THE NEW NETWORK FOR COLLABORATION—OPTIMIZING UC&C DEPLOYMENT WITH MICROSOFT LYNC AND POLYCOM

Providing a High-Performance, Resilient, and Secure Network to Support Unified Communications and Collaboration Services across the Enterprise

Challenge

Delivering a consistent and reliable user experience requires an intelligent and secure converged IP network that supports a wide range of service/hosted UC&C applications, as well as security and mobility across a wide variety of devices to enable BYOD.

Solution

The New Network for Collaboration solution provides a highly resilient and secure IP network to support a wide variety of UC&C applications over both wired and wireless networks, while providing a similar experience for hosted UC&C applications.

Benefits

- **Reliability**—Improved experience across high bandwidth and latency sensitive applications
- **Open**—Built for any application or service
- **Secure**—Security with low performance impact and full visibility into user and application usage
- **Simple**—Simplified architecture with fewer devices and reduced dependency on PSTN for reduced TCO

Enterprise telephony has come a long way. Analog phones, legacy Private Branch Exchanges (PBXs), and time-division multiplexing (TDM) trunks have given way to fully converged IP networks with diverse IP phones, soft phones, centralized IP PBXs or Unified Communications and Collaborations (UC&C) servers, and Session Initiation Protocol (SIP) trunks for telecom network (PSTN) termination. New and rich services like presence, video, instant messaging (IM), and file sharing have optimized the way members of an organization collaborate anywhere, anytime. Furthermore, new market players have entered the traditional enterprise telephony space now redefined as *enterprise unified communications and collaboration*.

Increasing numbers of enterprises are deploying UC&C applications and services. This is not surprising since IP-based UC&C brings indisputable advantages to the enterprise—enhancing productivity, boosting corporate responsiveness, enabling innovation, and reducing overall TCO. These important business benefits stem from:

- Single converged and agile IP infrastructure for data, voice, and video
- Rich collaboration features (presence, IM, file sharing)
- Diverse endpoints (IP phones, soft clients on PCs, smartphones, tablets, and other communication devices)
- Diversity of applications (including cloud-based, on-premise, and over-the-top (OTT) that provide service to fixed and mobile endpoints virtually anywhere

UC&C technology from Microsoft Lync, which combines voice, video, and collaboration, is gaining increased adoption in the enterprise. Combined with Polycom's CX family of voice and videophones, this technology provides a wide variety of options such as voice, video, and Wi-Fi-enabled endpoints that are optimized for use with Microsoft Lync. This is a clear advantage that Microsoft Lync and Polycom bring to the enterprise—enhancing productivity, bringing users new ways to collaborate, boosting corporate responsiveness, while reducing overall TCO. However, UC&C has real-time latency and jitter requirements that are not necessary for most data applications. When fully adopted, the demand for real-time voice and video communications place additional demands on all parts of the IP network infrastructure. The widespread adoption of UC&C has changed the expectations of users, who now expect to connect to these UC&C services from a variety of devices and network locations, and increasingly through the wireless LAN. The network needs to be future-proof, open, and flexible to support ever-changing UC&C behavior by users and hosted applications.

The Challenge

A converged IP network represents an extremely dynamic foundation, but one must pay close attention to a number of key challenges to enable UC&C to live up to its potential. These challenges include:

- **Security**—Critical communications, privacy, and regulatory compliance make securing the UC&C infrastructure and traffic flows a key challenge.
- **Openness**—As enterprise UC&C applications evolve quickly, it is imperative that the network conforms to open standards and is flexible enough to give enterprises the agility they need to quickly adapt without "rip and replace" upgrades.
- **Reliability**—As a business critical service, IP-based UC&C must satisfy stringent reliability requirements.
- **Performance**—The ability to provide all of the above for high volumes of real-time communications is critical for large-scale deployments.
- **Quality of service (QoS)**—As IP communications are built around a packet-based architecture, special care must be taken to achieve a level of QoS comparable or superior to legacy circuit switched telephony services. With the widespread adoption of video calls and conferencing, QoS becomes even more critical in providing enhanced quality of experience when using these applications.

