

# ENABLING THE AI-DRIVEN ENTERPRISE

*Juniper is using Mist AI to revolutionize enterprise networking. By delivering unprecedented automation and insights, the Juniper Mist AI Platform saves time and money, maximizes IT productivity, and delivers the best networking experience to any digital user.*

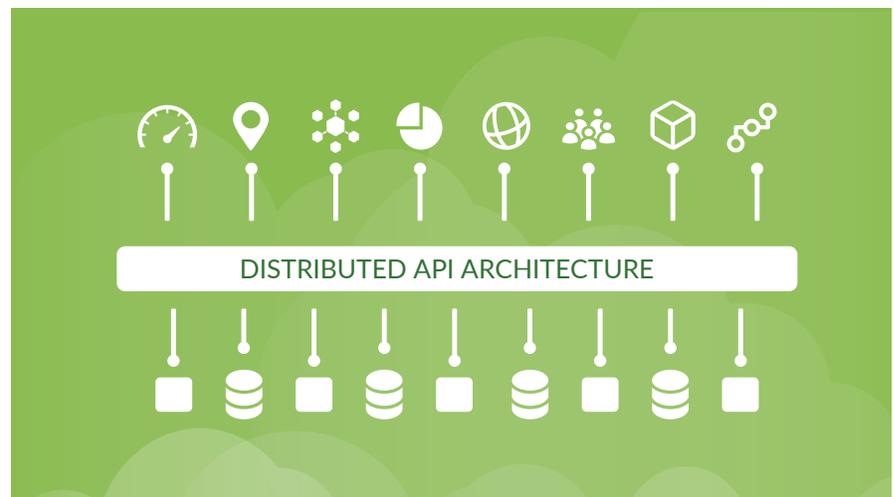
## Overview

Juniper has brought true innovation to the networking space with the world's first AI-driven wired and wireless network.

The Juniper Mist™ AI Platform makes networking predictable, reliable and measurable with unprecedented visibility into the user experience. Time-consuming manual IT tasks are replaced with AI-driven proactive automation and self-healing capabilities, lowering networking operational costs and saving substantial time and money.

Juniper also brings enterprise-grade Wi-Fi, Bluetooth® LE and IoT together so businesses can increase the value of their wireless networks through personalized location services, such as wayfinding, proximity notifications, and asset location. With the patented virtual BLE (vBLE) technology, no battery beacons or manual calibration are required. Juniper also extends AI operational efficiency and insights to the wired side of the business.†

All operations are managed via the Juniper Mist open and programmable microservices cloud architecture. This delivers maximum scalability and performance while also bringing DevOps agility to wired, wireless, and WAN networking and location services.



## The Juniper Mist Cloud

### Microservices bring unparalleled agility, scale, resiliency

Juniper makes it easy to add or remove new features by leveraging a microservices cloud architecture driven by Mist AI. New enhancements and bug fixes are delivered almost weekly without network disruption. Services scale up or down elastically when they're needed, eliminating the cost and complexity of monolithic hardware. Plus, the Juniper Mist platform is inherently resilient as the failure of one service does not impact others.

### AI engine lowers OpEx, delivers unprecedented insight

The Juniper Mist cloud uses AI and data science to analyze large amounts of rich metadata collected from Juniper Access Points and Juniper Networks® EX Series Switches to provide actionable insight. For example:

- Supervised machine learning correlates events for rapid root cause identification.
- Time-series anomaly detection identifies negative trends and determines the magnitude of their impact.
- AI-driven Radio Resource Management (RRM) optimizes the RF settings in real-time based on changing conditions.
- Natural Language Processing (NLP) is used for making complex queries simple and fast.
- Unsupervised machine learning is used with Juniper's vBLE technology to accurately locate users and devices.

### Networking-as-a-Service

The Juniper Mist cloud enables networking and location services to be consumed in a scalable and cost-effective manner. Customers select the specific subscription services (detailed on page 2) that are best for their environment, and can easily add/remove cloud services as business requirements change. No additional hardware is required.

### Fully programmable cloud

The Juniper Mist platform is 100% programmable, using open APIs, for full automation and seamless integration with complementary products including our AI for IT partners across LAN, WAN, security, engagement and asset location.

### Accelerate Your Digital Transformation with Network and Business Insights

Juniper Mist Wired Assurance, Wireless Assurance, User Engagement, and Asset Visibility services include a base analytics capability for analyzing up to 30 days of data, simplifying the process of extracting network insights from data and analytics across your enterprise—allowing you to properly

align support resources or introduce enhanced premium services. For enterprises needing deeper flexibility to extend the data timeline beyond\* 30 days or access other third-party\*solutions with customizable\* reporting for better shopper and guest behavior understanding, Juniper Mist Premium Analytics Subscription services is available. Learn more about Juniper Mist Premium Analytics Subscription [here](#).

