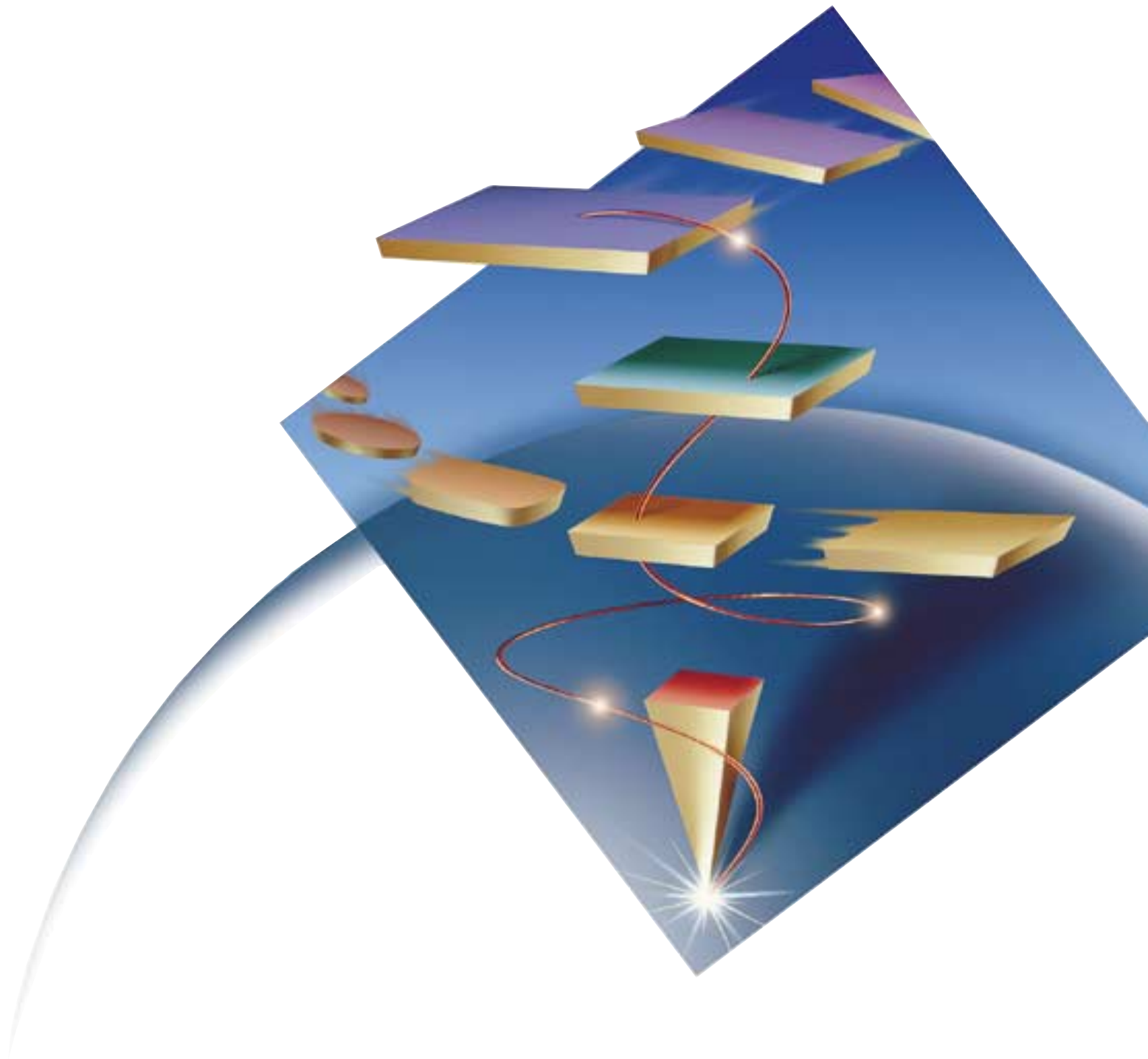




# Communications Server for Windows NT Roadmap



## *About this Roadmap...*

This Roadmap is designed to help you evaluate IBM eNetwork Communications Server for Windows NT. The Roadmap provides you with an overview of the features and functions of Communications Server for Windows NT and selected step-by-step configuration scenarios. You can also refer to the Quick Beginnings guide on the CD-ROM for additional configuration information.

# *eNetwork Communications Server for Windows NT Roadmap*

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# *Network evolution*

## **Network evolution**

Over the last two decades, SNA established an excellent reputation as an efficient and reliable networking protocol. In fact, SNA is so widely accepted that Gartner Group estimates that 90 percent of all mission-critical corporate traffic is carried by SNA.<sup>1</sup> But today there is a transformation in process, a transformation in the way we use computers for business. Enterprise computing is moving from host-based computing to client/server computing, and now is on the verge of entering the next mode of computing—network computing.

As the transition from host-based SNA networks to client/server computing began, new network protocols were developed, such as TCP/IP, IPX, and NetBIOS. Enterprise computing evolved from host-centric networks supporting mission-critical SNA applications, to client/server networks supporting distributed applications running over a variety of networking protocols. Because distributed applications are typically bound to their underlying protocol, multiple protocols needed to be run in parallel to support a mix of applications. The problem was that maintaining parallel SNA and TCP/IP networks is an expensive and time-consuming venture; it increases transmission costs, requires an additional network infrastructure, and each protocol needs to be configured and managed separately.

Today, as the evolution continues through client/server to network-based computing, emerging applications, like multimedia and collaborative computing, place increasing demands on the network. At the same time, users want to be able to access any information, running on any network, from any platform. To accomplish this, an enterprise computing model is needed that allows different networks, operating systems, and applications to interoperate.

A multifunction communication gateway is a cost-effective way to make an integrated enterprise computing model a reality. The communication gateway provides the technology to build global, heterogeneous networks. IPX, NetBIOS, SNA, and TCP/IP networks can be integrated with the flexibility to use and move critical applications across the organization independent of the underlying protocol. A communication gateway combines the flexibility of multiprotocol gateway capabilities with the power of a full-function SNA gateway. This technology is fast becoming the industry-standard solution for multiprotocol networking. And though the current networking software market offers myriad SNA gateway products, few offer true multifunction communication gateway solutions. For that reason, it is important to carefully measure these products by their ability to meet the networking challenges your enterprise faces today, as well as the challenges you anticipate in the future.

Consider the following criteria when you evaluate communication gateway and SNA gateway software:

- **Comprehensive**

Does it support your entire enterprise, including the applications, protocols, and platforms you need to run your business ?

- **Cost effective**

Is it a cost-effective network integration solution with reliable service and support?

- **Scalable**

Does the technology scale to meet your current and future network needs?

- **Open**

Does it employ only industry-standard (non-proprietary) technology?

- **Easy to use**

Does it provide simple installation and configuration interfaces?

- **Leading edge**

Does it support the latest networking technology, such as Advanced Peer-to-Peer Networking (APPN) and High Performance Routing (HPR)?

- **Capacity and performance**

Does it offer the capacity and performance you require for your business to gain a competitive edge?

- **Reliable**

Does it provide reliable LAN-to-host and LAN-to-LAN connectivity and access to applications across multiple protocols?

- **Features and functions**

Does it provide valuable features such as Internet-to-host access, Web-based administration, and systems management?

**More cost-effective network computing**

As your business competes in today's market, you need to support a constantly increasing number of diverse and complex networked applications. You want to find solutions to the challenges inherent in widely dispersed workforces. You want to harness the most powerful networking technologies available, while seamlessly linking multiple networks across large geographic locations.

IBM eNetwork Software meets the challenges you face in today's diverse network computing environment: cost-effective end-to-end network integration, Internet and intranet access, advanced SNA networking support, and more. You can build reliable environments for e-mail, messaging, transaction processing, decision support, groupware, database access, and other vital client/server functions. With IBM eNetwork Software, you can connect people to the information they need, when they need it, even over different platforms and network configurations.

