

EXPAND MARKET REACH AND REVENUE WITH THE FLEXIBLE SERVICE EDGE

Extensible platform enables a variety of high-value services

Challenge

Service providers face an increasingly competitive landscape, with new entrants and new technologies raising expectations ever higher. End users have grown to expect cloud economics, agility, and flexibility in every service they consume.

Solution

The Flexible Service Edge provides an extensible foundation for services innovation, taking software-defined networking to a whole new level. Providing fast, agile, and secure connectivity with unmatched economics and simplicity, it is the ideal solution for delivering a wide range of cloud-centric services.

Benefits

- Extend market reach—offer a variety of SLA-backed, cloud-centric services
- Grow revenues—move up the value stack and increase upsell opportunities
- Increase margins—slash operations expenses, reduce bandwidth costs by 30-50%, increase head-end router densities 3X
- Improve time-to-market—introduce high-value services quickly and cost-effectively
- Accelerate revenues—turn up hundreds of customer sites per day with no truck rolls

The Juniper® Flexible Service Edge helps service providers move up the value chain, extend market reach, and expand revenue opportunities. This versatile WAN service edge provides one platform with many possibilities, accelerating time-to-market for a wide range of differentiated enterprise and SMB offerings, helping service providers attract, retain, and monetize customers.

Around the world, companies of every size and industry are migrating applications and services to the cloud to accelerate the pace of business and streamline operations. Take advantage of this massive market opportunity by rolling out a variety of high-value, cloud-centric services—efficiently and cost-effectively—at your own pace. Regardless of where you are on your service transformation journey, the Flexible Service Edge solution can help you improve business performance and gain a competitive edge in today's crowded marketplace.

The Challenge

Service providers face an increasingly competitive landscape, with new entrants and new technologies raising the expectations for end users, who now expect cloud economics, agility, and flexibility in every service they consume. The service provider's challenge is how to differentiate, provide excellent customer service, and grow revenues while managing costs. Connectivity services may be enough today, but to retain customers and expand market share, service providers must provide even more value. Cost considerations loom large; service providers need to maintain, or better yet, grow margins to improve their competitive positioning. They need a platform that can deliver value from day one, and enable new services in the future.

The Juniper Flexible Service Edge Solution

The Flexible Service Edge helps service providers streamline the introduction of high-margin, cloud-centric services for the digital era. The solution provides an extensible foundation for services innovation, helping you evolve your offerings and move up the value stack on your own timeline.

Start by deploying the solution as the Juniper L3NID, a smart Layer 3 Network Interface Device (NID), to help manage cloud connectivity or Internet access services and establish an account presence. Unlike a traditional dumb demarcation device, the L3NID intelligently monitors, manages, and polices traffic at the WAN edge for ultimate visibility, efficiency, and control.

Extend your investments by leveraging the platform as a Juniper Service Edge Router or a Juniper Session Smart™ Router to deliver more advanced networking and security services such as SD-WAN, IoT, and wireless access. The Flexible Service Edge is fully software-based, so you can expand functionality and roll out new services right over the network, with the click of a button, via a simple license update.

With the Flexible Service Edge, you can turn up edge devices, provision services, and troubleshoot problems from a central network operations center (NOC), without on-premises intervention. The solution helps you avoid truck rolls, increase service velocity, and slash operations expenses.

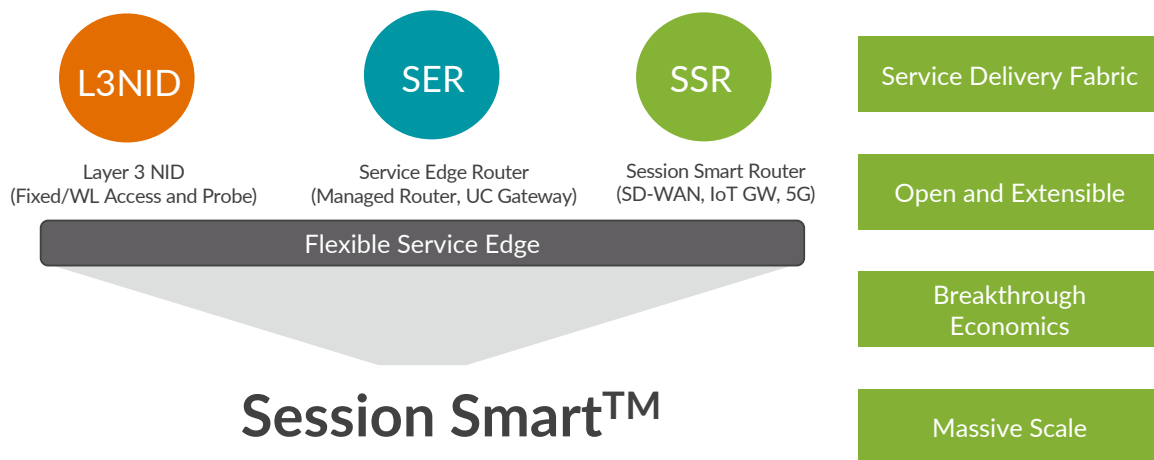


Figure 1: The Flexible Service Edge lays the foundation for a variety of high-value services

