

# Overview

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This chapter provides a general description of the connection features supported on your server product (communication server, access server, or router) to connect terminals, modems, microcomputers, and networks to local-area networks (LANs) or wide-area networks (WANs).

## Supported Protocols

A user can dial in and use a port for the following types of connections:

- Telnet
- LAT
- rlogin
- TN3270
- XRemote
- SLIP and PPP connections to a single PC

This range of functionality is possible because multiple roles can be assigned to each line. Each line can be a source of data for terminal-server communications (using Telnet, LAT, rlogin, and so forth), for telecommuting (using XRemote and SLIP), or for terminal services or telecommuting using protocol translation.

Following are brief descriptions of the protocols and connection services supported by server products (communication servers, access servers, and routers).

- Transmission Control Protocol/Internet Protocol (TCP/IP) is the most widely implemented protocol suite on networks of all media types. TCP/IP is today's standard for internetworking, and is supported by most computer vendors, including all UNIX-based workstation manufacturers.
- Serial Line Internet Protocol (SLIP) and Point-to-Point Protocol (PPP) are inexpensive methods of connecting a personal computer or workstation to a network using asynchronous dial-up modems.
- Local Area Transport (LAT) protocol is Digital Equipment Corporation's proprietary terminal connection protocol used with Digital minicomputers.
- IBM 3278 terminal emulation provides TN3270-based connectivity to IBM hosts over serial lines.
- Network Computing Devices Inc. XRemote terminal facility supports remote X Window operation.

## Connection Services

Three types of connection services are available with your server product (see Figure 1-1):

- Terminal services—Connecting asynchronous devices running the same protocol (LAT or TCP) across a LAN or WAN through network and terminal-emulation software such as Telnet, rlogin, TN3270, and Local Area Transport (LAT). See Figure 1-2.
- Telecommuting services—Connecting devices over a telephone network using SLIP, PPP, or XRemote (NCD's X Windows terminal protocol). See Figure 1-3 and Figure 1-4.
- Terminal or telecommuting services using protocol translation—Connecting devices running dissimilar protocols (LAT-to-TCP or TCP-to-LAT) and converting one virtual terminal protocol into another protocol.

