

Juniper Networks, Ruckus Wireless Deliver Carrier-Class Performance for Enterprise Networks

Open, NFV-compliant solution simplifies operations and delivers flexible network architecture

Challenge

All types of personal and corporate end-user devices are used to run business-critical applications. Network managers must provide these devices with simple, high-performance and highly available WiFi connectivity while keeping up with network technology innovations.

Solution

Juniper and Ruckus Wireless are leveraging their carrier wired and wireless networking experience to deliver powerful, open, integrated wired and wireless solutions that address the needs of enterprise customers today while positioning organizations for the open networks of the future.

Benefits

- Best-in-class, end-to-end wired and wireless infrastructure offering the industry's best performance and scalability.
- Network simplification with virtualization and clustering, a single point of management, and a simplified wired and wireless architecture.
- Maximum network flexibility with hardware and virtual networking devices, pay-as-you-grow scalability, and wired/wireless integration.

Driven by increased mobility, BYOD, business-critical applications, and end-user expectations for ubiquitous wireless coverage, enterprises and service providers are racing to meet ever-increasing performance requirements to keep networks simple, flexible and efficient while making them easy to deploy, manage, and scale.

To meet these immediate needs, network managers need to deliver secure, high performance networks in a more timely and cost effective manner—with the simplicity of virtualized networking from wireless access to the core.

The Challenges

Wireless connectivity is now the primary access for end-user devices running mission-critical applications. End users with multiple mobile devices expect seamless, secure connectivity anywhere, at any time. They need the network to work for them simply and reliably. They need the same high quality experience regardless of the device they are using, the application they are using, or where they are connecting to the network.

Network managers are under tremendous pressure to deliver the connectivity, security, and performance these devices and applications demand, despite constraints on their IT budgets. The WiFi network must perform flawlessly, and access points require more security and performance from the wired network.

Network managers need to dynamically create agile services that utilize a common resource pool while greatly reducing operational complexity, risk, and time to market. Wired and wireless networks need to seamlessly work together, delivering the flexibility, performance, and simplicity essential for deploying, managing, and securing the network.

The Juniper Networks and Ruckus Wireless Solution

Juniper Networks and Ruckus Wireless are uniquely suited to meeting these challenges. As global technology leaders in carrier-grade wired and wireless networking, respectively, Juniper and Ruckus share a common reputation for delivering superior performance and scalability to the most demanding customers on the planet by leveraging innovations in software and open-based standards to simplify the network and reduce total cost of ownership. Working together, Juniper and Ruckus are uniquely positioned to deliver even higher levels of performance and greater ROI.

Best-in-Class Performance and Scalability

Juniper Networks and Ruckus Wireless bring together best-in-class performance and high scalability for both wired and wireless networks.

ZoneFlex access points (APs) from Ruckus feature patented BeamFlex technology that constantly steers radio signals to connected devices, delivering greater range and capacity while simplifying deployment. The boost in signal range and quality also means fewer access points are needed, optimizing CAPEX.



