JUNIPER AND SONUS DELIVER ENTERPRISE QOS MANAGEMENT SOLUTION FOR UNIFIED COMMUNICATIONS

End-to-End UC Multimedia Services with Guaranteed High Quality

Challenge

Not all sessions are created equal. Ensuring high value sessions involving interactive communications with end-to-end quality is a challenge across multiple geographies and network entities.

Solution

Juniper Networks MX Series, E Series routers and SRC Policy Engine , deployed jointly with Sonus 5000 Series Session Border Controllers (SBCs), deliver end-to-end service-level guarantees (SLAs) across geographies and enterprise networks.

Benefits

- Delivers end-to-end high quality UC audio/video calls in multisite enterprise networks
- Interoperates with other QoS solutions already implemented in the end-to-end path
- Includes intelligent options for bandwidth saturation
- Provides value-based routing that incorporates immediate quality feedback from prior sessions

In today's globally interconnected economy, there is an increasing trend towards a distributed and mobile workforce. Enterprises locate their offices based on business needs, such as the need to support local customers, availability of cheaper labor, etc. There is also increasing evidence that, in future, enterprises will communicate with each other using UC multimedia (voice/video) instead of plain voice.

In such a communication environment, there is a need to have secure, reliable, and high quality communication links between enterprises, between enterprise office locations, and between the office and the mobile workforce. Guaranteeing a high quality end-to-end communication link when the path traverses multiple network domains (enterprise, service provider, interconnect carrier) is a challenge. This is especially important for voice and video, both of which have very low tolerance to delay. If the quality of the communication link is unpredictable and varies from call to call and within each call, it becomes impossible to guarantee a consistent and high quality user experience for UC multimedia services. The UC service itself becomes an undependable communication tool for enterprises in such a scenario.

Therefore, addressing and solving this problem is critical to the success and dependability of inter-enterprise and intra-enterprise UC voice/video communications.

The Challenge

Video and voice sessions have bandwidth requirements that are determined in real time but do not necessarily factor into the quality of service (QoS) determination with per session granularity. Within the same enterprise with multiple locations or between different enterprises, video and voice communications go through multiple QoS domains. Managing those QoS domains and ensuring voice and video quality end to end can be a difficult challenge to address.

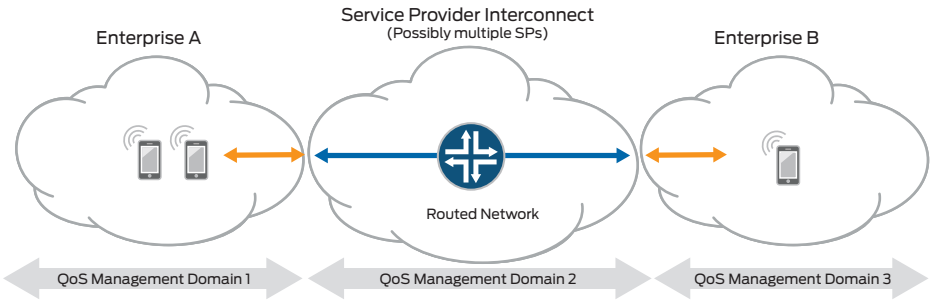


Figure 1. The challenge of crossing multiple voice/video QoS domains

As shown in Figure 1, the call (session) traverses multiple network domains in both of these cases. In the first case, it traverses Enterprise A, one or more service providers (including interconnect providers), and Enterprise B. In the second case, it traverses Enterprise A New York office, one or more service providers (including interconnect providers), and Enterprise A Chicago office. Enterprises are typically connected via

service providers and do not control the end-to-end connection. Enterprises can reserve bandwidth and manage the QoS within their domain, but have no control over the service provider network(s) and, hence, the end-to-end quality of service.

Such a service becomes unreliable and, for all practical purposes, unusable in a corporate environment.

