

# JUNIPER NETWORKS SOLUTION FOR HD TELEPRESENCE APPLICATIONS

Provides predictable, reliable, scalable telepresence delivery over common network infrastructure

## Challenge

HD telepresence requires a large amount of low jitter, low latency bandwidth. In order to maintain low total cost of ownership, the service should be implemented on a shared network infrastructure. Exposure to threats on Internet segments adds stringent security demands.

## Solution

Juniper’s solution provides the necessary resources for HD telepresence applications in a variety of network configurations and topologies. This solution, powered by Junos OS, is based on the M Series, T Series, MX Series, EX Series, J Series, and SRX Series products.

## Benefits

Juniper’s HD telepresence support provides predictable, reliable, scalable delivery of telepresence and other application services over a common network infrastructure. Even under duress, Juniper’s switches, routers, and security products deliver the required quality of service (QoS). Best-in-class network security protects telepresence sessions from attacks and eavesdropping.

Organizations of all sizes are seeking new ways to improve efficiency, performance, and profitability. In an effort to control expenses, the burgeoning cost of travel is being carefully scrutinized. This is driving a dramatic rise in telepresence services that allow workers at different locations to interact and collaborate as if they were present in the same room. Telepresence services are already available and growing, and more rapid adoption is expected as this technology proves to be a cost-effective alternative to travel. Lured by business opportunity, network operators are looking to create scalable telepresence service offerings which will connect different organizations across geographic regions.

However, a telepresence service is only as good as the network over which it rides, because this bandwidth-hungry application has little tolerance for packet loss and network delays. As the leader in high-performance networking, Juniper Networks has become a trusted supplier of networking solutions to service providers and enterprises worldwide, with the best network infrastructure for telepresence applications. Built on proven Juniper Networks® Junos® operating system, Juniper’s solution for HD telepresence applications enables reliable telepresence services for hundreds of customers and thousands of connections simultaneously. Deploying a common networking operating system also reduces the cost of network operations.

Since telepresence enables teleworking by allowing remote connectivity via the Internet, it is critical to ensure secure communications across the public infrastructure. Juniper Networks security gateways, built on the same Junos OS, provide the most scalable, cost efficient, highest performing infrastructure delivered over the Internet today.

The demand for telepresence services creates an opportunity for service providers to modernize their own networks and customer premises equipment (CPE) with Juniper networking solutions. At the same time, they can increase network value by building next-generation converged network infrastructures that can not only efficiently and securely deliver high-performance telepresence applications, but other network services as well.

## The Challenge

While HD telepresence is poised to make teleworking even more productive by providing an effective alternative to face-to-face meetings, it comes with an increased demand for network resources. New telepresence applications have little tolerance for packet loss, while jitter and latency can ruin the intimacy which telepresence is designed to create. These potential problems threaten the very essence of what makes telepresence such a valuable business tool.

Lack of supply of low latency bandwidth and exposure to cybersecurity threats are among the challenges telepresence applications face today. Not every network and equipment vendor can meet such demands in a simple and cost-effective solution. Today's high-performance networks require networking equipment that can scale into the future while meeting the growing demands of HD telepresence today and also accommodating other applications.

## Juniper Networks Solution for HD Telepresence Applications

High-performance, industry-proven networking equipment from Juniper Networks cost effectively meets the challenge posed by the new generation of network applications and services, including HD telepresence. Juniper's telepresence solution is scalable and optimized for QoS hardware architecture, includes feature-rich Junos OS, and provides reliable building blocks for any network infrastructure. This solution delivers the best possible traffic propagation latency and low jitter for a wide range of network topologies and traffic load scenarios.

The Juniper solution provides the traffic from telepresence applications of any vendor with required network bandwidth, predictable QoS, and deep transmission buffers. Juniper equipment can accommodate the uneven nature of telepresence applications, while also providing smart security and a rich set of additional service features. These "building blocks" come in a variety of sizes and functionalities to satisfy the varying requirements of carriers and enterprises while keeping TCO at manageable levels. Juniper's solution can be used with virtually any telepresence system, including encrypted connections. This permits seamless integration and provides an open migration path in the future.

