

Transparent LAN Services Offer Visible Benefits

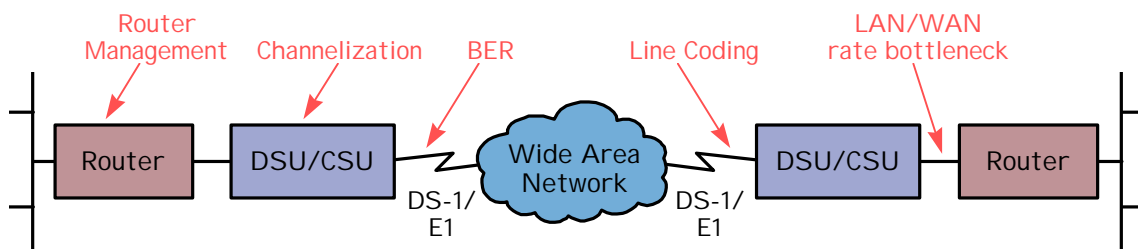
Introduction

Over the past few years, several trends have developed that have resulted in the need for better ways to manage wide area networks. The first of these is the increased demand for high-speed data communications across these networks. Corporations are now using their WANs for everything from transferring large graphic files to supporting company Intranets. Growth in the use of WANs has been tremendous, causing a strain on the resources to manage them and the availability and affordability of ever-increasing bandwidth capability.

The second trend is the expansion of the traditional network beyond the physical limits it once required. Corporations often have offices worldwide, yet the workgroups now all want to appear as though they are inter-operating in a single location. This presents yet another challenge to business network provisioning.

An issue related to the workgroup concerns is mobility. Physical workstation locations sometimes need to be changed on very short notice, without interrupting the workflow. The result of this requirement is now networks must have administrative features that allow them to be easily and quickly changed.

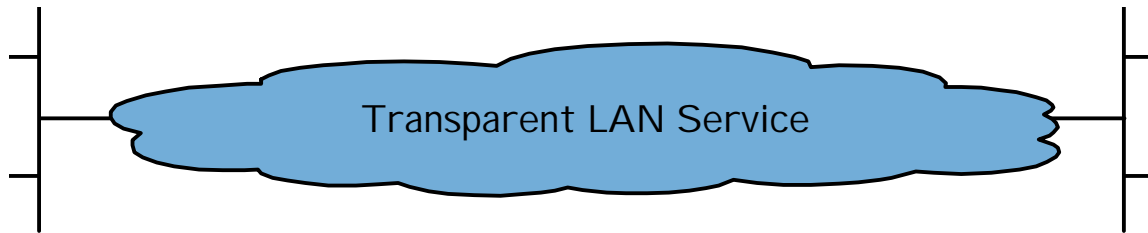
These issues could possibly be addressed with a router-based solution. However, new technology based on LAN switching is more cost-effective and more efficient than traditional routers. The traditional router-based enterprise LAN is no longer the best way to network.



Hardware-based inter-LAN networking

For a while, at the beginning of networking, there were bridges. But bridges did not scale. Then came routers. Routers solved the scaling problem, but they were slow and complex and hard to administer. Routers served well for a while, but as the demand for bandwidth grew, traffic began clogging the router WAN backbones, which is where the delays associated with routers become a real

problem. This brings us to today's solution -- switches, which are faster and cheaper. Routers are going away, but routing itself will stay; the routing functions are now inside the switch.



Service-based inter-LAN networking

Why Transparent LAN Services

The reasons that end users need a transparent (or "managed") LAN are numerous. Basically, a customer has two choices when it comes to ensuring that he has enough bandwidth: a Virtual Private Network (VPN) or transparent LAN services. There are various disadvantages to building a VPN internally. The most obvious one is that the network must be managed. Another minus is that the WAN bandwidth cannot be shared with others to reduce the costs.

One of the problems today is that the classical network approach uses routers. The disadvantage of this approach is that the routers are difficult to set up and maintain. And they are expensive because a dedicated pipe is used, even for bursty data traffic. Thus, much of the bandwidth is wasted by going unused most of the time.

Transparent LAN services are very often seen as the best choice. A managed LAN makes everything look like it is on the same network, so that it is easier to manage. It does what a LAN does but in the wide area. Customer benefits include the cost and time savings recognized by conserving resources. Thus, the solution that many organizations are finding is to migrate to managed LAN services. These services allow connectivity across the wide area network. The result -- WAN will most likely be based on ATM or Frame Relay.