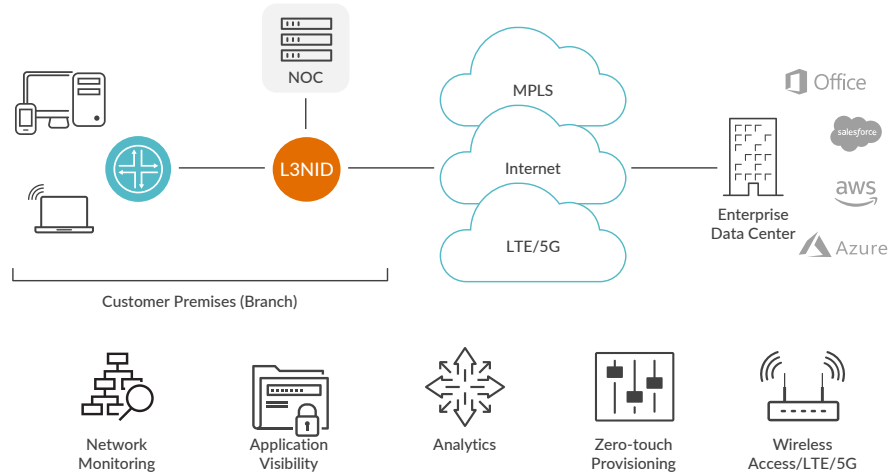


Figure 2: Layer 3 Network Interface Device (L3NID)

L3NID Provides Application-Level Insights

You can deploy the Flexible Service Edge as the L3NID to enable or improve Internet access, cloud connectivity, or VPN services. Unlike a Layer 2 NID, the L3NID supports any fixed or wireless access interface (Internet, carrier Ethernet, 4G/LTE, etc.) for ultimate flexibility. The intelligent edge device provides detailed visibility into application-level usage and performance data, helping you monitor service quality, streamline diagnostics, and improve customer satisfaction. You can also upsell advanced analytics or AI services for supplemental revenues. Once deployed, the L3NID serves as a launching pad for future business opportunities.

Key advantages of the L3NID include:

- Easy installation and setup—avoid truck roll delays, hassles, and expenses, and turn up hundreds of customer sites per day with zero-touch provisioning and plug-and-

play deployment.

- Multiservice demarcation—standardize on a single WAN edge termination device for all fixed and wireless access services, including future 5G services.
- Single pane-of-glass, centralized management—monitor, configure, and administer edge devices and troubleshoot issues from a central NOC to contain operations expenses, accelerate problem resolution, and improve customer satisfaction.
- Intelligent instrumentation—gain valuable insights into key usage and performance data (bandwidth utilization, latency, jitter, packet loss, etc.) on a per session, per segment basis using built-in tools or standards-based network management platforms and analytics solutions. Statistics are gathered and broken out per application, and each application is identified by name.

