

Cisco Systems Ships New DLSw+ Features Providing Enhanced Quality of Service, Scalability, and Availability

Cisco Systems, Inc. announces new enhancements to its industry-leading Data-Link Switching Plus (DLSw+) solution for transporting Systems Network Architecture (SNA) data over IP internetworks.

DLSw+ Resource Reservation Protocol Bandwidth Reservation—An Industry First

DLSw+ Resource Reservation Protocol (RSVP) support is a new quality of service (QoS) feature that provides SNA traffic with guaranteed bandwidth in a converged data/voice/video internetwork. Cisco is the first vendor to ship RSVP support for DLSw.

Protecting Mission-Critical SNA in Multiservice Internetworks

Cisco DLSw+ RSVP bandwidth reservation now allows SNA to automatically reserve bandwidth end to end over multiservice IP internetworks, using a standard Internet protocol (RSVP). This capability allows SNA to coexist on preferential terms with other protocols in a converged network consisting of data, voice, and video traffic.

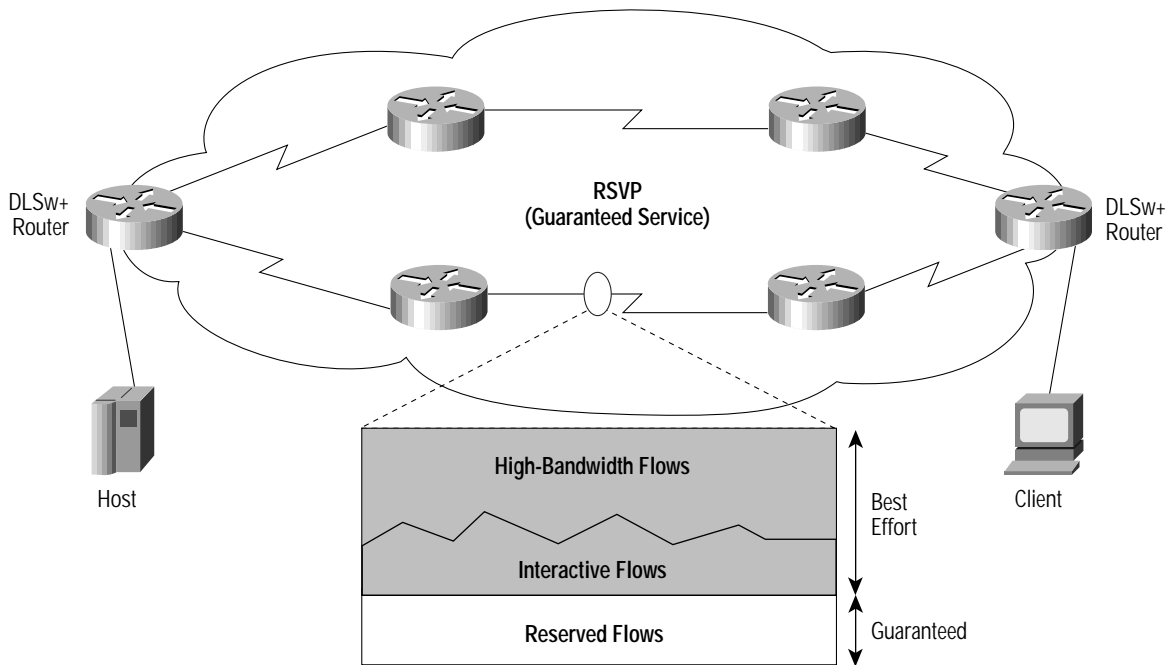
RSVP is commonly used by latency-sensitive applications like video and voice, which require preferential treatment in the form of guaranteed bandwidth to ensure smooth flow. In the absence of such guarantees, network routers will only provide best-effort services, which can impact video or voice quality.