Carriers and Managed LAN Services

Alcatel can provision carriers for managed LAN services. This is a capability that only Alcatel can provide to carriers, so that carriers can then offer these enhanced services to their customers. By being able to offer these services, carriers can increase their profitability by offering yet another value-added service to their customers. It is a win-win situation for the carrier and their customers who can

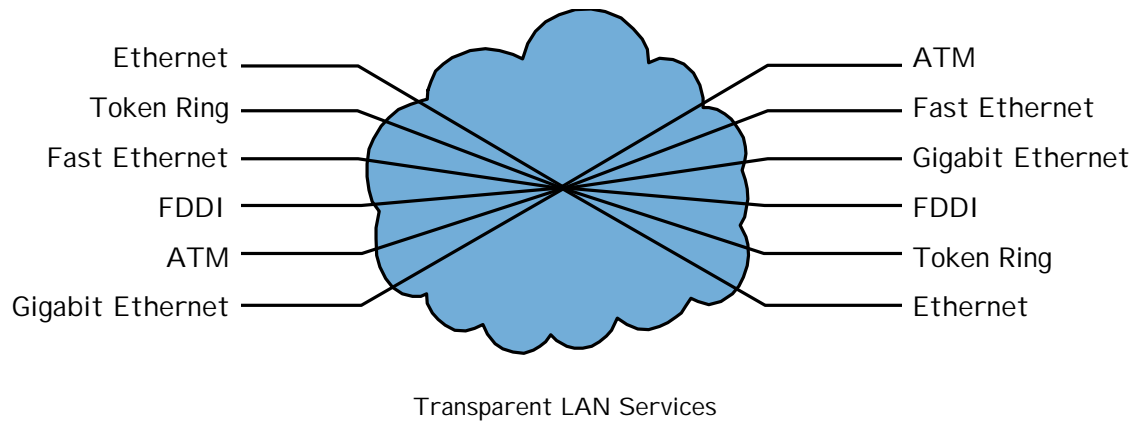
have connectivity to everything they need, including the Internet. Migrating to transparent LAN services allows customers full connectivity across the carrier's wide area network. This carrier's WAN can be based on ATM or Frame Relay.

Carriers need to offer these managed LAN services because they can provide customers more value than Frame Relay or leased line services. Transparent services allow companies to stick to their core businesses and not have to worry about network management issues. The customer can reduce overall costs and get WAN throughput at LAN speeds. And this transparent high-speed WAN service will look to the user like a single LAN. The total WAN network administration is provided by the carrier.

Key Features of the LAN/WAN Service

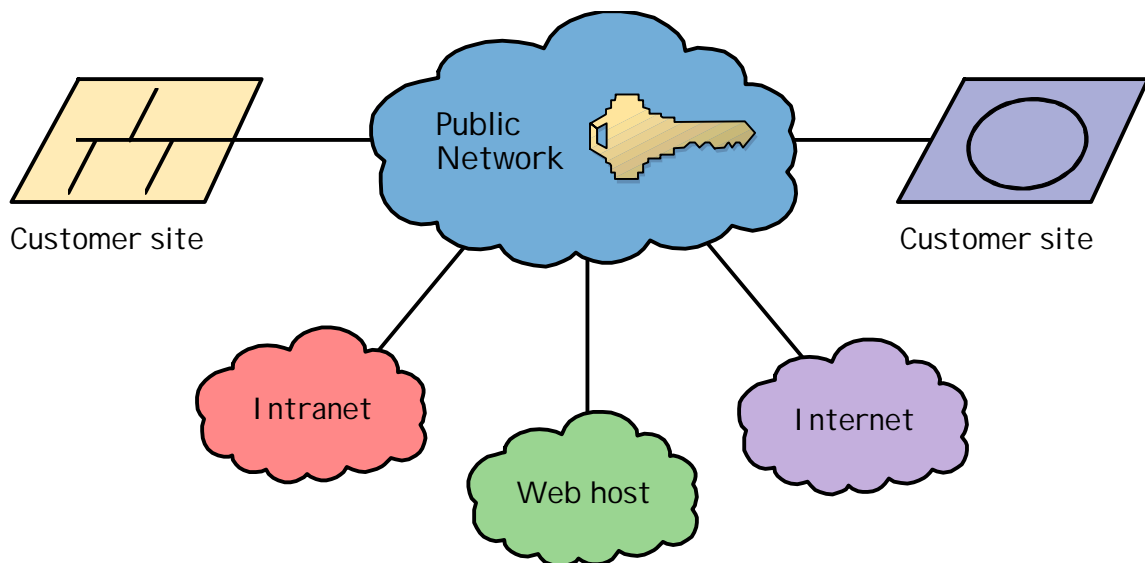
There are a number of features that are important, even required, for a high-speed WAN service.