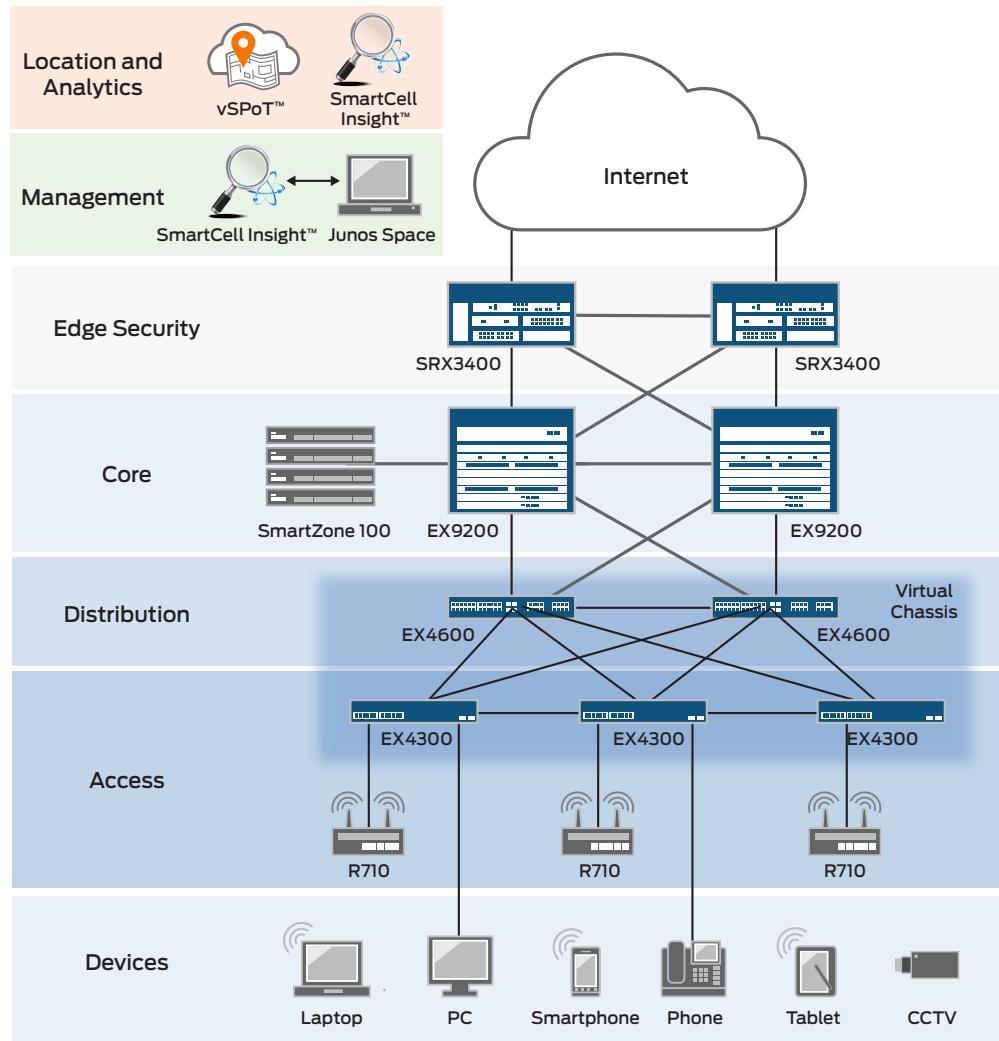


Figure 1: The Juniper-Ruckus Campus Solution

The virtual SmartZone (vSZ) product is a fully NFV compliant WiFi management platform, available in a high-scale option supporting full multi-tenancy for carriers and managed service providers, or as a streamlined model that supports most enterprise-class installations. The vSZ provides maximum scalability and flexibility with “WiFi-as-you-grow”—the ability for a network to expand and adapt to changing requirements, all managed from a single integrated platform. In clustering mode, vSZ can manage up to 30,000 APs and 300,000 devices, making it one of the industry’s largest and most scalable WiFi solutions.

Additionally, the Ruckus 802.11ac Wave 2 access point, the R710, supports dramatically higher throughput and client densities, including up to 2.5 Gbps throughput.

High-Performance Switching for Wired Networks

A high-performance and highly scalable wireless solution needs a high-performance wired network to be truly effective. The Juniper Networks EX Series Ethernet switches provide just such a platform.

With a pass-through midplane design that supports a capacity of up to 13.2 Tbps, the EX9200 chassis-based programmable switch is a great core device that can support the densest wireless networks.

For wired access, the EX4300 and EX4600 fixed-configuration switches can be deployed in a single Virtual Chassis configuration, allowing multiple interconnected devices to operate as a single, logical device. By combining both switch models in a single Virtual Chassis, network managers can support a mix of 1GbE, 10GbE and 40GbE connections in a single platform.

The 10GbE and 40GbE uplinks on the EX4300 and EX4600 can easily support the performance demands of the latest generation Ruckus R710 APs, which boast more than 2.5 Gbps of wireless throughput. The 960 Gbps backplane performance means the EX4600 can support even the most demanding wireless devices and applications, ensuring a tremendous end user experience. With Juniper Networks and Ruckus Wireless, enterprises and service providers can design the right network infrastructure for the right wireless access with confidence.

