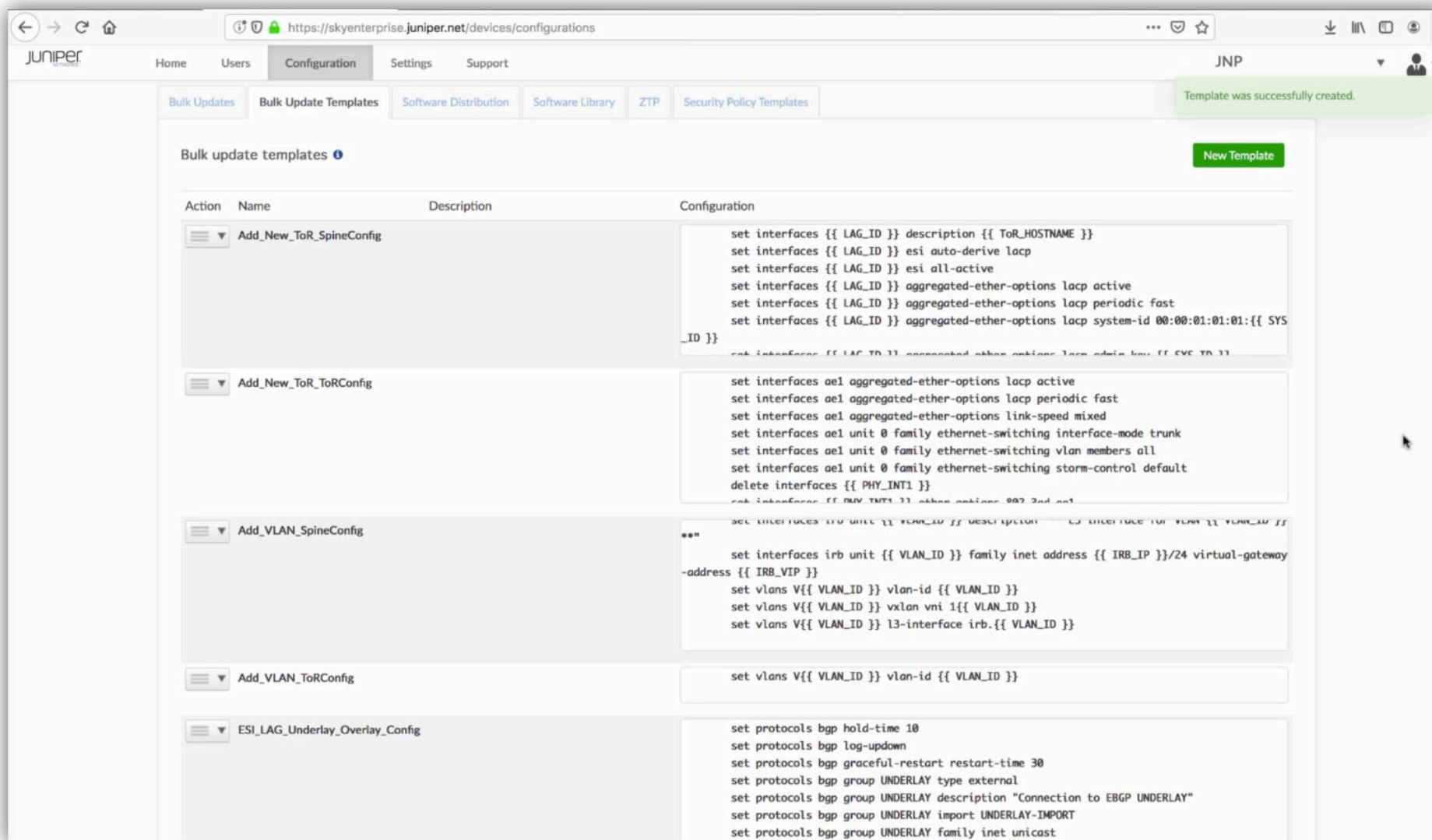
Branch: master ▾ sky-enterprise-templates / bulk-update / esi-lag / Create new file Find file History

spkrishnan ESI-LAG templates Latest commit b0ada36 10 days ago

..

add-new-tor-spine-config	ESI-LAG templates	10 days ago
add-new-tor-tor-config	ESI-LAG templates	10 days ago
add-new-vlan-spine-config	ESI-LAG templates	10 days ago
add-new-vlan-tor-config	ESI-LAG templates	10 days ago
esi-lag-underlay-overlay-config	ESI-LAG templates	10 days ago

Add templates to Sky Enterprise



https://skyenterprise.juniper.net/devices/configurations

Home Users Configuration Settings Support JNP

Bulk Updates Bulk Update Templates Software Distribution Software Library ZTP Security Policy Templates

Template was successfully created.