The Juniper Sonus Enterprise QoS Management Solution

Guaranteeing SLAs for voice and video is important as UC is a critical part of the enterprise's communications infrastructure. Simply overbuilding the enterprise and service provider network is not a viable solution, as it can be cost prohibitive. This is especially true when video traffic is factored in. Service providers can provide MPLS level SLAs that guarantee specific bandwidth to customers. However, these SLAs operate at the IP level and are not session aware.

Enterprises can address this issue with the Juniper Sonus solution, which guarantees and reserves bandwidth on a per-call (session) basis, and optimizes unified communications between multiple locations and also during peak hours. In addition, as bandwidth tightens between sites, trying alternative routes or reducing encoding rates on the fly ensures video and voice quality.

Sonus and Juniper have an enterprise QoS management solution that provides an efficient and practical approach to managing end-to-end QoS. This solution includes

- The Sonus SBC 5200 session border controller, which is deployed at the borders of the network. The SBC 5200 brings media session awareness to the solution.
- Juniper Networks® MX Series 3D Universal Edge Routers and Juniper Networks E Series Broadband Services Routers, which handle both signaling and media traffic.
- The Juniper Networks SRC Policy Engine, which maintains an end-to-end view of routing paths and routing elements along those paths. The SRC will program all the Juniper routers on the routing path to guarantee delivery up to the requested bandwidth.

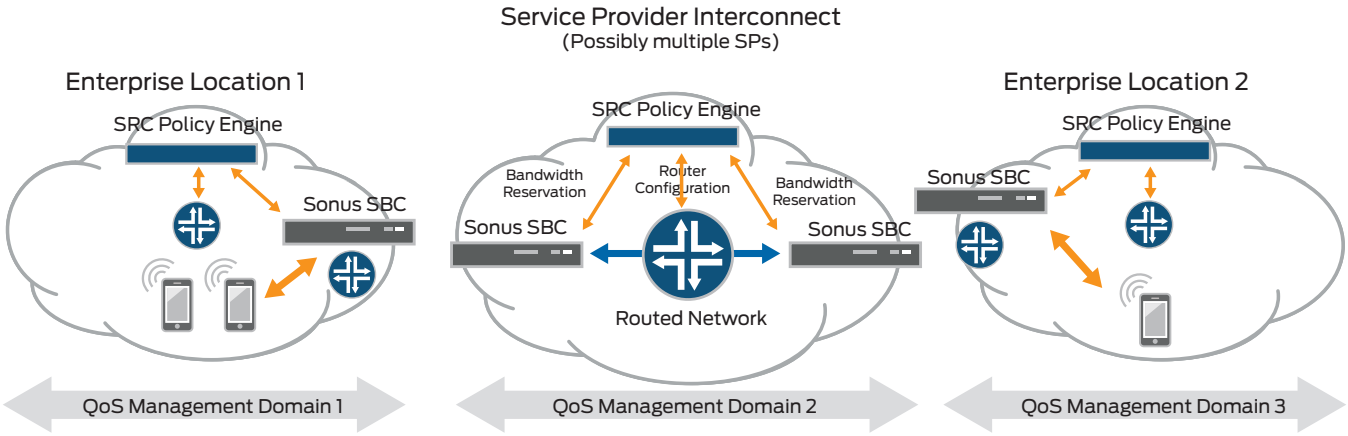
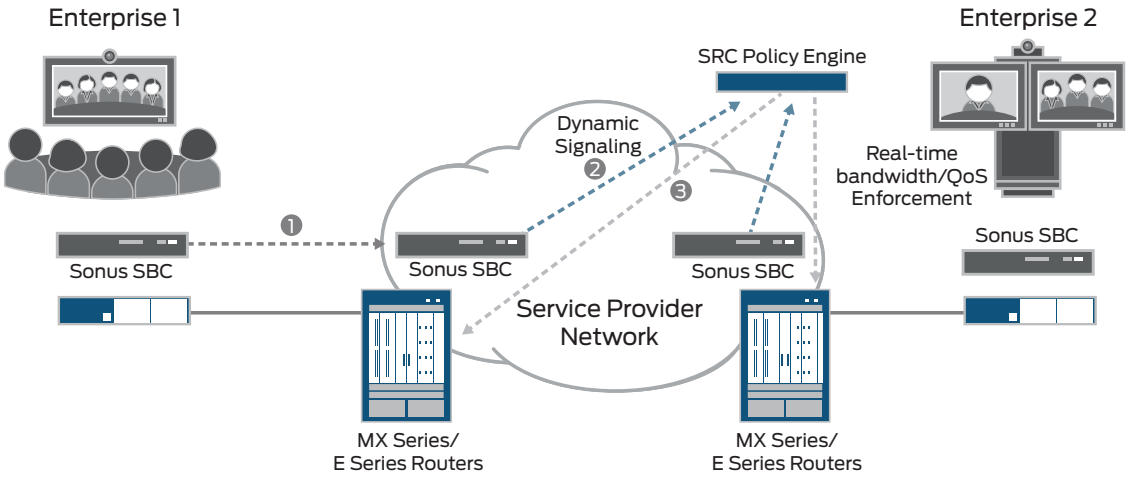