Juniper Networks has a long tradition of high-performance, resilient, and secure products that have been validated through its solution testing. And these qualities play a paramount role in UC&C service deployment. Juniper strongly believes in standards-based open networks. As such, Juniper is a member of the Unified Communications Interoperability Forum (UCIF), ensuring that customers are free to build their UC&C networks using standards-based, interoperable building blocks.

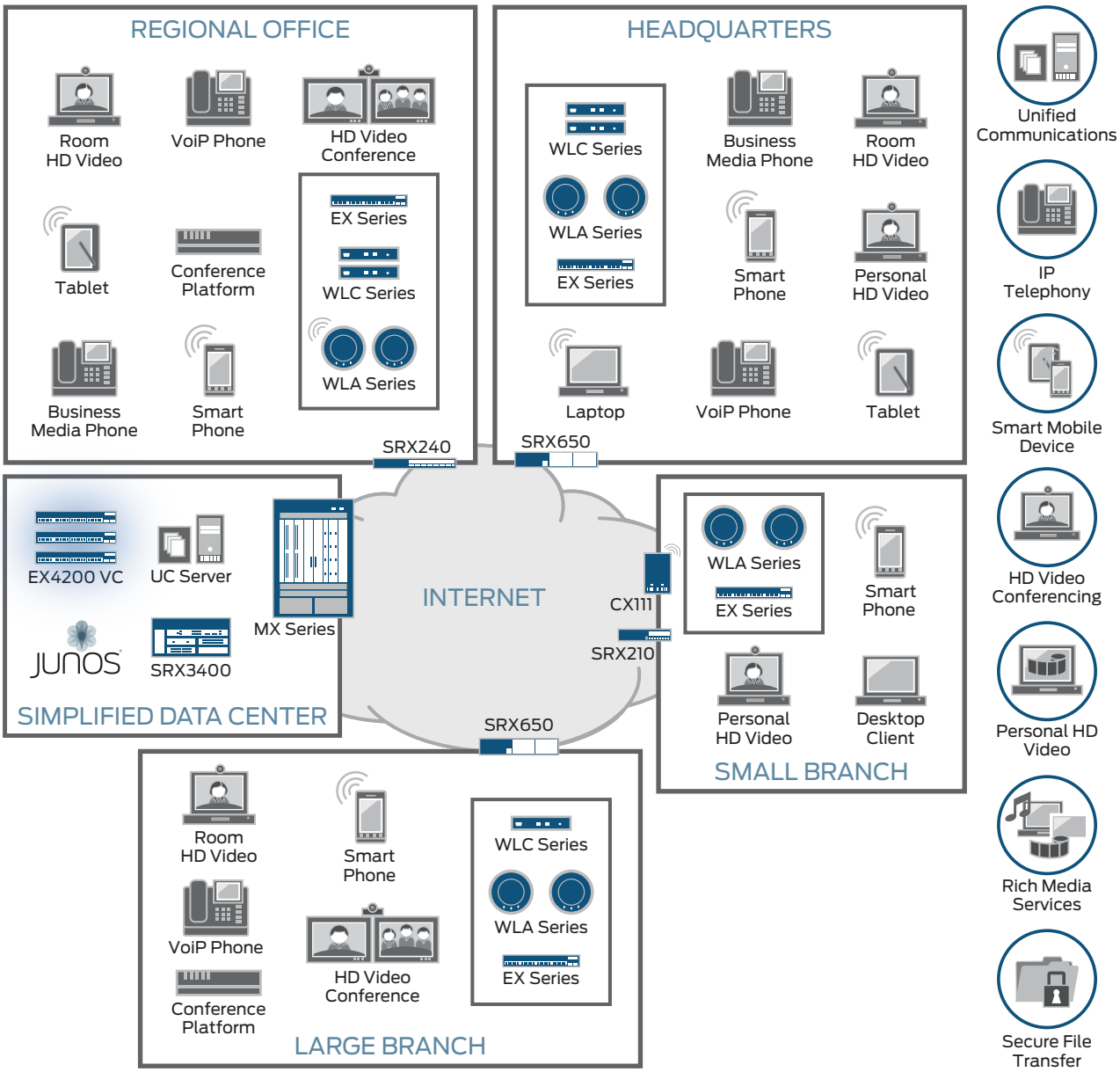

Figure 1: The new network for collaboration solution components

The New Network for Collaboration Solution

Juniper's New Network for Collaboration solution for Microsoft Lync and Polycom begins with Juniper's "Simply Connected Enterprise Architecture" to provide a high-performance, resilient, open, and secure fully converged IP network to support real-time UC&C applications. The solution includes a fully tested and supported network architecture for branch offices and campus networks to support a variety of Microsoft Lync and Polycom endpoints, including traditional Power over Ethernet (PoE) voice and video phones, video conferencing phones, or other wired devices, such as PC with a soft phone. In addition to supporting wireless-enabled UC&C devices such as Wi-Fi phones and smartphones, this solution enables widespread adoption of UC&C and Bring Your Own Device (BYOD) across the distributed enterprise. The solution includes delivery of Internet Protocol Telephony (IPT) technology using Microsoft Lync and Polycom CX endpoints, and it enables collaboration using Microsoft Lync and Polycom, while providing assured video conferencing across the WAN. The solution also enables an enhanced user experience for hosted and over-the-top (OTT) UC&C applications such as Skype or Google Talk.

Features and Benefits

- Assured video conferencing provides dynamic bandwidth allocation across WAN links to meet service-level agreements (SLAs).
- Highly resilient IP networking supports redundant WAN connections to ensure availability of UC&C service.
- IP-based survivability reduces dependency on legacy PSTN and reduces TCO.
- Application-agnostic approach supports UC&C applications of today and tomorrow, with a standards-based infrastructure to enable all types of voice, video, and data.
- Device-agnostic features support UC&C applications across a wide variety of devices, both wired and wireless. Support for securing the mobile device enables users to BYOD and allows all new devices to use the network safely. Also, the one policy per use rather than per port approach makes policy enforcement easier for IT to scale as demand grows.
