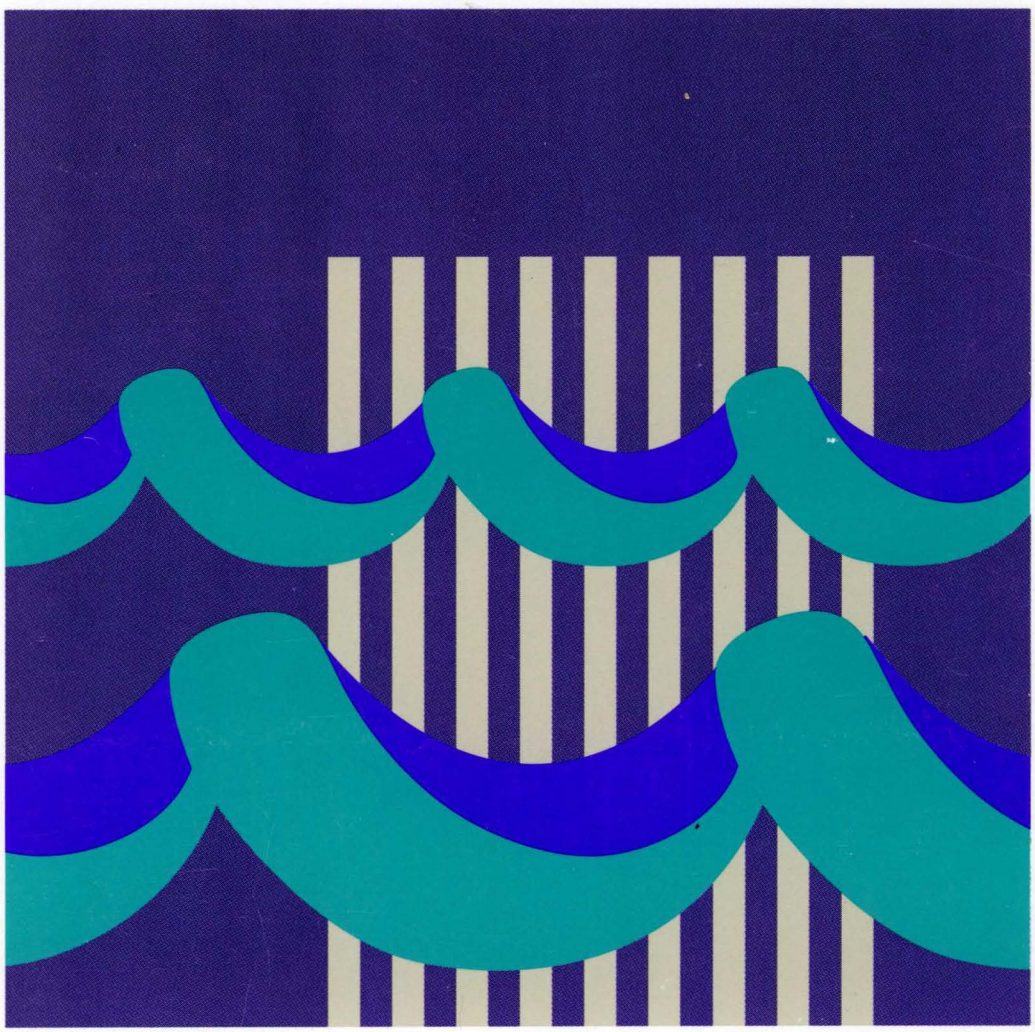
SC31-6259-00

Network Control Program
System Support Programs
Emulation Program

Library Directory

NCP Version 7 Release 2
SSP Version 4 Release 2
EP Release 12



SC31-6259-00

Network Control Program
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Library Directory

NCP Version 7 Release 2
SSP Version 4 Release 2
EP Release 12

Note

Before using this document, read the general information under "Notices" on page vii.

First Edition (October 1994)

This document applies to the following IBM licensed programs:

Advanced Communications Function for Network Control Program Version 7 (program number 5648-063) Release 2.

Advanced Communications Function for System Support Programs Version 4 (program number 5655-041) Release 2 (MVS).

Emulation Program for IBM Communication Controllers (program number 5735-XXB) Release 12.

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MVS/XA
NetView
NTune
NTuneMON
NTuneNCP
VM/ESA
VSE/ESA
VTAM

About This Book

This book gives you an overview of Advanced Communications Function for Network Control Program (NCP), System Support Programs (SSP), and Emulation Program (EP) and directs you to information about tasks related to these programs. It also describes the changes made to NCP and SSP and to the library for NCP Version 7 Release 2 (V7R2) and SSP Version 4 Release 2 (V4R2).

Who Should Use This Book

This book is for system analysts, system programmers, system operators, and system engineers who perform NCP tasks and who want to know where to find information about those tasks.

Before you use this or any other NCP book, you should be familiar with Systems Network Architecture (SNA). Refer to *Systems Network Architecture Technical Overview* for this information.

How to Use This Book

Use this book to obtain a general understanding of NCP, SSP, and EP and to learn where specific information is located in the library.

For a general description of NCP, SSP, and EP and the role of each in a telecommunications network, read Chapter 1, "Introduction to NCP, SSP, and EP."

For a high-level description of the enhancements to the products and library for NCP V7R2 and SSP V4R2, read Chapter 2, "What Is New in This Release."

To find information about a specific task, read Chapter 3, "Directory to Task-Specific Information." Each section describes a network task and provides a table showing where you can find information about the task. Find the section for the task you are performing and refer to the book and chapters cited for particular subtasks.

Terms Used In This Book

"MVS," "VM," and "VSE"

The term *MVS* means the MVS/XA* and MVS/ESA* systems. The term *VM* means the VM/ESA* systems in the CMS environment. The term *VSE* means the VSE/SP, VSE/ESA*, and VSE/Advanced Function operating systems. If information is applicable to only one system, the specific system name is used.

"Port" and "Channel" Used with LPDA

In discussions concerning link problem determination aid (LPDA) for multiport and data multiplex mode (DMPX) modems, the terms *port* and *channel* are synonymous. Although *port* is the more commonly used term, *channel* can be used in sections describing LPDA.

"IBM Special Products or User-Written Code"

This book sometimes refers to *IBM special products or user-written code.* IBM* special products include Network Terminal Option (NTO), Network Routing Facility (NRF), and X.25 NCP Packet Switching Interface (NPSI).

NTune

NTune refers to NTuneMON and NTuneNCP. With these products you can monitor and tune NCP while it is running in the communication controller.

NTuneMON uses online panels and messages to display the current status of various NCP resources and identify network problems. NTuneMON runs under the NetView* program in the host and interacts directly with any NCP activated by VTAM.

NTuneNCP enables you to enhance NCP performance by changing various NCP parameters while NCP is running. NTuneNCP runs in the controller along with NCP and functions in conjunction with the NTuneMON.

For more information about these products, refer to the *NTune User's Guide* and the *NTuneNCP Reference.*

IBM 3745 Communication Controller Model Numbers

In this book, the term *IBM 3745 Communication Controller* refers to all IBM 3745 models. When particular models are discussed, the appropriate model numbers are specified. Model numbers include IBM 3745-130, 3745-150, 3745-160, 3745-170, 3745-17A, 3745-210, 3745-21A, 3745-310, 3745-31A, 3745-410, 3745-41A, 3745-610, and 3745-61A.

"Ethernet-Type LAN"

The term *Ethernet-type LAN* means a local area network (LAN) that uses either the Ethernet Version 2 or IEEE 802.3 protocol.

"CSS," "37CS," and "3746 Model 900"

The terms *connectivity subsystem (CSS)* and *37CS* refer to the 3746 Model 900 connectivity subsystem, an expansion frame that extends the connectivity and enhances the performance of the IBM 3745 Communication Controller.

"Token Ring"

NCP can connect to an IBM Token-Ring Network using the NCP/Token-Ring interconnection (NTRI) or the 3746 Model 900 connectivity subsystem attachment. This book uses the term *token ring* when referring to either type of connection.

