RUCKUS EDGE

RUCKUS One Edge Services Delivery Platform

BENEFITS

Simplified Deployment and Management
Centralized Cloud Management and Edge Appliance as a Service Delivery Point: The cloud-managed platform automates many tasks through a web interface and a mobile app lowering operational complexity.

Scalability and Flexibility
RUCKUS Edge can scale to address the needs of organizations of any size. Multiple edge appliances can be clustered lo load balance and distribute workloads across multiple devices.

Improved Security and Privacy
Segmented Network Security: VXLANs allow for isolated virtual network segments, ensuring that different user groups have secure, isolated access to network resources.

Reduced Latency & Faster Data Transmission
By using the edge appliance for local breakout, performance is improved as traffic is processed closer to the user.

Pay-as-You-Go Model
Cloud services offer flexible, subscription-based pricing, allowing organizations to pay only for what they use, reducing the total cost of ownership (TCO).

High Availability and Reliability
Redundant, Clustered Edge Appliances can be deployed for critical sites to ensure network resilience and prevent downtime.

AI-Driven Assurance and Insights
RUCKUS One leverages AI to deliver network assurance, enabling IT administrators to detect and resolve incidents before they become service affecting and impacting users.

Converged Management Across IT and OT
The hybrid cloud platform allows for the management of both wired and wireless LAN environments as well as IoT networks, offering seamless network integration and reducing operational silos.

Open APIs for Integration
RUCKUS One offers open APIs for integration with third-party systems and services, enabling better customization and adaptability to organizational needs.

RUCKUS Edge is a Service Delivery Platform that extends RUCKUS One to the edge and it is built on the RUCKUS One cloud platform. It leverages the RUCKUS One Service Catalog to offer an easy to deploy, scalable and flexible approach to services delivery at the edge of the network. By leveraging cloud orchestration and an edge appliance as the local service delivery point, the solution provides centralized cloud based control while maintaining performance and flexibility at the network edge.

MASSIVE ADOPTION OF CLOUD BASED APPLICATIONS BRINGS NEW CHALLENGES

The rapid adoption of cloud computing and cloud-based applications is transforming many industries and delivers many benefits like deployment simplicity, flexibility and user mobility. However, this shift also brings new challenges in areas like application latency, security, and data privacy to name a few, which are critical to the success of these sectors. In hospitality, guests expect real-time, seamless experiences, from booking systems to in-room services powered by IoT devices. In MDUs, residents increasingly demand reliable, low-latency access to smart home applications and entertainment services. Similarly, educational institutions must ensure uninterrupted access to cloud-based learning tools and collaborative platforms. The traditional, centralized cloud model struggles to meet these high-performance demands, often leading to lag, reduced service quality, and security risks.

THE NETWORK EDGE: A STRATEGIC SERVICE DELIVERY POINT

The network edge has emerged as a strategic service delivery point for addressing these new challenges. By processing data closer to its source, edge computing can significantly reduce latency, ensuring a faster, more responsive user experience. For instance, in hospitality, edge solutions can enhance guest services by enabling real-time personalization and improving operational efficiency. In MDUs, edge services enable residents to enjoy uninterrupted connectivity for their smart devices, gaming systems, and streaming platforms. Educational institutions can also benefit from the enhanced performance and security that edge computing provides, ensuring secure access to learning materials without compromising student data privacy.

EDGE SERVICES: A SOLUTION TO ADDRESS CLOUD COMPUTING CHALLENGES

Edge services not only reduce latency but also strengthen security and privacy by keeping sensitive data within local environments, rather than sending it across vast networks to distant cloud data centers. This combination of faster service delivery and enhanced security is crucial for these industries, making the edge an essential component in their digital transformation efforts.