Bulk update templates New Template

Action	Name	Description	Configuration
▼	Add_New_ToR_SpineConfig		<pre>set interfaces {{ LAG_ID }} description {{ ToR_HOSTNAME }} set interfaces {{ LAG_ID }} esi auto-derive lacp set interfaces {{ LAG_ID }} esi all-active set interfaces {{ LAG_ID }} aggregated-ether-options lacp active set interfaces {{ LAG_ID }} aggregated-ether-options lacp periodic fast set interfaces {{ LAG_ID }} aggregated-ether-options lacp system-id 00:00:01:01:01:{{ SYS_ID }}</pre>
▼	Add_New_ToR_ToRConfig		<pre>set interfaces ae1 aggregated-ether-options lacp active set interfaces ae1 aggregated-ether-options lacp periodic fast set interfaces ae1 aggregated-ether-options link-speed mixed set interfaces ae1 unit 0 family ethernet-switching interface-mode trunk set interfaces ae1 unit 0 family ethernet-switching vlan members all set interfaces ae1 unit 0 family ethernet-switching storm-control default delete interfaces {{ PHY_INT1 }}</pre>
▼	Add_VLAN_SpineConfig		<pre>*** set interfaces irb unit {{ VLAN_ID }} family inet address {{ IRB_IP }}/24 virtual-gateway-address {{ IRB_VIP }} set vlans V{{ VLAN_ID }} vlan-id {{ VLAN_ID }} set vlans V{{ VLAN_ID }} vxlan vni 1{{ VLAN_ID }} set vlans V{{ VLAN_ID }} l3-interface irb.{{ VLAN_ID }}</pre>
▼	Add_VLAN_ToRConfig		<pre>set vlans V{{ VLAN_ID }} vlan-id {{ VLAN_ID }}</pre>
▼	ESI_LAG_Underlay_Overlay_Config		<pre>set protocols bgp hold-time 10 set protocols bgp log-updown set protocols bgp graceful-restart restart-time 30 set protocols bgp group UNDERLAY type external set protocols bgp group UNDERLAY description "Connection to EBGp UNDERLAY" set protocols bgp group UNDERLAY import UNDERLAY-IMPORT set protocols bgp group UNDERLAY family inet unicast</pre>

Add devices and variables to template

Juniper

https://skyenterprise.juniper.net/devices/configurations

New Bulk Update

Schedule update? Yes No

Input type: Basic Advanced

Select a template:

October 2019

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Please select a time:

Update input:

Host ID	LOCAL_AS	PEERLINK_REMOTE_IP	PEER_AS	LOCAL_LOOPBACK	OVERLAY_AS
device_B5C2-QFX10K-1-jnp	65001	172.16.0.2	65002	192.168.62.2	
device_B5C2-QFX10K-2-jnp	65002	172.16.0.1	65001		

Configuration bulk update to devices

The screenshot displays the Juniper SkyEnterprise web interface. A modal window titled "Bulk Update Report" is open, showing the results of a configuration update. The report includes a summary of 2 successful updates and 0 errors, a list of 2 devices, and the specific configuration commands that were applied to the first device, B5C2-QFX10K-1-jnp.

