НОВОЕ ПОКОЛЕНИЕ сетей SD-WAN

Andrei Zubkov

Sales Engineer

JUNIPER NETWORKS | Driven by Experience™

Agenda

- AI-Driven Enterprise Strategy
- SVR
- WAN Assurance

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.

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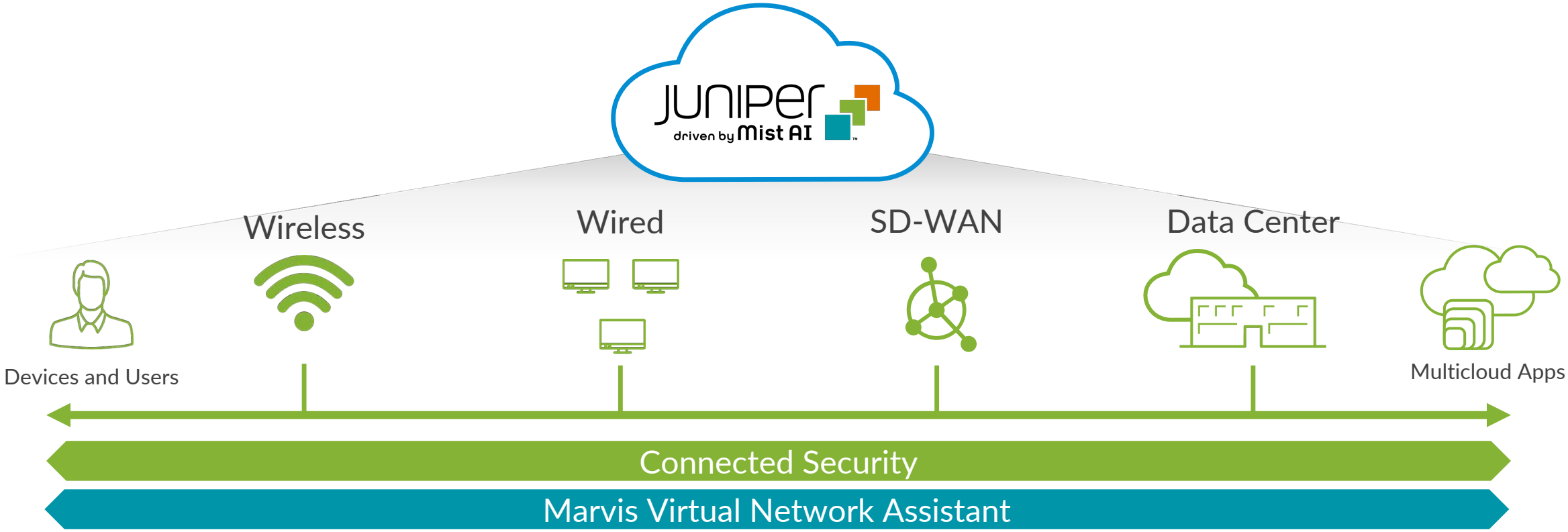
Experience-first networking from client to cloud



Juniper driven by Mist AI is leading a new era of IT with simplified operations, unprecedented scale, and the best user experiences from client-to-cloud.

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AIDE Portfolio

AI-Driven Cloud Services

Virtual Network Assistant

Marvis
- AI-driven Problem Solver
- Conversational Assistant

Marvis Actions
- Proactive Network Insights & Remediations
- All Encompassing Network Visibility

Wi-Fi Assurance | Premium Analytics | User Engagement | Asset Tracking | IoT Assurance | Wired Assurance | WAN Assurance

Wireless Infrastructure

Mist Edge | AP Series | BT11 (BLE)

Improve experiences and revenue with Indoor Location Services

Wired Infrastructure

EX Series | QFX Series

WAN Infrastructure

SRX Series | SSR Series

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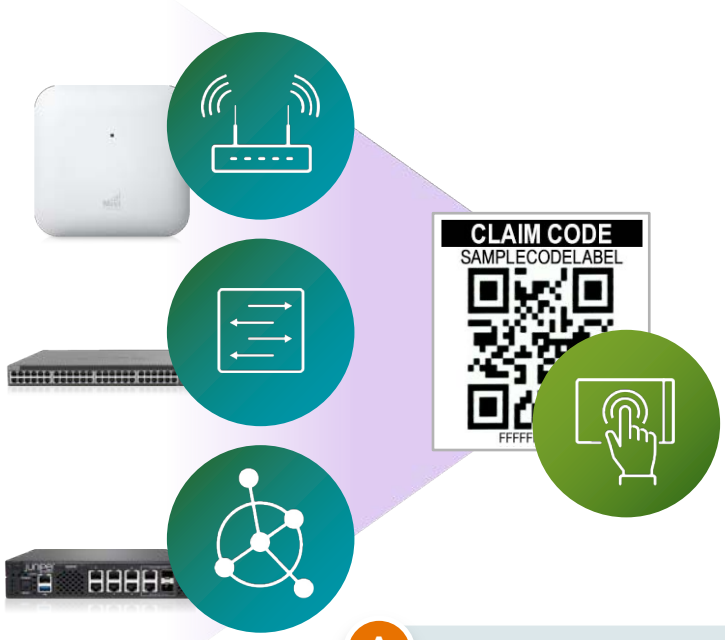
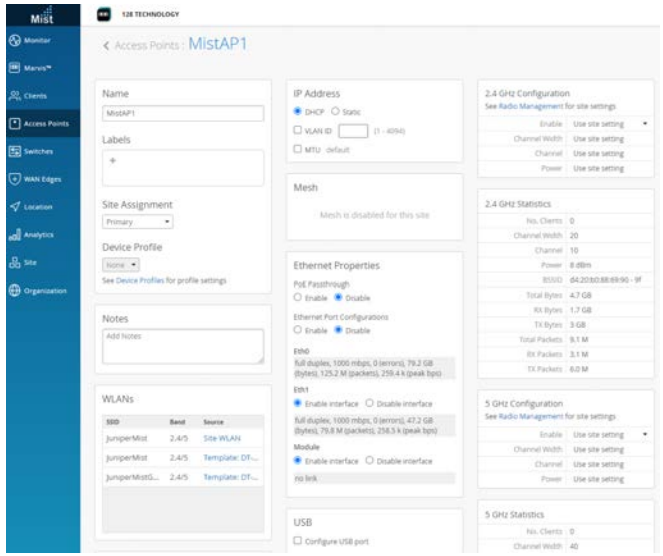
Easiest Day 0, 1, 2 Operations in the Industry





A

Scan and claim your devices to deploy industry leading Wired, Wireless, and WAN access

B

Apply policy/config via templates and remotely pushout updates from the Mist portal

C

Deliver best-in-class connectivity throughout all your enterprise locations

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Analyst Recognition Across Our Portfolio

A LEADER	A LEADER	A VISIONARY	A CHALLENGER	A LEADER
Gartner	Gartner	Gartner	Gartner	Gartner
2022 MAGIC QUADRANT	2021 MAGIC QUADRANT	2022 MAGIC QUADRANT	2022 MAGIC QUADRANT	2023 MAGIC QUADRANT
Wired & Wireless LAN Access Infrastructure	**Data Center & Cloud Networking**	**SD-WAN Infrastructure**	**Network Firewalls**	**Indoor Location Services**

Gartner Magic Quadrant for Data Center Networking, Andrew Lerner, Jonathan Forest, Evan Zeng, Joe Skorupa, 30 June 2020.
Gartner Magic Quadrant for WAN Edge Infrastructure, Jonathan Forest, Andrew Lerner, Naresh Singh, 23 September 2020.
Gartner Magic Quadrant for Wired and Wireless LAN Access Infrastructure, Bill Menezes, Christian Canales, Mike Toussaint, Tim Zimmerman, 4 November 2020.
Gartner Magic Quadrant for Network Firewalls, Rajpreet Kaur, Adam Hils, Jeremy D'Hoinne, 9 November 2020.
Gartner Magic Quadrant for Indoor Location Services, Tim Zimmerman, Annette Zimmermann, 15 February 2021.

