6611 Network Processor and Multiprotocol Network Program

Highlights

- ***The addition of High-Performance Routing (HPR) to the robust 6611 multiprotocol support makes the 6611 a natural choice for a high-performing, highly reliable router backbone.***
- ***HPR and DLUR in the 6611 enable you to leverage your investments in SNA networking equipment and applications, while serving the needs of your TCP/IP and other multiprotocol client/server LAN users.***
- ***HPR is up to 100 times faster than data link switching (DLSw), transporting SNA through intermediate node 6611 routers.***
- ***HPR's use of SNA class of service, combined with 6611's priority queuing, provides the control you need to prioritize your multiprotocol application traffic.***
- ***6611 natively transports SNA traffic, using HPR over frame relay, directly to a 3745/3746 channel-attached gateway.***
- ***Dependent logical unit requester (DLUR) enables dependent SNA devices at remote network locations to benefit from HPR transport among network nodes.***

SNA, TCP/IP, and multiprotocol internetworking

A router solution for the consolidation of SNA, TCP/IP, and multiprotocol networks requires the router to merge robust multiprotocol support with SNA support that retains the session reliability and integrity at the core of SNA.

IBM has provided a leadership role in creating router solutions. Data link switching (DLSw), now an industry standard, was invented by IBM and first appeared in the original release of the 6611. That was followed by early release of Advanced Peer-to-Peer Networking (APPN) and the first shipment of boundary access node (BAN)–both industry standards. Now, with the industry's first delivery of HPR in a multiprotocol router, and the availability of DLUR, IBM continues to provide leadership to address your requirements for a converged multiprotocol and SNA router solution.

The IBM 6611 and its associated Multiprotocol Network Program (MPNP) software are designed with interoperability and standards as their fundamental base. The 6611 provides routing support for the major protocols you use today, including TCP/IP, IPX, Banyan VINES, AppleTalk 2, DECnet IV, NetBIOS, and XNS. It also provides a broad array of SNA transports, including HPR, DLUR, APPN, BAN, and DLSw. The 6611 bridging support includes source route bridging (SRB), transparent bridging (TB), and source route-translational bridging (SR-TB). Thus, you can build robust internetworks that can accommodate network growth and expanding network diversity.

High-Performance Routing (HPR)

HPR combines the best features of the SNA and APPN architectures with connectionless technologies to provide improved network performance, enhanced network availability, and state-of-the-art congestion control. HPR also enables the native transport of SNA traffic in a multiprotocol environment. The MPNP implementation of HPR includes:

- Automatic network routing (ANR) to provide very high performance across a 6611 backbone
- Rapid Transport Protocol (RTP) to provide nondisruptive routing around failed connections and to enable a more highly available network design
- Adaptive rate-based (ARB) congestion control to maximize bandwidth efficiency by minimizing congestion and packet loss

HPR is included as a no-cost, standard component of MPNP, simplifying the transition to HPR.

APPN and DLUR

APPN provides routing and directory services to Ethernet and token-ring attached end nodes, making the network self-defining and reducing network administration. In the latest release of MPNP, APPN can utilize Ethernet, token ring, frame relay, and the Point-to-Point Protocol (PPP) to natively transport SNA traffic over either intermediate session routing (ISR) or HPR.

DLUR provides investment protection and a seamless migration path from SNA subarea networks to APPN and HPR peer technologies by enabling existing 3270 traffic (physical unit 2.0 and 2.1) to utilize APPN and HPR transports.

BAN and DLSw

BAN significantly enhances the interoperability of the 6611 router and 3745 Communications Controller, as well as the AS/400, by providing a direct frame-relay connection for SNA and TCP/IP transport between the 6611 and each of those products. The direct connection eliminates the need and cost of a central-site router and simplifies the definition and administration of router-attached downstream devices.

DLSw is used by those customers who choose to transport their SNA traffic over a TCP/IP backbone. Of course, using the 6611's HPR support to natively transport SNA in parallel with TCP/IP is a higher-performing alternative. DLSw capabilities include local acknowledgement, SDLC-to-logical link control (LLC) conversion, encapsulation, reliable delivery, and capabilities to maintain service levels. Circuit pacing ensures all system resources are being used to service all links equally, and the SNA/NetBIOS ratio lets you prioritize the transmission of interactive SNA higher than NetBIOS.

IBM leads the industry in implementing the key open industry standards that customers request when they consider converging their multiprotocol, SNA, and NetBIOS internetworks. Those standards include Request for Comment (RFC) 1490 for BAN, RFC 1795 for DLSw–including compatibility with RFC 1434, and the APPN and HPR specifications.

Priority queuing

Since 1992, MPNP has provided you with priority queuing to prioritize between DLSw and multiprotocol traffic. Now, with the availability of HPR, priority queuing has been further extended to be fully configurable and dynamic. You can assign, for example, HPR/APPN, DLSw, and IP traffic types to a high, medium, or low service queue. You can also assign a proportion of service capacity to ensure that all queues are serviced and that lower-priority protocols are not ignored because of the volume of higher-priority traffic.

Interoperability and standards

The 6611 provides the LAN protocols you need–not only in the breadth of the network layer protocols and bridging techniques supported, but also in the depth of the implementation to provide effective and efficient support and a high degree of interoperability in a multivendor environment.

Frame relay and the Point-to-Point Protocol (PPP) are the preferred wide area network transport interoperability standards. Because the 6611 and MPNP conform to RFC standards, you'll get native support for routing and bridging of all network layer protocols.

Plus, the 6611 and MPNP frame-relay support is certified with most public and private frame-relay service providers.

And, the 6611 and MPNP support the worldwide X.25 packet switching data network (PSDN) services standard for the routing of SNA, NetBIOS, APPN, IP, and IPX over switched or permanent virtual circuits.

Award-winning router network management

Many organizations tell us that network management is a major buying decision criteria. For multiprotocol and converged networks, this critical issue is compounded. IBM understands your concerns and is doing something about them.

Recently, the IBM AIX Router and Bridge Manager/6000 was enhanced and consolidated with other management products in the new IBM Nways Campus Manager LAN for AIX and the new IBM Nways Campus Manager Suite for AIX.

These products, along with the 6611 SNMP MIB II and SNMP Agent, give your network managers the most advanced capabilities available for monitoring, problem determination, and fault management.

Best of all, your HPR, APPN, DLSw, and multiprotocol network topologies can be managed from a single network management facility.

For more information

If you want detailed information about the IBM 6611 Network Processor, call 1-800-426-2255, visit us on the Internet, or contact your IBM marketing representative. Our 6611 World Wide Web Home Page is http://www.raleigh.ibm.com/611/611prod.html.



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