Bulk Update Report

Summary

- 2 device success updates
- 0 device errors

2 Devices

Input

```
B5C2-QFX10K-1-jnp
set protocols bgp hold-time 10
set protocols bgp log-updown
set protocols bgp graceful-restart restart-time 30
set protocols bgp group UNDERLAY type external
set protocols bgp group UNDERLAY description "Connection to EBGp UNDERLAY"
set protocols bgp group UNDERLAY import UNDERLAY-IMPORT
set protocols bgp group UNDERLAY family inet unicast
set protocols bgp group UNDERLAY export UNDERLAY-EXPORT
set protocols bgp group UNDERLAY local-as 65001
set protocols bgp group UNDERLAY multipath multiple-as
set protocols bgp group UNDERLAY bfd-liveness-detection minimum-interval 1000
set protocols bgp group UNDERLAY bfd-liveness-detection multiplier 3
set protocols bgp group UNDERLAY neighbor 172.16.0.2 peer-as 65002
set protocols bgp group OVERLAY type internal
set protocols bgp group OVERLAY local-address 192.168.62.2
set protocols bgp group OVERLAY family evpn signaling
set protocols bgp group OVERLAY local-as 65000
set protocols bgp group OVERLAY multipath
set protocols bgp group OVERLAY neighbor 192.168.62.3
set protocols evpn encapsulation vxlan
set protocols evpn multicast-mode ingress-replication
set protocols evpn default-gateway do-not-advertise
set protocols evpn extended-vni-list all
set protocols evpn no-core-isolation
set protocols lldp interface all
set protocols lldp-med interface all
```

Buttons: Download PDF, Close

DEMONSTRATION – NEW FEATURES

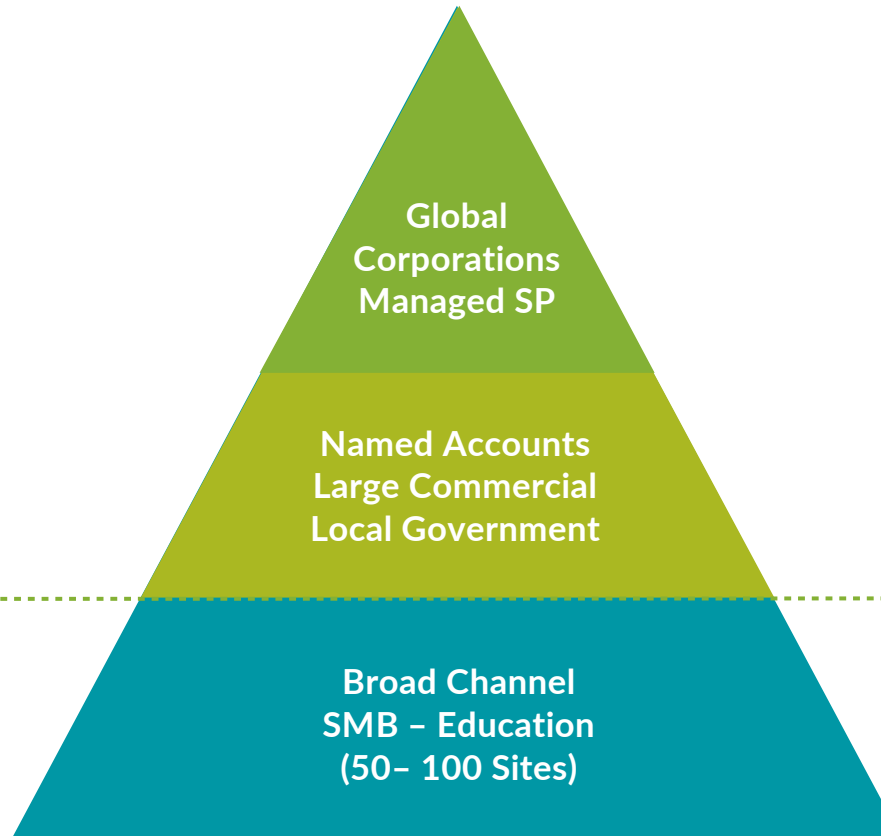
- Small Data Center Deployment (video - https://www.youtube.com/watch?v=d244q2_3-74)

CUSTOM SD-WAN

CSO AND SKY ENTERPRISE: SD-WAN COMPETITIVE LANDSCAPE

Controller-centric SD-WAN

- central controller
- feature-rich
- highly scalable



Contrail SD-WAN



Sky Enterprise SD-WAN

velocloud

VERSA NETWORKS

viptela

FORTINET.

silver peak®

CISCO Meraki

Infrastructure-centric SD-WAN

- device-centric
- simple
- low-cost

'CUSTOM SD-WAN' - BUILD, MANAGE AND MONITOR

Custom SD WAN requirements:

- SRX running Junos 15.1 D110 or newer
- AppID licensed and installed
- Sky Enterprise Syslog Collection to be enabled

Custom SD WAN also requires some advanced configuration of the SRX for Application Identification and Routing Instances. This can be done using predefined Bulk Update templates within Sky Enterprise (see also Github repository).