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A Journey to an AI-Driven Enterprise

Client SDK: Laptop

3rd Party

Mist Edge

WAN-SSR

Chained Robust Quadrilaterals

Full-Stack

WAN Self Healing

WAN Self Optimization

Data

AI Primitives
Event Timeline

Data Science
Toolbox

Conversational
Assistant

Self Driving
Action
Framework

CLIENT / WIRED / WIRELESS / WAN / SECURITY / MIST EDGE / 3RD PARTY

MICROSERVICES CLOUD ARCHITECTURE

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SD-WAN definition according to Gartner

Software-Defined WAN (SD-WAN)

SD-WAN solutions provide a replacement for traditional WAN routers and are agnostic to WAN transport technologies. SD-WAN provides dynamic, policy-based, application path selection across multiple WAN connections and supports *service chaining for additional services such as WAN optimization and firewalls*.

Gartner IT Glossary SD-WAN

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Session Smart™

Acquired by Juniper Networks

450+
CUSTOMERS

20-15K
SITES/CUSTOMER

70+
PATENTS

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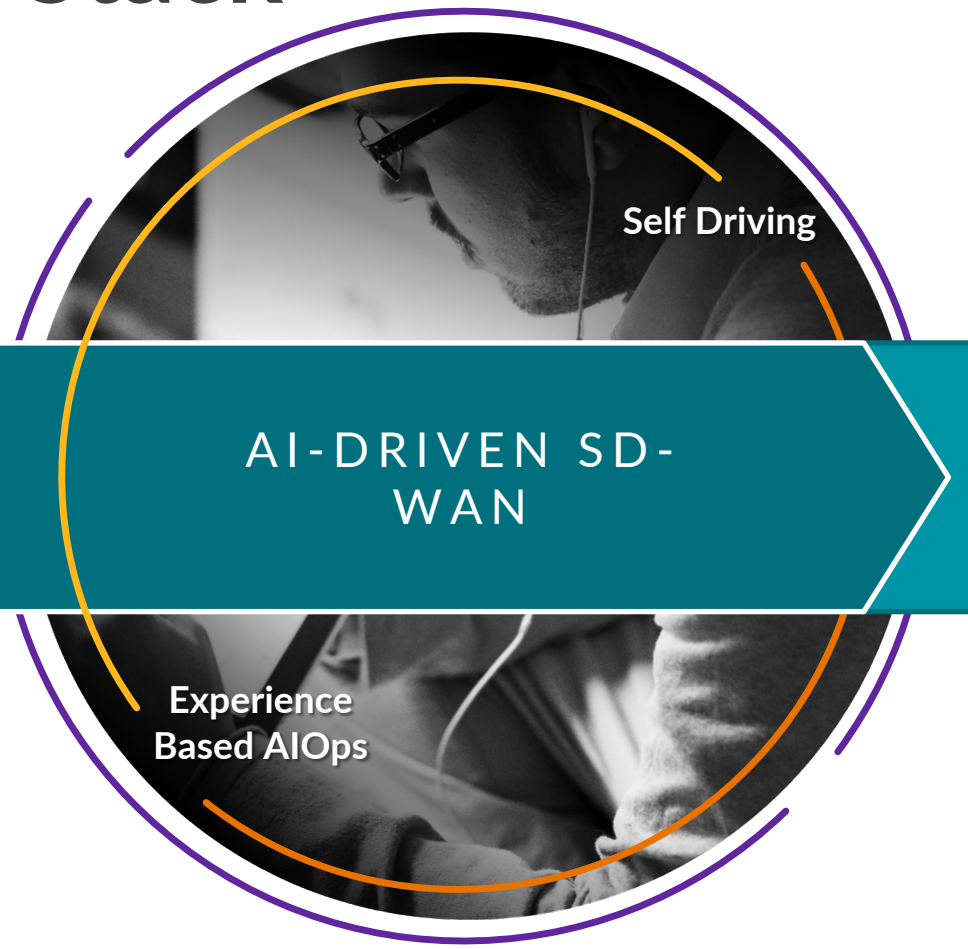
Industry's Best AI-Driven Full Stack

JUNIPER DRIVEN BY MIST AI + SESSION SMART NETWORKING = AI-DRIVEN SD-WAN



- ✓ **Gartner MQ Leader & Visionary**
  (Wired+Wireless+Location). (WAN Edge)
- ✓ Advanced AI & ML insights and automation
- ✓ Modern microservices cloud

- ✓ Application Aware
- ✓ Service Centric
- ✓ Rich Telemetry
- ✓ Zero Trust

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Feature Highlights

SD-WAN without Tunnels

Session awareness

Adaptative Encryption

SW Based
(HW independent)

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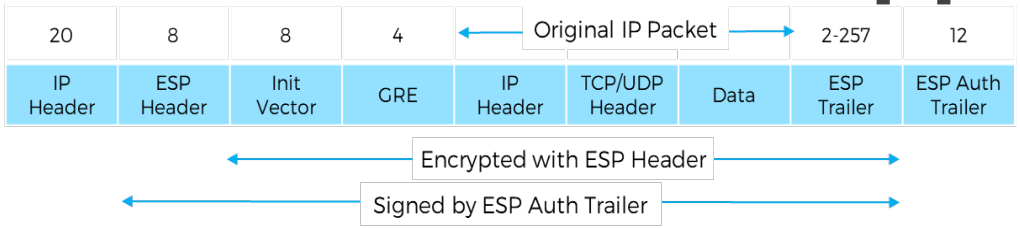
Tunnel Free and Application Aware



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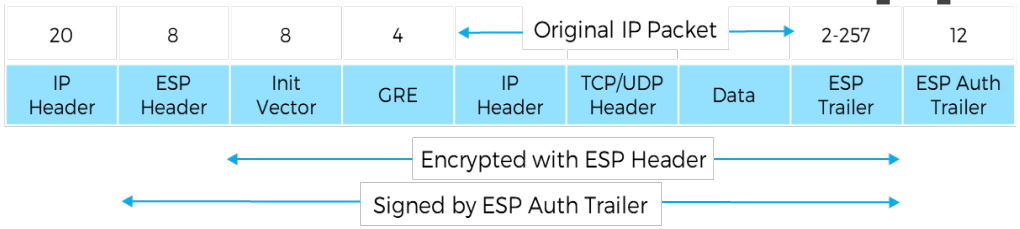
Tunnel Free and Application Aware



30-50%

RECLAIMED BANDWIDTH[1]

$

COST SAVINGS

Improved Encryption Efficiency

Superior Performance/ User Experience

Eliminate complexity, simplify operations

[1] based on analysis in "Tunnel-Based versus Tunnel-Free SD-WAN" by ACG Research, 2020

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Adaptive Encryption

Prevent unnecessary double encryption!

15

Note: According to Google, the percentage of encryption enabled in Chrome's loaded webpages has reached 95%.