The IBM eNetwork Communications Server product line is an integral part of IBM eNetwork Software. With Communications Server, workstation users and applications can communicate with other workstations and mainframe computer applications, regardless of the networking protocols used in each system. Communications Server has full-function gateways to clients on SNA and TCP/IP networks and supports most of the industry-standard networking protocols. Communications Server lets users communicate with each other across diverse networks.

IBM eNetwork Communications Server product line includes solutions for Windows NT, AIX, OS/2, OS/390, and NetWare server environments.

# *Communications Server for Windows NT*

## **The premier multifunction gateway for the NT environment**

IBM Communications Server for Windows NT provides an industrial-strength networking solution for your workstation. Whether it's for host terminal emulation, client/server and distributed applications, or connectivity across local and wide area networks (LANs and WANs), Communications Server offers a robust set of communications, networking, and system management features.

For true networking flexibility, a wide range of connectivity services and options are provided. With Communications Server, workstations and gateways can communicate using communication protocols, such as TCP/IP and SNA. Communication occurs over a variety of data link controls (DLCs), including SDLC, twinaxial, X.25, LAN (Token-Ring and Ethernet), channel switched lines, nonswitched lines, and TCP/IP. Mobile users can directly access their host system or another Communications Server through public telephone networks.

The versatility of Communications Server extends to the types of applications that can be supported. Communications Server supports a wide variety of application programming interfaces (APIs) and protocols that are ideal for client/server applications and distributed processing. Communications Server also protects your investment in applications by providing a compatibility of APIs for clients and servers. Programs using these APIs can run on any node in the network, whether it is a client or server.

The Common Programming Interface for Communications CPI-C and advanced program-to-program communication (APPC) support makes Communications Server the ideal communication platform for peer application environments. The Logical Unit APIs (LUA) for applications that need access to LU 0, 1, 2, and 3 data streams are available for access to many host applications. Refer to the Software Developers Kit (SDK) for header files, samples, and documentation regarding the APIs.

Advanced Peer-to-Peer Networking (APPN) adds additional power to the basic SNA functions supported by Communications Server. APPN is a protocol that can greatly enhance the management of an SNA network. This is accomplished through reduced configuration requirements, dynamic directory searches, route calculation capabilities, and intermediate session routing.

Communications Server contains a powerful SNA gateway facility. The gateway allows workstations on a local area network to connect to host computers through one set of adapters and physical connections. The Communications Server gateway supports various OS/2, DOS, and Windows workstations. Remote workstations can also dial in to this gateway and then use a common high-speed link to the host. The gateway performs the function of an LU concentrator making LU resources from any number of host and host Plus available to any number of downstream client workstations over any combination of communications media supported by Communications Server. The link to the upstream host can be either traditional SNA subarea or an APPN DLUR link.

Communications Server also delivers solutions to address your multiprotocol challenges with its AnyNet, SNA API clients, and TN3270E server offerings.

AnyNet software enables application programs to communicate over different transport networks and across interconnected networks. Using AnyNet, you can reduce the number of transport networks and therefore reduce operational complexity. These benefits are gained without modification to your existing application programs or hardware.

Communications Server delivers AnyNet SNA over TCP/IP access node and gateway and AnyNet Sockets over SNA access node and gateway. Thus, you can combine SNA and TCP/IP networks without losing application support.

Another way to combine SNA and TCP/IP is by using the SNA API clients that are shipped with Communications Server. Communications Server establishes and manages a session as if the origin were the local node, and then forwards the necessary application data over TCP/IP to the SNA API clients. SNA API clients are supported on OS/2, Windows 3.1, Windows 95, and Windows NT.

The TN3270E server enables TN3270- and TN3270E-compliant clients to gain access to host applications. By configuring a TN3270E server, you can exchange data between TCP/IP workstations running TN3270E applications and a Systems Network Architecture (SNA) mainframe host computer. The TN3270E server function supports the same upstream DLCs, PU and LU support, and pooling as the SNA gateway.

Communications Server includes several tools to simplify the administration of SNA networks. These include system and network alerts, message and error logs, trace files, and programming capabilities that allow you to configure and manage networks and build sophisticated management programs. Complementary network and system management products can access all of these facilities.

With Communications Server, IBM also provides an entry-level terminal emulation product from the popular Personal Communications family of products. This product includes both 3270 and 5250 emulation.

### **Improving your bottom line**

Communications Server provides your business with:

- Flexibility. To select business applications based on the merits of the application, not on whether you have the underlying protocol to support it
- Advantages. To implement the latest networking technology while leveraging your current network hardware and software investments
- Profitability. By reducing your operation and network management costs
- Productivity. By giving your employees the seamless, reliable access they need to business applications and data, from work, home, or on the road
- A foundation for the future. By giving you scalable, open, and secure network solutions



# *Communications Server for Windows NT—features and functions*

## **SNA gateway support**

Communications Server features a full-function SNA gateway. The gateway allows multiple LAN-attached workstations to access System/370 or System/390 hosts through one or more physical connections to one or more hosts. This configuration helps reduce the cost per workstation of host connections. The SNA gateway can also act as a protocol converter between workstations attached to a LAN and a WAN host line.

The Communications Server gateway supports the SNA protocols LU 0, 1, 2, 3, and dependent LU 6.2 (APPC). With the AnyNet SNA over TCP/IP function, downstream workstations can now communicate with the SNA gateway over an IP network. The gateway also supports LU 0, 1, 2, or 3 to an AS/400 host using SNA pass-through. The AS/400 host passes the data through to a System/390 host.

The LUs defined in the gateway can be dedicated to a particular workstation or pooled among multiple workstations. Pooling allows workstations to share common LUs, which increases the efficiency of the LUs and reduces the configuration and startup requirements at the host. You can also define multiple LU pools, each pool associated with a specific application. And you can define common pools that are associated with multiple hosts. When a client connects to the gateway, the gateway retrieves an LU from the pool to establish a session. The LU is returned to the pool for access by other workstations when the session is ended.

Each host views the SNA gateway as an SNA PU 2.0 node, supporting one or more LUs per workstation. As far as the host is concerned, all LUs belong to the SNA gateway PU. The SNA gateway can have multiple host connections simultaneously and can direct different workstation sessions to specific hosts.

To the supported workstations, the SNA gateway looks like an SNA PU 4 communication controller and forwards such host requests as BIND and UNBIND. The workstation LUs are not aware of the SNA gateway. The SNA gateway, however, is aware of all LUs at the workstations.

## **APPN network node and end node support**

Communications Server for Windows NT provides APPN network node and end node support. In an APPN network, network nodes provide directory services, route selection, and management services to end nodes. The end nodes need only know the location of the network node to communicate with any node in the APPN network. In this way, configuration and management of workstation groups using APPC or CPI-C transaction programs is simplified. In addition, SNA discovery support further simplifies configuration by automatically finding network nodes on behalf of the end nodes. Communications Server APPN support improves the performance of your business applications and reduces the time your IT administrator spends on configuration and network management.

With APPN, you can:

- Add, delete, or move nodes within the network, with limited system definition at the affected node and no configuration required at other nodes
- Use defaults for reducing required system definition
- Improve the performance of communication between APPC and CPI-C applications, especially in a LAN environment
- Use the node operator facility (NOF) APIs to automate configuration changes and add network management capabilities

### Did you know...?

Microsoft SNA server does not support APPN network node or end node capabilities.<sup>2</sup>

#### **High-Performance Routing (HPR)**

Communications Server for Windows NT supports HPR, which adds end-to-end nondisruptive rerouting and rate-based congestion control to APPN. If a link or node along the session path fails, HPR rapidly and automatically reroutes your sessions without interruption. It proactively prevents congestion, the main cause of delay and packet loss. This allows full utilization of network resources and predictable response time for transactions. HPR is a fully compatible extension to APPN, and all your SNA applications can take full advantage of it without modification. HPR is geared to provide 100% network availability, maximize throughput and efficiency, and prepare your SNA network for the high speed applications of the future. HPR is capable of running efficiently on a wide variety of platforms, coexisting with other protocols, and exploiting existing and newly emergent technologies, such as ISDN, frame relay, and ATM.