- Security and scalability does not impact high-performance networking. Juniper offers optimized delivery of media using a dedicated, fast packet-forwarding plane that reduces network congestion and enhances throughput.

Figure 1 highlights the major components of this solution.

Solution Components

- Juniper Networks® MX Series 3D Universal Edge Routers—Provide high-performance WAN routing for IP or MPLS networks, with support for dynamic bandwidth allocation, mission critical IPT, and video conferencing.
- Juniper Networks EX Series Ethernet Switches—Provide high performance switching and PoE for UC&C endpoints with full support for automatic UC&C endpoint detection through Link Layer Discovery Protocol-Media Endpoint Discovery (LLDP-MED), and automated provisioning of endpoints through Dynamic Host Configuration Protocol (DHCP).
- Juniper Networks SRX Series Services Gateways—Provide high performance security and VPN transport for UC&C applications while enabling visibility into application and bandwidth usage, per user or per device.
- Juniper Networks WLC Series Wireless LAN Controllers and WLA Series LAN Access Points—Provide high-performance Wi-Fi access and security to support a wide variety of devices such as PCs, IP/video phones, smartphones, and other devices, while providing roaming between locations within the enterprise.
- Juniper Networks Junos® Pulse—Enables enterprises to secure and manage mobile, remote network and application access, and mobile devices at scale. The Junos Pulse Mobile Security Suite defends mobile devices from viruses, malware, and other threats.
- Juniper Networks MAG Series Junos Pulse Gateways—Provide secure remote network access (SSL VPN) and LAN access (UAC) in addition to managing Junos Pulse mobile clients.
- Juniper Networks SRC Series Session and Resource Control Modules—Offer a comprehensive, customizable, and automated policy, subscriber, and bandwidth management and resource control solution.
- Microsoft Survivable Branch Appliances (SBAs)—Provide an additional level of resiliency for UC&C services in the event of a complete WAN failure for branch locations without reliable or backup WAN connectivity.
- Media Gateways—Provide access to the PSTN, analog devices, or Private Branch Exchange/Key Telephone System (PBX/KTS) systems as needed.
- Microsoft Lync—Provides a UC&C platform integrated into Microsoft Office, including IM, audio, video, Web conferencing, and presence.
- Polycom Endpoints—Provide Polycom CX product family of voice and videophones, which are optimized for use with Microsoft Lync.
- Polycom RMX—Universal conference platform with universal bridging capabilities for seamless connectivity for multiple types of devices, including H.323, SIP, ISDN, PSTN (phones and cell phones). It has native integration with Siemens OpenScape, IBM Sametime, Microsoft Lync, and Avaya Aura solutions.