- https://transparencyreport.google.com/https/overview

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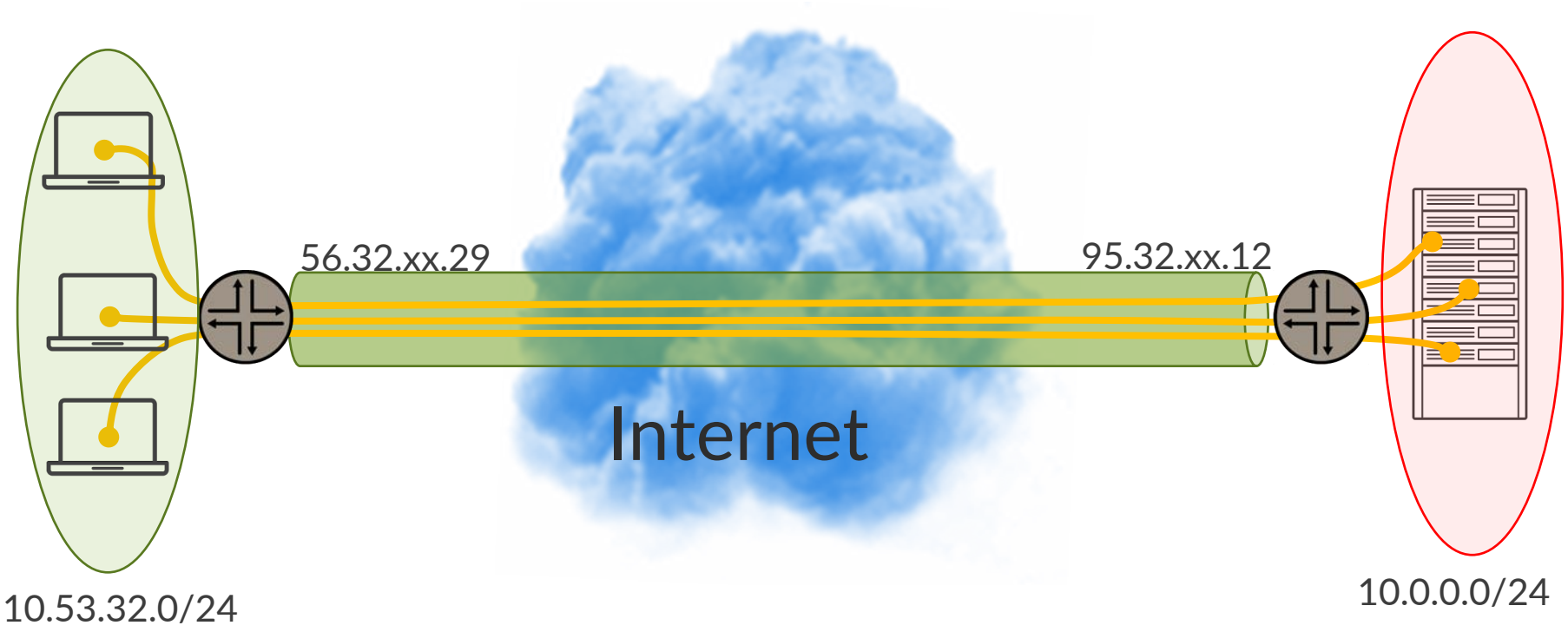
The old way



Routing Table

If destination 10.0.0.0/24 go to Tunnel

Routing Table

If destination 10.53.32.0/24 go to Tunnel

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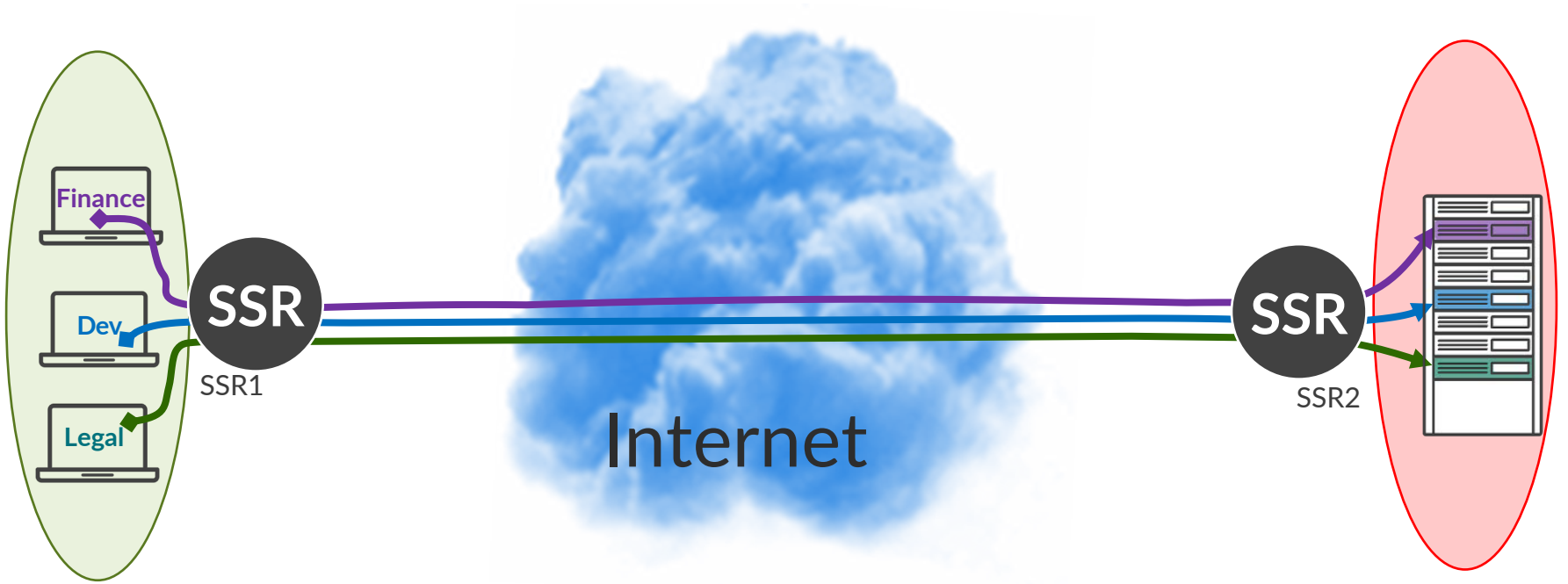
Session Smart – Smarter & No Overhead



- Routes Sessions – Directionally
  - Finance user talking to SAP
  - Dev talking to CodeRepo
  - Legal talking to LegalApp
- Servers/Applications are treated based on business importance
  - Routing, Security, QoS easily controlled
- Power of SD-WAN simplicity of hop-by-hop routing

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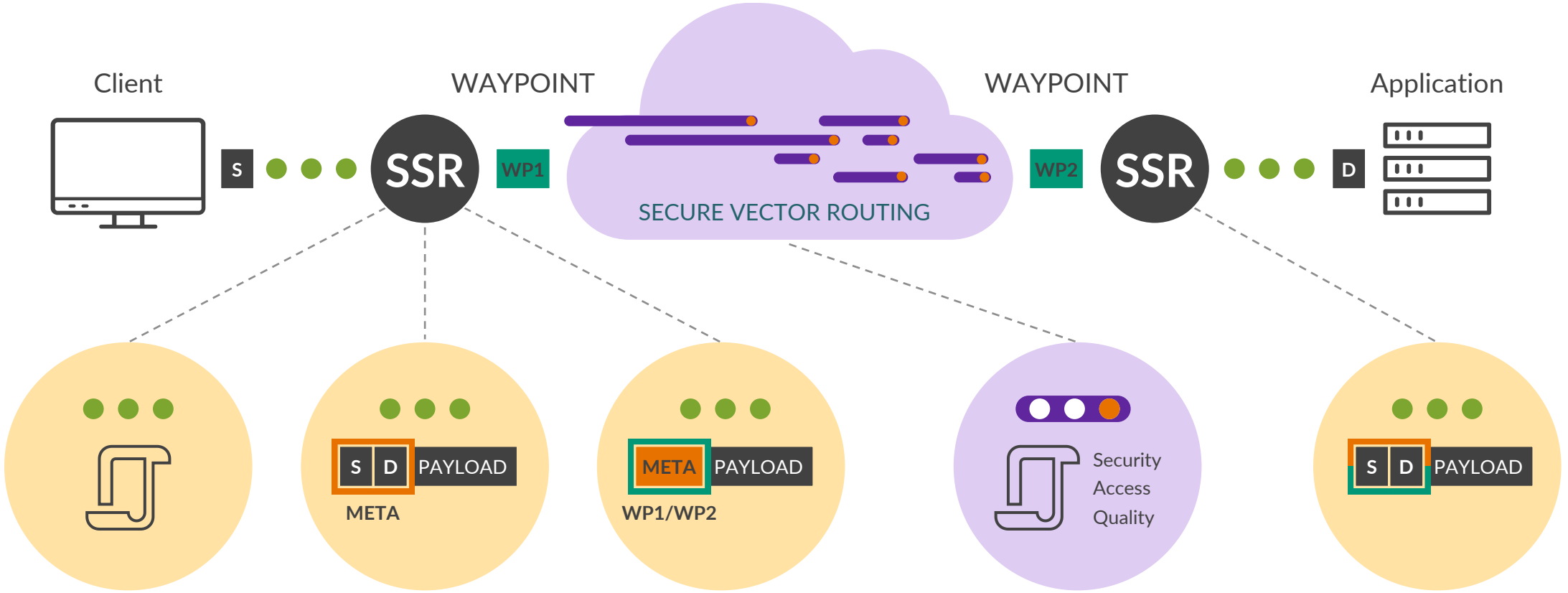
Secure Vector Routing