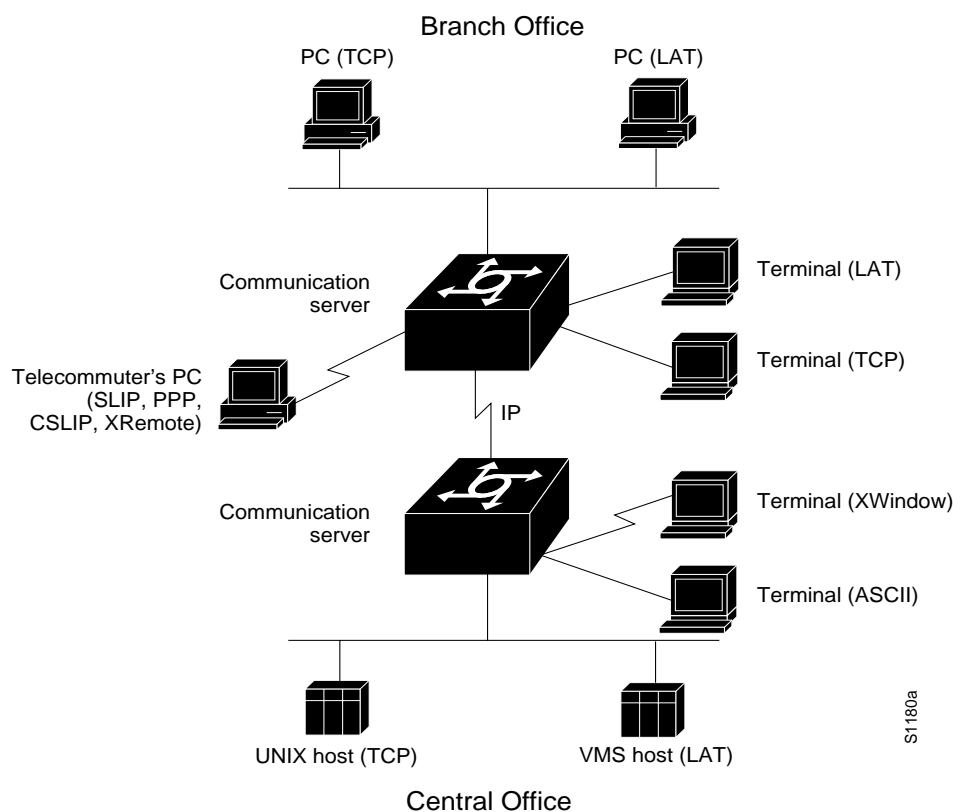


Figure 1-1 Connection Services

## Terminal Services

Terminal services provide terminal-to-host connectivity with virtual terminal protocols, including Telnet, LAT, TN3270, and rlogin. Modems can be set up for rotary connections, so that you can connect to the next available modem. A host can also connect directly to a server. In IBM environments, TN3270 enables a standard ASCII terminal to emulate a 3278 terminal and access an IBM host across an IP network. In Digital environments, LAT support provides a terminal with connections to VMS hosts.

On LANs, terminal services support the following types of connections:

- Telnet and rlogin connections using TCP/IP to UNIX machines
- TN3270 connections using TCP/IP to IBM machines
- LAT connections to Digital Equipment Corporation (Digital) machines

Figure 1-2 illustrates terminal-to-host connections.

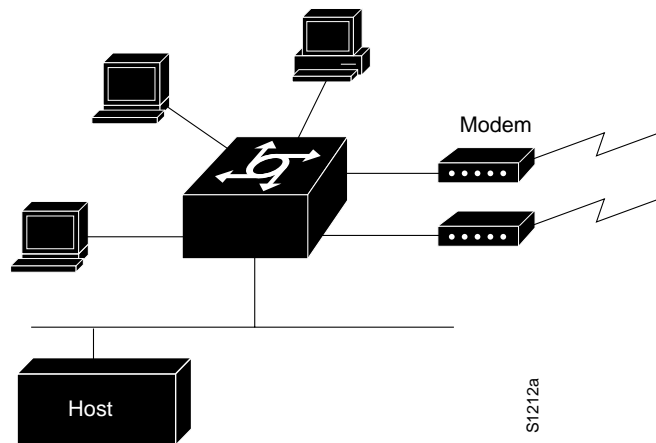


Figure 1-2 Terminal-to-Host Connectivity

## Telecommuting

Using SLIP or PPP, you can run TCP/IP applications, including Telnet, Simple Mail Transfer Protocol (SMTP), and File Transfer Protocol (FTP), over serial lines. You can get remote connectivity with the same functionality as a PC attached to a local network. You can also use the XRemote protocol over asynchronous lines, because the server can provide network functionality to remote X display terminals.

Telecommuting services support WAN connectivity with XRemote, SLIP, and PPP. Other WAN services include X.25, Switched Multimegabit Data Service (SMDS), and Frame Relay. Full IP and IPX routing services are also supported. Communication and access servers are network-compatible with routers, which you can use to extend your network to any size you need.

Figure 1-3 illustrates an XRemote connection using a communication or access server. Refer to the *Access and Communication Servers Configuration Guide* for additional possible XRemote configurations.

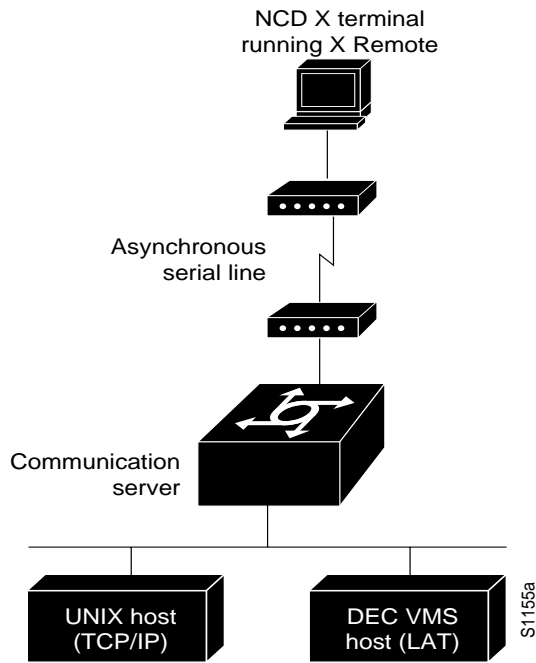


Figure 1-3 XRemote Connection

Figure 1-4 illustrates telecommuting connections where remote users dial into a server and connect to network services.