### AI-Driven Campus Fabric Management

Juniper's AI-Driven Enterprise portfolio enables customers to scale and simplify the deployment of their campus wired and wireless networks while bringing greater insight and automation to network operators. An enhancement to the Juniper Mist Cloud and AI engine, EVPN-VXLAN campus fabric management is part of Wired Assurance, and it expands on Juniper's unique automation, AIOps, and cloud capabilities to streamline IT operations, lower IT costs, and deliver unparalleled agility and scale. It helps IT teams:

- Simplify device onboarding using a QR code
- Provide cloud-based EVPN-VXLAN configuration using intent and choice of topology
- Verify, apply, and confirm intent once fabric is provisioned

IT teams using AI-driven campus fabric management can easily onboard, deploy, and manage campus fabrics at scale from the Juniper Mist cloud.

## Access Points

### Best Wi-Fi and Bluetooth LE performance

In addition to delivering the best 802.11ax (Wi-Fi 6) and 802.11ac Wi-Fi range and performance, Juniper APs incorporate a patented dynamic vBLE 16 element antenna array to deliver the industry's most accurate and scalable location services.

### Data collection, analysis and enforcement

Juniper APs collect data and enforce policies in conjunction with the Juniper Mist cloud, which is critical when doing analytics, machine learning, location services, and event correlation. For enhanced visibility, several models incorporate IoT sensors and a third radio for business process automation, constant monitoring and intelligent packet capture to speed up troubleshooting.

### Single, enterprise-grade platform for Wi-Fi, Bluetooth LE, and IoT

For network convergence, Juniper APs incorporate a port for direct, and programmable, integration to the analog and digital interfaces of IoT devices.

### Access Points



	AP43	AP63	AP33	AP32	AP12	AP41	AP61	AP21	BT11
Deployment	Indoor	Outdoor	Indoor	Indoor	Indoor Wall Plate	Indoor	Outdoor	Indoor	Indoor
Wi-Fi Standard	802.11ax (Wi-Fi 6) 4x4 : 4SS	802.11ax (Wi-Fi 6) 4x4 : 4SS	802.11ax (Wi-Fi 6) 5GHz: 4x4 : 4SS 2.4GHz: 2x2 : 2SS	802.11ax (Wi-Fi 6) 5GHz:4x4 : 4SS 2.4GHz: 2x2 : 2SS	802.11ax (Wi-Fi 6) 2x2 : 2SS	802.11ax Wave 2 4x4 : 4SS	802.11ax Wave 2 4x4 : 4SS	802.11ax Wave 2 2x2 : 2SS	
Wi-Fi Tri-Radio	✓	✓	✓	✓	✓	✓	✓	—*	—
Antenna Options	Internal/ External	Internal/ External	Internal	Internal/ External	Internal	Internal/ External	Internal/ External	Internal	Internal
Virtual BLE	✓	✓	✓	—	—	✓	✓	✓	✓
IoT Interface	✓	—	—	—	—	✓	—	—	—
IoT Sensors	Humidity, Pressure, Temperature	—	—	—	—	—	—	—	—
Warranty	Limited Lifetime	One Year	Limited Lifetime	Limited Lifetime	Limited Lifetime	Limited Lifetime	One Year	Limited Lifetime	Limited Lifetime

## Juniper Networks EX Series Switches

Meet your digital transformation needs with Juniper EX Series Switches that address enterprise demands for a full end-to-end software-defined enterprise.

EX2300	EX3400	EX4300	EX4400	EX4600	EX4650	*QFX51xx	EX9200	EX9250
Access or MultiGig Access	Access	MultiGig Access and Aggregation	MultiGig Access and Aggregation	Core and Aggregation	Core and Aggregation	Core and Aggregation	Core and Aggregation	Core and Aggregation
48 x 1GbE or 16 x mGig + 32 x 1GbE	48 x 1GbE	48 x 1GbE or 24 x mGig + 24 x 1GbE	12x10GbE + 36x1GbE / 24 or 48 x 1GbE / 12 x mGig + 36 x 1/2.5GbE / 24 x mGig	24 x 10GbE and 4 x 40GbE	48 x 10/25GbE	QFX5110: 48x1/10GbE 32x40GbE QFX 5120: 48 x 10/25GbE 32x100GbE 48 x 10GT	440 x 1GbE 480 x 10GbE 120 x 100GbE	4 x 10GbE 36 x 40GbE 24 x 100GbE
4 x 10GbE or 6 x 10GbEuplinks	4 x 1/10GbE or 2 x 40GbEuplinks	10GbE/40GbE/ 100GbEuplinks	4 x 25GbE or 4 x 10GbE uplinks	8 x 10GbE or 4 x 40GbE uplinks	8 x 40/100GbE uplinks	QFX5110 uplinks: 4x40/100GbE QFX5120 uplinks: 8 x 40/100GbE	N/A	N/A
PoE+	PoE+	POE+(802.3at) POE++ (802.3bt)	POE+(802.3at) POE++ (802.3bt)	N/A for PoE	N/A for PoE	N/A for PoE	N/A for PoE	N/A for PoE