Voice and video applications typically require steady bandwidth allocations and use protocols such as RSVP to make bandwidth reservations. When IP routers commit to providing guaranteed bandwidth (usually called guaranteed services), it usually means that other applications are given lesser treatment (commonly referred to as best-effort services). Thus, in the converged data/voice/video network, SNA until now faced the prospect of being relegated to best-effort treatment and suffering in relation to the bandwidth-hungry voice and video traffic. For the first time, DLSw+ RSVP bandwidth reservation lets mission-critical SNA carve out its own bandwidth automatically while voice and video make their bandwidth reservations.

Router-based RSVP Reservations—No Need to Change SNA Applications

Cisco DLSw+ routers at the edges of the internetwork generate QoS signals, using RSVP. These QoS signals request bandwidth reservation for SNA traffic over the IP network. Intermediate IP routers automatically sense these QoS signals and service them by first setting up an end-to-end pipe with the desired bandwidth (see Figure 1). After this is done, the intermediate routers ensure that the RSVP bandwidth reservation is honored using congestion-handling mechanisms such as Cisco weighted fair queuing (WFQ) and weighted random early detection (WRED). Thus, SNA and RSVP-based voice and video applications are given preferential treatment while providing best-effort service to other less important protocols.

Figure 1 DLSw+ RSVP Bandwidth Reservation



The Cisco IOS QoS Toolbox

DLSw+ RSVP is the latest addition to the Cisco IOS[®] software—the richest QoS toolbox in the industry—which includes advanced mechanisms such as SNA type of service (ToS), IP precedence, priority queuing, custom queuing, WFQ, and WRED.

No Need to Tweak Intermediate IP Routers

If the IP internetwork is made up of Cisco routers, there is no need to tune or tweak intermediate IP routers. All Cisco routers running Cisco IOS Release 11.2 and higher are capable of sensing and setting up RSVP bandwidth reservations automatically. In addition, WFQ is enabled on serial interfaces by default beginning with Cisco IOS Release 11.0, making the intermediate router setup plug-and-play.

DLSw+ Peer Clusters—Enhanced Scalability for Meshed Networks

Cisco DLSw+ is the most scalable SNA-over-IP transport solution, with many successful large installations containing more than 2000 branches. Cisco has now added a new feature called DLSw+ peer clusters, which improves network performance in meshed networks—that is, networks requiring any-to-any connectivity.

When multiple DLSw+ peers within a border peer structure are connected to the same LAN, the DLSw+ peer clusters feature allows the border peer to filter out unwanted duplication of explorer frames. This capability reduces explorer overhead, making the DLSw+ border peer design surpass itself as the most efficient method of scaling large enterprise networks handling SNA and NetBIOS traffic between branch offices.

DLSw+ Enhanced Load Balancing—Improved Availability

Another new feature is DLSw+ circuit-count load balancing, a powerful mode of load balancing that provides several benefits. Load balancing is a fundamental part of the repertoire of redundant network designs that provide access to mission-critical applications. With circuit-count load balancing, Cisco DLSw+ reaches a new height in allowing customers to design for high availability. Circuit-count load balancing:

- Allows network designers to specify load sharing in accordance with processor capabilities and link bandwidth by allocating DLSw circuits in a precisely deterministic manner, giving new circuits to the path with the least load at that moment in time
- Ensures rapid rebalancing of traffic across redundant paths, in the event that one or more paths fail and eventually recover
- Allows network designs where multiple equal-cost paths can share the load—equally or asymmetrically—while a more costly path can stand by in a fault-tolerant mode of operation

DLSw+ circuit-count load balancing interoperates with other vendors' routers that adhere to DLSw RFC 1795 and RFC 2166 standards.

Availability

Cisco's new DLSw+ features are available immediately as part of the IBM feature set or through a software upgrade to Cisco IOS Release 12.0(3)T. Platforms supported include the Cisco 1600, 1700, 2500, 2600, 3600, 3800, 4000, 4000-M, 4500, 4500-M, 4700, 4700-M, 7200, and 7500 series routers and the Catalyst® 5000 series of switches equipped with the Route Switch Module (RSM) or the Route Switch Feature Card (RSFC).



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