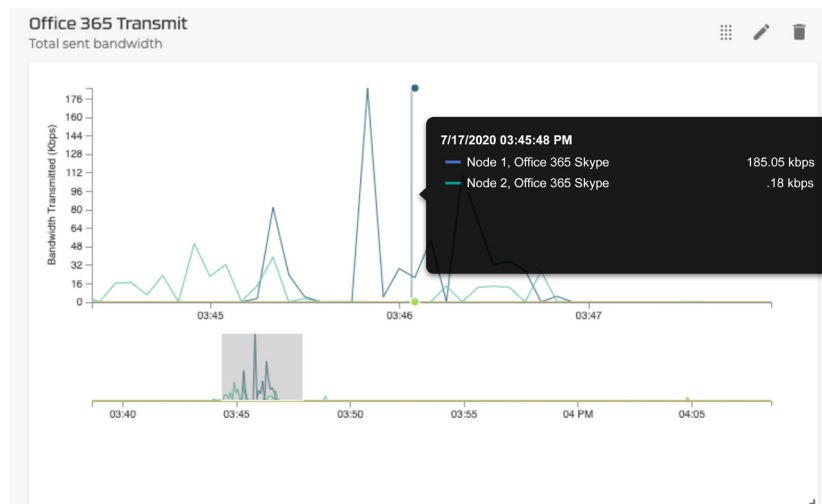


Figure 3: Bandwidth usage from Office 365 seen with the L3NID

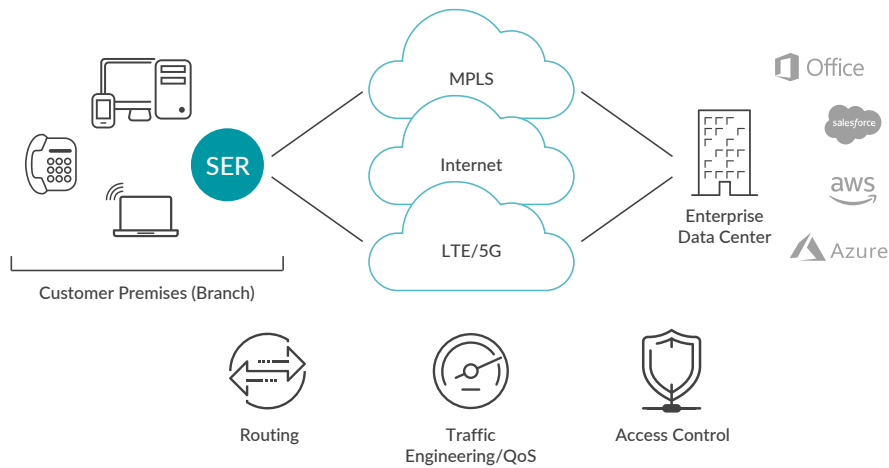


Figure 4: Service Edge Router

Service Edge Router Strengthens Customer Relationships

You can use the Flexible Service Edge as a managed router to move up the value chain, strengthen customer relationships, and increase margins and revenues. The solution makes it easy to configure, monitor, and control routing services on behalf of your customers. You can improve business results by extending your value proposition, becoming a trusted partner, and helping your customers improve network performance and reliability, all while freeing up valuable technical resources.

Key advantages of the Service Edge Router include:

- Dynamic routing—improve resiliency and balance performance by routing traffic across multiple WAN interfaces or service providers
- Comprehensive traffic engineering—optimize service quality and end-user experiences with granular quality-of-service (QoS) controls and traffic shaping
- Secure access controls—strengthen security and mitigate risk with stateful Layer 4 network firewall functionality

Session Smart Router Unleashes Services Innovation

You can use the Flexible Service Edge as a Session Smart Router to deliver contemporary services like managed SD-WAN, IoT, and other edge compute services that require application-centric routing functionality and advanced security capabilities. The Session Smart Router intelligently routes traffic based on administratively defined policies and real-time network conditions, automatically selecting the right path for the right application at the right time for ultimate performance, resiliency, and service quality.

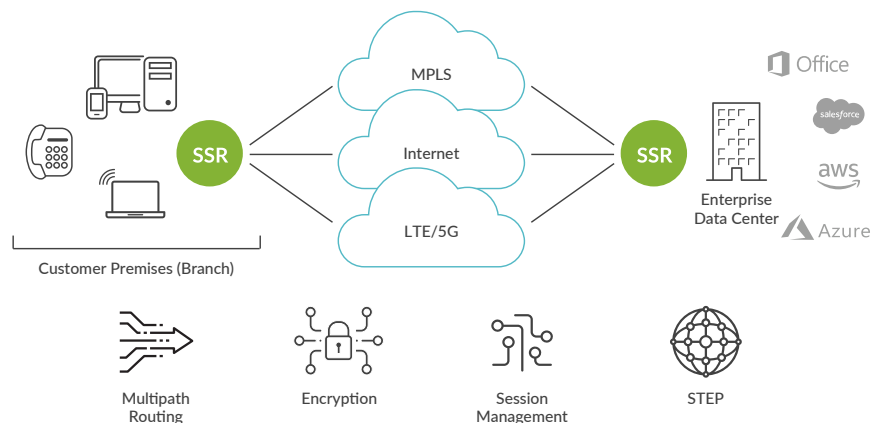


Figure 5: Session Smart Router

Key advantages of the Session Smart Router include:

- Strong security with Secure Vector Routing (SVR)—ensure strong data security without the overhead of traditional encryption protocols like IPsec. The Session Smart Router supports per service, per session payload encryption, automatically detecting already encrypted traffic flows to avoid double encryption.
- Advanced session management and multipath routing—optimize performance, resiliency, and service quality with application and policy-based multipath routing. Avoid hair-pinning and latency by routing and policing traffic at the edge.