The benefits of HPR include:

- Non-disruptive rerouting, which automatically reroutes around a network failure, without impact to the end user or application.
- Application-specific prioritization, which ensures that interactive sessions take precedence over batch traffic. As a result, response times are minimized while link utilization is kept high.
- Adaptive, rate-based congestion control, which throttles incoming data in the case of congestion while at the same time, ensuring maximum link utilization by keeping the throughput at the knee of the congestion curve.

- Dynamic, deterministic routing, which ensures that the data flow between two end points always takes the same predetermined path. This is required to guarantee the quality and performance of network demanding applications like multimedia. ATM was designed to be connection oriented. HPR's deterministic routing is complementary to ATM's architecture, and while HPR picks up some of the connectionless features of IP routing, it retains the deterministic nature of SNA, and is thus well positioned to take advantage of ATM networking.

With HPR, you can literally pick up a workstation, move to another location across the country or the world, plug into the network, and have immediate access to other users and applications across the network.

## Did you know...?

Microsoft SNA server does not support High-Performance Routing.

### **Dependent LU requester (DLUR)**

Communications Server supports dependent LU requester (DLUR), which eliminates all hierarchical constraints on the configuration of pre-APPN dependent logical units, such as 3270 terminals and printers. Thus, 3270 applications gain all the benefits of APPN and HPR, including Class of Service (COS); dynamic, alternative, and multiple routes; and non-disruptive rerouting. This translates to lower connection costs, enhanced fault tolerance, greater availability and productivity, and simplified management.

The dependent LU server (DLUS) function in VTAM provides dependent secondary LU (SLU) support by establishing an LU 6.2 session between a dependent LU requester (DLUR) node and a dependent LU server (DLUS) node.

- A DLUS controls conversion from a subarea environment to an APPN environment. This allows you to maintain central management of remote dependent LUs while benefiting from an APPN network.
- A DLUR is an APPN end node or network node that uses dependent LUs, but requests that a DLUS provide the system services control point (SSCP) for those dependent LUs through an APPN network. DLUR allows dependent LUs (LU 0, 1, 2, 3 and dependent LU 6.2) to benefit from an APPN network. It supports dynamic and multiple paths through the network and eliminates the need for dependent LUs or their gateway to be adjacent to the VTAM.

## Did you know...?

Microsoft SNA server does not support DLUR.

### **Multiprotocol Gateway Support—AnyNet technology**

Communications Server for Windows NT supports AnyNet technology, which allows new types of applications to run on your existing network, without adding communications lines and equipment and without rewriting applications. You can run SNA applications across TCP/IP networks and sockets (TCP/IP) applications across SNA networks. AnyNet technology is based on the industry-standard Multiprotocol Transport Networking (MPTN) architecture, which maps networking services directly to non-native transport protocols. AnyNet and MPTN represent an elegant technical solution to the problems associated with multiprotocol networks. Compared to tunneling as a technique to accommodate multiple protocols, AnyNet does not introduce efficiency-robbing encapsulation of one protocol inside another.<sup>3</sup>

## Did you know...?

Microsoft SNA Server uses tunneling to transport data across non-native protocols. Microsoft SNA Server encapsulates host-session data, wrapping a header around each data package. Encapsulation can increase data transmission costs and network traffic, especially for businesses that depend on high-activity transaction processing and database access.

### **SNA over TCP/IP access nodes and gateways**

AnyNet SNA over TCP/IP lets APPC, CPI-C, and SNA applications communicate across TCP/IP networks and extends SNA applications to TCP/IP users.<sup>4</sup>

AnyNet SNA over TCP/IP access nodes enable SNA applications to communicate over an IP network. In addition, AnyNet SNA over TCP/IP access nodes can be used with SNA gateways to enable SNA gateway sessions over TCP/IP.

AnyNet SNA over TCP/IP gateways enable SNA applications, such as CICS and DB2, to communicate over TCP/IP with like applications on an SNA network. In addition, TCP/IP workstation users can access any APPC database, terminal emulator, or printer application running on the host.<sup>5</sup>

<sup>3</sup> L. David Passmore, author, published by *Business Communications Review*

<sup>4</sup> L. David Passmore, author, published by *Business Communications Review*

<sup>5</sup> L. David Passmore, author, published by *Business Communications Review*

## Did you know...?

Microsoft SNA Server uses a proprietary Microsoft protocol to send host-session data over the WAN.

### **Sockets over SNA access nodes and gateways**

AnyNet Sockets over SNA access nodes allow socket (TCP/IP) application programs to communicate over SNA networks. AnyNet Sockets over SNA gateways enable sockets applications to communicate over SNA with like applications on a TCP/IP network.

One of the competitive advantages of Sockets over SNA solutions is the ability to use the traffic prioritization feature of Class of Service (COS) to designate the batch or lower priority traffic. For example, Web browsing, Lotus Notes replication, and file transfer have a lower priority than interactive traffic such as 3270 SNA backbone traffic. In addition, the SNA transport can take full advantage of APPN and HPR for enhanced reliability and performance.

## Did you know...?

Microsoft SNA Server does not support Sockets over SNA technology. That means you can't run your Web browsers, Web servers, or Lotus Notes applications over your SNA network.

### **TN3270E Server**

Communications Server for Windows NT includes TN3270E Server function, which supports both standard and extended Telnet 3270. TN3270E extends the capabilities of the TN3270 standard protocol, integrating SNA and TCP networks by giving users access to mainframe applications over TCP/IP.

The TN3270E Server terminal emulation function enables users to run interactive 3270 display application programs. Using TN3270E Server, you can print from host applications to printers attached to your workstation or elsewhere in your TCP/IP network. In addition, TN3270E Server supports response handling. TN3270E-enabled clients can send positive and negative responses through TN3270E Server to the host. TN3270E server generates request responses for standard TN3270 clients.

TN3270E Server also supports LU classes. Communications Server categorizes user connections with LU classes. Classes consist of LUs configured with common characteristics; those that require a specific host connection, for example. This simplifies user access, enables users to be grouped by application needs, and maximizes host resources.

### **SNA API client support**

The Communications Server SNA API client support allows TCP/IP-attached clients to access SNA APIs without requiring SNA protocols to flow between the clients and the server. This allows most SNA configuration to take place at the central server.

Communications Server supports SNA API clients on Windows 95, Windows NT, Windows 3.x, and OS/2. The SNA clients provide support for CPI-C, APPC, EHNAPPC, and LUA RUI API interfaces, while providing actual SNA processing at the server. These clients are delivered as part of the server but are actually installed and configured at the client enabled Web browsers. This dramatically increases the availability of host information for Web-based users.

**Host On-Demand**

Communications Server is packaged with Host On-Demand. Host On-Demand is an Internet-to-SNA interconnectivity solution that provides 3270 application access through the World Wide Web. Web users needing access to software applications, public catalogs, databases, or other host resources can use Host On-Demand from inside their Java-enabled Web browsers. This dramatically increases the availability of host information for Web-based users.

**Did you know...?**

You must buy a third-party product to enable Internet-to-SNA access capabilities with Microsoft SNA Server.

**Web administration**

Communications Server includes Web-based server administrator, an Internet-to-SNA interconnectivity solution that enables customers to access network resources through Communications Server using the World Wide Web. With a Java-enabled Web browser, such as Netscape Navigator or Microsoft Internet Explorer, customers can start, stop, or monitor resources easily, securely, and from virtually anywhere. Furthermore, IBM's Web-based server administration function displays network resource data in a Web browser just as if it were being viewed directly on the server monitor.