## Features and Benefits

- **Scalable bandwidth on optimal hardware:** HD telepresence requires from 3 to 15 Mbps of network bandwidth bi-directionally for each session, and some organizations serve more than 100 simultaneous telepresence sessions. As the leader in high-performance networking, Juniper offers

a portfolio that is designed for high bandwidth, real-time applications such as telepresence. Network operators benefit from the same user interface and familiar features that are delivered by Junos OS. Customers know that Juniper's non-blocking equipment architecture scales in both port speed and density. Juniper's scalable network products may be upgraded with special purpose service feature cards that enable delivery of new value-added services.

- **Rich QoS with low latency queuing and deep buffers for enhanced delivery:** High motion interactive telepresence sessions rely on quick and reliable traffic delivery and are not tolerant of packet loss resulting from oversubscribed traffic classes or network buffer overflows. Juniper equipment delivers predictable QoS performance and a rich set of security and service functions simultaneously.
- **Leading MPLS feature set:** The industry leader in MPLS-based networking, Juniper Networks maintains the broadest portfolio of MPLS and VPN technologies. Features available in our products permit rapid service restoration during outages, employ traffic engineering for optimal resource utilization on converged networks, and provide segmentation for services deployed on the shared network infrastructure.
- **Trustworthy network security perimeter for secure application:** Telepresence in critical medical and government applications depends on reliable and secure video and audio transmission. Juniper's network security infrastructure protects telepresence from cyber threats while providing high bandwidth throughput. Juniper Networks SSG Series Secure Services Gateways, the top performing data security devices on the market, have the best price/performance characteristics and deliver a broad set of security features for telepresence applications.
- **Verified telepresence service delivery:** Telepresence is a valuable telecommunication service and as such, delivery of this service should be closely monitored and gauged. Reliable measurement of key performance indicators and service accounting for high bandwidth, high volume applications add to the network equipment load which is typically caused by telepresence. Juniper networking products are purpose-built to address the needs of our customers and include standards-based instrumentation for qualitative and quantitative verification of telepresence services. This instrumentation does not impact the forwarding functions of network equipment, and seamlessly integrates with existing service provider operations support systems (OSS), business support systems (BSS), and enterprise network management systems (NMS).

## Solution Components

A powerful combination of purpose-built hardware and state-of-the-art Junos OS provides scalable components while simultaneously reducing cost and complexity.

- **M Series and T Series Routers:** Juniper Networks M Series Multiservice Edge Routers and Juniper Networks T Series Core Routers scale as needed for network growth. These industry leading products, deployed in the network core and WAN edge, provide predictable performance, interface density, high availability, and reliability. Hardware-based QoS architecture combines with advanced IP and MPLS traffic engineering features to enable deployment of large-scale telepresence services.

With their unique combination of enhanced edge features and industry leading interface density, M Series routers integrate with legacy networks to protect investment in existing telepresence infrastructures. Supporting up to 320 Gbps, M Series routers are equally suitable for next-generation network needs.

- **MX Series Routers and EX Series Switches:** Juniper Networks MX Series Ethernet Services Routers and Juniper Networks EX Series Ethernet Switches use the same Junos OS and operator interface to further cut network infrastructure and operations costs, while delivering scalable performance along with rich services and features. By making Junos OS features available

on Ethernet platforms, the telepresence infrastructure becomes even more cost effective while delivering all key elements necessary for successful deployment of this critical service.

- **J Series Services Routers:** Juniper Networks J Series Services Routers provide reliable, feature-rich, and cost efficient customer premises platforms that simplify network architecture without compromising performance and service, further enabling successful deployment of end-to-end telepresence services.
- **SRX Series Services Gateways:** When delivering telepresence services over the Internet, security becomes even more critical. As the most scalable security platform available, Juniper Networks SRX Series Services Gateways provide a versatile set of security features to improve security for telepresence over the Internet infrastructure. This product family provides familiar Junos OS operator interface and service features in a wide range of sizes and capacities.