"Frame Relay"

To support frame-relay networks, NCP can use a transmission subsystem (TSS) or high performance transmission subsystem (HPTSS) adapter on the 3745, or NCP can use a communication line processor (CLP) adapter on the 3746 Model 900 connectivity subsystem. Unless otherwise stated, this book uses the term *frame relay* when referring to a 3745 or a 3746 Model 900 connection.

"NCP V7R2"

In this book, unless otherwise specified, the term *NCP V7R2* refers to NCP Version 7 Release 2 with or without the optional NCP feature for 3746 Model 900 connectivity subsystem support. To use this feature, you must have the 3746 Model 900 installed in your controller.

How Numbers Are Written

This book shows numbers over 9999 in metric style, which means that a space is used instead of a comma to separate groups of three digits. For example, the number ten thousand five hundred fifty-two is written 10 552. However, keyword values, for example, SALIMIT=65535, do not use a blank.

Symbols Used in This Book

Figure 1 on page xii shows the networking symbols used in the illustrations that appear throughout the library.

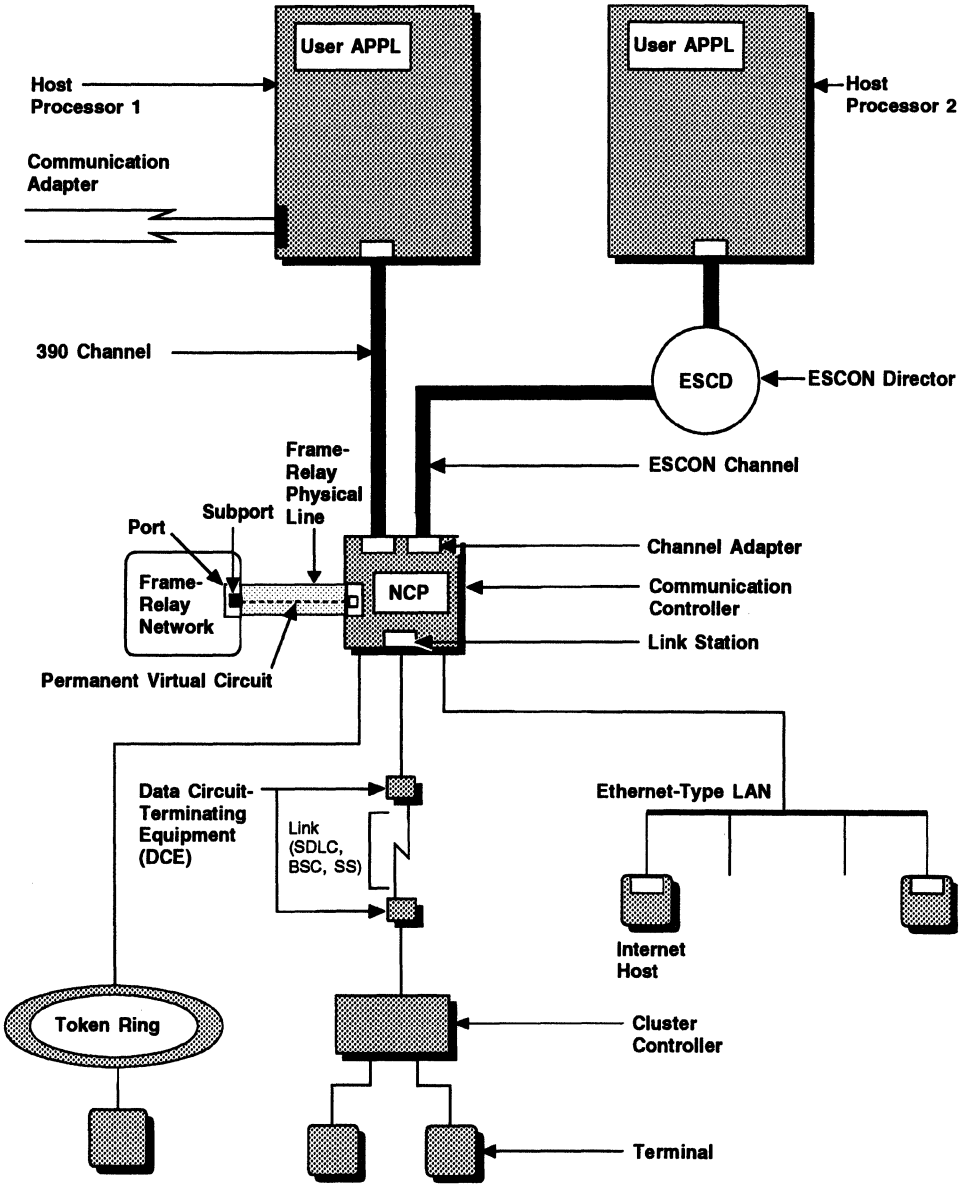

Figure 1. Symbols Used in Illustrations

Where to Find More Information

This book, *NCP V7R2, SSP V4R2, and EP R12 Library Directory*, is a good place to start any task regarding NCP, SSP, or EP. This directory introduces the enhancements for the current release and shows where these enhancements are described in the NCP library. It gives you an overview of NCP, SSP, and EP and directs you to information on a variety of tasks related to these programs. When you are using this book online, you can use *hypertext links*[1] to move directly from task and enhancement descriptions to the appropriate chapters of other books in the library.

Information for NCP Tasks

The books in the NCP, SSP, and EP library are listed here according to task, along with closely related books and tools you may find helpful. See "Bibliography" on page 53 for a brief summary of each book in the NCP, SSP, and EP library and listings of related publications.

Table 1 (Page 1 of 2). Sources of Information by Task

Order No.	Title	Hardcopy	Softcopy
Planning			
SC31-7122	*Planning for NetView, NCP, and VTAM*		
SC31-7123	*Planning for Integrated Networks*		
SX75-0092	*Planning Aids: Pre-Installation Planning Checklist for NetView, NCP, and VTAM*		
SC31-6259	*NCP V7R2, SSP V4R2, and EP R12 Library Directory*		
Installation and Resource Definition			
SC31-6221	*NCP, SSP, and EP Generation and Loading Guide*		
SC31-6258	*NCP V7R2 Migration Guide*		
SC31-6223	*NCP, SSP, and EP Resource Definition Guide*		
SC31-6224	*NCP, SSP, and EP Resource Definition Reference*		
Customization			
LY43-0031	*NCP and SSP Customization Guide*		
LY43-0032	*NCP and SSP Customization Reference*		
Operation			
SC31-6222	*NCP, SSP, and EP Messages and Codes*		
N/A	*Online Message Facility*		D

D Available on diskette for the IBM OS/2 environment.

[1] A *hypertext link* is a pointer from a location in an online book to another location in the same book or another book. By selecting highlighted information, such as a message number, you can move quickly to related information and, if desired, back again.

Table 1 (Page 2 of 2). Sources of Information by Task

Order No.	Title	Hardcopy	Softcopy
Diagnosis			
LY43-0033	*NCP, SSP, and EP Diagnosis Guide*		
LY43-0037	*NCP, SSP, and EP Trace Analysis Handbook*		
LY43-0029	*NCP and EP Reference*		
LY43-0030	*NCP and EP Reference Summary and Data Areas*		
LK2T-1999	*NCP, SSP, and EP Diagnosis Aid*		D
Monitoring and Tuning			
SC31-6247	*NTune User's Guide*		
LY43-0035	*NTuneNCP Reference*		

D Available on diskette for the IBM OS/2 environment.

Those publications available as softcopy books have cross-document search and hypertext links for speedy, online information retrieval. These softcopy books are grouped together on an electronic bookshelf and are part of the *IBM Networking Systems Softcopy Collection Kit* on compact disc read-only memory (CD-ROM).

You can view and search softcopy books by using BookManager* READ products or by using the IBM Library Reader* product included on CD-ROM. For more information on CD-ROMs and softcopy books, see *IBM Online Libraries: Softcopy Collection Kit User's Guide* and BookManager READ documentation.