SESSION DETECTION, FIRST PACKET PROCESSING, WAYPOINT ROUTING



Detect new session and associate policies

Encapsulate original addresses in metadata

Assign specific waypoint addresses

Vector chosen based on policies and conditions

Restore first packet to original state

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PCAP DEMO

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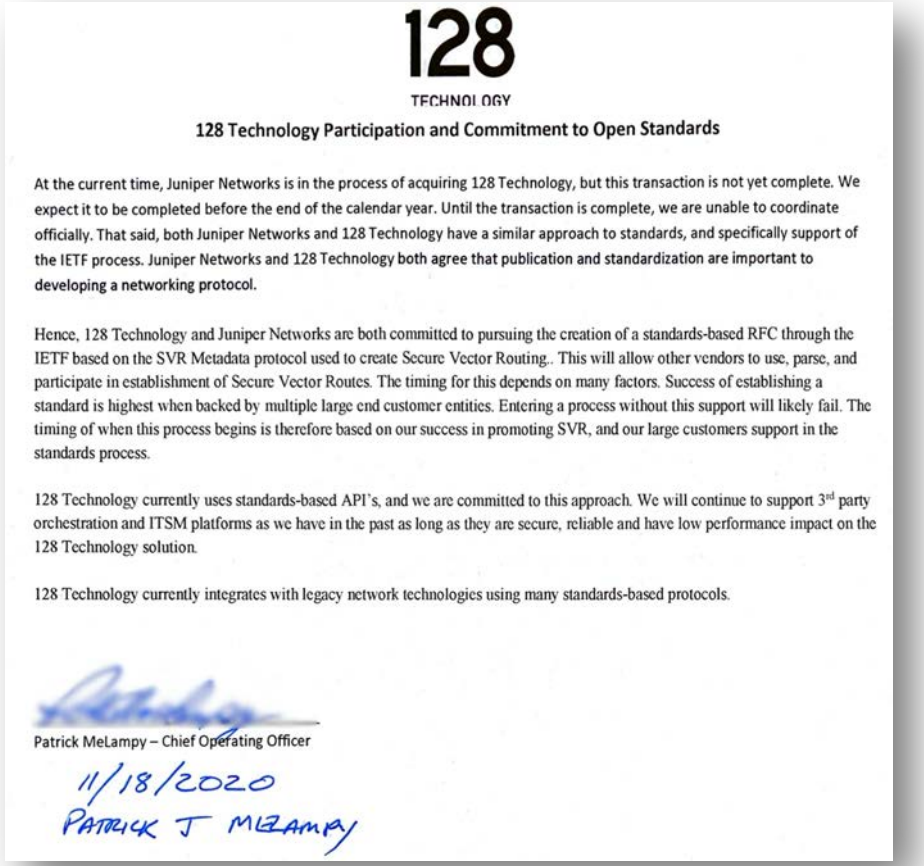
Open Standards & Secure Vector Routing

Juniper is committed to open standards and intends to publish Secure Vector Routing as an RFC

Letter of Intent



128

TECHNOLOGY

128 Technology Participation and Commitment to Open Standards

At the current time, Juniper Networks is in the process of acquiring 128 Technology, but this transaction is not yet complete. We expect it to be completed before the end of the calendar year. Until the transaction is complete, we are unable to coordinate officially. That said, both Juniper Networks and 128 Technology have a similar approach to standards, and specifically support of the IETF process. Juniper Networks and 128 Technology both agree that publication and standardization are important to developing a networking protocol.

Hence, 128 Technology and Juniper Networks are both committed to pursuing the creation of a standards-based RFC through the IETF based on the SVR Metadata protocol used to create Secure Vector Routing.. This will allow other vendors to use, parse, and participate in establishment of Secure Vector Routes. The timing for this depends on many factors. Success of establishing a standard is highest when backed by multiple large end customer entities. Entering a process without this support will likely fail. The timing of when this process begins is therefore based on our success in promoting SVR, and our large customers support in the standards process.

128 Technology currently uses standards-based API's, and we are committed to this approach. We will continue to support 3rd party orchestration and ITSM platforms as we have in the past as long as they are secure, reliable and have low performance impact on the 128 Technology solution.

128 Technology currently integrates with legacy network technologies using many standards-based protocols.

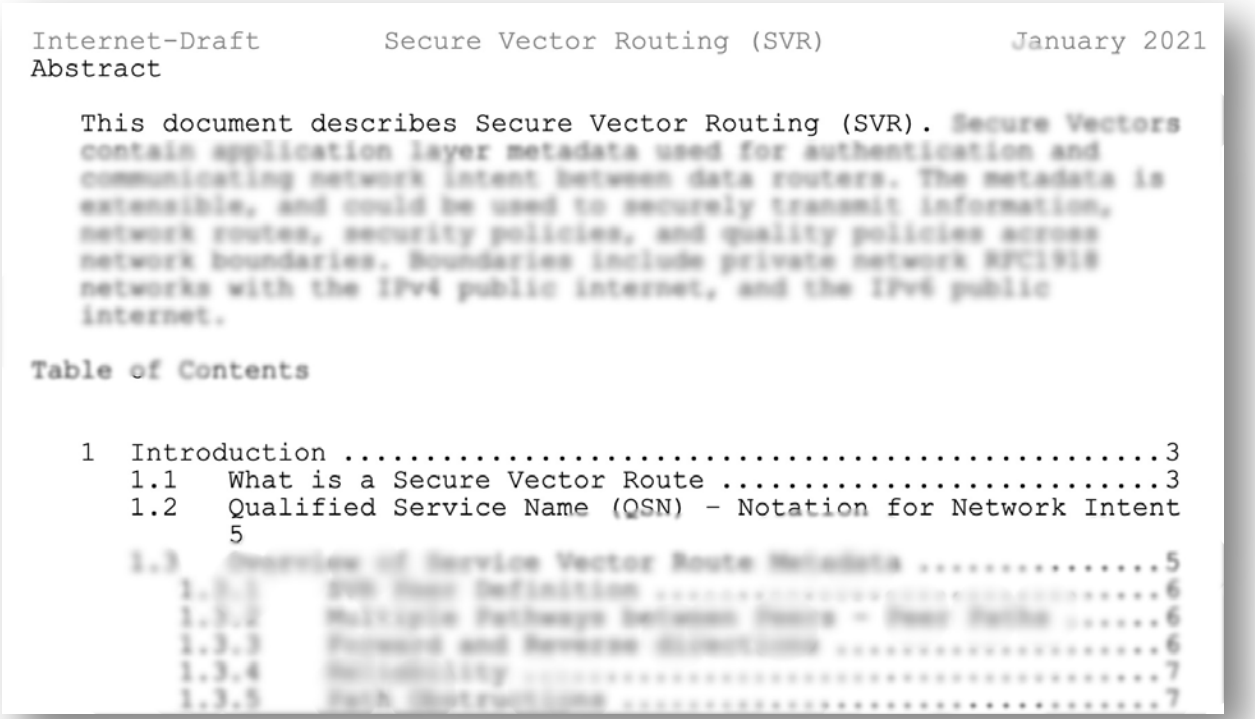
Patrick MeLampy – Chief Operating Officer

11/18/2020

PATRICK J MELAMPY

https://datatracker.ietf.org/doc/draft-menon-svr/

Draft RFC currently under development



Internet-Draft Secure Vector Routing (SVR) January 2021

Abstract

This document describes Secure Vector Routing (SVR). Secure Vectors contain application layer metadata used for authentication and communicating network intent between data routers. The metadata is extensible, and could be used to securely transmit information, network routes, security policies, and quality policies across network boundaries. Boundaries include private network RFC1918 networks with the IPv4 public internet, and the IPv6 public internet.