**Local and remote configuration administration**

Communications Server includes an easy-to-use configuration user interface for entering configuration data. Local configuration is supported at both the client and server level. Remote configuration of the server is supported from Windows NT clients.

The SNA Node Operations application allows you to stop, start, and monitor resources on your network. The SNA Node Operations application is also supported from Windows NT clients. This support allows Node Operations to connect to and manage remote Communications Servers.

**Programming support**

Communications Server supports a wide range of 32-bit application programming interfaces (APIs) on the server for the application program developer. These APIs provide convenient ways for application programs to access Communications Server functions and allow applications to address the communication need of connections to IBM and non-IBM computers. In addition, APIs support SNA protocols so that standardization is ensured.

The APIs supported include:

- Advanced program-to-program communications (APPC)
- Common Programming Interface for Communications (CPI-C)
- Conventional LU Application Interface (LUA) RUI
- WinSock
- Network Operator Facility
- Management Services
- Common Services

On the clients, the EHNAPPC API is also provided.

The Communications Server Software Developers Toolkit, which can be separately installed from the Communications Server CD-ROM, is also available for application developers to use. This Toolkit contains samples, header files, library files, and online manuals for each of the APIs.

### **Data security**

Communications Server provides basic and enhanced security support at session and conversation levels. You can limit which Windows NT users can access SNA resources through the SNA API clients. Conversation security includes support for password substitution. Enhanced LU-LU security is also included.

### **Complementary emulation software**

Communications Server for Windows NT supports the IBM Personal Communications line of emulation products, as well as emulation software from independent software vendors such as Attachmate, Eicon, NetManage, NetSoft, WallData, and WRQ.

#### *IBM Personal Communications for Windows NT*

To help you access your enterprise and intranet business applications from the office, home or on the road, IBM introduces Personal Communications for Windows NT, recognized as an industry leader in client-emulation software.

IBM's native, 32-bit implementation of Personal Communications for Windows NT provides the same easy answer for multiprotocol connectivity, application development and emulation support for host access as it already does for the OS/2, DOS, Windows 3.1 and Windows 95 platforms. Personal Communications for Windows NT and for all other platforms is available on a single CD-ROM, enabling you to change, move or mix and match clients on your users' desktops.

Personal Communications software provides a common look and feel across platforms, allowing customers to move easily from one operating system to another and across diverse networks such as SNA and IP backbones. This increases productivity while reducing training



and application migration costs. Personal Communications brings the power of personal networking to a user's NT workstation by providing a variety of connectivity options supporting local area network (LAN) and wide area network (WAN) environments.

Personal Communications is Internet and intranet capable, allowing users to select and launch a Web page with a click of the mouse. The Personal Communications solution brings the Internet to the desktop, making it easier than ever before to do business on the Internet.

Check out the IBM Personal Communications Web site for more information:

<http://www.networking.ibm.com/pcf/pcfprod.html>

#### *Eicon Technology- Aviva Mainframe Edition Release*

Aviva Mainframe Edition Release is Eicon Technology's PC-to-Host connectivity solution for Microsoft Windows NT and Windows 95. With powerful automation, intelligent connectivity and advanced diagnostic tools hiding the complexity of SNA communications to the user, little or no training or programming is needed to make the most of your mission-critical applications. Aviva is based on a new 32-bit architecture, designed to take full advantage of the new capabilities of Windows 95 and Windows NT operating systems.

#### *NetSoft - NS/ElitePlus for Mainframe Access and NS/Elite for AS/400*

NS/ElitePlus for Mainframe Access is NetSoft's full-featured PC-to-IBM mainframe solution for Windows 95 and Windows NT. Designed specifically for the 32-bit Windows operating systems, NS/ElitePlus contains 327X display and 3287 printer emulation, IND\$FILE transfer and a wide range of PC-to-IBM host connections.

NS/Elite for AS/400 provides state-of-the-art 5250 display and printer emulation software for APPC and TCP/IP environments. It also provides host access via standard AS/400 device definitions. Display data can be formatted into OLE objects that provide automatic host update of documents. NS/Elite is not dependent upon OS/400 versions. It is compatible with all AS/400s, running V2R1, and higher. Updates to client capabilities do not require application of host PTFs.

#### *WRQ, Inc. - Reflection® for IBM*

Reflection for IBM PC-to-mainframe connectivity software helps you integrate SNA with TCP/IP. This means that you can take advantage of open standards while still getting the features and dependability you're used to in your IBM environment. Reflection for IBM is designed with the IS manager in mind, offering full support for SNA and TCP connections, including DLC, Coax, TN3270(E) and LAN connections for Windows NT, Windows 95 and Windows 3.x platforms. Reflection for the AS/400 gives users rock-solid PC-to-AS/400 connectivity, providing users access to the host information they need, regardless of Windows platform or network operating system.

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**Communications Server for Windows NT pricing information**

<b>Product Description</b>	<b>Part Number</b>	<b>One-Time Charge</b>
CS for Windows NT, Version 5.0 Program Package CD-ROM	4231747	\$995
CS for Windows NT, Version 5.0 Use Authorization for RTC	4231748	\$965
CS for Windows NT, Version 5.0 Use Authorization for RTC SWA	4231749	\$965
CS for Windows NT, Version 5.0 Use Authorization for User 1 pack	4231750	\$69
CS for Windows NT, Version 5.0 Use Authorization for User 5 pack	4231751	\$328
CS for Windows NT, Version 5.0 Use Authorization for User 10 pack	4231752	\$642
CS for Windows NT, Version 5.0 Use Authorization for User 50 pack	4231753	\$3174
CS for Windows NT, Version 5.0 Use Authorization for User SWA	4231754	\$69
CS for Windows NT, Version 5.0 Program Package Upgrade	4231755	\$419
CS for Windows NT, Version 5.0 Use Authorization for RTC upgrade	4231756	\$389
CS for Windows NT, Version 5.0 Use Authorization for RTC Up SWA	4231757	\$389
CS for Windows NT, Version 5.0 UPO for Server OTC	4231760	\$289
CS for Windows NT, Version 5.0 UPO for User OTC	4231780	\$21
CS for Windows NT, Version 5.0 for User Upgrade	4231784	\$29
CS for Windows NT, Version 5.0 Use Authorization for User Upgrade SWA	4231785	\$29

*Scenario 1: Configuring SNA-API Clients running  
3270 or other LUA applications*



# Scenario 1: Configuring SNA-API Clients running 3270 or other LUA applications

In this scenario, Windows NT clients are connected to the S/390 item, using a 3270 emulator over LUA, without installing an SNA communication stack on the client machines.

The recommended solution is to configure:

- Communications Server for Windows NT server to support SNA API clients and their applications
- SNA API client to communicate with Communications Server
- A 3270 emulator

By doing this, employees can run a 3270 emulator using the SNA stack on the Communications Server node to manage the session. Communications Server establishes and manages a session as if the origin were the local node, but then forwards application data to the SNA API client instead of to its own application APIs.