Chapter 1. Introduction to NCP, SSP, and EP

This chapter introduces Advanced Communications Function (ACF) for Network Control Program (NCP), System Support Programs (SSP), Emulation Program (EP), and several related IBM* telecommunications products.

NCP

NCP is a program that controls the flow of data between the host processor and the other components of a telecommunications network. NCP provides efficient and reliable communication throughout the network by selecting routes to carry data and managing the flow along those routes. In addition, NCP frees the host processor and access method from performing network control functions, which increases the amount of processing available for host functions.

NCP resides in an IBM communication controller, which is located between the host processor and the other network components. These components may include terminals, cluster controllers, token rings, or other peripheral devices, as well as other networks or NCPs in other communication controllers. Figure 2 on page 2 shows the location of NCP in a sample network.

For more information about NCP, refer to the NCP, SSP, and EP library listed in the Bibliography.

SSP

SSP is a collection of support programs that run in the host processor. These programs help you generate and load an NCP, dump communication controller storage, and diagnose network problems. SSP includes the following programs:

The NCP/EP Definition Facility (NDF) generates an NCP object module from a generation definition that you code to define the NCP resources for your network. For more information, including sample output, see *NCP, SSP, and EP Generation and Loading Guide*.

NDF includes a migration aid function that automatically migrates an NCP generation definition from an earlier NCP release to the current release, and from one communication controller model to another. For more information, including sample output, see *NCP V7R2 Migration Guide*.

The loader utility loads an NCP load module into communication controller storage. For more information, including sample output, see *NCP, SSP, and EP Generation and Loading Guide*.

The Hardware Configuration Definition* (HCD) program dynamically defines NCP channel connections to an MVS host. For more information, see *IBM MVS/ESA Hardware Configuration Definition: Using the Dialog*.

The configuration report program (CRP) produces a detailed report of the resources and characteristics of your network. For more information, including sample output, see Chapter 13, "Using the Configuration Report Program" in *NCP, SSP, and EP Diagnosis Guide*.

The Advanced Communications Function/Trace Analysis Program (ACF/TAP) helps you analyze traces from NCP, EP, Network Routing Facility (NRF),

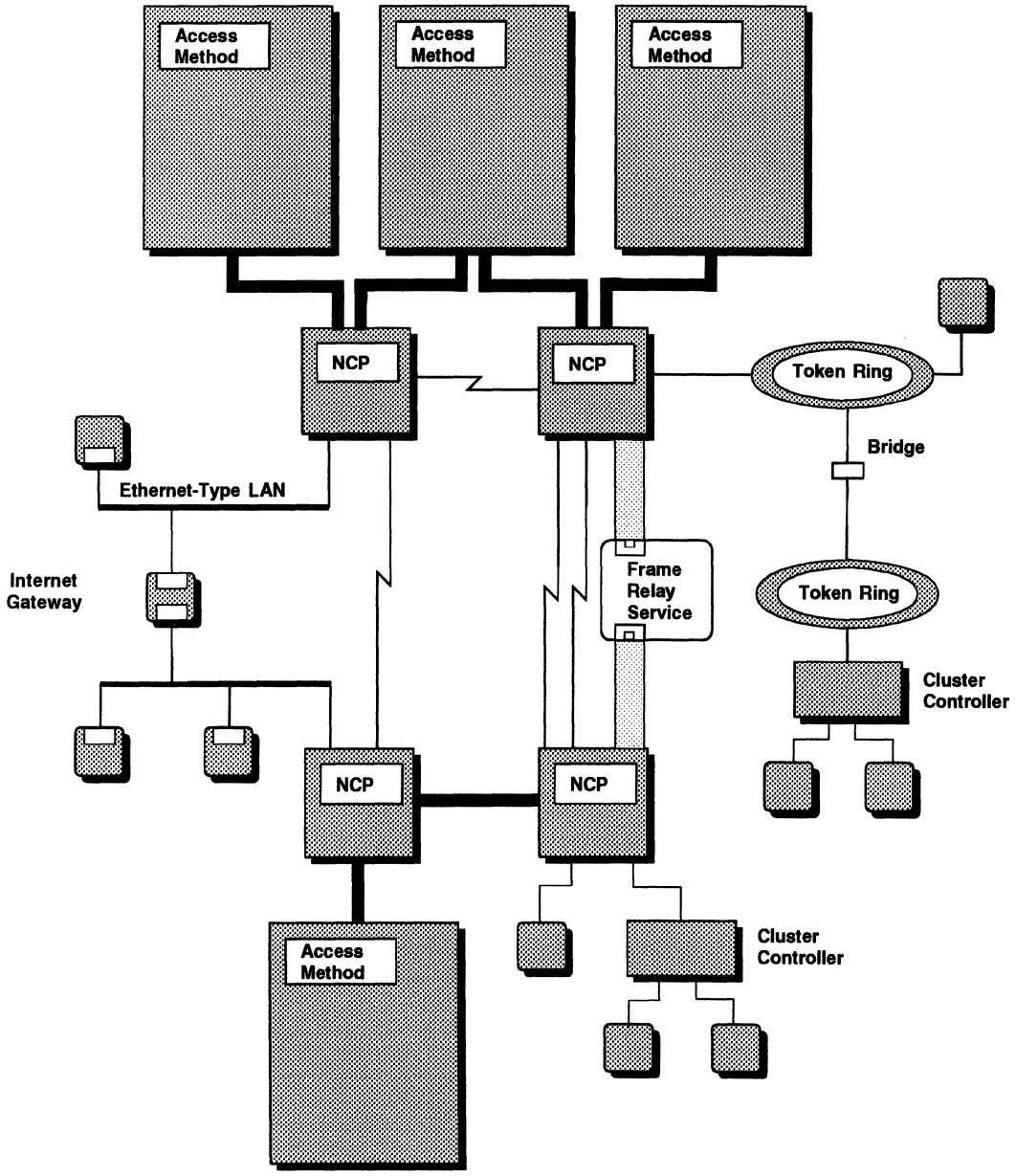

Figure 2. Location of NCP in a Sample Network

Network Terminal Option (NTO), X.25 NCP Packet Switching Interface (NPSI), X.25 SNA Interconnection (XI), Telecommunications Access Method (TCAM), and Virtual Telecommunications Access Method (VTAM*) to identify and solve network problems. For more information, including sample output, see Chapter 2, "Introduction to ACF/TAP" in *NCP, SSP, and EP Trace Analysis Handbook*.

The dumper utility sends the contents of communication controller storage to the host to help you identify and solve NCP problems. For more information, including sample output, see *NCP, SSP, and EP Diagnosis Guide*.

The dump formatter utility formats and indexes the contents of communication controller storage to help you identify and solve NCP problems. For more information, including sample output, see *NCP, SSP, and EP Diagnosis Guide*.

The dynamic dump utility for the partitioned emulation program (PEP) environment displays the contents of communication controller storage while NCP or EP is running. For more information, including sample output, see Chapter 1, "Overview of the Diagnosis Procedure" in *NCP, SSP, and EP Diagnosis Guide.*

The Interactive Problem Control System (IPCS) CLISTs for analyzing NCP dumps enable you to view selected portions of an NCP dump without formatting or printing them. For more information, including sample output, see Chapter 11, "Using SSP CLISTs in MVS" in *NCP, SSP, and EP Diagnosis Guide.*

Note: When you update your release of NCP, you also need to update your release of SSP. For more information about SSP, refer to the books listed in the bibliography. You can find release-specific information about SSP in *NCP, SSP, and EP Diagnosis Guide.*

EP

EP is a control program that enables a communication controller to emulate certain line control functions for binary synchronous communication (BSC) and start-stop devices. EP enables an IBM communication controller to perform most of the functions of an IBM 2701 Data Adapter Unit, an IBM 2702 Transmission Control Unit, an IBM 2703 Transmission Control Unit, or any combination of the three. Many host programs that use these 270x devices can, without modification, use a communication controller running EP.

