VyOS Networks

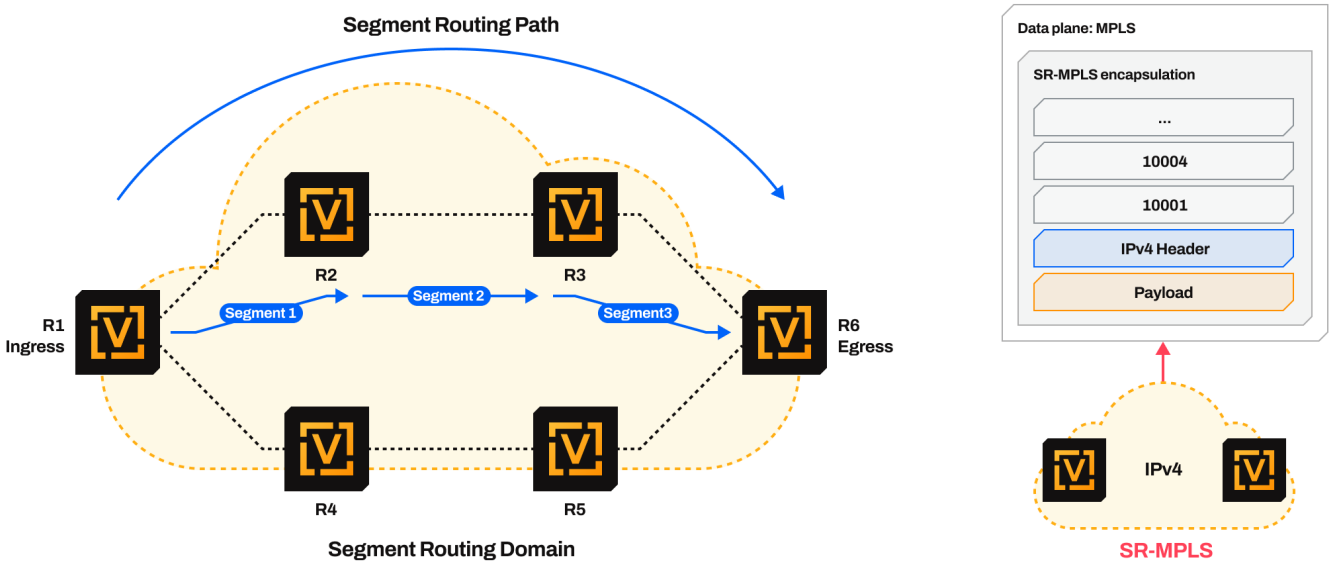
SOLUTION BRIEF

MPLS AND SR-MPLS WITH VYOS: BUILDING NEXT-GENERATION NETWORKS

MPLS and SR-MPLS with VyOS

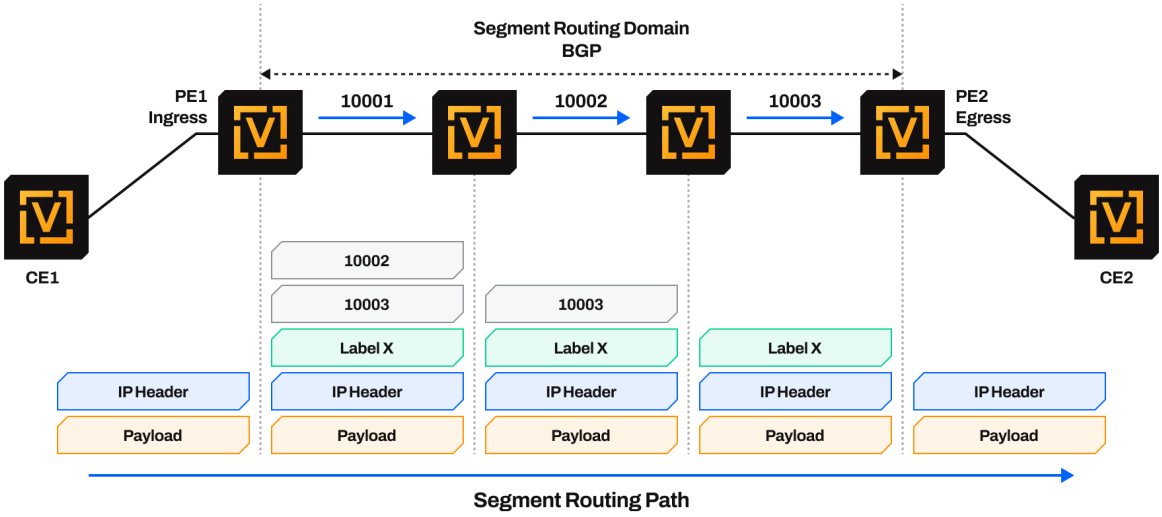
Multiprotocol Label Switching (MPLS) has long been the foundation of carrier-grade and enterprise backbone networks, delivering high-speed forwarding, advanced traffic engineering, and scalable VPN services. By introducing labels to direct packets through predetermined paths, MPLS provides predictable performance, efficient resource utilization, and seamless support for converged services such as voice, video, and data.

Segment Routing over MPLS (SR-MPLS) evolves this architecture by removing the need for complex signaling protocols like LDP or RSVP-TE. Instead, SR-MPLS leverages the intelligence of the network edge to define flexible forwarding paths using segments, significantly simplifying design and operations. This modern approach enables granular traffic control, fast re-routing, and tight integration with SDN and automation systems, making SR-MPLS a natural fit for dynamic and cloud-centric environments.



VyOS brings these technologies into a single, unified, and open network operating system that is both flexible and cost-efficient. With VyOS, organizations can implement MPLS and SR-MPLS features on commodity hardware or virtual platforms, eliminating dependence on proprietary solutions while retaining carrier-class capabilities. Key features include:

- **Layer 2 and Layer 3 VPNs** for secure, scalable multi-tenant services.
- **EVPN integration** for efficient data center interconnect and cloud networking.
- **Traffic Engineering and SR Policies** for deterministic application performance and optimized resource usage.
- **Fast reroute and resiliency** for high-availability service delivery.
- **Seamless automation** through APIs and scripting, aligning with modern DevOps practices.



By deploying MPLS and SR-MPLS with VyOS, enterprises and service providers gain the agility to scale their networks, optimize costs, and adapt to evolving demands. The result is a future-proof infrastructure that combines the proven reliability of MPLS with the simplicity and programmability of Segment Routing, all delivered through the openness and flexibility that define VyOS.

Why VyOS?

Our key benefits:

Routing Management

Support for dynamic routing protocols to discover the network, maintain routing tables and calculate the best path for the traffic. Having low levels of routing overhead, using administrator-specified paths and preventing network information leakage are the jobs of static routing.

Advanced Configurations

Automation with scripting for advanced configurations allows you to actively react to events happening in your network and control your router via external automation tools.

List of Hardware Vendors

Compatibility with a long list of hardware vendors helps our customers migrate from proprietary hardware or upgrade to higher-performance software, enabling a successful transition to white box networking.

High-performance Virtual Routing

Ability to run the border router inside a virtual machine on the same hardware with other services.

Unified Command-line Interface

A unified CLI as in classic hardware routers that help to inspect, backup and manage your infrastructure with ease.

Resources

VyOS official documentation: https://docs.vyos.io

VyOS community forums and support: https://forum.vyos.io

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