HYBRID CLOUD ARCHITECTURE: EDGE DELIVERY / CLOUD ORCHESTRATION

RUCKUS Edge is built on the **RUCKUS One** cloud platform and uses its Service Catalog to offer an easy to deploy, scalable and flexible approach to services delivery. By leveraging **cloud orchestration** and an **edge appliance** as the local service delivery point, the solution provides centralized control while maintaining performance and flexibility at the network edge.

RUCKUS One offers organizations the benefits of a single Cloud based platform to manage wired, wireless and IoT networks together, streamlining operations and reducing the need for on-premises infrastructure. The cloud-based management platform simplifies network configuration, monitoring, and updates, while the edge appliance handles local breakout for performance optimization. This hybrid approach offers a cost-effective, scalable solution that meets the needs of dynamic, distributed environments such as MDUs, campuses, and enterprises. The architecture ensures secure, high-performance network operations while lowering operational costs through automation and centralized management.

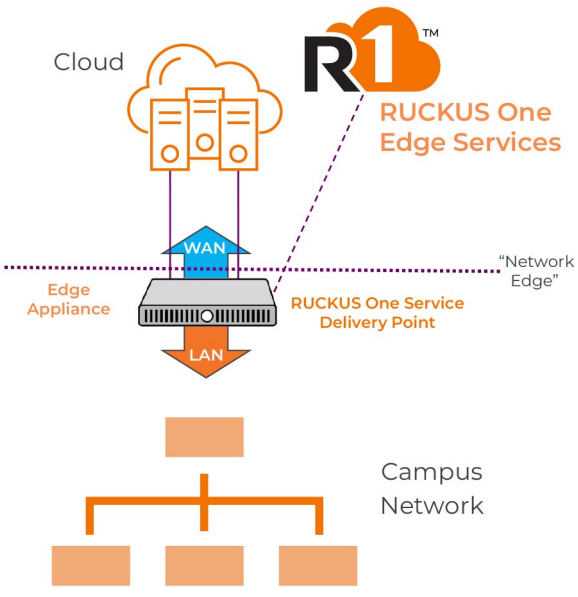


Figure 1. RUCKUS Edge service delivery architecture

FEATURES AND BENEFITS

1. Hybrid Cloud Management via RUCKUS One

RUCKUS Edge is centrally managed via RUCKUS One, a hybrid cloud platform that provides cloud-based orchestration. This allows network administrators in distributed environments, such as multi-dwelling units (MDUs), education campuses, and hotels, to manage, configure, and monitor their networks across multiple locations through a single platform. This simplifies IT operations by reducing the need for on-site management and allowing centralized control, which is particularly useful for large-scale or geographically dispersed properties.

2. Edge Appliance for Local Breakout

The edge appliance serves as a local service delivery point that handles traffic forwarding and breakout locally. In scenarios with high bandwidth needs, such as MDUs or college campuses, the local breakout capability minimizes latency by routing traffic directly at the edge rather than backhauling it to the cloud. This leads to faster response times for bandwidth-intensive applications like video streaming or online gaming, providing a smoother user experience.

3. VXLAN Tunneling for Network Segmentation

VXLAN tunnels create virtual Layer 2 networks over a Layer 3 infrastructure, enabling large-scale network segmentation. This feature is particularly valuable in environments where multiple groups need isolated access, such as in an education setting where students, staff, contractors, visitors require separate, secure network segments. VXLAN ensures that each group has its own isolated virtual network, improving security and ensuring data privacy.

4. Seamless Wi-Fi Roaming

The solution enables seamless Wi-Fi roaming across the network without interrupting user connections. In MDUs or higher-ed campuses, tenants or students frequently move around with mobile devices. Seamless roaming ensures that their connections to critical services (e.g., video calls, streaming, or smart home devices) remain uninterrupted as they move from one access point to another. This enhances user satisfaction by providing a consistent, always-connected experience.