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1.2 Qualified Service Name (QSN) - Notation for Network Intent 5
1.3 Overview of Service Vector Route Metadata 5
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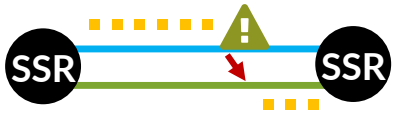
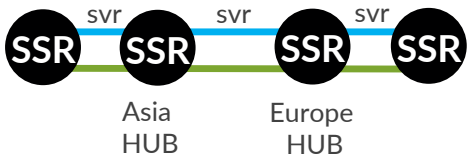
Juniper SDWAN Features

Internet Local Breakout

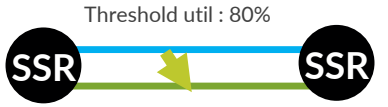
Backup Path
(Active/Active – Active/Standby)



Regional HUB Support



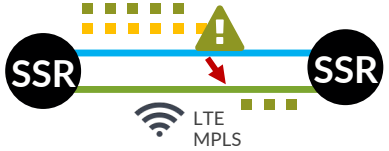
Session Maximization



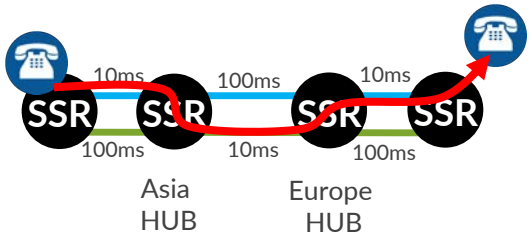
Avoid congestion before it really happens

Path Based Steering

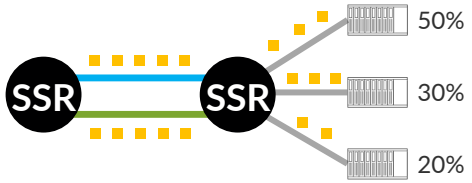
Selective backup failover
Backup path is only for critical application



SLA Based Multi-hop Optimization

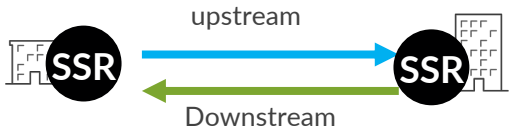


Load Balancer

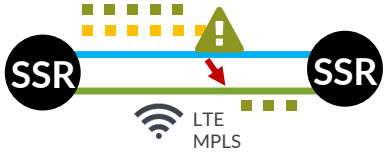


SLA-Based Steering
Latency/Jitter/Packet Loss/**MOS**

Asymmetric Path Prevention



Guaranteed
Fast Failover and Recovery



High-Capacity cloud infrastructure

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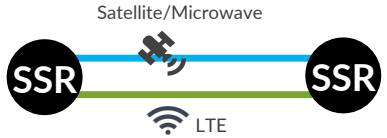
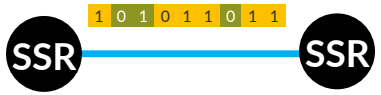
Juniper SDWAN Features

Application/Session Based QoS
(queuing and prioritization)

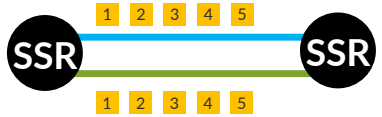
Session/TCP Optimization



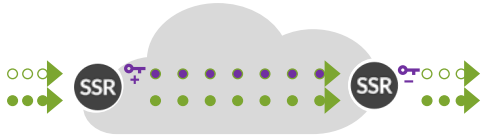
Adaptive FEC
(Forward Error Correction)



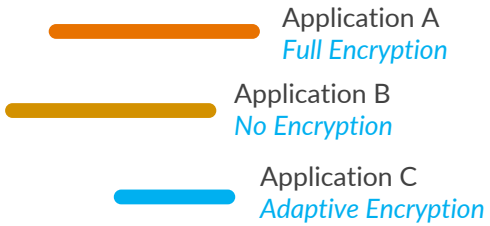
Packet duplication



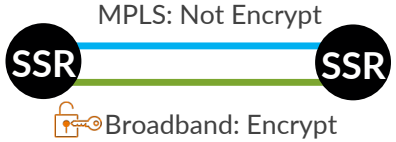
Adaptive Encryption



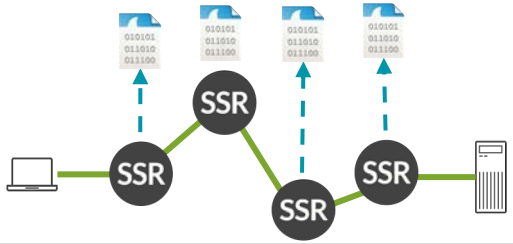
Encryption Efficiency



Transport Based Encryption

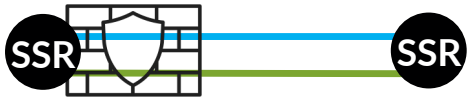


Smart Session/Packet Capture



Business Language Policy

URL Filtering



Websense or
Domain based

Distributed Firewall

IDP/IPS

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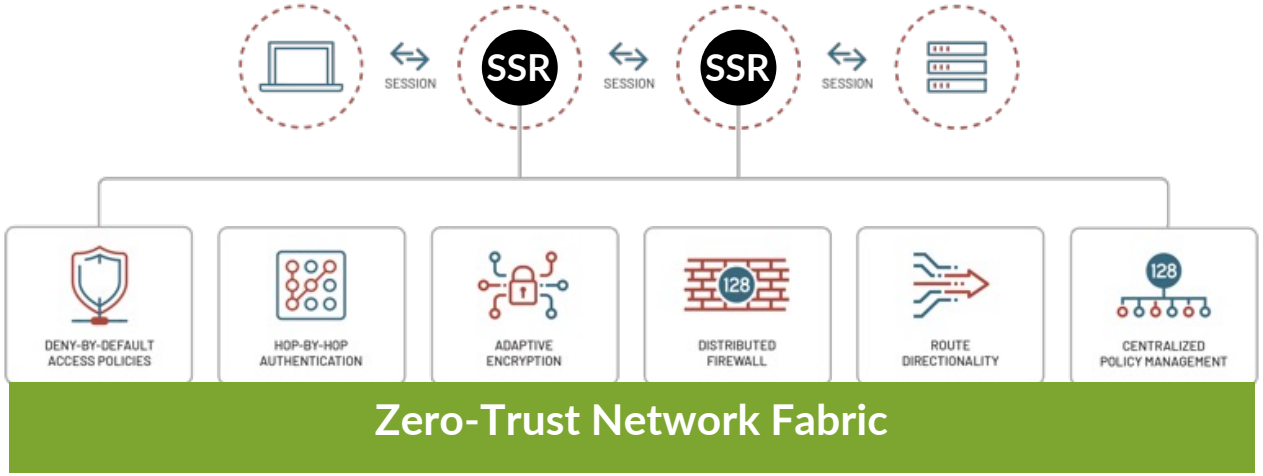
Zero Trust Security

- Centralized configuration in Session Smart Conductor
  - User groups
  - Applications
  - Policies
- Routers are session-based stateful firewall
  - Deny by default
  - Firewall at every hop
  - Authentication on every router



Nessus®

FIPS VALIDATED 140-2 NIST

codenomicon

PCI DSS COMPLIANT

IT VETERANS

FISMA FEDERAL INFORMATION SECURITY MANAGEMENT ACT

ICSA labs CERTIFIED FIREWALL - CORPORATE

Microsoft 365 Networking Partner

GSA Approved

Tolly. Certified

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Enhanced Security Pack for SSR

- Deny by Default/ Zero Trust
- Adaptive Encryption
- SVR Directionality

NEW

- IDS/IPS
- URL Web Filtering

SSR Enhanced Security

URL FILTERING

- Prevent access to and from specific sites
- Meet special business requirements

IDS/IPS

- Protects against advanced malicious attacks

COMPLEMENTS SRX SERIES NGFW

- More deployment options
- No one-size-fits-all in security
- Meet customers where they are