To complete this scenario, you need to perform the following steps:

**Step 1:** Configure Communications Server (on the server machine).

**Step 2:** Define a user ID and password (on the server machine).

**Step 3:** Configure Communications Server SNA client (on the client machine).

**Step 4:** Configure IBM Personal Communications for Windows NT, Version 4.11 (on the client machine) to begin a 3270 session.0

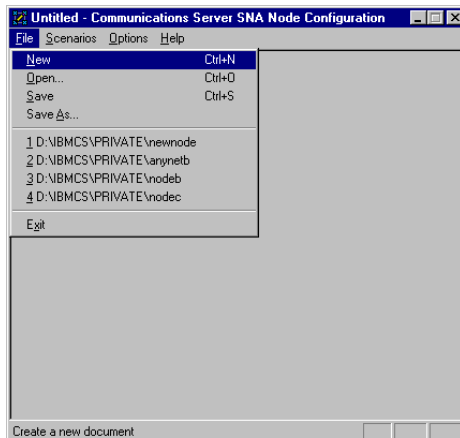
## Step 1: Configure Communications Server (on the server machine)

1. Click [Start](#) on the task bar and then select:

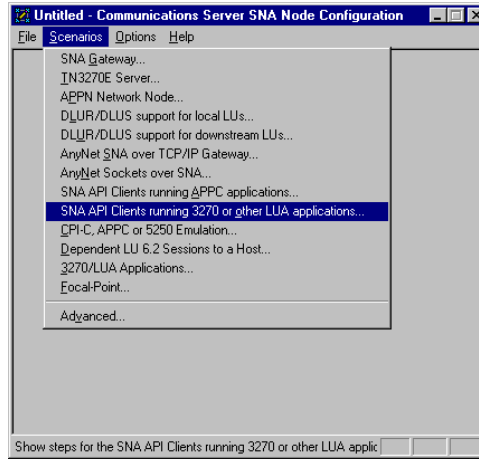
- [Programs](#)
- [IBM Communications Server](#)
- [SNA Node Configuration](#)

The Communications Server SNA Node Configuration window is displayed.

2. Select [File](#), and then select [New](#)

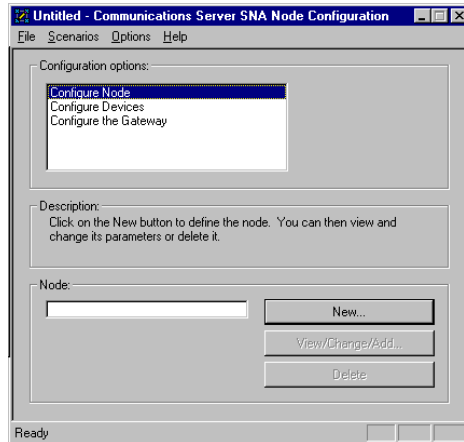


3. Select **Scenarios**, then select **SNA API Clients running 3270 or other LUA applications...**



### **Configure the Node**

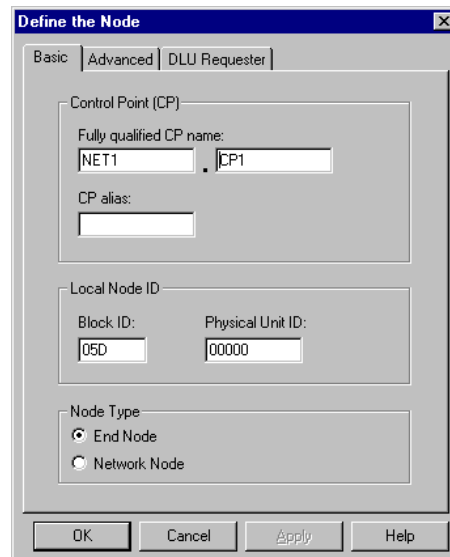
1. Highlight **Configure Node**, and then click **New**.



2. The Define the Node window is displayed.  
Select the **Basic** tab, and provide the following information.

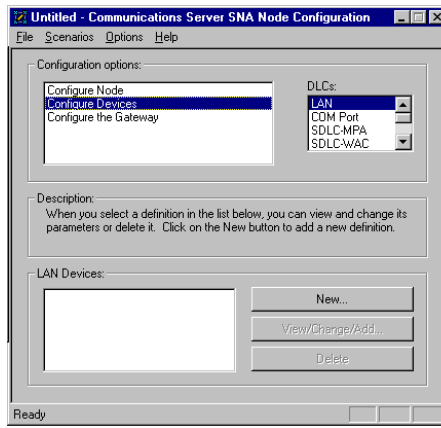
- Fully qualified CP name = **NET1.CP1**
- Node type = **end node**

When you are finished, click **OK**.

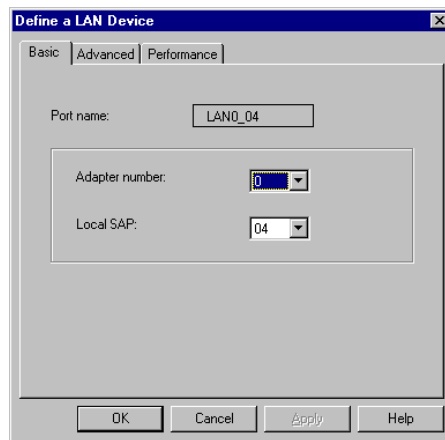


## Configure Devices

1. Highlight [Configure Devices](#), and then click [New](#).

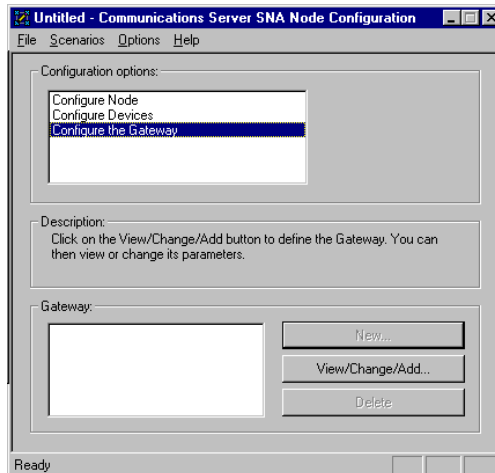


2. The Define a LAN Device window is displayed. Click [OK](#) to accept the default values.



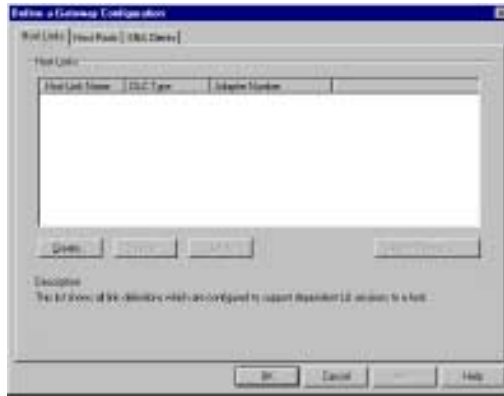
## Configure the Gateway

1. Select [Configure the Gateway](#), and then select [View/Change/Add...](#)

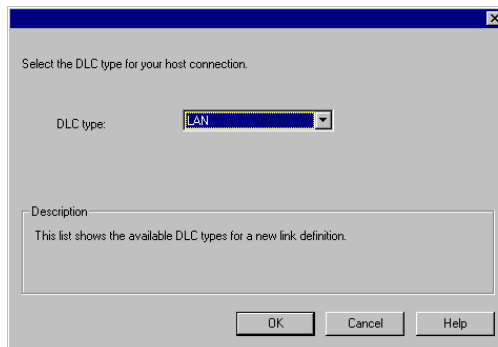


2. The Define a Gateway Configuration window is displayed.

- Select the [Host Links](#) tab.
- Click [Create](#).