One Common Approach to Networking: Simplicity and Reliability

As the volume and sophistication of networking demands increase, IT security organizations are under enormous pressure to keep their networks simple, easy to scale and easy to manage—all while delivering the best quality of experience to their users. Juniper Networks and Ruckus Wireless share a common philosophy and goal: to make the network as simple as possible for IT managers. Together, Juniper and Ruckus make it easy to deploy, scale, and manage both wired and wireless networks as one single infrastructure.

With 3+1 clustering, Ruckus enables users to manage multiple controllers as a single device. Similarly, Virtual Chassis technology on the Juniper EX Series Ethernet switches lets users manage up to 10 individual switches as a single network device. These virtualization technologies complement one another, reducing the number of wired and wireless networking devices to configure and manage while delivering superior scale and performance. Both 3+1 Clustering and Virtual Chassis technology allow your network to grow along with your business; you can start small and then add new controllers and switches to scale network performance without increasing the number of individual devices to manage. Both wired and wireless networks can keep pace with business needs while keeping everything simple and easy to manage.

The active-active backup capabilities of both 3+1 Clustering and Virtual Chassis technology ensure a network remains available—with zero data loss—even when a device fails, with no impact to mission-critical applications running on wired and wireless devices.

Furthermore, Juniper's Virtual Chassis technology not only simplifies management, it significantly improves support for latency and jitter-sensitive traffic such as voice and video. Working together, Ruckus wireless devices and Juniper EX Series switches can enable secure 802.1x user authentication, as well as guest access and identity-, role- or end-user device-based QoS.

Wired, Wireless, Security and Management in One Solution

With the increasing sophistication of network threats, IT managers are looking to protect their companies' productivity and electronic assets while delivering a comprehensive end-to-end wired and wireless solution. What IT teams need is an all-in-one, comprehensive, and integrated solution that reduces complexity and lowers costs. The Juniper Networks / Ruckus Wireless solution goes beyond switches and wireless connectivity to include security and management. Working together, Juniper and Ruckus deliver truly secure, wired and wireless networks that are simple, reliable, and high performance.

The Juniper Networks Unified Threat Management solution is available with Juniper Networks SRX Series Services Gateways, the only carrier-class security solution that consolidates UTM

content security services with routing and switching in a single, high-performance, cost-effective device. This consolidation lets organizations deliver powerful new services and applications to all locations and users with superior service quality—securely, reliably and economically.

Equally important from an operational and security perspective, Ruckus has fully integrated features for handling BYOD onboarding using current network segmentation and security architectures, standards-based authentication protocols, and directory services. Ruckus delivers foolproof device provisioning and onboarding processes that are intuitive and easy for users to implement. IT staff can utilize device fingerprinting and access control features to enable differentiated policies for specific device types and user roles, as well as enhanced monitoring and visibility to improve network operations, troubleshooting, and policy changes over time.

Together, Juniper Networks and Ruckus Wireless make WiFi management, security and switching available from a single device. For IT managers, the benefit is clear: easy deployment at branches without the complexity of having to manage multiple devices. With a scale of up to 30,000 APs and 300,000 WiFi-enabled devices, Juniper and Ruckus offer the most scalable unified wired and wireless solution available today.

As networks continue to grow and support entirely new service categories such as location analytics and IoT, end-to-end network monitoring via Junos Space Network Director greatly simplifies network management. Junos Space Network Director supports unified provisioning and presents a single management layer that allows NOC managers to see the entire end-to-end network to measure performance, meet SLAs, and ensure ongoing reliability.

Ruckus SmartCell™ Insight (SCI) is the industry's first Big Data WiFi analytics and reporting engine. Making use of Big Data technology and storage innovations found in columnar database repositories, SCI helps enterprises make informed business decisions regarding the operation of their WiFi networks. The Ruckus SCI platform transforms traditional network reporting into a vital business tool, collecting, analyzing, parsing, presenting, and storing unprecedented amounts of user, traffic, session, and location information. Seven or more years worth of data from the largest networks can be stored and retrieved.