You can use EP combined with NCP in a single communication controller environment called the partitioned emulation program (PEP). In PEP, the communication controller operates as a 270x device (emulation mode) part of the time and as a communication controller under the control of NCP (network control mode) the remainder of the time. PEP automatically switches between emulation mode and control mode when necessary. The NCP resources defined in a PEP generation definition are used when the communication controller is operating in network control mode.

For more information about EP, refer to the NCP, SSP, and EP library listed in the Bibliography.

Supported Releases

Table 2 shows the releases of NCP, SSP, and EP that are currently supported by IBM. If you need information on an unsupported release of NCP, SSP, or EP, refer to an earlier edition of this book.

Table 2. Supported Releases of NCP, SSP, and EP

Product	Release	Operating Systems
NCP	V4R1	VSE
	V4R2	MVS, VM
	V4R3.1	MVS, VM, VSE
	V5R3	VSE
	V5R4	MVS, VM, VSE
	V6R1	MVS, VM
	V6R2	MVS, VM
	V6R3	MVS
	V7R1	MVS, VM, VSE
	V7R2	MVS
SSP	V3R5*	VSE
	V3R6	VSE
	V3R8	MVS, VM
	V3R9	MVS
	V4R1	MVS, VM, VSE
	V4R2	MVS
EP	R3	VSE
	R4	MVS, VM
	R6.1	MVS, VM, VSE
	R7	VSE
	R8	MVS, VM, VSE
	R9	MVS, VM, VSE
	R10	MVS, VM
	R11	MVS, VM
	R12	MVS, VM, VSE

*As of January 1995, SSP V3R5 will no longer be supported.

NCP-Related Products

This section describes some IBM products that you can use with NCP.

Products That Run in the Host

The following IBM licensed products run in the host and interact with NCP.

Virtual Telecommunications Access Method (VTAM)

VTAM controls the communication between resources in a telecommunications network. VTAM performs a variety of functions, including starting and stopping the network, allocating network resources, and managing input and output operations. VTAM also provides an interface that enables an operator to monitor and modify the network. VTAM is controlled by user-written definitions of the network, the network operator, and VTAM programs.

For more information about VTAM, refer to the books listed for VTAM in the Bibliography.

Transmission Control Protocol/Internet Protocol (TCP/IP)

The IBM TCP/IP family of products provides a logical connection service between IBM systems and other internet hosts. TCP/IP enables NCP to route IP datagrams between internet hosts connected to token-ring and Ethernet-type LANs and SNA networks. The objective of TCP/IP is to improve reliability of the data transfer process governed by Internet Protocol.

For more information about IBM's TCP/IP products, refer to the books listed for TCP/IP in the Bibliography.

The NetView Program

The NetView* program helps network support personnel monitor and manage a network and diagnose network problems. The NetView program provides centralized network management for single-host or multiple-host networks. It can also isolate hardware and software problems in the network. You can use the NetView program to automate many system and network tasks.

For more information about the NetView program, refer to *NetView General Information.*

NetView Performance Monitor (NPM)

NPM helps network support personnel manage the performance and growth of VTAM-based communication networks. NPM monitors various network operating parameters and can alert the host or operator if those parameters exceed specified limits. NPM also collects performance data for network traffic flowing through VTAM and NCP, and collects accounting data on network and gateway sessions.

For more information about NPM, refer to *NetView Performance Monitor at a Glance.*

NTuneMON

The NTune* products provide a way for you to monitor and tune your NCP while your telecommunications network is running. NTune is composed of two products, NTuneMON* and NTuneNCP* (see "NTuneNCP" on page 6).

NTuneMON runs on NetView and monitors NCPs that were activated by VTAM on the host where NTuneMON is running.

NTuneMON provides assistance in detecting, resolving, and preventing network problems. It uses online color panels, help panels, and the NetView log to present detailed information about a wide variety of NCP resources. It is the interface to NTuneNCP.

For more information about NTuneMON, refer to the *NTune User's Guide.*

Products That Run in the Communication Controller

The following IBM licensed products run in the communication controller along with NCP.

X.25 NCP Packet Switching Interface (NPSI)

NPSI provides access to Systems Network Architecture (SNA) application programs through an X.25 packet switched data network. NPSI also provides communication between two NCPs or between an NCP and a host.

For more information about NPSI, refer to *X.25 NCP Packet Switching Interface General Information.*

Network Routing Facility (NRF)

NRF provides a path between terminals attached to a communication controller and routes messages among those terminals without going through the host processors. NRF also provides a path between devices attached to a communication controller and application programs running in the host processor.

For more information about NRF, refer to *Network Routing Facility Planning.*

Network Terminal Option (NTO)

NTO enables certain non-SNA devices to participate in sessions with SNA application programs running in the host processor. NTO does this by making non-SNA devices appear as SNA 3767 terminals. It also provides the line control for links, physical units, and logical units.

For more information about NTO, refer to *Network Terminal Option Planning, Migration, and Resource Definition.*

NTuneNCP

NTuneNCP, in conjunction with NTuneMON, enables you to interactively monitor and tune your active NCPs. NTuneMON runs in the host, and is the interface to NTuneNCP. (See "NTuneMON" on page 5 for a brief description.) NTuneNCP runs in the communication controller, and allows you to change the values of key NCP parameters while the NCP is active, reducing the need to regenerate or reload the NCP.

For more information about NTuneNCP, see the *NTuneNCP Reference* and the *NTune User's Guide.*

X.25 SNA Interconnection (XI)

X.25 SNA Interconnection (XI) resides in one or more communication controllers in an SNA network. XI opens IBM SNA networks to X.25 traffic and provides resource sharing for X.25 and SNA traffic.

For more information about XI, refer to *X.25 SNA Interconnection and X.25 SNA Network Supervisory Function General Information Manual*, GH19-6575.

Chapter 2. What Is New in This Release

This chapter introduces the enhancements for NCP V7R2 and SSP V4R2 and shows where these enhancements are described in the NCP library.

To find information about a particular enhancement, refer to the book and chapter cited. If no chapter is cited for a particular book, refer to "What Is New in This Book" in the preface of that book.

What Is New in NCP V7R2

NCP V7R2 offers the following enhancements:

Frame relay enhancements
Spare SDLC lines.

This section gives a brief description of these enhancements and shows where you can find more information.

Frame-Relay Enhancements

There are two enhancements to frame relay support in NCP:

The 3746 Model 900 supports attachement to a frame-relay network. The 3746 Model 900 supports attachment to a frame-relay network the same as the 3745, with the following exceptions:

- The PHYSRSC, ADDRESS, and PORTADD keywords may need to be changed.
- A frame handler subport (FHSP) in a 3745 and an FHSP in a 3746 Model 900 cannot form a subport set.

You can prioritize permanent virtual circuits (PVCs) on a line by using the COMRATE keyword and the new DATABLK keyword.

Table 3 shows where you can find more information about 3746 Model 900 frame-relay support.

Table 3. Where to Find Information on 3746 Model 900 Frame Relay

NCP V7R2 Migration Guide See the chapter for the NCP release you are migrating from.
NCP, SSP, and EP Resource Definition Guide Chapter 15, "Frame-Relay Resources"
NCP, SSP, and EP Resource Definition Reference Chapter 2, "Definition Statement and Keyword Descriptions"
NCP and EP Reference Chapter 9, "Frame Relay" Chapter 7, "Support for the 3746 Model 900 Connectivity Subsystem"

Spare SDLC Lines

You can generate 3745-attached SDLC peripheral lines as spare lines, as redefinable lines, or as neither. By generating spare and redefinable lines, you can use NTuneMON with NTuneNCP to enable and disable the activation of physical lines from your communication controller without regenerating and reloading NCP.

Table 4 shows where you can find more information about spare SDLC lines.