5. Personal Identity Network (PIN)

The solution supports the creation of Personal Identity Networks (PINs), which allow users to have their own personalized network segments. This feature is ideal for environments like student housing or multi-tenant dwellings where users want to connect personal devices (smart TVs, gaming consoles, Wi-Fi speakers, etc.) across multiple access points. With a PIN, each tenant can manage their devices as if they had their own private network, even when connected to shared infrastructure, making their experience feel more customized and secure.

6. AI-Driven Automation and Analytics

The RUCKUS One platform leverages AI for network analytics, performance optimization, and automated issue detection. This is particularly beneficial in hospitality or education environments where network reliability is critical. AI-driven automation can proactively detect performance bottlenecks or potential issues (like access point overloads) before they affect users, reducing downtime and ensuring seamless connectivity. It also reduces the burden on IT staff by automating routine tasks like firmware updates and network optimization.

7. Unified Management of Wired and Wireless Networks

Unified management of both wired and wireless networks from a single dashboard. For property owners and IT teams in environments like MDUs or and university campuses, this eliminates the need to manage separate systems for wired and wireless infrastructure. It provides a holistic view of the network, making it easier to troubleshoot issues, manage resources, and streamline operations across all network devices.

8. Redundant Edge Appliances and High Availability

Edge appliances can be deployed in a redundant cluster for failover protection and high availability. In mission-critical environments, such as hospitals or large enterprises, where network downtime can be costly, redundant edge appliances ensure continuous service. If one device fails, another takes over without service interruption, enhancing the network's reliability and resilience.

9. Cloud-Based Service Extensibility

The cloud-based platform can extend services such as network security, policy enforcement, and authentication across all connected devices. In a multi-tenant or education setting, this allows property managers or IT administrators to apply uniform security policies, monitor network usage, and enforce access controls across all tenants or students. It ensures that every connected device adheres to the organization's security and access policies, reducing the risk of unauthorized access or breaches.

These features provide a highly adaptable, secure, and efficient networking solution tailored to the complex needs of MDUs, campuses, enterprises, and other distributed environments where seamless connectivity, privacy, and security are paramount.

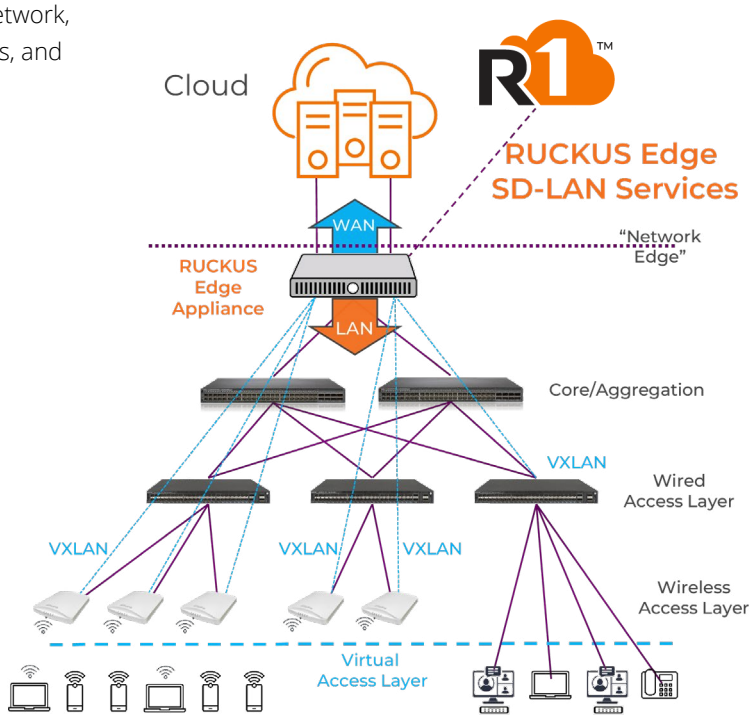


Figure 2. RUCKUS Edge SD-LAN Service Architecture

RUCKUS EDGE SD-LAN SERVICE

RUCKUS Edge SD-LAN is a cloud-managed service designed to bring advanced network virtualization and automation to the edge, leveraging the powerful RUCKUS One service catalog. Deployed directly from the cloud onto edge appliances, this service enables organizations to create highly tailored virtual overlay networks with just a few clicks. Whether it's to meet the specific needs of applications, user groups, use cases, or device types, RUCKUS Edge SD-LAN makes it simple to define and manage custom network environments without the complexity of traditional networking setups.

