

# JUNIPER NETWORKS SOLUTION FOR MICROSOFT UNIFIED COMMUNICATIONS

## High-Performance Network Infrastructure Enables Unified Communications

### Challenge

Successful UC implementations require scalable, converged solutions that provide industry-leading security, connectivity and performance to ensure reliable data, voice, and video communications.

### Solution

The Juniper Networks high-performance network infrastructure comprising switching, routing and security solutions help to create a responsive and trusted environment for accelerating the deployment of Microsoft UC applications over a single converged network.

### Benefits

- Provides reliable connections and ensures a better communications experience
- Protects intellectual property and corporate assets without compromising the end-user experience
- Increases productivity by optimizing application performance for local and remote users
- Builds a future-ready foundation for the provision of UC services

The promise of reduced costs combined with enhanced productivity and mobility has led companies to increasingly migrate to Unified Communications (UC) solutions. As these and other applications continue to grow and evolve, companies require a single high-performance network infrastructure able to deliver high-quality voice and data services without issues such as latency, jitter and packet-loss that can cripple real-time voice and video communications.

### The Challenge

Yet with these performance considerations come significant security risks that are frequently ignored during UC deployments. Implementing a comprehensive UC solution requires more than an IP PBX or UC server. Enterprises require complete converged communications solutions that provide scalable and reliable network infrastructure to ensure world-class performance and voice quality, all while securing the network and protecting corporate assets.

### The Juniper Networks Converged Communications Solution

As a Microsoft Certified Partner, Juniper Networks® works closely with Microsoft to deliver the network services needed to create a responsive and trusted environment for accelerating the deployment of Microsoft UC applications over a single converged network. With reliable, scalable and secure converged network infrastructure from Juniper Networks, Microsoft Office Communications Server customers are able to meet their single-network needs both today and in the future.

Juniper Networks offers the predictable service quality, highly available services, pervasive security and standards-based architecture that enterprises require to migrate to a converged IP network. Key Features and Benefits

### Security Considerations

Adding voice and video to the data network creates a new collection of security concerns. By creating additional points of entry, the shared network is exposed to threats that can compromise corporate data. Hacking into a corporate UC system can provide a back door to the corporate LAN, opening the door for viruses, worms, denial of service attacks and other unauthorized access.

The Juniper Networks security operating system, ScreenOS software, supports Application Layer Gateways (ALGs) for SIP and H.323 protocols that are prevalent in UC deployments. The ALG dynamically opens and closes firewall ports to allow incoming and outgoing calls to transit the network.

The Juniper Networks security solution works in a Network Address Translation (NAT) environment, using private IP addresses that complicate the process of receiving calls. Other solutions do not have NAT capabilities, requiring a third-party device to perform the function, increasing cost and complexity. Juniper offers plug-and-play functionality in NAT environments for Microsoft UC.



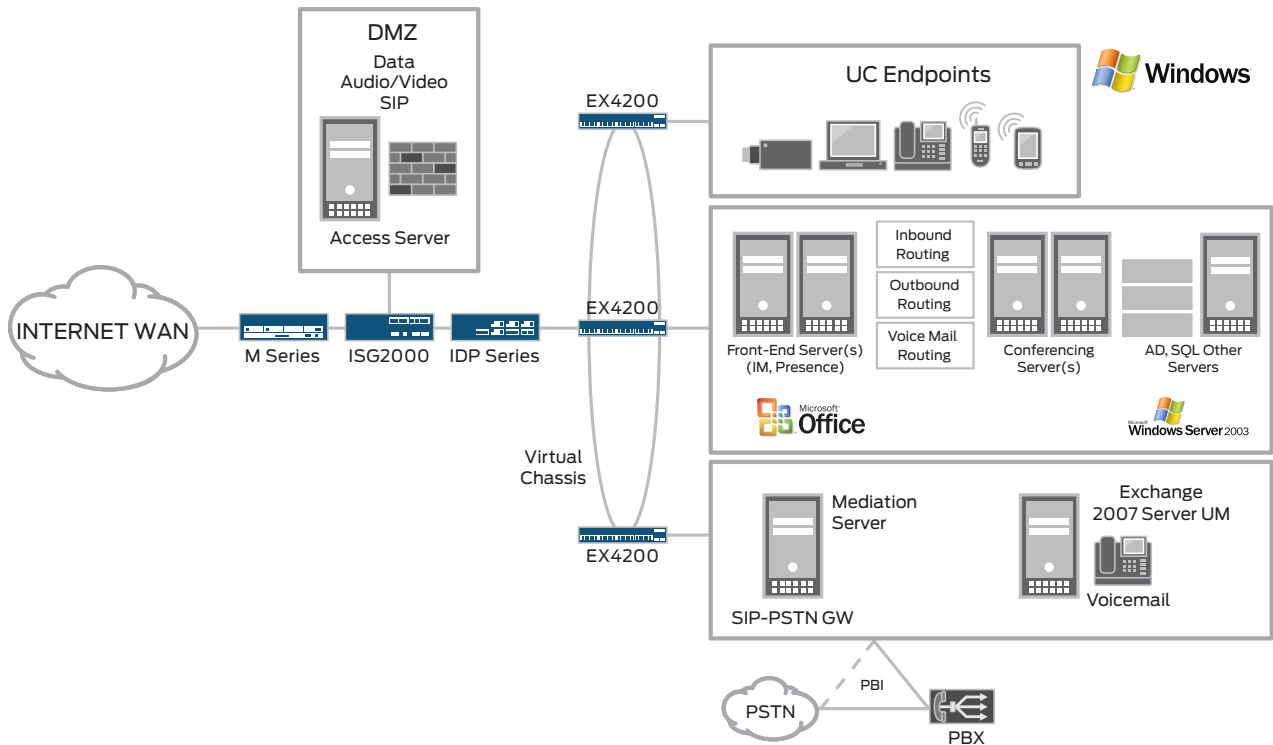


Figure 1: Typical Microsoft UC deployment on Juniper infrastructure

### More than Packet Transfer

While latency, jitter and packet loss rarely have an impact on the quality of data communications, they can have a crippling effect on voice and video communications. UC solutions have real-time requirements and High Availability (HA) connectivity expectations. These applications are particularly vulnerable to performance degradation, network link or device failures. And because users expect their voice and video communications to be private, solutions must meet the highest standards for security.