Table 4. Where to Find Information on Spare SDLC Lines

NCP V7R2 Migration Guide See the chapter for the NCP release you are migrating from.
NCP, SSP, and EP Resource Definition Guide Chapter 5, "NCP and Link-Attached Devices"
NCP, SSP, and EP Resource Definition Reference Chapter 2, "Definition Statement and Keyword Descriptions"

What Is New in SSP V4R2

NDF now supports changed and new keywords for new function. Changes have also been made to ACF/TAP, the dump formatter, and Interactive Problem Control System (IPCS) CLISTs. Sample generation definitions are supplied with NCP on the SSP tape. You can modify these samples for your system and use them to generate your NCP.

Table 5 shows where you can find more information on changes to SSP.

Table 5. Where to Find Information on SSP Enhancements

NCP V7R2 Migration Guide Chapter 1, "Using the NCP Migration Aid Function"
NCP, SSP, and EP Resource Definition Reference Chapter 2, "Definition Statement and Keyword Descriptions"
NCP, SSP, and EP Trace Analysis Handbook
NCP, SSP, and EP Diagnosis Guide

Changes to the NCP, SSP, and EP Library

This section summarizes the major changes to each book. For details on the changes to a particular book, refer to "What Is New in This Book" in the preface of that book.

NCP V7R2, SSP V4R2, and EP R12 Library Directory (This Book)

Description: *NCP V7R2, SSP V4R2, and EP R12 Library Directory* presents an overview of NCP, SSP, EP, and related network products, summarizes the changes to NCP, SSP, EP, and the library for the current release, and directs you to information on a variety of network tasks in the NCP and VTAM libraries.

Changes for this Release: Information was added summarizing the changes to NCP and SSP and the library for NCP V7R2 and SSP V4R2.

NCP, SSP, and EP Generation and Loading Guide

Description: *NCP, SSP, and EP Generation and Loading Guide* describes how to generate an NCP load module and load it into a communication controller under the MVS, VM, and VSE operating systems. This book also describes how to load and activate NCP in a remote communication controller.

Changes for this Release: Existing sample generation JCL was updated for NCP V7R2 and SSP V4R2.

NCP V7R2 Migration Guide

Description: *NCP V7R2 Migration Guide* describes how to migrate an NCP generation definition to the current NCP release from earlier releases and how to add new NCP functions introduced since earlier releases.

Changes for this Release: Information was added describing how to add new functions introduced for NCP V7R2.

NCP, SSP, and EP Resource Definition Guide

Description: *NCP, SSP, and EP Resource Definition Guide* describes the various NCP functions, lists the keywords that define the resources for those functions, and provides many small coding examples and several complete generation definitions showing how to define those resources.

Changes for this Release: Information was added describing the NCP V7R2 enhancements, and coding samples were added to show how to define them.

NCP, SSP, and EP Resource Definition Reference

Description: *NCP, SSP, and EP Resource Definition Reference* describes in detail the definition statements and keywords for defining NCP resources.

Changes for this Release: Information was added to describe the NCP keywords added or changed for the NCP V7R2 enhancements.

NCP and SSP Customization Guide

Description: *NCP and SSP Customization Guide* describes how to create your own NCP line control functions and NDF generation applications.

Changes for this Release: None.

NCP and SSP Customization Reference

Description: *NCP and SSP Customization Reference* describes in detail the NCP customization macros for user-written line control applications and the NDF utilities for user-written generation applications.

Changes for this Release: Information was added to describe new or changed keywords.

NCP, SSP, and EP Messages and Codes

Description: *NCP, SSP, and EP Messages and Codes* explains the messages issued during the generation process, the sense codes issued by NCP, and the abend codes issued by NCP and EP. This information is also available as described in "NCP, SSP, and EP Diagnosis Aid" on page 11.

Changes for this Release: Sense codes were added or changed for the NCP V7R2 and SSP V4R2 enhancements.

Online Message Facility

Description Messages and codes information is also available using the online message facility, which is an IBM OS/2* program that provides online access to BookManager softcopy information from *NCP, SSP, and EP Messages and Codes*. For information on installing and using the online message facility, see "Using Online Message Facility," which is available on the *IBM Networking Systems Softcopy Collection Kit* CD-ROM, SK2T-6012.

Changes for this Release: None.

NCP, SSP, and EP Diagnosis Guide

Description: *NCP, SSP, and EP Diagnosis Guide* describes how to gather information on NCP and SSP problems and how to solve the problems or report them to the IBM Service Center. This information is also available as described in the "NCP, SSP, and EP Diagnosis Aid" on page 11.

Changes for this Release: Information was added to help you determine and solve problems related to the NCP V7R2 and SSP V4R2 enhancements. Syntax diagrams, keyword descriptions, and various other items were updated. The trace information was moved to the *NCP, SSP, and EP Trace Analysis Handbook*.

NCP and EP Reference

Description: *NCP and EP Reference* describes the various aspects of NCP internal processing to help you diagnose NCP problems.

Changes for this Release: Information was added describing the internal processing for the NCP V7R2 enhancements.

NCP and EP Reference Summary and Data Areas

Description: *NCP and EP Reference Summary and Data Areas*, Volume 1, describes in detail the NCP control blocks. *NCP and EP Reference Summary and Data Areas*, Volume 2, describes other aspects of NCP internal storage and processing. This information is useful in diagnosing NCP problems.

Changes for this Release: Information was added describing control blocks added or changed for NCP V7R2.

NCP, SSP, and EP Trace Analysis Handbook

Description: *NCP, SSP, and EP Trace Analysis Handbook* describes how to use the trace analysis program and how to read trace analysis program output. This information is also available as described in "NCP, SSP, and EP Diagnosis Aid."

Changes for this Release: This book is new for this release. All of the ACF/TAP information and much of the other trace information was removed from the *NCP, SSP, and EP Diagnosis Guide* to this book.

NCP, SSP, and EP Diagnosis Aid

Description: The *NCP, SSP, and EP Diagnosis Aid* is an IBM OS/2 Information Presentation Facility (IPF) application based tool. It provides diagnosis information, at you fingertips, that was previously only available in the following books:

NCP, SSP, and EP Diagnosis Guide
NCP, SSP, and EP Messages and Codes
NCP, SSP, and EP Trace Analysis Handbook
NCP and EP Reference Summary and Data Areas, Volume 1

The *Diagnosis Aid* offers flexibility and ease of use. Its search capabilities allows you to display any of the listed topics in a matter of seconds. With the use of the *mouse* you can selectively navigate your own path through the online information and venture into the world of simple diagnosing.

Changes for this Release: The *NCP, SSP, and EP Trace Analysis Handbook*, *NCP, SSP, and EP Messages and Codes* and the *NCP and EP Reference Summary and Data Areas, Volume 1* byte expansions, are now part of the *NCP, SSP, and EP Diagnosis Aid.*

Chapter 3. Directory to Task-Specific Information

This chapter is a directory to the information in the NCP, SSP, and EP library. To use this directory, find the section for the task you are performing and refer to the *location* cited for particular subtasks. EP and PEP tasks are generally included with those for NCP.

Note: Chapter references are given in this directory when a major section of an NCP, SSP, or EP book is devoted to the topic.

Planning the Network

The planning task is the important first step in creating or upgrading NCP. In planning the network, you need to determine the processes and resources that will be used for all subsequent network tasks.

Table 6 shows the planning subtasks and where to find information on them.