The service allows seamless creation of SD-LAN virtual networks, providing fine-grained control over network traffic, segmentation, and security. With support for features such as private VLANs (PVLANs) and device discovery, administrators can quickly spin up isolated or dedicated networks for specific applications or user groups, ensuring that each segment gets the resources and access it needs. All of this is managed through the intuitive RUCKUS One cloud interface, which streamlines network deployment, management, and troubleshooting. The result is a flexible, highly responsive network environment that adapts to evolving organizational needs with ease and scalability.

Simple

RUCKUS Edge SD-LAN service is designed with simplicity at its core, offering cloud-based management accessible through both web interface and mobile app. The streamlined interface allows for fast deployment from the cloud and easy configuration, making it accessible even for non-expert users.

Reliable

Reliability is ensured through cluster failover, which provides high availability for critical services. In case of a hardware or network failure, the system automatically transfers operations to a backup cluster, maintaining uninterrupted network service and ensuring continuous operation without downtime.

Scalable

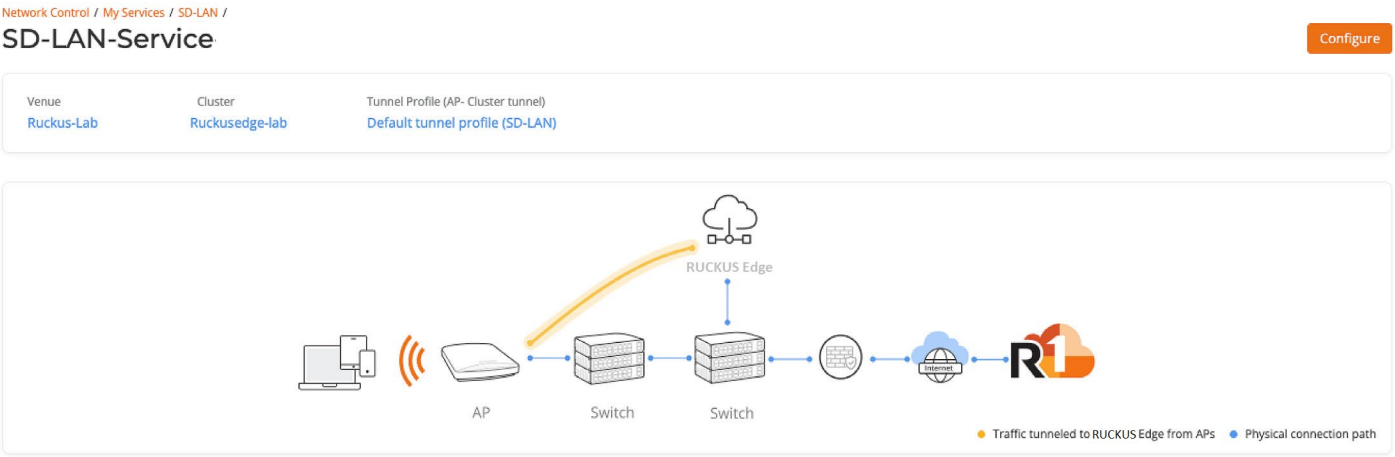
As your needs grow, RUCKUS Edge SD-LAN grows with you. The system uses cluster load balancing to distribute workloads evenly across edge appliance devices, ensuring optimal performance at any scale. Whether managing a small network or expanding to a large, multi-building campus environment, the solution scales efficiently and effortlessly.