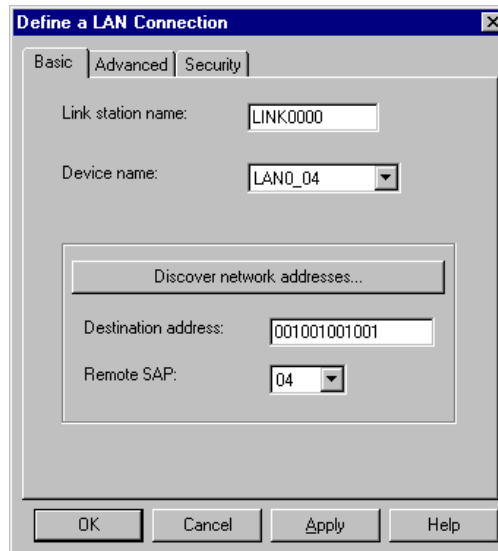


3. When the following window is displayed, click [OK](#) to accept the default DLC type.



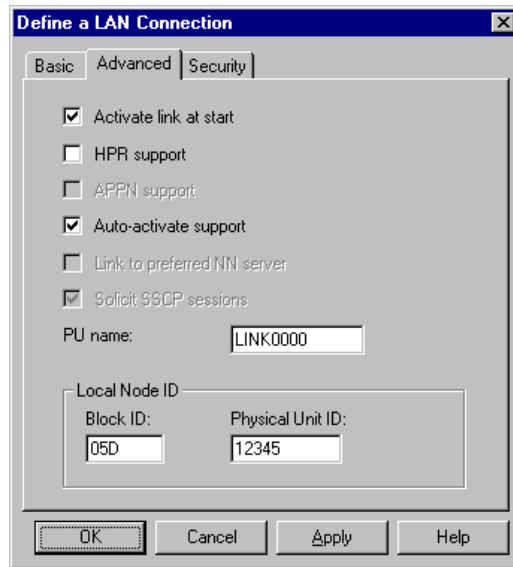
4. The Define a LAN Connection window is displayed

- Enter the 12 character hexadecimal address of the S/390 host. In this example the destination address = [001001001001](#).
- When you are finished, select the [Advanced](#) tab.

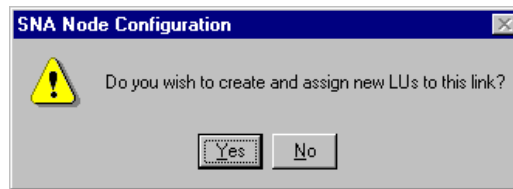


5. On the **Advanced** property page, enter the **Local Node ID**. The Local Node ID consists of two parts: the Block ID and the Physical Unit ID. In this example, the Block ID = 05D, and the Physical Unit ID = 12345.

After entering the Local Node ID information, click **OK**



6. When this window is displayed. Click **Yes** to create and assign new LUs to this link.



7. The following window is displayed, enter the following information.

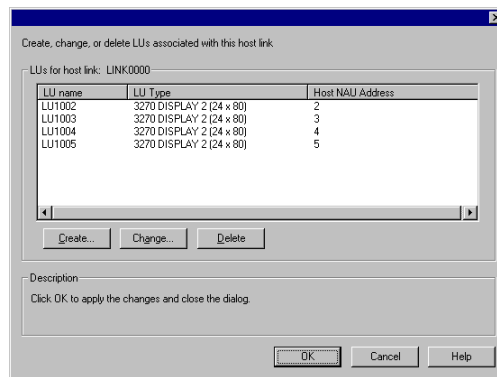
- Base LU name = **LU1**
- Number of LUs = **4**

When you are finished, click **OK**.





8. The following window is displayed, indicating the central computer LUs assigned to the specified link definition. Click [OK](#) to accept the values and continue.



9. When the Define a Gateway Configuration property sheet is displayed, select the [SNA Clients](#) tab.
- The SNA Clients page is displayed, indicating that the SNA API Client Services is supported.
  - Specify the [PUBLIC](#) pool as the default pool for SNA API Client Services.
  - When you are finished, click [OK](#).

Now that you have completed the SNA API Clients Running 3270 or other LUA Applications configuration, you will want to start the node and then verify that the link is active.

## **Step 2: Define a user ID and password (on the server machine)**

You can restrict which SNA API clients connect with the Communications Server by defining user IDs and passwords under the user group IBMCSAPI. Only clients using a user ID under this group will be given access to Communications Server.

To define a user ID (username) and password and the IBMCSAPI user group, do the following:

1. Invoke the User Manager for Domains application for Windows NT under Start, Programs, Administrative Tools (Common).
2. From the User pull-down, select [New User....](#) Specify Username and Password (the username and password specified are case-sensitive). Click [Add](#), and then click [Groups](#). Select IBMCSAPI from the groups list, and then click [OK](#).
3. Click [Close](#) to exit.

### Step 3: Configure Communications Server SNA client (on the client machine)

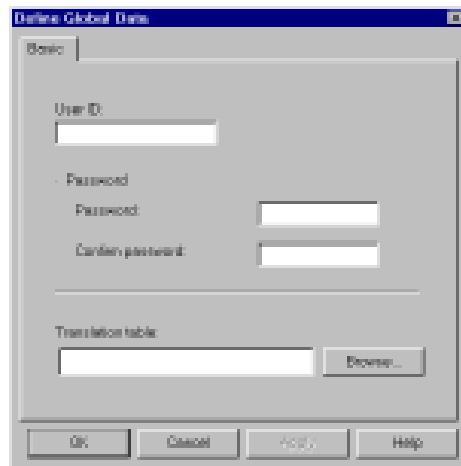
First, configure the user ID and password you defined in Step 2 to give the SNA API client access to Communications Server. To perform this configuration, do the following:

1. On the client machine select:
  - [Programs](#)
  - [IBM Communications Server SNA client](#)
  - [Configuration](#)
2. The Configuration File (\*.ini) - CS/NT SNA client Configuration window is displayed.
  - Highlight [Configure Global Data](#), and then select [New...](#)



3. The Define Global Data window is displayed.
  - Enter the [User ID](#) and [Password](#) exactly as you defined them on the server machine in Step 2 (they are case-sensitive).

When you are finished, click [OK](#).



Next, configure the LUA sessions. When creating the LUA definition, give a meaningful LUA session name by which this definition will be known.

Specify the TCP/IP host name or address of the Communications Server machine. Also, specify whether the session should use a dedicated LU or an LU from the default pool. If you specify that a dedicated LU be used, you must provide the LU name as configured in Communications Server. The easiest configuration is to specify that an available LU be chosen from the default pool, which was configured as the PUBLIC pool on Communications Server. If the definition requires you to specify a pool name, use PUBLIC.

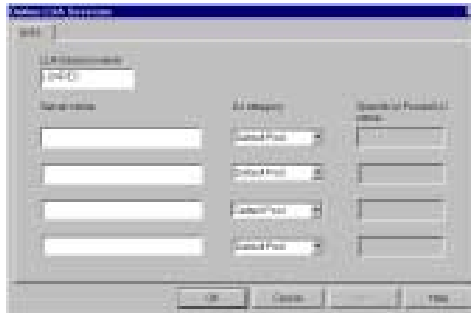
To perform this configuration, do the following:

1. On the Configuration File (\*.ini) - CS/NT SNA Client Configuration window:
  - Highlight [Configure LUA Sessions](#), and then select [New...](#)



2. The Define LUA Sessions window is displayed.
  - Specify the [LUA Session Name](#) (LUXREC, in this example)
  - Specify the [TCP/IP host name](#) or [address of the Communications Server machine](#)
  - Accept the Default pool

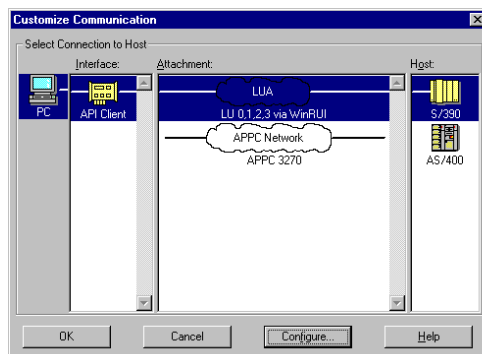
When you are finished, click [OK](#).



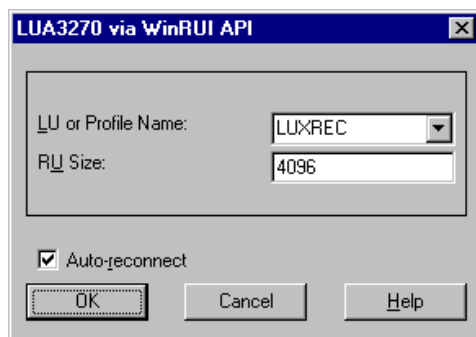
This completes the configuration aspect of the SNA API client. Be sure to save your configuration before exiting the client configuration utility.