Figure 2. Juniper-Sonus enterprise QoS management solution



1. SBC senses incoming Session Initiation Protocol (SIP) requests, and requests SRC for E2E Bandwidth with QoS
2. Juniper SRC Policy Engine communicates with the routed network and allocates the required bandwidth
3. SBC may modify the request, once the Session Description Protocol (SDP) negotiation has finished

Figure 3. Intelligent routing of voice/video calls with the Juniper-Sonus solution

Features and Benefits

Features	Benefits
Intelligence from the application layer coupled with an intelligent routed network	• Lowers cost for the routed network (versus an over-provisioned network that cannot be "session smart" and is therefore not cost-effective)
Reservation of SLAs in real time on a per session granularity	• Allows bandwidth to be reserved on all routers in the path for end-to-end quality • Permits the enterprise to have dynamic, burstable capacity, and the service provider to monetize this "overdraft protection"
Differentiated QoS for real-time unified communications	• Provides business critical communications with a high level quality of experience, not possible with a best-effort network
Intelligent options for handling bandwidth saturation	• Provides a consistent user experience even during busy hours/network congestion and without impacting established sessions as new requests pop up
Makes the network a "software defined" smart network	• Allows the CIO/IT team to schedule and prioritize various applications for varying times of day
Enables a differentiated quality of experience for applications across jurisdictions	• Gives the service provider a controlled way of delivering managed services to enterprises and an assured service experience that spans enterprise and service provider network (assumes a managed service offering from the service provider to the enterprise)

Solution Components

- Sonus 5000 Series of SBCs
- Juniper Networks MX Series 3D Universal Edge Routers
- Juniper Networks E Series Broadband Services Routers
- Juniper Networks SRC Policy Engine

Summary—Juniper Sonus Solution for End-to-End SLA Guarantees Across Geographies and Enterprise Networks

Providing high quality audio/video during an inter- or intra-enterprise call that traverses multiple networks is a challenge. Using a combination of intelligent route selection and centralized per-session bandwidth reservation, the Juniper-Sonus solution delivers end-to-end UC multimedia services with guaranteed high quality. This gives enterprises an efficient and practical approach to meeting today's UC challenge.

Next Steps

For more information about this solution, please call 1-855-GO-SONUS or visit this link at www.sonus.net. You can also contact your Juniper Networks account representative.

About Sonus Networks

Sonus is a leader in IP networking with proven expertise in delivering secure, reliable, and scalable next-generation infrastructure and subscriber solutions. With customers in over 50 countries across the globe and over a decade of experience in transforming networks to IP, Sonus has enabled service providers and enterprises to capture and retain users and generate significant ROI.

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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