Open Standards Based

Built on open standards, RUCKUS Edge SD-LAN leverages VXLAN over standard Ethernet and IP networks, offering seamless integration with existing infrastructures. This ensures compatibility with diverse hardware and software ecosystems, allowing for flexible network extension and modernization without vendor lock-in.

Flexible

RUCKUS Edge SD-LAN adapts to your specific needs, offering SD-LAN overlays on demand. Overlay Networks can be tailored per user, application, or use case, providing dynamic resource allocation and customized services as needed. This flexibility ensures that the network evolves in sync with your unique business requirements.

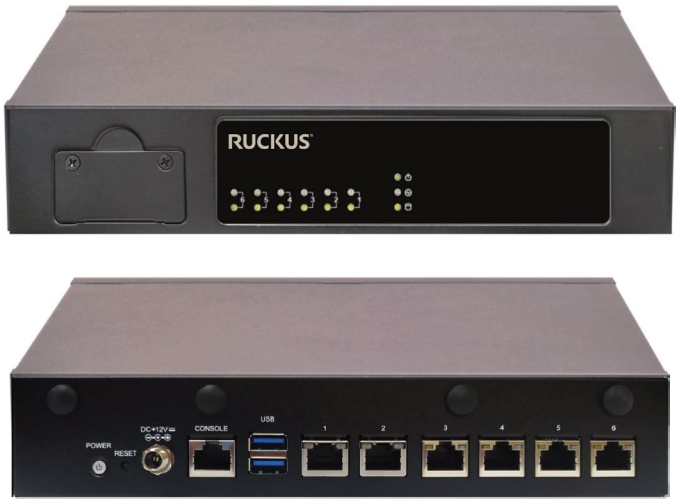


KEY CAPABILITIES	VIRTUAL EDGE	EDGE APPLIANCES
Hypervisor support	• VMware • KVM	N/A
Dynamic data plane scaling	Options: • 1 Gbps • 10 Gbps • Higher throughput capacities with LAGs	Options: • 1 Gbps • 10 Gbps • Higher throughput capacities with LAGs
Redundancy	• Up to 4 instances in Active/Active • Up to 2 instances in Active/Standby	• Up to 4 instances in Active/Active • Up to 2 instances in Active/Standby
Services	• DHCP server/NAT • SD-LAN • Layer 3 roaming • Personal Identify Network (PIN) • Guest Anchor • WAN Gateway	

VIRTUAL EDGE SYSTEM REQUIREMENTS	
Hypervisor support	• VMware ESXi 6.0 and later • KVM (Debian 64 bit)
Processor	• Intel X64 CPU
Number of cores	• Minimum 4 cores
Memory	• Minimum 8 GB memory per instance
SSD	• 100 GB per instance
NICs that support Intel DPDK	• Intel NICs iab, ixabe • 82576, I350 • 82599EB, 82599, X520 (the above have been validated in Ruckus Labs)

RUCKUS Edge 144 appliance front and back.

EDGE APPLIANCE 144 PHYSICAL CHARACTERISTICS	
Power	• Dual hot-swappable redundant AC power supplies (one included, second one optional) • AC power consumption: 135W • Power Rating: 100-127VAC/200-240VAC, 47-63HZ
Dimensions	• 1RU rack mountable: 435 mm (W) x 522 mm (D) x 44 mm (H); 17.13 in (W) x 20.55 in (D) x 1.73 in (H)
Weight	• 6.97 kg, 15.37 lb
Connections	• 4 - 1GbE ports • 4 - 10GbE ports
LED	• Front panel LEDs, one rear LED
Fans	• Three (Field-Swappable fans FRU 902-S120-0000)
Mean-Time-Between-Failure (MTBF)	• At 25C: 167,007 hours • With 2x fans and 1x AC power supply unit
Environmental Conditions	• Operating temperature: 0°C (32°F) – 40°C (104°F) • Operating humidity: 5% to 95%, non-condensing • Humidity storage: 95%, non-condensing



RUCKUS Edge 114 appliance front and back.