#### Step 4: Configure IBM Personal Communications for Windows NT Version 4.11 (on the client machine) to begin a 3270 session

1. If you have not already done so, install Personal Communications (PCOMM) for Windows NT, Version 4.11, on the client workstation.
2. To configure PCOMM, click [Start](#) on the taskbar and then select:
  - [Programs](#)
  - [Start or Configure Session](#)
3. The Customize Communications window is displayed. Configure as shown. When you are finished, click [Configure...](#)



4. The Customize Communication—3270 Host window is displayed. Click [Configure Link...](#)
5. The LUA3270 via WinRUI API window is displayed. Enter the [LU or Profile Name](#). This is the LUA session name used when you created the LUA session in Step 3 on the client. In this example, we specified [LUXREC](#).



6. When you are finished, click [OK](#). The PCOMM configuration is completed, and you are ready to log on to the System/390 host.

*Scenario 2: Accessing and using IBM Host On-Demand*



## Scenario 2: Accessing and using IBM Host On-Demand

In this scenario, a customer has about 50 employees in its Phoenix branch office that use Netscape Navigator, a Java-enabled Web browser, to access the Internet. The employees, who are on a TCP/IP LAN, must access the VM system at corporate headquarters in Dallas.

The recommended solution is to provide VM access through the Internet, using IBM Host On-Demand.

By doing this, the customer does not have to install a 3270-terminal emulation program on each employee's desktop. Rather, employees with Java-enabled Web browsers can seamlessly access SNA-based data and services.

You need to perform these steps to complete this scenario.

1. Be sure you have installed the required server and client software:

### **Server software requirements**

- IBM Communications Server for Windows NT (CS/NT), Version 5.0
- IBM Internet Connection Server (ICS) for Windows NT, or Microsoft Internet Information Server (IIS) for Windows NT, or Lotus Domino Server. The Web server must be running on the same machine where Communications Server for Windows NT and Host On-Demand are running.

**Note:** A FREE copy of IBM Internet Connection Server is available at:

<http://www.ics.raleigh.ibm.com/ics/icfg>

### **Client software requirements**

- Netscape Navigator 3.0, or higher, Web browser, or
- Microsoft Internet Explorer 3.0, or higher, Web browser, or
- Any other browser that is Java-enabled. (Non-Java-enabled browsers may work with restricted capabilities.)

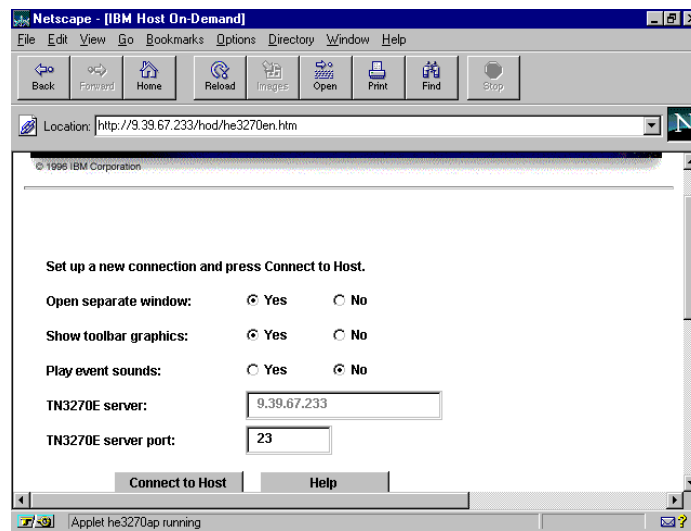
2. If you haven't already done so, perform the following:

- Configure and start IBM Communications Server for Windows NT and IBM Internet Connection Server (or its equivalent) on a remote server.
- Configure a TN3270E server.

- Provide user access to a remote host.
3. Open the Java-enabled Web browser.
  4. Specify the Web site (using either the IP address or hostname), the appropriate Host On-Demand subdirectory, and the file access:

<http://9.39.67.233/hod/he3270en.htm>

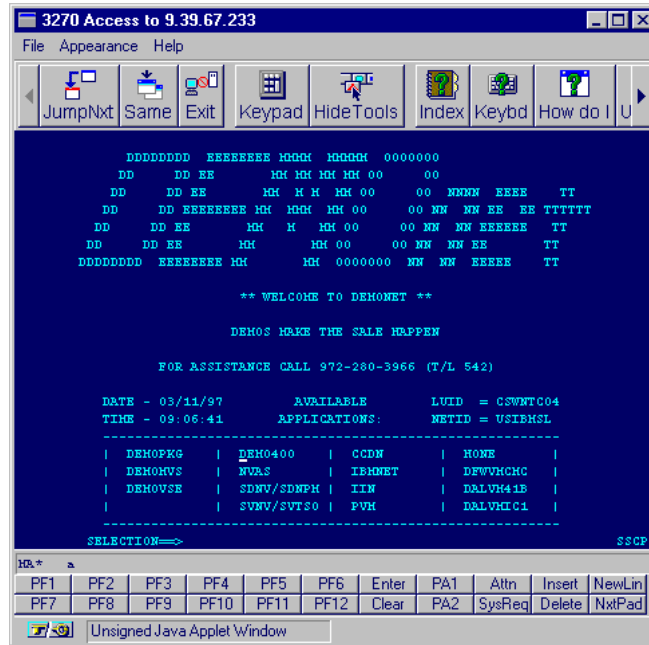
5. The following is displayed in the Netscape Navigator browser window:



### Notes:

- The Separate Window option enables users to either display a host session in the Web browser window or in a separate window. In this scenario, the host session will display in a separate window.
- The defaults for the options that display on the Host On-Demand screen are controlled by the configuration file (httpd.cnf), which resides on the IBM Internet Connection Server. It can easily be modified using any text editor.
- The TN3270E server port 23 in this example is a Telnet well-known port.

6. Click [Connect to Host](#) to start a TN3270 session. In our scenario, the following host emulator screen is displayed.



7. Log on to VM in the usual manner.



*Scenario 3: Accessing and using IBM Web-based server administration*



### **Scenario 3: Accessing and using IBM Web-based server administration**

In this scenario, a system administrator wants to be able to monitor and control his network through the Internet using Netscape Navigator, a Java-enabled Web browser, from anywhere in the country.

The recommended solution is to use the IBM Web-based server administration function of Communications Server for Windows NT. The system administrator can then start, stop, or monitor network resources over the Internet using Netscape Navigator.

You need to perform these steps to complete this scenario.

1. Be sure you have installed the following required software:

#### **Server software requirements**

- IBM Communications Server for Windows NT, Version 5.0
- IBM Internet Connection Server (ICS) for Windows NT or Microsoft Internet Information Server (IIS) for Windows NT, or Lotus Domino Server.