The Ruckus Location-Based Services (LBS) Solution helps retailers, stadiums, and transportation hubs enhance the way they interact with customers based on precise location. Deployed on top of Ruckus Smart WiFi, the Ruckus LBS Solution does not require any additional hardware and has unlimited scalability in the cloud, enriching customer relationships through targeted marketing capabilities and improved operational efficiencies with footfall traffic and proximity analytics.

Features and Benefits

Features	Benefits
3+1 Clustering	Scale the WLAN by managing multiple controllers as a single network device and zero data loss with active-active backup.
Virtual Chassis technology	Reduces the number of logical switches, enables mixing of 1GbE, 10GbE and 40GbE ports for superior support of latest 11ac Wave 2 APs while providing active-active backup to ensure zero data loss.
802.11ac wave 2 4x4:4 with multi-user MIMO	Supports dramatically higher throughput and client densities, including theoretical maximum throughput of more than 1,733 Mbps (5GHz) and 800 Mbps (2.4 GHz).
LAG and LACP integration between Ruckus and Juniper EX Series switches	Fully supports new 802.11ac Wave 2 APs.
End-to-end 802.1x security	Delivers highest level of security regardless of how or where an end user chooses to access the network. Easy end user onboarding via Ruckus BYOD capabilities reduces cost and ensures all users are protected by 802.1x security.
Clear commitment to open networking, including NFV and SDN	Investment protection and ongoing CAPEX/OPEX savings as network architectures increasingly move to open platforms. Also, faster and easier new service deployments.
Joint network monitoring via Junos Space Network Director and Ruckus SmartCell Insight	Ensures ongoing network reliability and enables new services such as IoT for highly scalable and customizable network analytics. Enables entirely new services using Ruckus Smart Positioning Technology for location-based analytics and engagement.
Superior wireless connectivity	As WiFi is often the only network access for end users, ensuring a strong and reliable wireless connection is critical. Ruckus has numerous unique and patented capabilities that deliver superior connections, including: <ul style="list-style-type: none"> BeamFlex+: Polarization diversity with 3-5dB receive signal gain, ensuring the most reliable network connectivity for dense and mission-critical user environments. ChannelFly: Dynamic channel management senses the actual capacity of different channels to automatically adjust channels when the change will actually increase capacity, thereby delivering greater end-user performance. SmartCast: Robust wireless video transport manages multicast video frames separate from all other traffic types by combining innovative multicast traffic handling techniques, smart QoS, and application-aware traffic classification capabilities. SmartMesh Networking: Reduces costly cable needs by wirelessly backhauling some APs to other "root" APs. Enterprise WLAN deployments are dramatically faster, simpler and less costly, as APs are simply plugged into any convenient power source.
Location-based services	With its SPoT location technology, Ruckus Smart WiFi provides valuable customer or guest information as well as a new touchpoint via mobile applications. <ul style="list-style-type: none"> Smart Positioning Technology (SPoT): Knowing where people are in a store, mall, campus or any venue, how long they stay, how frequently they visit, and similar footfall analytic information can provide unique insight for improving the user experience and create new marketing and operational capabilities. Smart Bluetooth Low Energy (BLE) Beacons: Support for AP-based BLE beacons provides additional customer or visitor insight and enables real-time promotions with customer messaging.

Summary

Juniper Networks and Ruckus Wireless bring open, standards-based, carrier-grade enterprise campus and branch networking solutions that scale with the latest technology trends and demands while simplifying operations. Juniper's innovative switching, security and management products and Ruckus' advanced wireless LAN solutions work together, delivering high-performance, scalable and cost effective carrier-class solutions for the enterprise.

Next Steps

Contact your Juniper Networks representative or visit www.juniper.net for more information. Also, visit the Ruckus Wireless website at www.ruckuswireless.com.

About Ruckus Wireless

Ruckus Wireless, Inc. (NYSE: RKUS) is a global supplier of advanced wireless systems for the rapidly expanding mobile Internet infrastructure market. The company offers a wide range of indoor and outdoor "Smart WiFi" products to mobile carriers, broadband service providers, and enterprises, and has approximately 52,000 end-customers worldwide. For more information, visit www.ruckuswireless.com.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

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