

Juniper® Validated Design

JVD Solution Overview: Scale-Out IPsec Solution for Mobile Service Providers

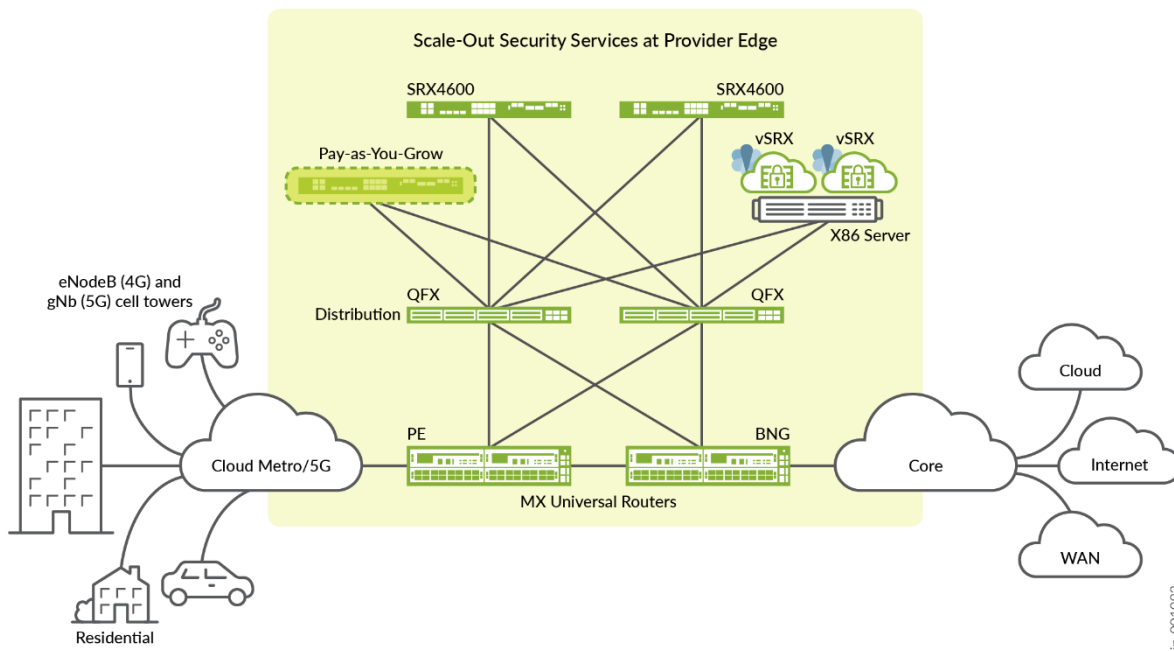


Executive Summary

sol-overview-MSE-SCALEOUT-IPSEC-SP-01-01

The Juniper Scale-Out Security Services Solution is a common security services complex featuring an IPsec Security Gateway for use in a Mobile Service Provider (MSP) deployment. The security services complex leverages the scale-out network architecture and automation with a tight integration between the routing and security services elements represented by MX Series Routers and SRX Series Firewalls. This provides the best routing and security stacks for optimal performance and total cost of ownership. The scale-out approach offers advantages over scale-up approach like integrating security engines directly into routing nodes, including pay-as-you-grow pricing, flexibility to handle unpredictable traffic growth, high availability with sub-second restoration for IPsec Security Associations, and optimal operational preferences for a choice of physical or virtual nodes.

Figure 1: Scale-Out Security Services Solution at Provider Edge



Solution Overview

This JVD outlines the Juniper Scale-Out Security Services Solution, which is seamlessly integrated within MSP network solutions and enables the following security services:

- IPsec Security Gateway

The solution is comprised of dedicated forwarding and service layers, with an optional distribution layer to enhance scalability, optimize port usage and bandwidth. The architecture is designed to leverage Juniper's portfolio with standard-based routing protocols featuring BGP and BFD, ECMP with consistent hashing (CHASH), and traffic load balancer (TLB) function in the forwarding layer. Meanwhile, the service layer is comprised of all the IPsec security services.

This JVD is validated with Junos OS Release 23.4R2 and encompassed the following Juniper hardware:

- Forwarding layer: MX Series Routers, validated with MX304
- Service layer: SRX Series Firewalls, validated with SRX4600 and Virtual SRX (vSRX)
- Distribution layer: QFX Series Switches (optional, not part of this JVD)

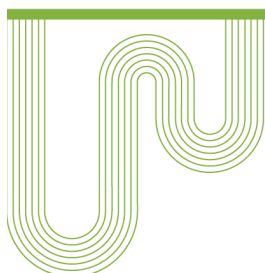
Table 1: Summary of Test Plan and Platforms Mapping

| Load-Balancing Method | For MX Series Routers | Number of MX Series Router | Security Features | SRX Standalone | SRXs MNHA Cluster |
|--------------------------------------------------|-------------------------|----------------------------|------------------------|----------------|-------------------|
| ECMP with Consistent Hashing | Junos OS Release 23.4R2 | Single MX Series Router | IPsec Security Gateway | Yes | No |
| Traffic Load Balancer (TLB) with Health Checking | Junos OS Release 23.4R2 | Single MX Series Router | IPsec Security Gateway | Yes | Yes |

About JVDs

A Juniper Validated Design (JVD) is a cross-functional collaboration between Juniper solution architects and test teams to develop coherent multidimensional solutions for domain-specific use cases. The JVD team is comprised of technical leaders in the industry with a wealth of experience supporting your complex use cases.

Using JVDs, you can significantly reduce the risk of costly mistakes while saving time and money in the deployment of network solutions. JVDs provide benefits such as a more stable network with fewer bugs and a shorter time to resolution if bugs are discovered. The validation process ensures that the network is optimized for maximum performance, leading to better user experience for enterprise or SP operation and network service consumers. Furthermore, the design concepts deployed are formulated around best practices, leveraging relevant technologies to deliver the scope of the solution. Key Performance Indicators (KPIs) are identified as part of an extensive test plan that focuses on functionality, performance integrity, and service delivery. With JVDs, you can shorten the time to market when implementing new network solutions, reducing the lead time to generate revenue from new services.



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