## Summary—Future Proof and Cost Efficient Network Solutions for Telepresence Applications

Building future proof telecommunication networks, always a challenge, is especially risky now that increasing numbers of teleworkers are demanding more responsive network services. Juniper Networks high-performance network solution for HD telepresence applications simplifies network architecture and

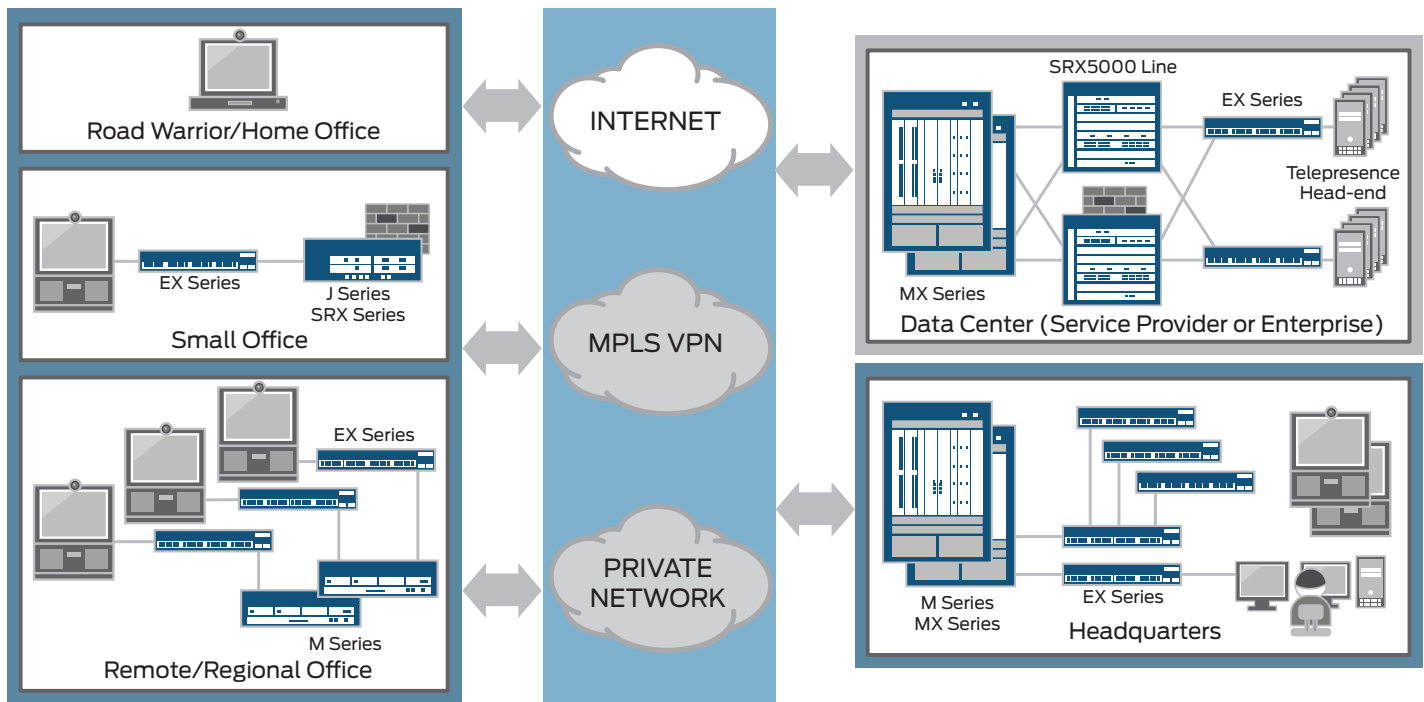


Figure 1: Juniper Networks products in a solution supporting HD telepresence

optimizes network operations. The Juniper solution delivers the most scalable port density with rich services, provides leading QoS architecture and security that can differentiate telepresence service offerings from the competition, and protects investment by providing room for expansion and incremental new features.

Juniper's standards-based telepresence solution also can easily integrate with telepresence equipment from different vendors and with existing OSS, NMS, and point solutions from third parties. Juniper's solution can be used with virtually any telepresence system, including encrypted connections, permitting seamless integration and providing an open migration path in the future.

### Next Steps

To learn more about Juniper Networks HD telepresence solutions, please contact your Juniper Networks representative or visit [www.juniper.net](http://www.juniper.net).

### About Juniper Networks

Juniper Networks, Inc. is the leader in high-performance networking. Juniper offers a high-performance network infrastructure that creates a responsive and trusted environment for accelerating the deployment of services and applications over a single network. This fuels high-performance businesses. Additional information can be found at [www.juniper.net](http://www.juniper.net).

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