Polycom DMA—Provides network-based applications for managing and distributing multipoint calls across conference RMX platforms.

Use Cases

- Collaboration within the enterprise network (IPT/HD video conferencing) to provide a robust and reliable IP network that supports real-time unified communications applications and endpoints within the enterprise network
- Enterprise-wide assured video conferencing that provides assured service quality across the WAN to support HD video conferencing, telemedicine, and other mission critical conferencing applications between enterprise locations
- Secure mobile collaboration from any device or location that allows users to securely collaborate from any device at any location either inside the enterprise network or from the external Internet

Figure 2 illustrates a high-level view of the solution architecture.

Summary

Enterprises are moving from distributed PBX to centralized unified communications systems. These systems require a high-performance and robust IP network to provide real-time voice and video services. Concurrently, users are accessing these UC&C services from a variety of devices, both wired and wireless, and they expect the same user experience from each and every device. Juniper's New Network for Collaboration solution provides a simple and safe way to maintain high reliability and a high quality experience across these applications and devices. In addition, enterprises can manage and secure data from any and all devices that connect to your network, as well as build in presence, chat, SharePoint, Web conferencing, and other collaboration services, while at the same time reducing TCO.

The following table provides an at-a-glance value proposition that Juniper Networks infrastructure enables to optimize the delivery of UC&C.