PREPARE FOR JUNIPER FaaS/CLOUD SWG

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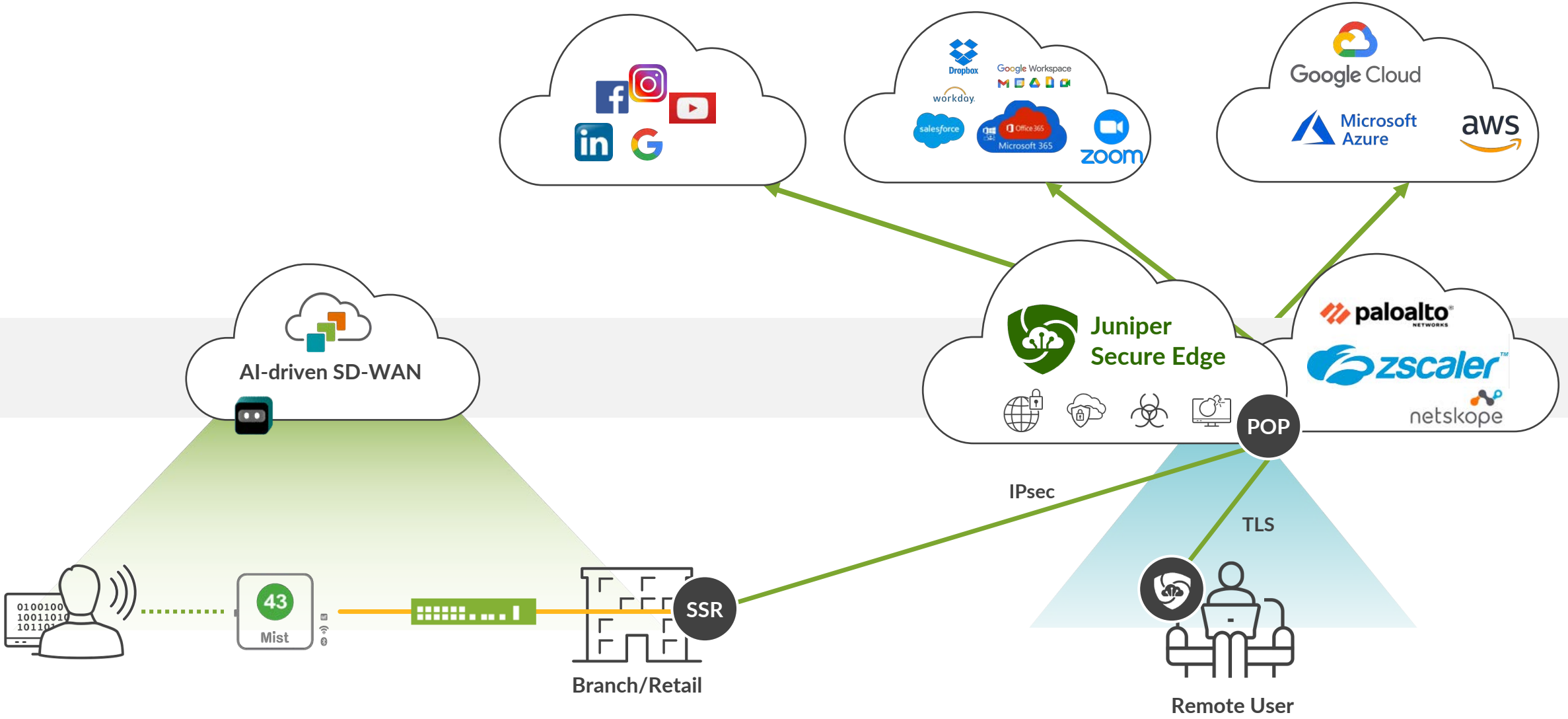
SASE = SD WAN + SSE

AI-driven SD-WAN + Juniper Secure Edge or 3rd party



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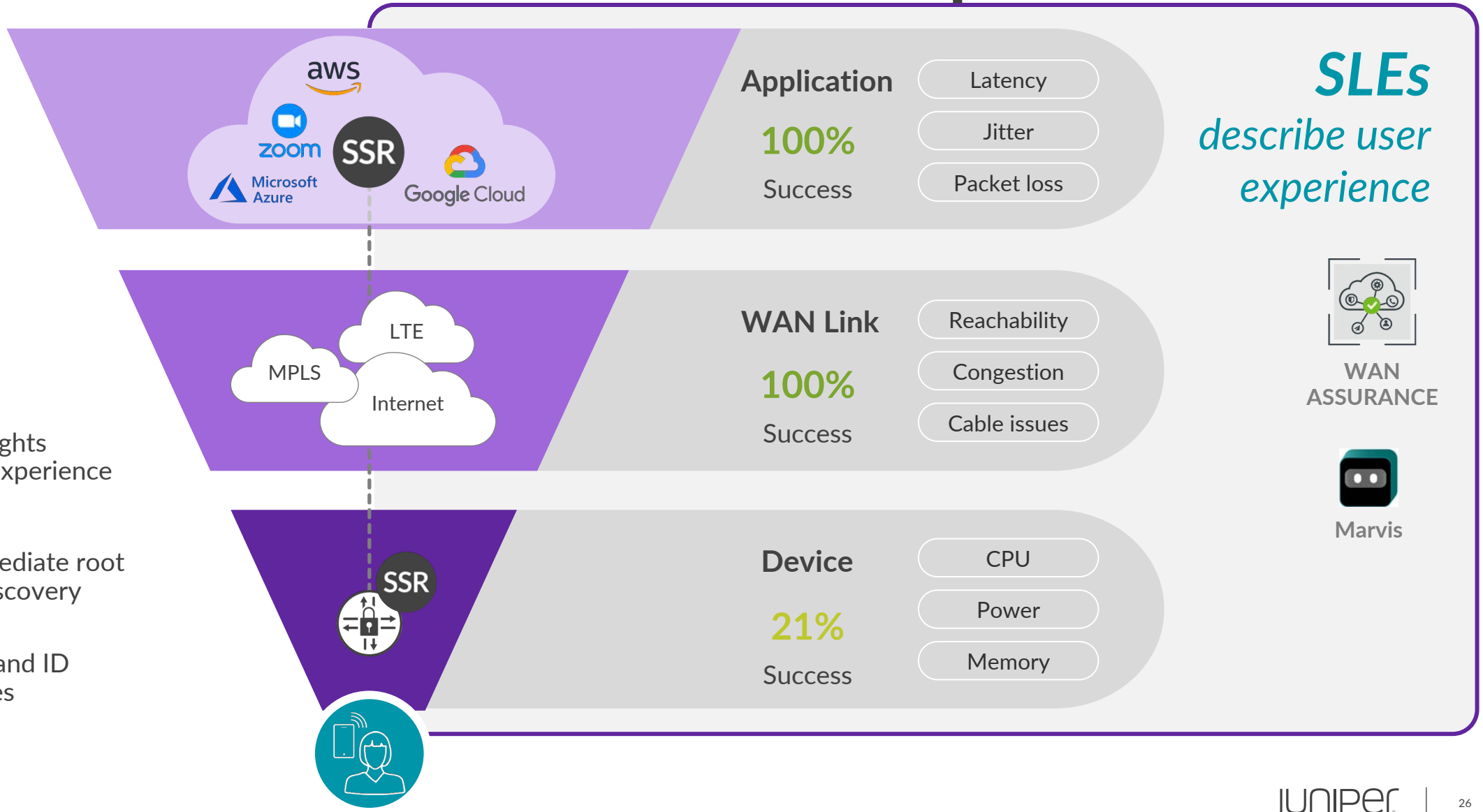
WAN Assurance Delivers User Experience SLEs

AIOps for SD-WAN

- Gain insights to user experience
- Get immediate root cause discovery
- Surface and ID anomalies