Table 6. Planning the Network

Subtask	Location
Identifying goals and requirements	*Planning for NetView, NCP, and VTAM* *Planning for Integrated Networks* *NCP, SSP, and EP Resource Definition Guide* Chapter 1, "Defining Your NCP Configuration" "What Kind of Network Are You Defining?"
Identifying performance and availability objectives	*Planning for Integrated Networks*
Documenting your network before installing NCP, SSP, or EP	*Planning for Integrated Networks* *Planning Aids: Pre-Installation Planning Checklist for NetView, NCP, and VTAM*
Defining system resources	*NCP, SSP, and EP Resource Definition Guide* Chapter 1, "Defining Your NCP Configuration"
Migrating to the current NCP release	*Planning for NetView, NCP, and VTAM* *NCP V7R2 Migration Guide* Chapter 1, "Using the NCP Migration Aid Function" (includes sample) Also see the chapter for the NCP release you are migrating from.
Migrating to the current SSP release	*Planning for NetView, NCP, and VTAM* *NCP, SSP, and EP Diagnosis Guide* Appendix B, "Maintaining SSP Utilities" *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description)
Migrating to a different host operating system or controller model or to a type 7 channel adapter	*Planning for Integrated Networks* *NCP V7R2 Migration Guide* Chapter 1, "Using the NCP Migration Aid Function" (includes sample) Chapter 2, "Host System and Hardware Updates"
Planning for change	*Planning for NetView, NCP, and VTAM* *Planning for Integrated Networks*
Managing your network	*Planning for Integrated Networks*
Recovering from errors	*Planning for Integrated Networks* *NCP, SSP, and EP Resource Definition Guide* Chapter 23, "Backup and Recovery Procedures"
Documenting and reporting problems	*Planning for Integrated Networks*

Installing NCP, SSP, and EP

NCP, SSP, and EP are supplied on machine-readable material from IBM software distribution. If you are running under MVS, use either System Modification Program Extended (SMP/E) or Operating System/Virtual Storage (OS/VS) to install NCP, SSP, and EP. If you are running under VM, use the IBM-supplied materials to install NCP, SSP, and EP. If you are running under VSE, use the Maintain System History Program (MSHP).

Table 7 shows the installation subtasks and where to find information on them.

Table 7. Installing NCP, SSP, and EP

Subtask	Location
Planning for installation	*Planning for NetView, NCP, and VTAM* *Planning Aids: Pre-Installation Planning Checklist for NetView, NCP, and VTAM* *NCP V7R2 Migration Guide* Chapter 1, "Using the NCP Migration Aid Function" (includes sample) Chapter 2, "Host System and Hardware Updates"
Verifying compatibility	*Planning for NetView, NCP, and VTAM* *NCP V7R2, SSP V4R2, and EP R12 Library Directory* Chapter 1, "Introduction to NCP, SSP, and EP" Appendix B, Cross-Product Compatibility Tables
Allocating storage	*Planning for NetView, NCP, and VTAM* *NCP V7R2 Migration Guide* Chapter 12, "Migrating from NCP Version 4 Release 1"
Meeting operating system requirements	*Planning for NetView, NCP, and VTAM*
Installing NCP, SSP, and EP	*Planning for NetView, NCP, and VTAM* *Planning Aids: Pre-Installation Planning Checklist for NetView, NCP, and VTAM* *Program Directory* (provided with the machine-readable material)
Ensuring security	*Planning for Integrated Networks*

Migrating to the Current Release

Migrating to the current NCP release is the process of updating your NCP generation definition so that it generates the current release. You can migrate automatically using the NCP/EP definition facility (NDF) migration aid function, or you can migrate manually by editing your generation definition.

Table 8 shows the migration subtasks and where to find information on them.

Table 8. Migrating to the Current Release

Subtask	Location
Identifying required and optional changes	*NCP V7R2 Migration Guide* Chapter 2, "Host System and Hardware Updates" See also the following sections in the chapter for the NCP release you are migrating from: "Changed Defaults" "Deleted Keywords" "Changes to Storage Requirements" *NCP, SSP, and EP Diagnosis Guide* Chapter 7, "Using the SSP Dump Utilities in MVS" (includes sample) Chapter 8, "Using the SSP Dump Utilities in VM" (includes sample) *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description)
Updating your generation definition automatically	*NCP V7R2 Migration Guide* Chapter 1, "Using the NCP Migration Aid Function" (includes sample) Appendix B, "Migration Aid Modifications" Appendix C, "Migration Aid Sample" (includes sample)
Updating your generation definition manually	*NCP, SSP, and EP Resource Definition Reference* Chapter 2, "Definition Statement and Keyword Descriptions" *NCP, SSP, and EP Resource Definition Guide* Look up the specific function in the index or table of contents.
Identifying keyword changes by release	*NCP V7R2 Migration Guide* Appendix A, "Quick Reference of Keyword Changes"
Migrating to the current SSP release	*NCP, SSP, and EP Diagnosis Guide* Appendix B, "Maintaining SSP Utilities" (includes sample) *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description)
Migrating from an unsupported release	*NCP V7R2 Migration Guide* Chapter 3, "Migrating from an Unsupported Release"

Customizing NDF

You can customize the NCP/EP definition facility (NDF) to define network resources not provided by the IBM-supplied definition functions and generate those resources when you generate NCP.

Table 9 shows the subtasks for customizing NDF and where to find information on them.

Table 9. Customizing NDF

Subtask	Location
Defining custom NDF functions	*NCP and SSP Customization Guide* Chapter 4, "Creating and Using User-Written Generation Applications" (includes sample) *NCP and SSP Customization Reference* Chapter 4, "NDF Utility Directory" *NCP, SSP, and EP Resource Definition Guide* Chapter 12, "Customized Functions"
Understanding NDF exit interfaces	*NCP and SSP Customization Guide* Chapter 4, "Creating and Using User-Written Generation Applications" (includes sample)
Designing your own generation applications	*NCP and SSP Customization Guide* Chapter 4, "Creating and Using User-Written Generation Applications" (includes sample)
Implementing NDF generation applications	*NCP and SSP Customization Guide* Chapter 4, "Creating and Using User-Written Generation Applications" (includes sample)

Customizing NCP

IBM provides resources and macros for modifying NCP to enhance support for certain stations or to provide support for stations that are not currently supported by the IBM-supplied programs.

Table 10 shows the subtasks for customizing NCP and where to find information on them.

Table 10. Customizing NCP

Subtask	Location
Identifying user line-control requirements	*NCP and SSP Customization Guide* Chapter 2, "Customizing NCP Line Control"
	NCP, SSP, and EP Resource Definition Guide Chapter 12, "Customized Functions"
Identifying programmed resource requirements	*NCP and SSP Customization Guide* Chapter 3, "Customizing Programmed Resources"
	NCP, SSP, and EP Resource Definition Guide Chapter 12, "Customized Functions"
Designing user line-control applications	*NCP and SSP Customization Guide* Chapter 1, "Writing Customized NCP Routines" Chapter 2, "Customizing NCP Line Control"
	NCP and SSP Customization Reference Chapter 1, "NCP Macro Overview"
Designing programmed resource applications	*NCP and SSP Customization Guide* Chapter 1, "Writing Customized NCP Routines" Chapter 3, "Customizing Programmed Resources"
	NCP and SSP Customization Reference Chapter 1, "NCP Macro Overview"
Implementing programmed resource applications	*NCP and SSP Customization Guide* Chapter 3, "Customizing Programmed Resources"
	NCP and SSP Customization Reference Chapter 2, "Macro Directory" Chapter 3, "Entrances and Exits for User-Written Line Control"
Implementing user line-control applications	*NCP and SSP Customization Guide* Chapter 2, "Customizing NCP Line Control"
	NCP and SSP Customization Reference Chapter 2, "Macro Directory" Chapter 3, "Entrances and Exits for User-Written Line Control"
Defining customized resources	*NCP and SSP Customization Guide* Chapter 3, "Customizing Programmed Resources"
Generating a customized NCP	*NCP, SSP, and EP Generation and Loading Guide* Chapter 1, "Generating the Program under MVS" (includes sample) Chapter 4, "Generating the Program under VM" (includes sample) Chapter 7, "Generating the Program under VSE" (includes sample)

Defining NCP Resources

The task of defining NCP resources is the most involved step in creating an NCP. In this step, you code a generation definition that describes the characteristics of all the devices in your network and the links between them, and identifies the NCP resources needed to manage those devices and links.

Table 11 shows the subtasks for defining NCP resources and where to find information on them.