## Juniper Session Smart Routers, Powering AI-Driven SD-WAN

Juniper® Session Smart™ Router delivers distributed, software-defined routing by building an application and service-centric fabric that optimizes user experience with the industry's best goodput. Its smart design also delivers breakthrough economics, provides granular visibility and insights, and brings zero trust security.

Juniper® Session Smart™ Conductor centralizes management and policy, delivering SD-WAN orchestration and operations. It enables zero-touch provisioning for distributed Session Smart Routers, ensuring network-wide, multitenant service and policy data model.

Session Smart Routers offer several deployment options. It can be deployed as software on x86 devices, on a white box, as a virtualized network function in the Juniper Networks® NFX Series Network Services Platforms, and as a standalone appliance with the SSR Series Session Smart Routers. The following SSR Series Routers are available:

Model	Throughput	Encrypted Throughput	Description
SSR120	2 Gbps	1 Gbps	Small branch. Hardware only (120 GB SSD, 2x1GbE combo RJ45/SFP, 4x1GbE RJ45) with or without LTE. TAA-compliant option for federal.
SSR130	2 Gbps	1.5 Gbps	Medium branch. Hardware only (120 GB SSD, 2x1GbE combo RJ45/SFP, 6x1GbE RJ45) with or without LTE. TAA-compliant option for federal.

## Enterprise Networking Cloud Services



### Juniper Mist Wi-Fi Assurance

Juniper makes Wi-Fi predictable, reliable, and measurable. Automate operations, save time and money, and get unprecedented visibility into the Wi-Fi user experience. Secure your network with 802.1X, IPsec, rogue AP detection, and more.

- **Customizable Wi-Fi Service Levels** Set, monitor, and enforce Service Level Expectations (SLE) for key Wi-Fi performance metrics.
- **Root Cause Identification in One Click** Proactively identify and fix the root causes of problems using Juniper's Proactive Analytics and Correlation Engine (PACE).
- **Guest Wi-Fi** The industry's most scalable guest access solution with options including: multiple language support, customizable branding, social login, and external portal/AAA/RADIUS integration.

- **AI-Driven Radio Resource Management** Learn and better optimize radio settings to assure performance, while also instantaneously adapting to intermittent outside interference.
- **Real-time User State Information** Dynamically capture packets the moment an event occurs; Rewind to see any user's state at any point in time.
- **Simple Resource Assignment and QoS** With WxLAN, assign and prioritize network resources to Wi-Fi users with the click of a mouse or via pre-assigned policies.



### Juniper Mist Wired Assurance

Deliver better experiences for connected devices with AI-powered automation and service levels. Wired Assurance leverages rich Junos telemetry from EX Series Switches to enable simpler operations, shorter mean time to repair and improved visibility into end-user experiences of wired devices.

- **Wired Service Levels** Enforce SLEs of pre-/post-connection performance metrics such as throughput, successful connects and switch health.
- **Root Cause Identification in One Click** Proactively identify and fix the root causes of problems using Juniper's Proactive Analytics and Correlation Engine (PACE).
- **AI-Driven Switch Insight** Get switch insights down to the port level for detailed views of CPU, memory utilization, bytes transferred, traffic utilization and power draw.
- **Simplified Onboarding** Claim Juniper EX switches with one activation code for true plug-and-play capabilities. Use templates and profiles to streamline for auto-provisioning and switch configuration.



### Juniper Mist WAN Assurance

Bring AI-driven insights for the WAN and branch to your Juniper AI-driven SD-WAN solution and shift the focus from network and application behavior to actual user experiences.

- **Improved User Experience** with insights derived from Session Smart Router or SRX Series WAN edge telemetry data. This allows WAN Assurance to compute unique "User Minutes" that indicate whether users are having a good experience.
- **End to End Impact Analysis** by working with Marvis to correlate events across the LAN, WLAN and WAN for rapid fault isolation and resolution across all domains.
- **Automatic Identification and Correction** enables proactive actions as a result of anomaly detection with automated workflows, with an eye towards completely self-driving networks from client to cloud.

- **Simplified Onboarding and Configuration** Claim SSR Series Session Smart Routers with one activation code for true plug-and-play capabilities. Use templates and profiles to streamline auto-provisioning and configuration of router service and security policies.