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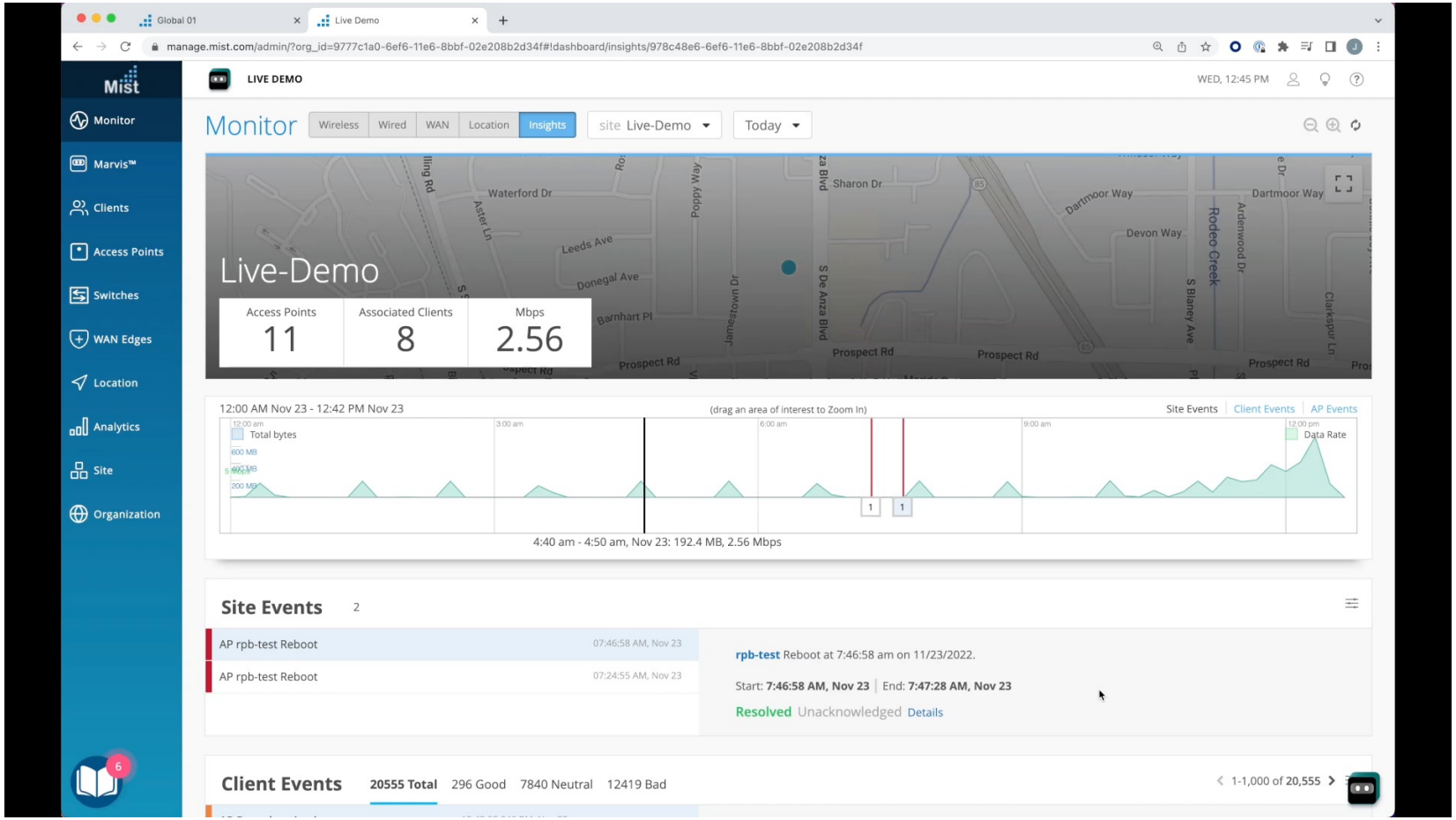
AI-Driven SD-WAN Demo



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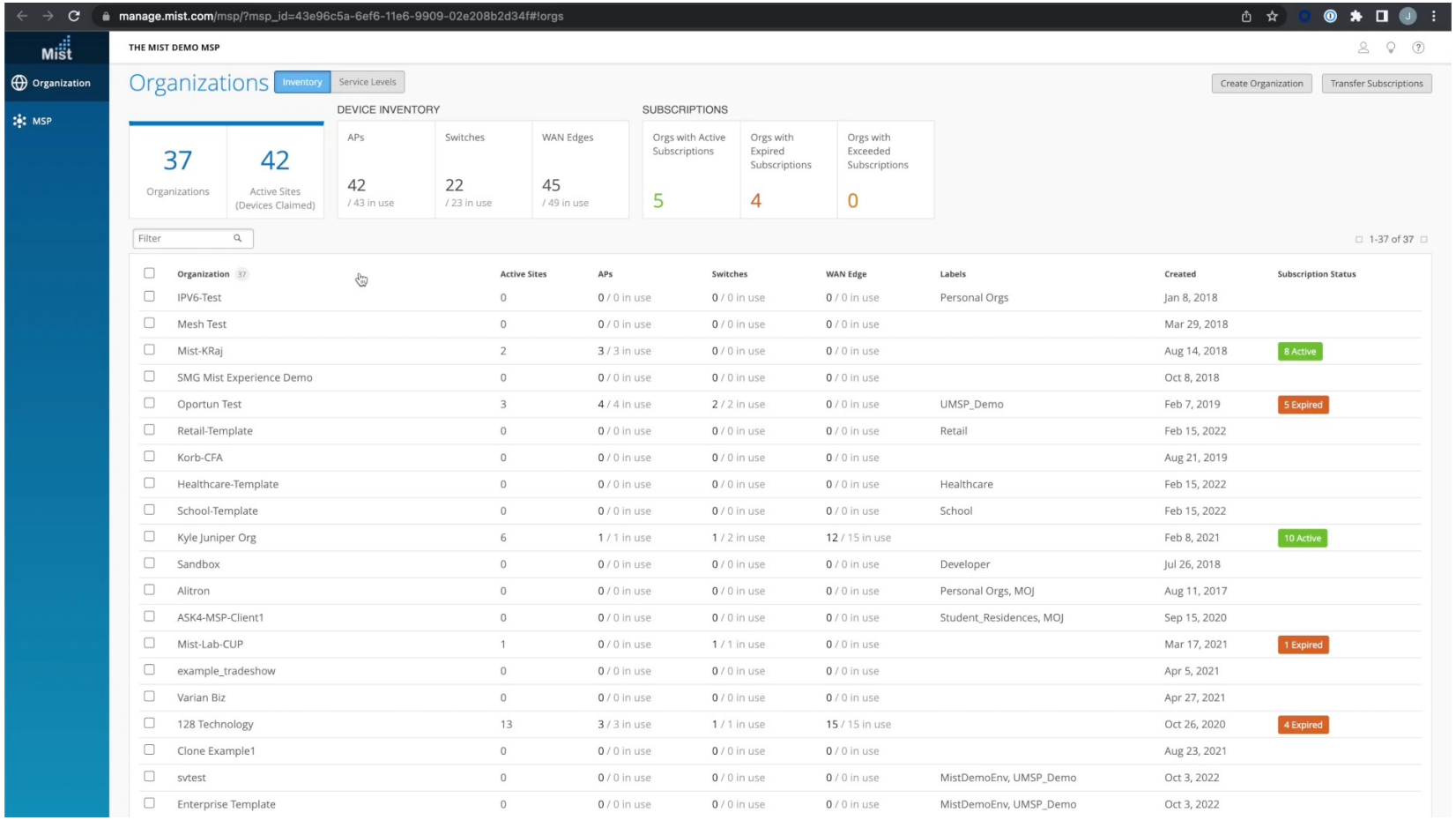
MSP Dashboard Demo