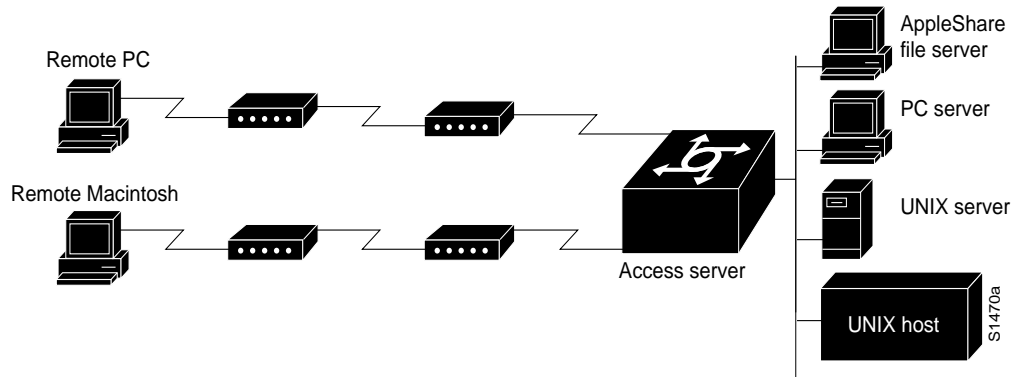


Figure 1-4 Telecommuting Connection

## Terminal or Telecommuting Services Using Protocol Translation

Protocol translation translates virtual terminal protocols so that devices running dissimilar protocols can communicate. Protocol translation on a communication or access server supports Telnet, LAT, and X.25.

There are two ways to make connections using a server set up to support protocol translation:

- One-step method—This method provides full transparent protocol translation through the **translate** global configuration command. This command defines a connection and the translation protocols in the configuration file of the server. Then you can make single-step connections to remote resources.
- Two-step method—Actual connections between devices are made by first establishing a connection to the server supporting protocol translation, then by establishing the outgoing connection to the remote destination.

With the one-step method, you perform bidirectional translation between any of the following protocols:

- X.25 and TCP (on the ASM-CS)
- X.25 and LAT (on the ASM-CS)
- LAT and TCP

The two-step method enables connection to IBM hosts from LAT, Telnet, rlogin, and X.25 PAD environments. Users must first connect to the server supporting protocol translation, then use the TN3270 facility to connect to the IBM host. Figure 1-5 illustrates LAT-to-TCP protocol translation.

In general, you use the two-step method when you want temporary use of a server supporting protocol translation as a general-purpose gateway between two types of networks (for example, X.25 PDN and TCP/IP). Instead of configuring the server for every possible connection via embedded **translate** commands, the two-step method allows you greater flexibility in terms of connecting to network resources accessible via the server supporting protocol translation.

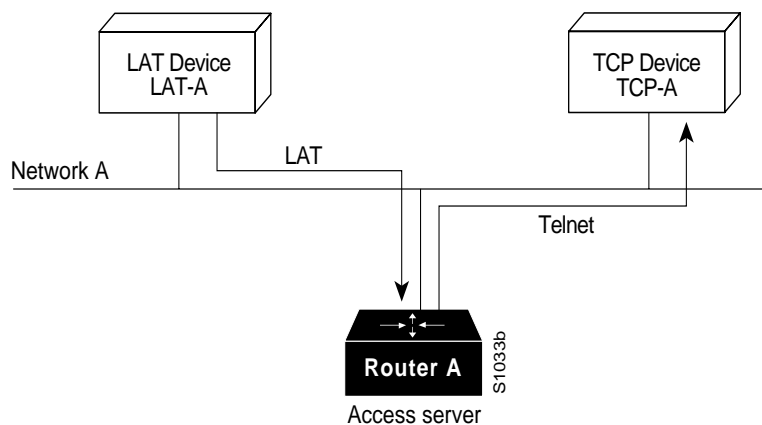


Figure 1-5 LAT-to-TCP Protocol Translation

