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Transparent LAN service opens up WAN connectivity opportunities

Native interfaces help network managers extend LAN connections across the wide area.

By Jon Fjeld

A doctor at a Chicago hospital is evaluating his patient and would like to consult with a specialist at a hospital across town. The patient is in critical condition and requires urgent attention — the consultation must happen immediately, and the patient's medical records and diagnostics must be available in real time to both the treating physician and the specialist. The patient is not stable enough to transport across town, and it would take too long and be too expensive for the specialist to come to the hospital.

If the hospitals were connected by a high-speed network, the X-ray files and patient's medical history could be converted into an electronic file and transmitted immediately to the specialist. A

HOW IT WORKS

Connecting LANs transparently

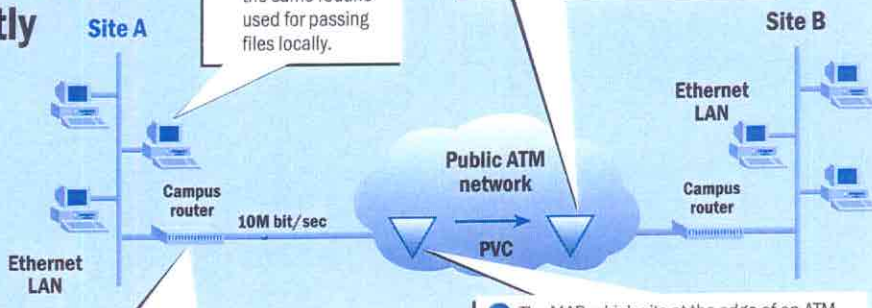
Transparent LAN service lets users communicate with each other across the wide area as if they were physically located on the same local network.

2 When a file is destined for a remote site, a LAN-attached router forwards it to the public network over a standard interface, in this case 10M bit/sec Ethernet, connected to a carrier's multiservice access platform (MAP).

1 To send a file to a colleague across town, a user follows the same routine used for passing files locally.

4 At the destination, the MAP converts the cells back into frames and delivers the Ethernet traffic to the remote user.

3 The MAP, which sits at the edge of an ATM network, converts the Ethernet frames to cells and forwards the cells across permanent virtual circuits (PVC).



videoconference could be used to facilitate a consultation with almost no wasted time. Finally, the treating physician and the specialist could have simultaneous access to the patient's medical history, diagnostics and the patient himself.

Rather than having to mess with the expense and details of establishing and maintaining a dedicated link between the two sites, the hospitals could subscribe to a transparent LAN service to interconnect their networks at high speed.

Transparent connections

Simply put, transparent LAN service is an end-to-end service that connects remote LANs. The beauty of this solution is that the service makes geographically distant locations appear to be part of the same LAN. Thus, companies do not have to invest in WAN expertise or equipment. The end user or users — in this

case, the hospitals — need only supply a LAN connection from each site and the service provider can seamlessly interconnect the sites across a metropolitan-area network (MAN) or a WAN.

Customers connect to the service provider's network via a LAN interface, such as Ethernet, token ring or FDDI. Transparent LAN service often uses a high-speed ATM network backbone that can support native LAN rates — 10M and 100M bit/sec for Ethernet and 4M and 16M bit/sec for token ring. Interoperability between LANs and WANs operating at different speeds is not a problem. Because transparent LAN service is provided using a native LAN interface, customers do not have to worry about purchasing WAN equipment or learning new technologies such as ATM.

Transparent LAN service provides a variety of benefits. For example, users can rapidly and securely transmit vol-

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umes of data over great distances without having to deal with the complexities involved in wide-area networking. At the same time, the transparent LAN service solution is cost-effective. Because service providers can take advantage of economies of scale to provide transparent LAN service, a company can subscribe for less money than it would take to build, manage and maintain its own MAN or WAN.

Transparent LAN service has been available for approximately three years. Most regional Bell operating companies and some competitive access providers, including MFS WorldCom and Teleport Communications Group, offer the service.

User view

From the user's perspective, transparent LAN service looks like an extension

of the corporate LAN. Because connection to the service is made through a LAN interface, WAN customer premises equipment is not required. Traffic is bridged across the service in a secure and private manner.

The customer's network model really becomes that of a campus network, with a backbone LAN interconnecting buildings. This simplification of the network model eases network management considerably.

From the service provider's perspective, most transparent LAN service networks use a tiered architecture. A multi-service access platform (MAP) connects to customers via a native LAN interface, and then consolidates the traffic and hands it to the backbone network. The backbone network, which is typically ATM-based, switches the traffic to its des-

tinuation where it is once again delivered to the customer through a MAP.

Transparent LAN service is a painless, plug-and-play solution for interconnecting LANs over great distances. Companies can focus on their core business and the net becomes as transparent as a utility. And if it could help physicians relay critical, data-intensive information immediately about patients in life-or-death situations, just imagine what transparent LAN service could do for your business.

Fjeld is vice president of marketing for Net-Edge Systems, Inc., a Research Triangle Park, N.C., company that provides ATM and other equipment to carriers so they can offer LAN-based services. The company can be reached by phone at (800) 638-3343 or the World-Wide Web at <http://www.netedge.com>.