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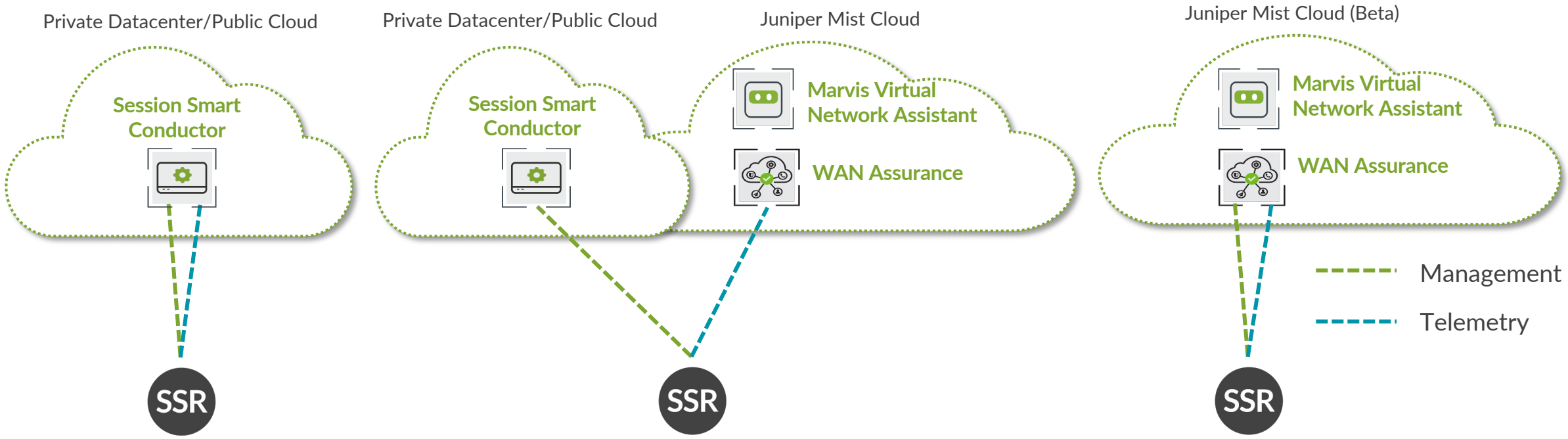
Session Smart AI-Driven SD-WAN deployment options



Fully Conductor-managed
(Day 0/1/2 operations)
Customer managed Conductor

Hybrid
Customer-managed Conductor for Day 0/1 operations
+ WAN Assurance for Day 2 operations
(Telemetry, Insights, SLEs)
+ Marvis VNA (optional)

Fully Mist Managed
WAN assurance 2.0
for Day 0/1/2 operations
+ Marvis VNA (optional)

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SSR SERIES FOR ENTERPRISE BUSINESS

Secure, AI-driven SD-WAN

High performing | Scalable | Zero Trust Secure

- Instantaneous failover for POS, ordering systems, and voice
- Fast and seamless application performance
- Enhanced bandwidth utilization
- PCI Compliant
- IDS/IPS & URL Filtering

- Manage full-branch offerings under a single, multi-authority management console
- Tunnel-free architecture
- Real-time insight into user experience with WAN Assurance
- Immediate root cause discovery

SSR120

SSR130

Madrid Desktop

Madrid 1U

SR530

1515B

1515A

SR570

WAN Assurance

60%
Latency Reduction

"With Juniper SSR we accomplished in 3 weeks what we were unable to do with MPLS."

– Datacenter & Networking Platform Owner

ÖSSUR
LIFE WITHOUT LIMITATIONS

A VISIONARY

WAN Edge Infrastructure

Gartner

2022
MAGIC QUADRANT

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PLATFORM SELECTION: SSR100 & SSR1000 LINE OF ROUTERS

		SSR120 variants	SSR130 variants	SSR1200	SSR1300	SSR1400	SSR1500
Onboard RJ-45 ports (NICs/ports are not field configurable/replaceable)		4x1G RJ45	6x1G RJ45	7 x 1G RJ-45	4 x 1G RJ-45	4 x 1G RJ-45	4 x 1G RJ-45
Onboard transceiver ports (NICs/ports are not field configurable/replaceable)		2x1G RJ45/SFP combo	2x1G RJ45/SFP combo	4 x 1G/10G SFP+	4 x 10G SFP+ 4 x 1G/10G SFP+	4 x 10G SFP+ 4 x 1G/10G/25G SFP28	12 x 1G/10G/25G SFP28
Onboard management port		-	-	1 x 1G RJ-45	1 x 1G RJ-45	1 x 1G RJ-45	1 x 1G RJ-45
LTE		**Subvariant SKUs:** SSR120-AE (AMER/EMEA) SSR120-AA (APAC)	**Subvariant SKUs:** SSR130-AE (AMER/EMEA) SSR130-AA (APAC)	Not applicable	Not applicable	Not applicable	Not applicable
Encrypted + HMAC (aggregate)	IMIX	250 Mbps	1 Gbps	2.5 Gbps	5 Gbps	10 Gbps	30 Gbps
	1500 byte	500 Mbps	1.8 Gbps	5.0 Gbps	12 Gbps	15 Gbps	50 Gbps (Max. throughput on NIC)
Encrypted (aggregate)	IMIX	750 Mbps	1.8 Gbps	7 Gbps	18 Gbps	25 Gbps	45 Gbps
	1500 byte	2 Gbps (Line rate on ports)	2 Gbps (Line rate on ports)	17 Gbps	20 Gbps (Max. throughput on NIC)	50 Gbps (Max. throughput on NIC)	50 Gbps (Max. throughput on NIC)
Unencrypted (aggregate)	IMIX	1.5 Gbps	2 Gbps (Line rate on ports)	10 Gbps	20 Gbps (Max. throughput on NIC)	40 Gbps	50 Gbps (Max. throughput on NIC)
	1500 byte	2.0 Gbps (Line rate on ports)	2 Gbps (Line rate on ports)	20 Gbps (Max. throughput on NIC)	20 Gbps (Max. throughput on NIC)	50 Gbps (Max. throughput on NIC)	50 Gbps (Max. throughput on NIC)

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Additional resources

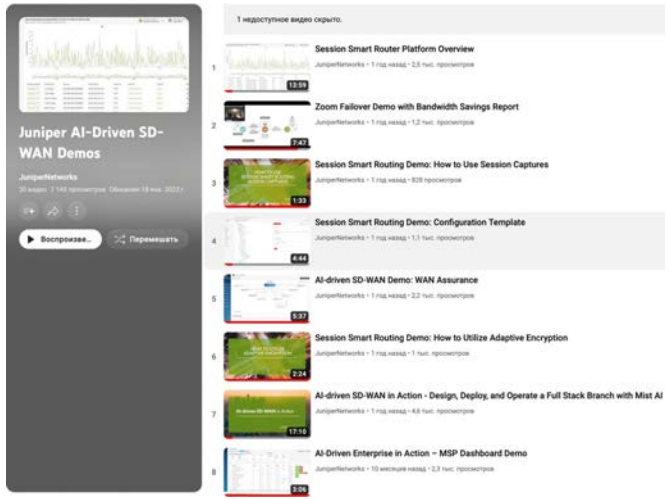
White Paper

White Paper

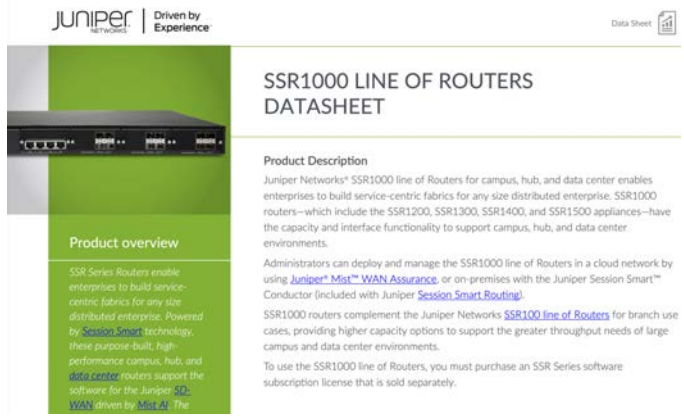
SESSION SMART ROUTING—HOW IT WORKS

A service-centric fabric with dramatic benefits in terms of simplicity, agility, security, performance, and cost

YouTube Demos



SSR appliances



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THANK YOU

ask-se@juniper.net
azubkov@juniper.net

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