Sky Enterprise then provides an interface for Management and Visibility of:

- Application Routing with Advanced Policy Based Routing
- Real Time Performance Monitoring with IP Monitoring and Link Failover
- Static Routes
- Per Interface Application Usage reporting

NEW FEATURE – ‘CUSTOM SD-WAN’ HYBRID WAN - BUILD, MANAGE AND MONITOR



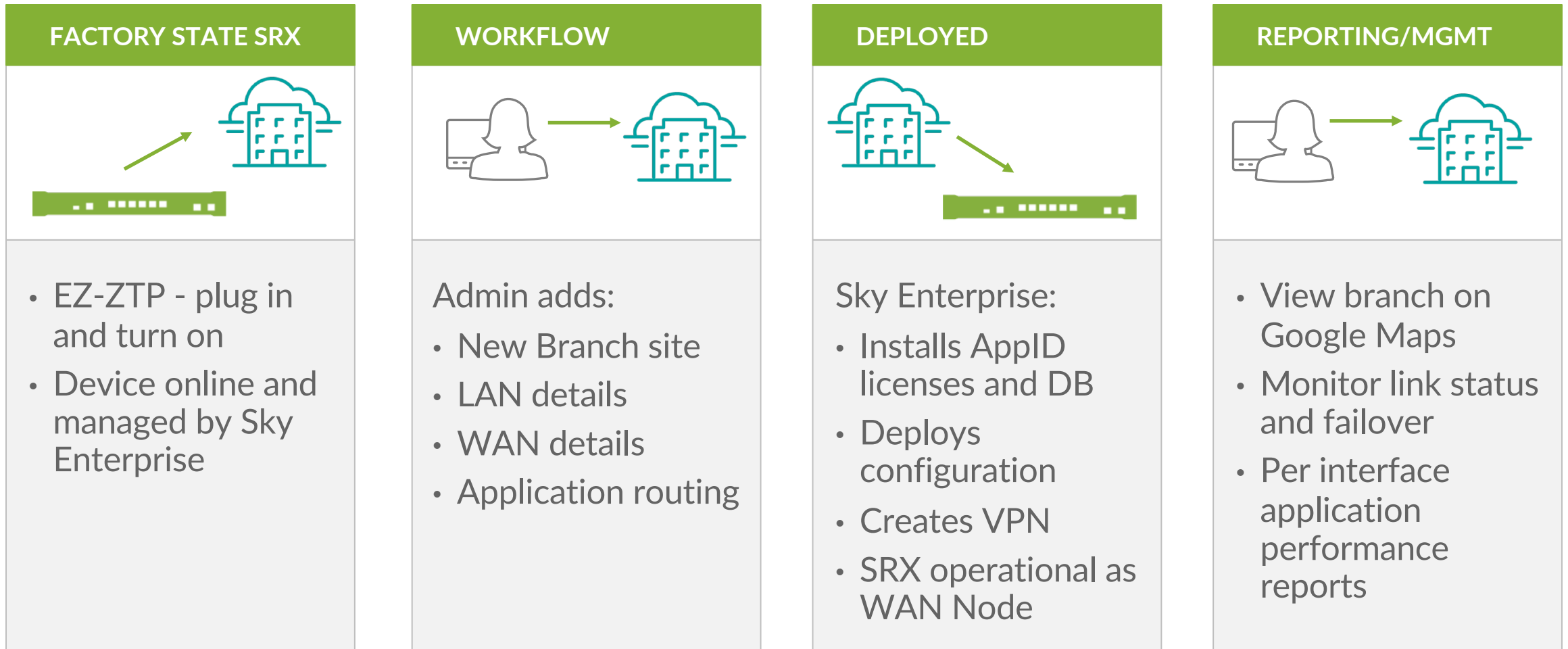
DEMONSTRATION – CUSTOM SD-WAN

- Application Identification and Routing Instances configuration using templates
- Enabling Syslog on devices
- Per interface Application reporting
- AppID license Management
- Application Routing
- Real Time Performance Monitoring with Link Failover