### Marvis Virtual Network Assistant

Meet Marvis – the first interactive, virtual network assistant for The Self-Driving Network™. It helps IT teams get to answers in real-time by streamlining operations and simplifying troubleshooting, while boosting user experiences.

- **A Conversational Interface** Marvis uses Natural Language Processing (NLP) with Natural Language Understanding and Knowledge Graphs to understand user intent and goals. It contextualizes the inquiry and returns specific results, and can even take actions based on user feedback.
- **Marvis Actions for The Self Driving Network** Marvis Actions leverages the Mist AI engine to identify the root cause of issues across the IT domains (WLAN, LAN, WAN, Security) and automatically fixes (self-driving) or recommends actions (driver-assist) with high efficacy.
- **Anomaly Detection** Marvis adds anomaly detection to the SLE framework so that administrators can rapidly and proactively identify service impacting events that assure rapid determination and resolution of the root cause of issues.
- **Correlate Data to Understand Scope** Marvis correlates information across a large knowledge base to determine the scope and magnitude of a problem.
- **Accurate Root Cause Analysis** Bayesian Inference, a part of our data science toolbox, is used to identify causes with the highest probability of association to the problem occurring on the network.



### Juniper Mist Premium Analytics

- **End-to-end Network Visibility** Get 30 days of insights through the analysis of network data from Juniper across your network to optimize end-user/client experiences and identify trends to improve network resource optimization. Additional insights with other third party\* networking solutions with customized\* reporting is available.
- **Orchestrated Networking and Application Performance Queries** Correlate and analyze data across Juniper Mist cloud for optimized application delivery. Deeper insights across third-party\* networking solutions and devices to generate customized queries for WAN performance from campus to branch is available.

- **Simplified Network Transparency** Access to real-time line of site reporting to view network abnormalities, like rogues and honeypots. Extend viewing periods beyond 30 days\* and request customized\* reports with other third-party\* networking solutions.

## Bluetooth LE Cloud Services



### Juniper Mist User Engagement

Juniper flipped the indoor location model on its head. With patented virtual Bluetooth LE (vBLE), indoor location is finally easy to deploy and scale, with unprecedented accuracy and agility.

- **Real-time Wayfinding** Help employees, guests, and customers get to where they need to be with turn-by-turn directions. Enable wayfinding with accuracy of up to 1 meter (3.3 feet) with sub-second latency.
- **Real-time Proximity Notification and Alerts** Greet patients, clients or customers as they arrive onsite. Create push notifications anywhere with unlimited virtual beacons. Deliver contextually relevant messages anywhere for a personalized mobile experience.
- **SDK for Mobile App Integration** Juniper offers a mobile SDK that enables you to integrate your mobile application wayfinding and notifications with Juniper's virtual Bluetooth LE infrastructure.



### Juniper Mist Asset Visibility

With Juniper's patented virtual Bluetooth LE technology, the same infrastructure for engaging with mobile users can be used for asset visibility.

- **Get Full Visibility Into People and Things Using Standards-based Bluetooth LE Services** Easily locate key resources, like nurses, security guards, and sales associates. Track IV pumps, forklifts, and high value assets with Bluetooth LE tags.
- **Asset Identity** Assign names to asset tags or BLE-enabled mobile/IoT devices to locate these assets on your venue map or integrate location with business applications.
- **Detailed Analytics** Monitor visits and dwell times, with detailed drill down into zone traffic patterns and congestion points.
- **Asset Location and Analytics Powered by APIs** A complete and open set of APIs enable you to integrate your asset tags as well as asset location and analytics applications with the Juniper virtual Bluetooth LE infrastructure.

Highlighted features listed on this page are a subset for each service; refer to services datasheet(s) for complete set of functions.

\*Juniper Mist Premium Analytics service subscription is needed.



## Juniper Mist Premium Analytics

- **Customer segmentation and reporting based on visitor telemetry** Review your customer/workforce traffic visits for resource planning or customized notification services. Out-of-the-box reporting and dashboards for 30 days, with extended option\* to 12 months or longer.
- **Customized\* dwell and third party** reporting for traffic and trend analysis. Generate customized\* visitor segmentation with motion paths (traffic flows between departments) dynamically or historically for cross-sell service delivery across brands and product affiliates.
- **Correlate customer-guest traffic and trend analysis** Identify and segment various customer/guest types across your product portfolio. Expand data correlation beyond\* 30 days for planning of existing and new resources and services.

## About Juniper Networks

At Juniper Networks, we are dedicated to dramatically simplifying network operations and driving superior experiences for end users. Our solutions deliver industry-leading insight, automation, security and AI to drive real business results. We believe that powering connections will bring us closer together while empowering us all to solve the world's greatest challenges of well-being, sustainability and equality.

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