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Gigabit Ethernet Technical Brief

Achieving End-to-End Performance



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Intranet Web servers, centralized file and compute servers, data warehousing, groupware, medical imaging, CAD/CAM applications, 3-D modeling, animation, video, pre-press applications, server farms, seismic processing...

The list goes on and on. The demand for high-speed network connections is proliferating at a pace almost as rapid as the speed requirements of the applications themselves. Evidence is everywhere: the rapid acceptance of 10/100 Mbps connections on today's desktop computers, Ethernet switching at the department level, and the deployment of Fast Ethernet switches in corporate backbones are a few examples of the need for faster and faster networks.

And still, bottlenecks remain. Server network connections have been limited to 100 Mbps since FDDI was shipping in volume in the late 1980's. Fast Ethernet made it easier to build internetworking products, but did not provide a faster server interface. Today, centralized servers are often configured with multiple 100 Mbps network connections to meet bandwidth requirements.

Enter Gigabit Ethernet.

Gigabit Ethernet is a new technology that will provide seamless interoperability with Ethernet and Fast Ethernet. Gigabit Ethernet transfers data at a blazingly fast speed: one gigabit per second, or 100 times the rate of standard Ethernet. Gigabit Ethernet is designed to deliver the same benefits as Fast Ethernet: seamless integration with installed Ethernets, dramatically higher performance than the previous standard, and a familiar management environment.

It couldn't happen at a better time. Multimedia over IP is just starting to take off with the proposed IETF standards, real-time transfer protocol (RTP) and resource reservation protocol (RSVP). These protocols, combined with gigabit networks, high-performance desktops, and Internet technology, will quickly change the way corporations access information.

Ethernet. Fast Ethernet. Gigabit Ethernet. Networking made simple!

Goals of Gigabit Ethernet

Under development in the IEEE by the 802.3z Task Force, Gigabit Ethernet has the following primary goals:

- Complete interoperability with Ethernet and Fast Ethernet
 - Retain the installed base of NICs
 - Leverage the investment in hubs, switches, and routers
 - Leverage the network management environment



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