COMING SOON

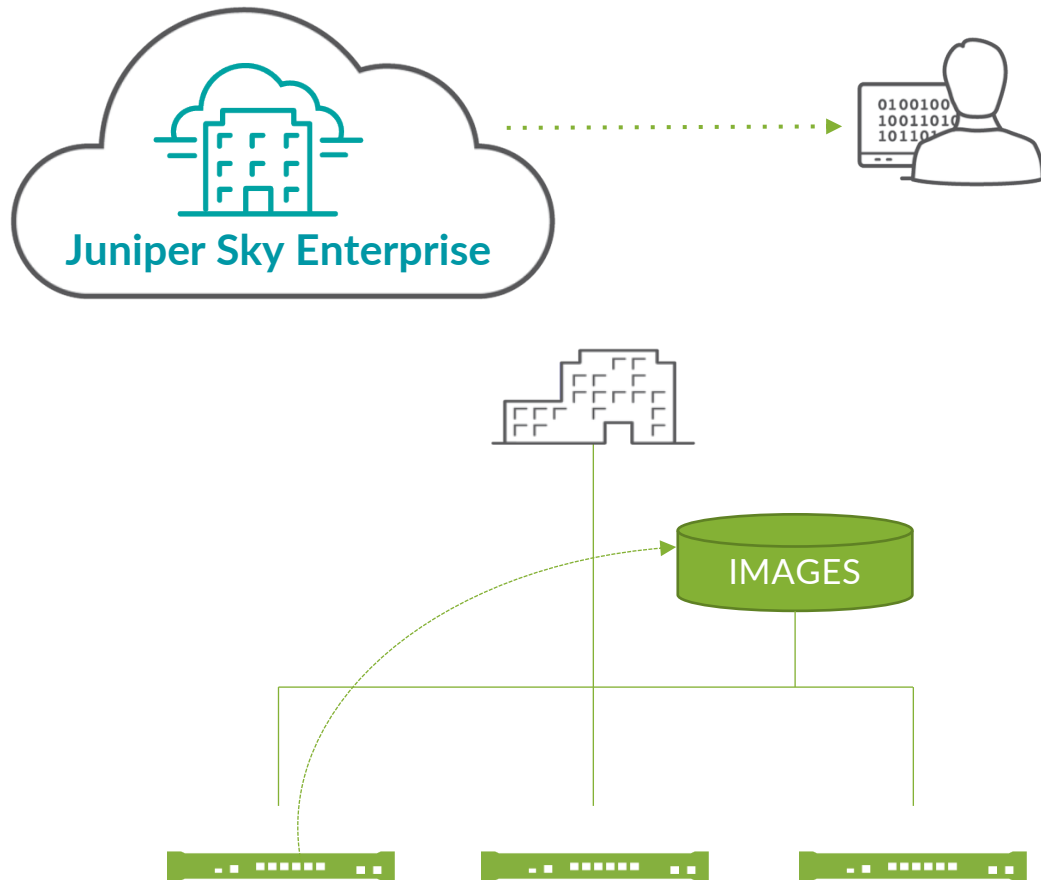
'SIMPLE SD-WAN' COMING SOON

INFRASTRUCTURE-CENTRIC HYBRID WAN FOR SMES

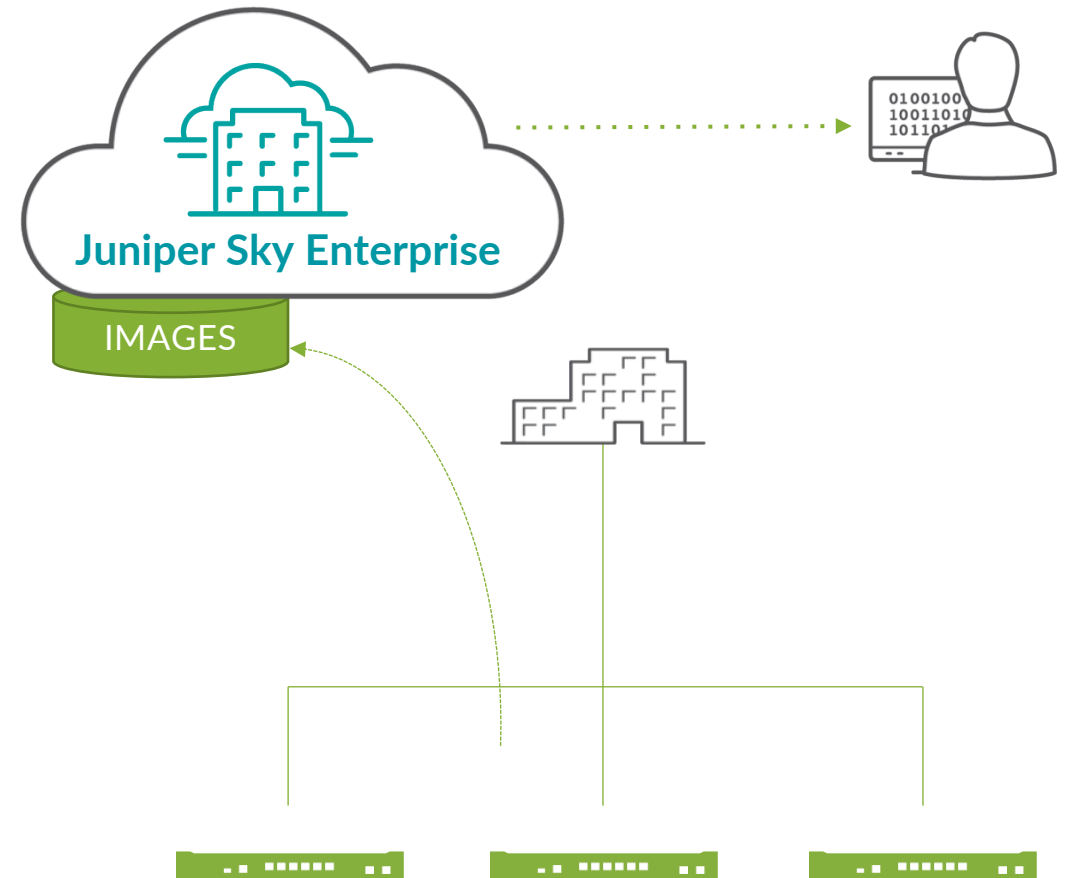


CLOUD HOSTED IMAGES FOR SOFTWARE UPDATES

Today - customer hosted images



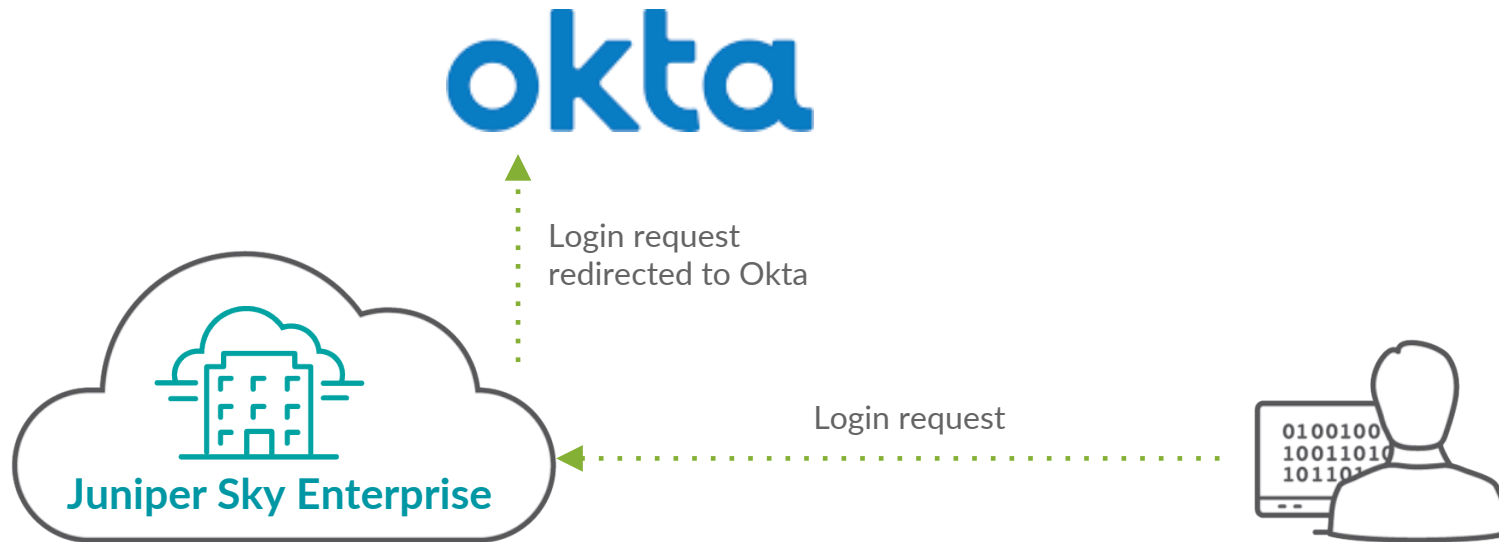
1Q 2020 - Juniper hosted images



OKTA INTEGRATION

Sky Enterprise is adding Identity Provider Single Sign On (SSO) capability, driven by customer demand.

This is the initial support for SSO vendor, others will be added later on based on demand.



REFERENCES

USE CASES

CASE STUDY – BIG BEAR LAKE

SME

Customer Profile

Industry: Recreation / Ski Resort

Territory: California

Sites: 1, Devices: 10

Business Challenges

- Remote alpine location
- Cell and landline systems unreliable
- Visitors expect “big city” connectivity
- Desire to modernise management practices



Technology Solution

- Cloud-managed wired and wireless
- Juniper Sky Enterprise