- Global, service-centric control plane—improve scalability and programmability with a universal, service-centric control plane. With the Session Smart Router, you can easily scale policies across thousands of customer sites. The Session Smart Service and Topology Exchange Protocol (STEP) enables a truly global view of service, tenancy, and policy information.

Flexible Service Edge Delivers Cloud Agility, Scalability, and Economics

The Flexible Service Edge takes software-defined networking to a whole new level, providing fast, agile, and secure connectivity with unmatched economics and simplicity. Ideal for delivering a wide range of cloud-centric services, the solution intelligently manages and controls traffic at the WAN edge—close to the customer—for ultimate speed, efficiency, and scalability.



Figure 6: The Flexible Service Edge provides fast, secure, and agile connectivity with unmatched economics and scalability

Juniper Flexible Service Edge Features and Benefits

| Feature | Benefit |
|------------------------------|---|
| Service-centric fabric | <ul style="list-style-type: none"> • The Flexible Service Edge offers the industry's only software-defined, session-based fabric designed to recognize and maintain services and tenancy context across the entire extended network. • It is ideal for multicloud, 5G, and multi-access edge computing (MEC) use cases. • The solution enables consistent policies and user experiences across networks, clouds, and physical locations. |
| Economics and choice | <ul style="list-style-type: none"> • The Flexible Service Edge is a pure software solution that runs on commercial off-the-shelf servers and popular hypervisors for ultimate choice, simplicity, and cost savings. • It reduces access, interconnect, and transit expenses by minimizing protocol overhead and reducing WAN bandwidth consumption. • It reduces capital equipment expenses by consolidating and unifying CPE. • And it reduces operations expenses by simplifying installation, operations, administration, and maintenance functions. |
| High speed and scalability | <ul style="list-style-type: none"> • The Flexible Service Edge optimizes performance and scalability by eliminating tunneling overhead. • It prioritizes, controls, and routes traffic at the edge to avoid backhaul latency. • And it uses zero-touch provisioning (ZTP), centralized management, and global policies to eliminate site visits and accelerate customer deployments. |
| Cloud-defined agility | <ul style="list-style-type: none"> • The Flexible Service Edge provides an adaptable, application-aware fabric that intelligently routes traffic based on policies and real-time network conditions. • This enables ultimate programmability and service agility. |
| Built-in zero trust security | <ul style="list-style-type: none"> • The Flexible Service Edge supports zero trust (deny by default) routing, AES256 payload encryption, per-packet authentication, and end-to-end hypersegmentation. • This segregates customers and protects applications and infrastructure against data loss and malicious attacks. |

Solution Components

Juniper L3NID

Juniper Service Edge Router

Juniper Session Smart Router

Summary—Expand Market Reach and Revenue with the Flexible Service Edge

The Juniper Flexible Service Edge lets you launch a variety of high-value, cloud-centric services—quickly and cost-effectively. The solution serves as an extensible platform for innovation, allowing you to enable new functionality and deliver new services in an incremental, non-disruptive fashion with a simple software license update. The Flexible Service Edge solution redefines the WAN service edge, helping you extend your value proposition, strengthen customer relationships, and restore margin and revenue growth in today's hypercompetitive marketplace.

FSE Functional Entitlement Matrix Summary

| Functionality | L3NID | Service Edge Router | Session Smart Router |
|-----------------------------|-------|---------------------|----------------------|
| Network management | ✓ | ✓ | ✓ |
| Static routing | ✓ | ✓ | ✓ |
| Application identification | ✓ | ✓ | ✓ |
| Analytics | ✓ | ✓ | ✓ |
| High availability | ✓ | ✓ | ✓ |
| Dynamic routing | | ✓ | ✓ |
| Network address translation | | ✓ | ✓ |
| Traffic engineering | | ✓ | ✓ |
| Network firewall | | ✓ | ✓ |
| IPSec/GRE | | ✓ | ✓ |
| SIP ALG | | ✓ | ✓ |
| Multipath routing/SD-WAN | | | ✓ |
| Session management | | | ✓ |
| Session encryption | | | ✓ |
| Ethernet over SVR | | | ✓ |
| STEP | | | ✓ |

Figure 7: Flexible Service Edge Functionality

Next Steps

To learn more about the Juniper Flexible Service Edge solution, please contact your Juniper account manager or visit www.128technology.com.

About Juniper Networks

Juniper Networks brings simplicity to networking with products, solutions and services that connect the world. Through engineering innovation, we remove the constraints and complexities of networking in the cloud era to solve the toughest challenges our customers and partners face daily. At Juniper Networks, we believe that the network is a resource for sharing knowledge and human advancement that changes the world. We are committed to imagining groundbreaking ways to deliver automated, scalable and secure networks to move at the speed of business.

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