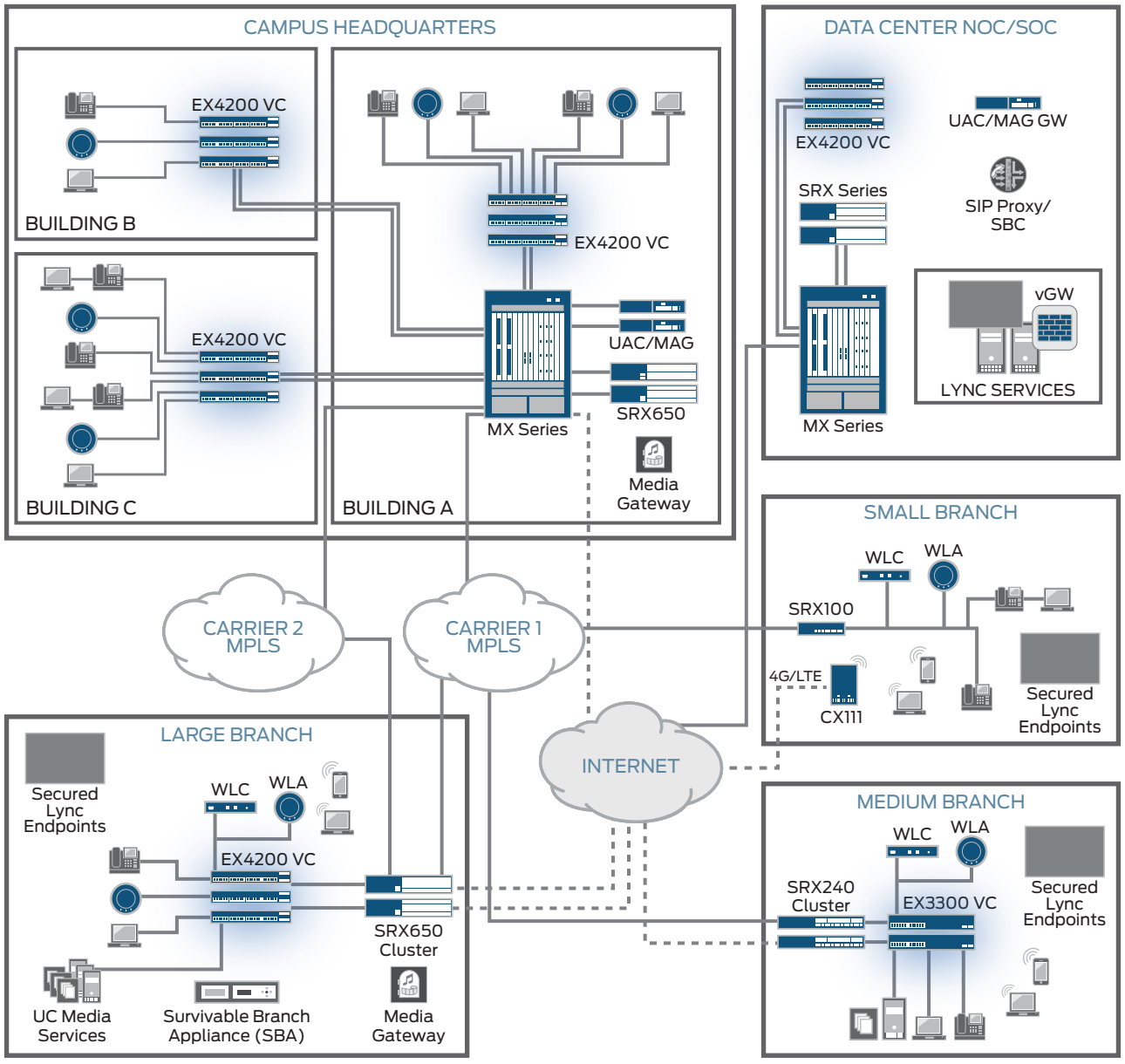

Figure 2: The new network for collaboration solution reference architecture

Table 1: The New Network for Collaboration Solution Value Proposition

Core Values	Description
AppSecure	Application visibility and control
Security	Ultrafast low latency IPsec, stateful firewalls, unified threat management (UTM), intrusion detection and prevention (IDP) with UC&C signatures
High performance	Purpose-built with hardware acceleration
Best QoS	Eight hardware queues, voice VLAN, rate limiting, application-level gateway (ALG), wireless local area network (WLAN) control
Powering endpoints	PoE/PoE+, LLDP-MED, DHCP server options, location services
Authenticating users	Role-based access control available with Juniper Networks Unified Access Control (UAC) per 802.X authentication
Open and interoperable	Best-in-class solutions using industry standards: SIP, LLDP, 802.1X
UC&C agnostic	Flexibility to choose/change vendors, IP phones, UC&C servers anytime
Network resiliency	Assured HA, chassis clustering, carrier-grade chassis components, WAN survivability, including redundant links and backup third-generation/Long Term Evolution (3G/LTE) for both data and voice services

Next Steps

For more information on the SRX Series Service Gateways, Junos Pulse, MAG Series gateways, WLC/WLA Series, MX Series, EX Series, Junos Space, SRC Series Session and Resource Control Modules and Juniper's Simply Connected Solution, please contact your Juniper representative. For information on Juniper partners for Unified Communication and Collaboration components, please refer to the Juniper Networks website at **www.juniper.net/us/en/company/partners/technology-alliances/unified-communications**.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at **www.juniper.net**.

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