- One of the most important features is that the high-speed WAN service must look like a single LAN. Since this is the real goal of a transparent LAN service, ultimately, this is what it must do. A single LAN for the customer makes the network easier to manage, which reduces operation costs. The total network administration is through the network service provider.
- The WAN service should also support all LAN technologies and can send information from any one to any other. All LAN technologies must be supported, including ATM, Token Ring, Ethernet, or ATM to FDDI.



- Managed LAN services also need to be portable. Networks change and move all the time. Customers need to be able to move their network where they need it, as their needs change. These moves need to be made without interrupting the workflow.
- Security is important for any network, but especially for one that is as extensive as a wide area network. With networks that may encompass as many as hundreds of sites, exceptional security is critical.

Firewalls are an important aspect of network security because they limit access as a means to keep information secure. Authentication is one of the keys to the success of firewalls. They perform this function by showing that you are who you say you are.



Security: firewall and authentication services

- Compatibility and interoperability with existing Frame Relay and ATM services is also key to a wide area service
- The service must scale easily and quickly because networks are constantly reconfigured and upgraded. The equipment in the network has to be flexible enough to adapt to these changes, without a forklift upgrade. For example, the network may start by using Frame Relay and later migrate to ATM, with very little hardware changes.
- All mobile and remote locations must be supported, as more and more organizations have remote offices and/or employees who are on the road frequently. Keeping them on the network and communicating with headquarters and other locations is essential to the success of the business.
- Layer 2 and Layer 3 switching must be supported
- Provisioning for multiservice is a must

Alcatel's Avanza strategy provides a wide range of features and benefits. Avanza is Alcatel's leading edge networking architecture built around a core of Alcatel Data Network's switching and access platforms. The Avanza architecture solves multiservice networking on a variety of levels. It provides desktop to central office networking solutions based upon a family of multi-protocol data switching platforms and access devices with integrated network management.

Several core platforms form the basis of Avanza. These include the Alcatel 1100 HSS® Series multiservice network switch and the Alcatel 1100 LSS® any-to-any LAN/campus switching platform. Avanza addresses many of the strategic and financial needs that carriers have when offering services to their customers. For them, these Avanza differentiators are critical.

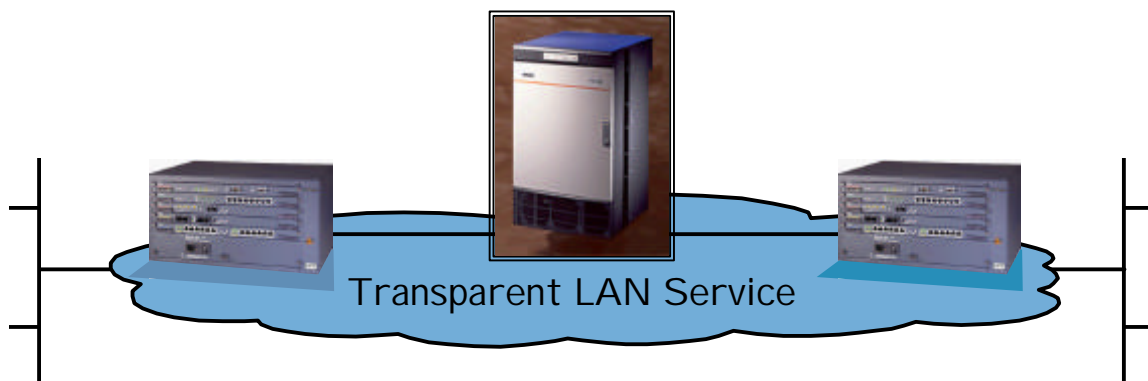
- Scalable, multiservice platform
- Bandwidth management at the network level across multiple nodes
- End-to-end network management
- Network management interworking with existing management systems
- ADSL support

Summary

Managed LAN services make sense for organizations with LANs that have grown into WANs. And carriers are an excellent source of these services. The managed LAN services allow the corporations meet two types of goals -- strategic and financial. Strategically, the transparent LAN services allow a company to stick to its core business, and not get wrapped up in time-consuming LAN/WAN management issues. By focusing on their main business, companies can maximize their productivity.

The ways in which companies can reach their financial goals by using the transparent LAN services offered by carrier are limitless. These managed LAN services help save the corporation money in several ways. For example, an organization may be able to reduce its MIS staff by having the Network Management System manage the network.

The Alcatel Avanza strategy is ideally suited to meet the needs of carriers. Managing LANs is not as simple as it once was. Fortunately, Alcatel's transparent LAN services offer visible benefits for carriers to offer their customers. Reducing costs, saving resources, and better network management are just a few.



Alcatel Service-based inter-LAN
with 1100 LSS and 1100 HSS