Combining network infrastructure and IP telephony elements that weren't designed for interoperability can lead to service disruption and poor voice quality. High-performance routing, switching and security are required to move the packets through the network with appropriate Quality of Service (QoS), ensuring that security appliances, switches, routers, gateways and other components do not affect the Quality of Experience (QoE) for the user.

### Predictable Performance, High Quality

Enterprises need their converged communications infrastructure to:

- Mitigate threats and attacks targeted at UC servers and endpoint devices, ensuring that only appropriate users and devices can access UC resources
- Secure voice communications from any location using industry leading firewall, intrusion prevention and SSL VPN solutions
- Increase existing bandwidth capacity over wide area links so that VoIP/UC applications can be rolled out enterprise-wide on existing WAN links
- Ensure minimal latency, jitter, and packet loss, regardless of network conditions
- Maximize connection availability via automatic failover mechanisms
- Provide redundancy by virtualizing and mirroring platforms and services
- Efficiently and reliably transport VoIP and video traffic using comprehensive traffic engineering and QoS capabilities for optimal user experience

## Key Features and Benefits

Juniper Networks offers the predictable quality, HA, pervasive security and flexible deployment needed to implement effective VoIP solutions. The integration of Juniper Networks routing, switching and security solutions with Microsoft UC enables successful deployment and ample opportunity to grow and scale communications infrastructures.

## Efficiency and Control

Reducing costs and increasing operational efficiencies add money directly to a company's bottom line. It's not surprising, then, that businesses are increasingly turning to solutions like IP telephony/ UC in an effort to reduce costs by consolidating multiple services onto a single network. IP telephony and other value-added services can often bring existing networks to a standstill because traditional networks are not designed to handle such stringent performance requirements. According to Infonetics Research, 68 percent of IP telephony deployments will require upgraded routers to support voice traffic and security functionality.

The open converged communications network infrastructure from Juniper Networks provides increased choice and control of more applications through centralized management, while reducing costs to quickly meet UC requirements. Juniper Networks solutions provide:

- Comprehensive QoS functionality to classify, prioritize and schedule voice and video traffic at a higher priority than data traffic
- Voice enabled architecture and Link Fragmentation and Interleaving (LFI), providing low latency and jitter to support clear voice communications
- Application-specific integrated circuit (ASIC)-based processing, accelerating the performance of processor-intensive functions in routing, switching and security appliances
- Modular Juniper Networks Junos® operating system reduces integration costs and increases network efficiency
- Compressed Real Time Protocol (cRTP), compressing packet headers to increase network efficiency
- IPsec VPN technology to support low latency encrypted voice traffic for large scale WAN deployments

## Solution Components

Table 1: Juniper Networks product portfolio that enables Microsoft UC

ENTERPRISE LOCATION	ROUTING	SWITCHING	SECURITY/VPN	ACCESS CONTROL	WAN OPTIMIZATION	POLICY MANAGEMENT
Data Center	MX960	EX8200	ISG2000 <sup>1</sup>	SA6500	WXC Stack	IC6000
	MX480	EX4200	ISG1000 <sup>1</sup>	IC6000	WXC3400	IC4000
	MX240	EX3200	NetScreen-5400	IC4000	WXC2600	
	M320		NetScreen-5200		WXC590	
	M120		IDP8200		WXC500	
	M10i				WXC250	
Campus	M10i	EX8200	ISG2000 <sup>1</sup>	SA6500	WXC3400	IC6000
	M7i	EX4200	ISG1000 <sup>1</sup>	SA4500	WXC2600	IC4000
		EX3200	NetScreen-5400	IC6000	WXC590	
		NetScreen-5200	IC4000	WXC500		
		IDP8200				
IDP800						
Branch/Regional Office	J6350 <sup>2</sup>	EX4200	SSG Series	SA2500	WXC2600	Provided from Central Location
	J4350 <sup>2</sup>	EX3200		SA700	WXC250	
	J2350 <sup>2</sup>			IC4000		
	J2320 <sup>2</sup>					
Teleworker			SSG20 <sup>3</sup>			
			SSG5 <sup>3</sup>			
Extended Enterprise	Secure clientless access via SSL VPN					
Mobile Worker	Secure clientless access via SSL VPN					
Network Management	J-Web, Junos Scope, NSM, CMS and STRM Series					

<sup>1</sup>Optional Integrated IDP

<sup>2</sup>Optional Integrated Avaya IG550 Media Gateway and Modules

<sup>3</sup>Optional Integrated Wireless

With such secure, dependable infrastructure, and a reputation as an innovative leader, it's no wonder that the world's largest service providers, government agencies and enterprise customers rely on Juniper Networks to provide scalable and reliable security and networking platforms that deliver the best user experience with the lowest total cost of operations.

### Next Steps

For more information about how Juniper Networks' high-performance network services can help your company realize the benefits of Microsoft Unified Communications, please contact your Juniper Networks representative.

### 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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