SNA-ToS

Preserving SNA Class of Service in the Intranet

Today, Cisco is announcing a data-link switching plus (DLSw+) enhancement that will improve network response time and bandwidth utilization when transporting Systems Network Architecture (SNA) traffic over a corporate TCP/IP network. SNA type of service (ToS) support in DLSw+ overcomes the final hurdle in migrating from traditional SNA networks to TCP/IP networks by preserving SNA class of service (COS) across TCP/IP backbones.

The Safe Migration Alternative

Although many corporate networks are migrating to intranets with Web-based access to SNA applications, this change cannot occur overnight. Existing SNA PC clients and terminals will exist for many years. With Cisco's SNA solutions, users can build corporate TCP/IP backbones today that very effectively transport SNA traffic, yet provide the infrastructure to address their future network needs.

DLSw+ is a proven, industry standard technology for transporting SNA over TCP/IP networks, with over 50,000 Cisco DLSw+ routers installed today (and over 200,000 Cisco routers installed transporting SNA over TCP/IP). Today's announcement describes further enhancements that optimize bandwidth utilization and provide enhanced traffic controls for networks transporting SNA or NetBIOS over TCP/IP backbones.

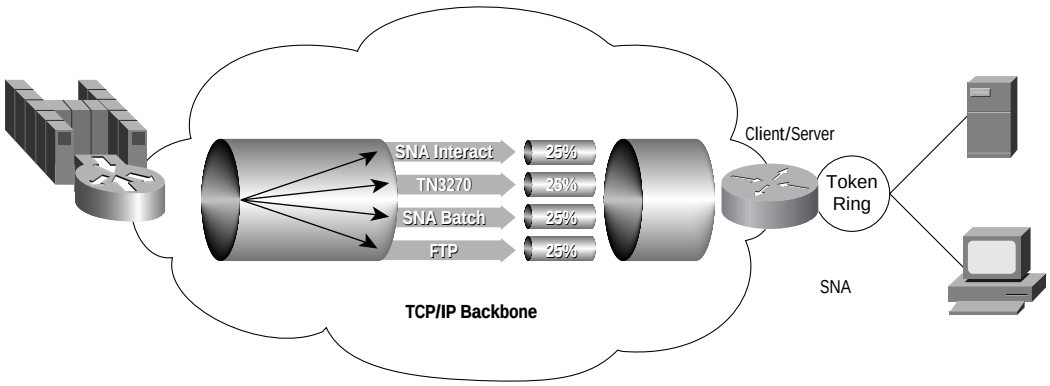
Protecting Mission-Critical Traffic

Many corporations run their business using SNA applications, and they need to guarantee end-user response time when accessing interactive applications. At the same time, many corporations are adding new, bandwidth-intensive applications such as image transfer or multimedia. When the high-bandwidth applications are SNA applications, networking equipment must be able to distinguish SNA traffic by COS, a capability previously only available in pure SNA networks. With SNA ToS support, Cisco introduces the ability to preserve SNA COS across a corporate TCP/IP network. SNA COS categorizes SNA session traffic as interactive traffic, batch traffic, or other user identified categories, allowing very granular control of how bandwidth is allocated and how traffic is prioritized. SNA ToS maintains this classification across an IP backbone, eliminating the only remaining inhibitor to migrating to TCP/IP solutions.

When bandwidth is limited, support for COS is key to meeting end-user service levels. Cisco's Advanced Peer-to-Peer Networking (APPN) and DLSw+ features work in tandem, mapping SNA COS to IP precedence. End-users can configure their Cisco routers to prioritize by COS, as a front-end processor (FEP) does, or to reserve bandwidth or network resources by COS, providing optimal performance for all traffic types. In addition, Cisco's solution allows SNA traffic to be interspersed with multiprotocol traffic in whatever order or proportions users choose. Figure 1 shows how SNA ToS can be used to reserve bandwidth for interactive SNA and TN3270 traffic.

CISCO SYSTEMS

Figure 1 Using SNA ToS and Custom Queuing to Partition Bandwidth Based on SNA COS and TCP Port



Even in the absence of APPN in a network, DLSw+ allows users to prioritize network traffic using IP precedence bits. By automatically setting the IP precedence bits, DLSw+ allows SNA traffic to benefit from the Cisco Internetwork Operating System (Cisco IOS™) quality of service (QoS) features such as Weighted Fair Queuing (WFQ) and Weighted Random Early Detection (WRED). SNA ToS works with WFQ to weigh certain DLSw+ traffic ahead of others (for example, interactive SNA terminal traffic ahead of SNA printer traffic or NetBIOS traffic). SNA ToS works with WRED to assure that low-priority traffic—instead of higher-priority SNA traffic—is discarded during periods of high congestion. In the future, DLSw+ will take advantage of other Cisco IOS QoS features such as Resource Reservation Protocol (RSVP).

Testing has shown that SNA ToS can shorten response time by 10 to 20 percent in congested networks. With this feature, users can replace their legacy FEP networks with more versatile corporate TCP/IP networks, maintain the same COS prioritization they had with their FEPs, or go one step further and reserve bandwidth for high-priority SNA traffic.

Simplifying Networking While Enhancing Performance

SNA ToS has several applications. First, it allows service providers to offer better throughput for SNA end systems without configuration complexity. Second, it allows enterprises to build corporate IP backbones today without sacrificing bandwidth management controls for SNA traffic. Finally, for existing networks running SNA over TCP/IP, it simplifies configuration to prioritize SNA.

Availability

SNA ToS will be available in H297 and will ship as part of the IBM base feature set or enterprise feature set.

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