**Note:** A FREE copy of IBM Internet Connection Server is available at:

<http://www.ics.raleigh.ibm.com/ics/icfg>

#### **Client software requirements**

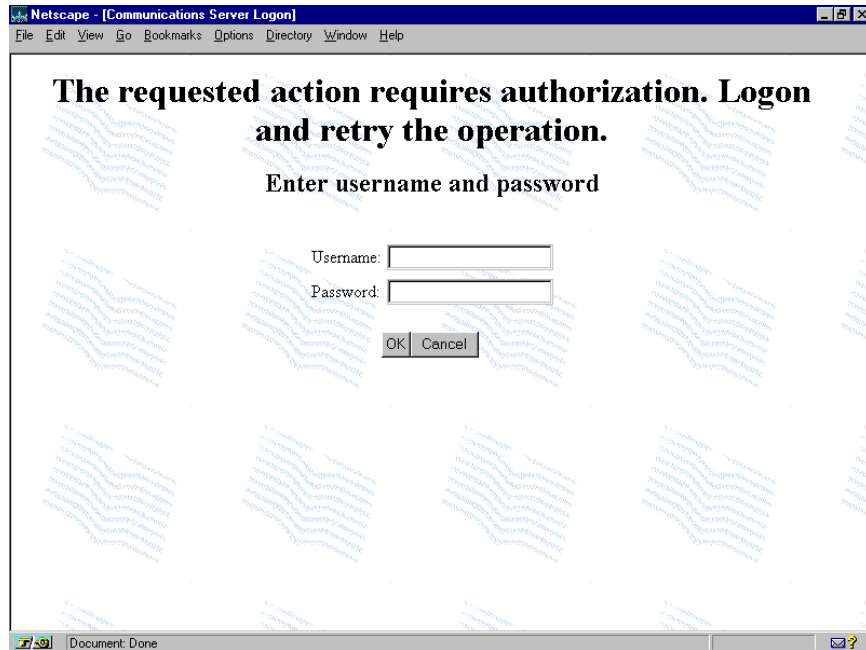
- Netscape Navigator 3.0, or higher, Web browser, or
  - Microsoft Internet Explorer 3.0, or higher, Web browser, or
  - Any other browser that is Java-enabled. (Non-Java-enabled browsers may work with restricted capabilities.)
2. If you haven't already done so, configure and start IBM Communications Server for Windows NT and IBM Internet Connection Server (or its equivalent) on a remote server.
  3. Open the Java-enabled Web browser.
  4. Specify the Web site (using either the IP address or hostname), the appropriate subdirectory, and the file to access.

<http://9.39.67.233/csc/csmmain>

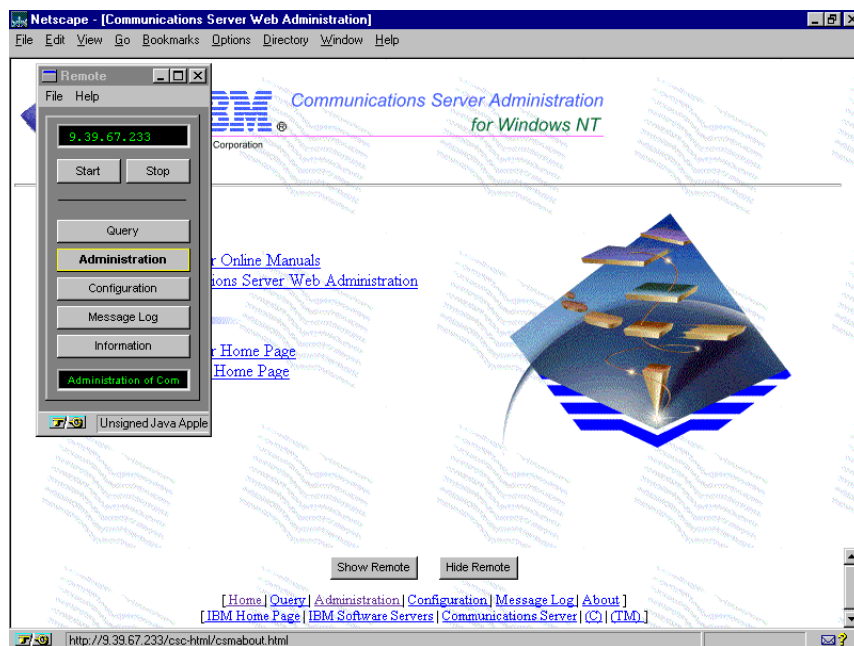
5. The following is displayed in the Web browser window.



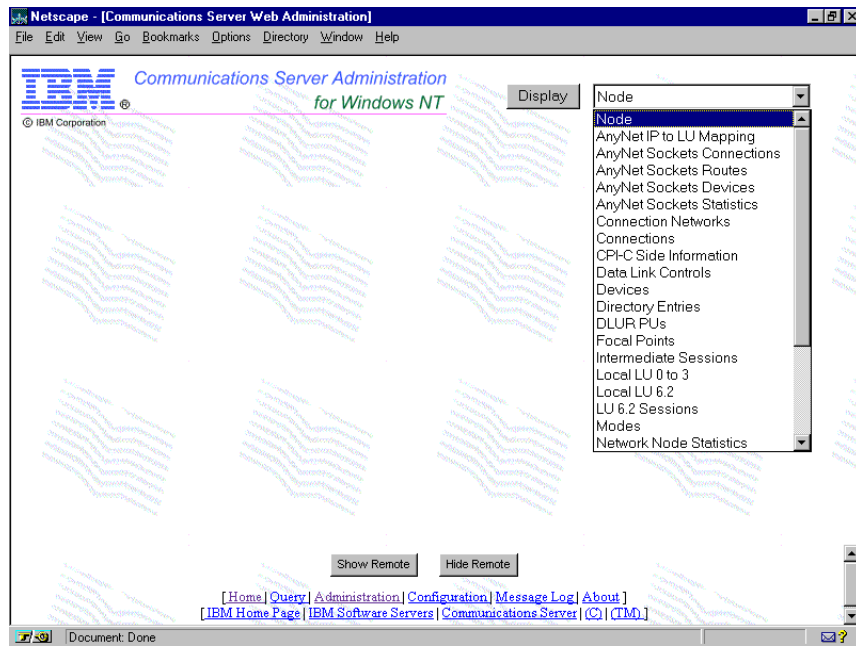
6. The Server Logon window is displayed. The user ID and password you enter must be included in the IBMCSADMIN group. For the purpose of this scenario, enter the user ID and password that you specified when installing IBM Communications Server for Windows NT. When you are finished, click **OK**.



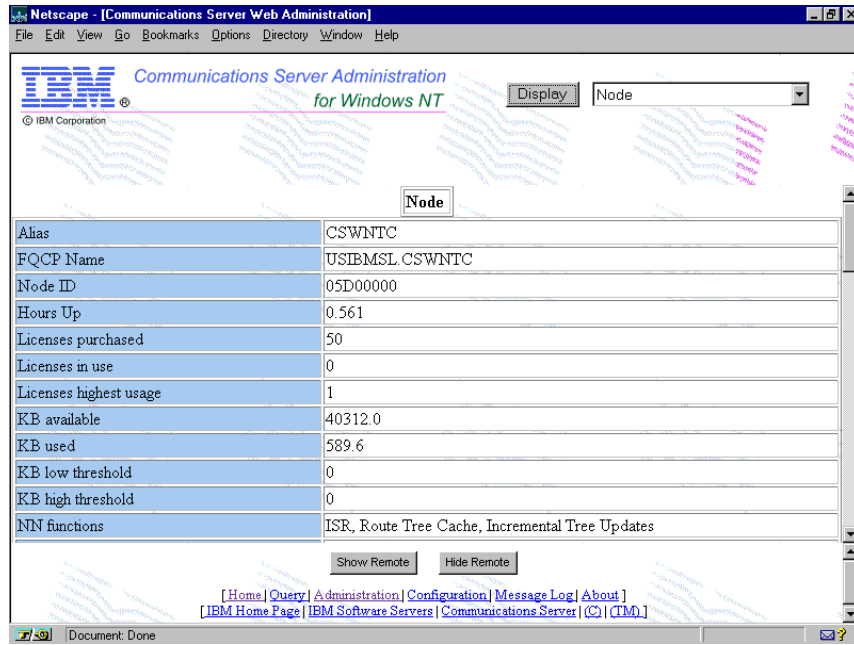
7. The Communications Server Web Administration window is displayed. Select the desired function you want to view using the Remote keypad, and then click **Start**.



8. If you selected Administration using the Remote keypad, the following window is displayed.
- From the drop down list, highlight the information you want to display (Node, for example), and then click [Display](#).



9. The following node information is displayed.



**Note:**

The configuration file (httpd.cnf), which resides on the IBM Internet Connection Server, can easily be modified using any text editor. Consult the README file on the CD-ROM for additional information about configuring Web-based server administration.





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