Table 11. Defining NCP Resources

Subtask	Location
Identifying NCP functions and resources needed for the network	*Planning for NetView, NCP, and VTAM* *Planning for Integrated Networks* *NCP, SSP, and EP Resource Definition Guide* Chapter 1, "Defining Your NCP Configuration" "What Kind of Network Are You Defining?"
Identifying configuration requirements for the network	*Planning for Integrated Networks* *NCP, SSP, and EP Resource Definition Guide* Chapter 1, "Defining Your NCP Configuration" "What Kind of Network Are You Defining?"
Designing the NCP configuration	*Planning for Integrated Networks*
Adding new functions	*NCP V7R2 Migration Guide* See the chapter for the NCP release you are migrating from. *NCP, SSP, and EP Resource Definition Guide* Look up the specific function in the index or table of contents.
Coding the NCP generation definition	*NCP, SSP, and EP Resource Definition Guide* See the chapter for the function you want to define. Appendix A, "NCP V7R2 Sample Generation Definitions" (includes comprehensive samples) *NCP, SSP, and EP Resource Definition Reference* Chapter 1, "Getting Started" Chapter 2, "Definition Statement and Keyword Descriptions" Appendix A, "Keyword Summary" *VTAM Resource Definition Reference* See information about VTAM definitions that must match corresponding NCP definitions.

Generating and Loading NCP and EP

The task of generating and loading NCP is the last step in implementing NCP. In this step, the NCP/EP definition facility (NDF) processes your generation definition to create an object module. This object module is then link-edited to create an NCP load module. Finally, you use the SSP loader utility or the loader facility for your access method to load NCP into communication controller storage.

Table 12 shows the subtasks for generating and loading NCP and where to find information on them.

Table 12 (Page 1 of 2). Generating and Loading NCP and EP

Subtask	Location
Performing a test generation	*NCP, SSP, and EP Generation and Loading Guide* Chapter 1, "Generating the Program under MVS" (includes sample) Chapter 4, "Generating the Program under VM" (includes sample) Chapter 7, "Generating the Program under VSE" (includes sample)
Resolving generation errors	*NCP, SSP, and EP Generation and Loading Guide* Chapter 1, "Generating the Program under MVS" Chapter 4, "Generating the Program under VM" Chapter 7, "Generating the Program under VSE" *NCP, SSP, and EP Diagnosis Guide* Chapter 3, "Procedures for NCP or EP Problems" "NCP Generation Error Procedure" Chapter 12, "Using NDF Diagnostic Aids" (includes sample) *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description)
Generating an NCP load module under MVS	*NCP, SSP, and EP Generation and Loading Guide* Chapter 1, "Generating the Program under MVS" (includes sample) Chapter 2, "Examples of JCL for Generation under MVS" (includes sample)
Generating an NCP load module under VM	*NCP, SSP, and EP Generation and Loading Guide* Chapter 4, "Generating the Program under VM" (includes sample) Chapter 5, "Examples of EXECs for Generation under VM" (includes sample)
Generating an NCP load module under VSE	*NCP, SSP, and EP Generation and Loading Guide* Chapter 7, "Generating the Program under VSE" (includes sample) Chapter 8, "Examples of JCL for Generation under VSE" (includes sample)
Loading an NCP load module	*NCP, SSP, and EP Generation and Loading Guide* Chapter 3, "Loading the Program under MVS" (includes sample) Chapter 6, "Loading the Program under VM" (includes sample) Chapter 9, "Loading the Program under VSE" (includes sample) Chapter 10, "Remote Loading and Activation"
Renaming a load module	*VTAM Operation* Look up the MODIFY LOAD command.
Moving a load module	*VTAM Operation* Look up the MODIFY LOAD command.
Replacing a load module	*VTAM Operation* Look up the MODIFY LOAD command. *NCP, SSP, and EP Generation and Loading Guide* Chapter 10, "Remote Loading and Activation"
Purging a load module	*VTAM Operation* Look up the MODIFY LOAD command.

Table 12 (Page 2 of 2). Generating and Loading NCP and EP

Subtask	Location
Scheduling a load module for automatic initial program load (IPL)	*VTAM Operation* Look up the MODIFY LOAD command.
Testing NCP in the communication controller	*NCP, SSP, and EP Resource Definition Guide* Chapter 20, "Diagnostic Operations for the Generation Procedure"
Linking SSP utilities with the MVS system	*NCP, SSP, and EP Diagnosis Guide* Appendix B, "Maintaining SSP Utilities" (includes sample)
	NCP, SSP, and EP Diagnosis Aid (See page 11 for description)
Using usage tiers	*NCP and EP Reference* Appendix I, "Usage Tiers"

Tuning for Performance

NCP can provide information on the usage level and performance of various network resources. Using this information, you can adjust characteristics of your network to transmit data more quickly and to carry more traffic.

Table 13 shows the tuning subtasks and where to find information on them.

Table 13. Tuning for Performance

Subtask	Location
Determining performance goals	*Planning for Integrated Networks*
Selecting and defining performance characteristics	*NCP, SSP, and EP Resource Definition Guide* Chapter 22, "Network Performance"
Monitoring NCP performance	*NCP, SSP, and EP Diagnosis Guide* Chapter 3, "Procedures for NCP or EP Problems"
	NCP, SSP, and EP Diagnosis Aid (See page 11 for description)
	NCP and EP Reference Chapter 4, "Serviceability Aids" "NetView Performance Monitor Data Collection Functions" "Performance Measurement Facility"
	NTune User's Guide
Reducing delays related to file transfer protocol (FTP)	*VTAM Resource Definition Reference* See information on the DELAY operand.
	VTAM Network Implementation Guide See information on coattailing.
Monitoring the use of NCP resources	*NTune User's Guide*
	NCP and EP Reference Chapter 10, "Control Block Management"
Tuning NCP while it is running	*NTuneNCP Reference*
Optimizing the use of NCP control blocks	*NCP and EP Reference* Chapter 10, "Control Block Management"

Reconfiguring NCP Dynamically

Dynamic reconfiguration is the process of changing a network configuration without regenerating NCP or restarting VTAM. It can be used for devices attached to an NCP or devices attached through a communications adapter to an ES/9370* or 4361 host running VM. Dynamic reconfiguration for NCP enables you to add, delete, or move physical and logical units associated with SDLC lines.

Table 14 shows the dynamic reconfiguration subtasks and where to find information on them.

Table 14. Reconfiguring NCP Dynamically

Subtask	Location
Planning to reconfigure	*Planning for Integrated Networks*
Adding, deleting, or moving an NCP device	*NCP, SSP, and EP Resource Definition Guide* Chapter 9, "Dynamic Reconfiguration" (includes sample)
	NCP, SSP, and EP Resource Definition Reference See individual definition statements.
Adding, deleting, or moving physical units or logical units within an NCP major node	*VTAM Network Implementation Guide* See information on dynamic reconfiguration.
Changing an SDLC address for a physical unit	*NCP, SSP, and EP Resource Definition Guide* Chapter 9, "Dynamic Reconfiguration" (includes sample)
	VTAM Network Implementation Guide See information on dynamic reconfiguration.

Maintaining NCP, SSP, and EP

The task of maintaining NCP is a part of the larger task of maintaining your network. For general information on maintaining your network, refer to *Planning for Integrated Networks.*

Table 15 shows the subtasks for maintaining NCP and where to find information on them.