- Aerohive access points
- EX2300 Ethernet Switches
- SRX340 Services Gateways

Business Results

- Simplified collaboration to grow tourism
- Improved network performance and reliability
- Network management quick and easy
- Strengthened security controls

“We wanted to go where everyone is going, and that is the cloud ...”

--Matt McCabe, Manager, Big Bear Visitor Center



CASE STUDY – AUXIOM

Managed Services (Tier 2)

Customer Profile

- Industry: Business IT Services
- Territory: Michigan
- Devices: 175

Business Challenges

- Multiple customer networks
- Large geographic area
- No centralized management platform
- Reliable remote access

Auxiom

Technology Solution

- Sky Enterprise with Multi-tenancy
- Juniper EX Switches
- Juniper SRX Gateways

Business Results

- No in-house management systems
- Connect to devices in any location
- Manage overlapping address spaces
- Intuitive portal - no Junos skills required

“Juniper Sky Enterprise ensures we have centralized control and visibility of our clients’ networks.”

--Matt Opificius, Professional Services Manager, Auxiom



CASE STUDY – WESTELCOM

Managed Services (Tier 2)

Customer Profile

- Industry: Business IT Services
- Territory: Northern New York
- Devices: ~50

Business Challenges

- Multiple customer networks
- Large geographic area
- Provide SD-WAN services
- Reliable remote access



Technology Solution

- Sky Enterprise
- Multi-tenancy and Custom SD-WAN
- Juniper EX Switches
- Juniper SRX Gateways

Business Results

- Simplified network management
- Connect to devices in any location
- Improve customer service
- Intuitive portal - no Junos skills required

Juniper’s secure, flexible SD-WAN solution enables us to offer secondary broadband connections for resiliency, enhance our managed security services, and deliver services with greater agility.”

- Seth Crimmins, vice president of operations, Westelcom.