EDGE APPLIANCE 114 PHYSICAL CHARACTERISTICS	
Power	• 12V, 40W power adapter • Input Power Rating: 100-240V, 50-60HZ
Dimensions	• 231 mm (W) x 200 mm (D) x 44 mm (H); 9.09 in (W) x 7.87 in (D) x 1.73 in (H)
Weight	• 1.2 kg, 2.64 lb
Connections	• 6 - 1GbE Ethernet ports
LED	• Front panel LEDs, one rear LED
Fans	• One integrate system FAN with Smart FAN function
Environmental Conditions	• Operating temperature: 0°C (32°F) – 40°C (104°F) • Operating humidity: 5% to 90%, non-condensing • Humidity storage: 95%, non-condensing

ORDERING INFORMATION

SKU	DESCRIPTION
RUCKUS Edge Virtual Appliance	
N/A	• Virtual RUCKUS Edge requires QTY 5 of any RUCKUS One SKU to deploy • The RUCKUS Edge software can be downloaded from the RUCKUS Support website
RUCKUS Edge 144 Physical Appliance	
P01-E144-WW00	• RUCKUS Edge 144 Appliance, RUCKUS Edge Software Installed, with 4x10GigE and 4 GigE ports 10Gbps throughput, one hot-swappable power supply, three fans, US power cord included. • RUCKUS Edge is a service platform managed By RUCKUS One. Each Hardware Appliance will need QTY 1 RUCKUS One license to be managed by RUCKUS One.
902-S110-0000	• Hot-swappable spare/redundant AC power supply for RUCKUS 144 Edge Appliance. Power Rating: 100-127VAC/200-240VAC, 47-63HZ
902-S120-0000	• Field-swappable spare fan for RUCKUS Edge 144 Appliance
RUCKUS Edge 114 Physical Appliance	
P01-E114-WW00	• RUCKUS Edge 114 Appliance, RUCKUS Edge Software Installed, with 6 x 1 GigE ports 1Gbps throughput, US power cord included. • RUCKUS Edge is a service platform managed By RUCKUS One. Each Hardware Appliance will need QTY 1 RUCKUS One license to be managed by RUCKUS One.

RUCKUS Edge OPTIONS AND ACCESSORIES	
902-0174-US00	Power Cord (for use with RUCKUS Edge 144 AC Power Supply), US Plug
902-0174-AU00	Power Cord (for use with RUCKUS Edge 144 AC Power Supply), AU Plug
902-0174-BR00	Power Cord (for use with RUCKUS Edge 144 AC Power Supply), BR Plug
902-0174-CN00	Power Cord (for use with RUCKUS Edge 144 AC Power Supply), CN Plug
902-0174-EU00	Power Cord (for use with RUCKUS Edge 144 AC Power Supply), EU Plug
902-0174-IN00	Power Cord (for use with RUCKUS Edge 144 AC Power Supply), IN Plug
902-0174-JP00	Power Cord (for use with RUCKUS Edge 144 AC Power Supply), JP Plug
902-0174-KR00	Power Cord (for use with RUCKUS Edge 144 AC Power Supply), KR Plug
902-0174-SA00	Power Cord (for use with RUCKUS Edge 144 AC Power Supply), SA Plug
902-0174-UK00	Power Cord (for use with RUCKUS Edge 144 AC Power Supply), UK Plug

About RUCKUS Networks

RUCKUS Networks builds and delivers purpose-driven networks that perform in the demanding environments of the industries we serve. Together with our network of trusted go-to-market partners, we empower our customers to deliver exceptional experiences to the guests, students, residents, citizens and employees who count on them.

www.ruckusnetworks.com

Visit our website or contact your local RUCKUS representative for more information.

RUCKUS® NETWORKS

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