ORDERING GUIDE AND TRIAL ACCOUNTS

SKY ENTERPRISE SUBSCRIPTIONS

SMALL DEVICE (GROUP A)	MEDIUM DEVICE (GROUP B)	LARGE DEVICE (GROUP C)
EX & QFX SWITCHES		
EX2200 Series	EX4200 Series	EX4550
EX2300 Series	EX4300 Series	EX4600 Series
EX3300 Series		EX9200 Series
EX3400 Series		QFX Series
SRX FIREWALLS		
SRX100/110/210/220	SRX240	SRX650
SRX300/320	SRX340/345	SRX1500
vSRX	SRX550/550M	SRX4100/4200
		SRX5400/5600/5800
NFX NETWORK SERVICES PLATFORM		
NFX150-C	NFX150	
	NFX250	

SKY ENTERPRISE SUBSCRIPTION PRICING

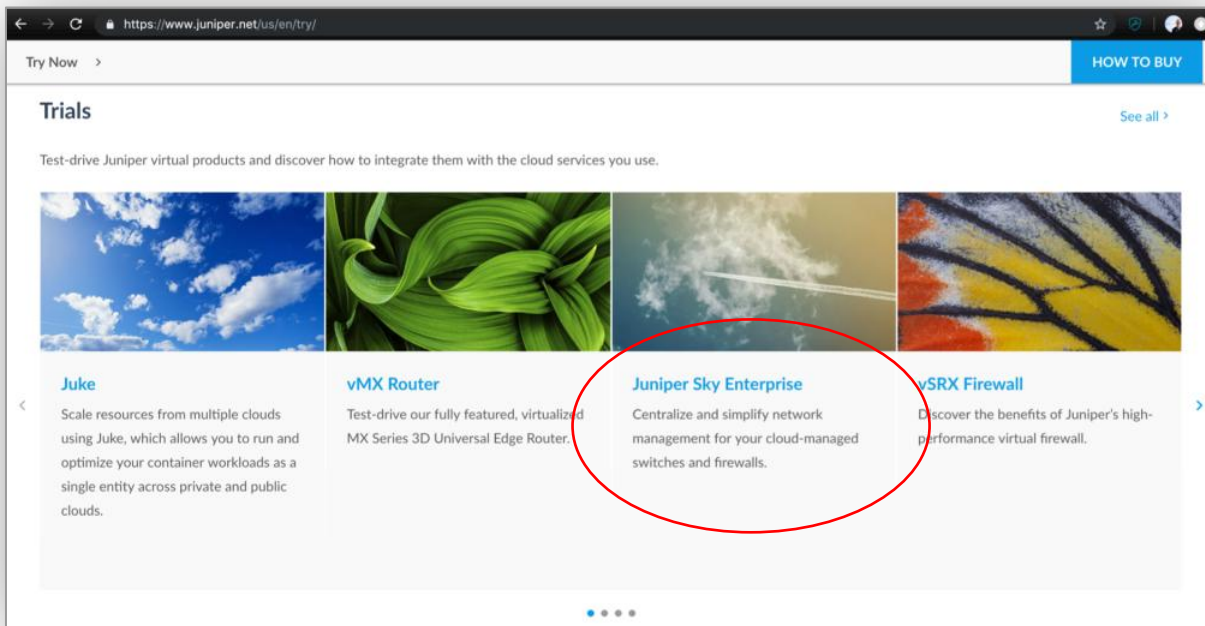
SMALL DEVICE (GROUP A) SKY-ENT-GROUPA-1YR (\$100) SKY-ENT-GROUPA-3YR (\$200) SKY-ENT-GROUPA-5YR (\$300)	MEDIUM DEVICE (GROUP B) SKY-ENT-GROUPB-1YR (\$400) SKY-ENT-GROUPB-3YR (\$800) SKY-ENT-GROUPB-5YR (\$1,200)	LARGE DEVICE (GROUP C) SKY-ENT-GROUPC-1YR (\$1,000) SKY-ENT-GROUPC-3YR (\$2,000) SKY-ENT-GROUPC-5YR (\$3,000)
EX & QFX SWITCHES		
SRX FIREWALLS		
NFX NETWORK SERVICES PLATFORM		



FREE TRIAL

Customer and Partner Trial Accounts

Complete the form at:
juniper.net/try



Juniper SE Demo Accounts

Email your request to:
skyent-trial@juniper.net





THANK YOU

JUNIPER
NETWORKS

Engineering
Simplicity