Table 15. Maintaining NCP, SSP, and EP

Subtask	Location
Performing backup and recovery	*Planning for Integrated Networks* *NCP, SSP, and EP Resource Definition Guide* Chapter 23, "Backup and Recovery Procedures"
Using NetView reports	*Planning for Integrated Networks* *NetView Problem Determination and Diagnosis* See information on resources supported by the NetView program.
Using extended network addressing	*VTAM Network Implementation Guide* *NCP, SSP, and EP Resource Definition Guide* Chapter 4, "Channel Links and Access Methods" "Defining Subarea Addressing Limits"
Loading and activating a remote communication controller	*NCP, SSP, and EP Generation and Loading Guide* Chapter 10, "Remote Loading and Activation"
Using usage tiers	*NCP and EP Reference* Appendix I, "Usage Tiers" *NCP, SSP, and EP Resource Definition Guide* Chapter 3, "Defining Your Communication Controller" (includes sample)
Estimating NCP storage requirements	*NCP V7R2 Migration Guide* See the chapter for the NCP release you are migrating from.
Updating SSP	*NCP, SSP, and EP Diagnosis Guide* Appendix B, "Maintaining SSP Utilities" (includes sample) *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description)

Solving NCP, SSP, and EP Problems

You may encounter problems as you generate and load NCP or while NCP is running. NCP and SSP provide a variety of information and tools to help you diagnose and resolve these problems. These diagnostic aids and the processes for resolving problems are described in *NCP, SSP, and EP Diagnosis Guide* and *NCP, SSP, and EP Trace Analysis Handbook*, as well as in the *NCP, SSP, and EP Diagnosis Aid*. The *NCP, SSP, and EP Diagnosis Aid* is an IBM OS/2 application that contains all the information found in the *NCP, SSP, and EP Diagnosis Guide* and the *NCP, SSP, and EP Trace Analysis Handbook*, as well as selected information from *NCP, SSP, and EP Messages and Codes* and the *NCP and EP Reference Summary and Data Areas*. (See "NCP, SSP, and EP Diagnosis Aid" on page 11 for more information.)

Table 16 shows the subtasks for solving NCP, SSP, and EP problems and where to find information on them.

Table 16 (Page 1 of 2). Solving NCP, SSP, and EP Problems

Subtask	Location
Identifying and localizing the problem	*NCP, SSP, and EP Diagnosis Guide* Chapter 2, "Identifying the Problem and Gathering Information" Chapter 4, "Gathering NCP-Collected Trace and Performance Data" Chapter 5, "Emulation Program Diagnostic Aid" Chapter 7, "Using the SSP Dump Utilities in MVS" (includes sample) Chapter 8, "Using the SSP Dump Utilities in VM" (includes sample) Chapter 9, "Using the SSP Dump Utilities in VSE" (includes sample) *NCP, SSP, and EP Trace Analysis Handbook* Chapter 1, "Gathering Host-Collected Trace Data" Chapter 2, "Introduction to ACF/TAP" (includes sample) *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description)
Identifying generation errors	*NCP, SSP, and EP Generation and Loading Guide* Chapter 1, "Generating the Program under MVS" "Understanding Listings and Error Messages" (includes sample) Chapter 4, "Generating the Program under VM" "Understanding Listings and Error Messages" (includes sample) Chapter 7, "Generating the Program under VSE" (includes sample) "Understanding Listings and Error Messages" (includes sample) *NCP, SSP, and EP Diagnosis Guide* Chapter 2, "Identifying the Problem and Gathering Information" Chapter 3, "Procedures for NCP or EP Problems" Chapter 12, "Using NDF Diagnostic Aids" (includes sample) *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description)
Understanding error messages, sense codes, and abend codes	*NCP, SSP, and EP Messages and Codes* "Chapter 1. SSP Messages" "Chapter 2. NCP Sense Codes" "Chapter 3. Abend Codes"
Including diagnostic aids in NCP	*NCP, SSP, and EP Resource Definition Guide* Chapter 21, "Defining Diagnostic Aids" (includes sample)

Table 16 (Page 2 of 2). Solving NCP, SSP, and EP Problems

Subtask	Location
Collecting data on problem symptoms	*NCP, SSP, and EP Diagnosis Guide* Chapter 2, "Identifying the Problem and Gathering Information" Chapter 4, "Gathering NCP-Collected Trace and Performance Data" *NCP, SSP, and EP Trace Analysis Handbook* Chapter 1, "Gathering Host-Collected Trace Data" *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description) *NCP and EP Reference* Appendix G, "Online Tests"
Documenting and reporting problems	*NCP, SSP, and EP Diagnosis Guide* Chapter 2, "Identifying the Problem and Gathering Information" *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description)
Identifying the cause of the problem	*NCP, SSP, and EP Diagnosis Guide* Chapter 3, "Procedures for NCP or EP Problems" *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description)
Performing initial problem resolution	*NCP, SSP, and EP Diagnosis Guide* Chapter 3, "Procedures for NCP or EP Problems" *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description) *NCP and EP Reference* Use the table of contents to find information on the problem. *NCP and EP Reference Summary and Data Areas*, Volume 1 *NCP and EP Reference Summary and Data Areas*, Volume 2 Use the table of contents to find information on the problem.
Analyzing the problem	*NCP, SSP, and EP Diagnosis Guide* Chapter 3, "Procedures for NCP or EP Problems" Chapter 7, "Using the SSP Dump Utilities in MVS" (includes sample) Chapter 8, "Using the SSP Dump Utilities in VM" (includes sample) Chapter 9, "Using the SSP Dump Utilities in VSE" (includes sample) Appendix A, "Supplementary Network Flow Control Information" Appendix B, "Maintaining SSP Utilities" (includes sample) *NCP, SSP, and EP Trace Analysis Handbook* Chapter 2, "Introduction to ACF/TAP" (includes sample) Chapter 6, "Trace Record Formats" Appendix A, "Supplementary ACF/TAP Information" *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description) *NCP and EP Reference* Use the table of contents or index to find information on the problem. *NCP and EP Reference Summary and Data Areas*, Volume 1 *NCP and EP Reference Summary and Data Areas*, Volume 2 Use the table of contents to find information on the problem.
Resolving the problem	*NCP, SSP, and EP Diagnosis Guide* Chapter 3, "Procedures for NCP or EP Problems" *NCP, SSP, and EP Diagnosis Aid* (See page 11 for description) *NCP and EP Reference* Use the table of contents or index to find information on the problem. *NCP and EP Reference Summary and Data Areas*, Volume 1 *NCP and EP Reference Summary and Data Areas*, Volume 2 Use the table of contents to find information on the problem.

Appendix A. Customization Macros

The macros identified in this appendix are provided as programming interfaces for customers by NCP.

Warning: Do not use as programming interfaces any NCP macros other than those identified in this appendix.

The following macros are provided as product-sensitive programming interfaces:

ABEND	CALL	GETCB	PIUEND	SLL
ABORT	CASE	GETIME	POINT	SLLB
ABORTVR	CASEIF	GETPARM	POSTUACB	SLLH
ACHAIN	CASENTRY	GETPT	PRELEASE	SRL
ACTVRIT	CASEXIT	GRPEND	PURGQCB	SRLB
ADVAN	CHAIN	GRPENTRY	PUTBYTE	SRLH
AFIND	CHAP	IF	QCB	STRM
ALLOCATE	CHECKSSI	INCRP	QPOST	SUBRTN
ANDIF	CHECKVR	INHIBIT	RCBSCAN	SVLINK
ASCAN	COMMIT	INSERT	RELEASE	SWAP
ASHIFT	COMPARE	IOHM	RESET	SYSXIT
ATTACHVR	CONVRT	LA	RESTORE	TAGBUFF
AUNCHAIN	COPYBCU	LASTUACB	RETURN	TESTTGB
BAL	COPYPIU	LDM	RNSVC	THEN
BCR	CXTSVX	LEASE	ROUTE	TPPOST
BFREVENT	DACTVRIT	LEAVEDO	ROUTEMAP	TRACEPIU
BH	DECOMMIT	LINK	ROUTINE	TRIGGER
BHEXIT	DEFMSK	LINKTGB	RSLVCAP	TVSIDL
BLDR	DEQUE	MAINT	RSLVDYN	TVSMOD
BLKENTRY	DETACHVR	MAINTCS	RSLVNAD	TVSNEW
BM	DEVPARMS	MOVE	RSLVNET	TVSRAS
BMZ	DOUNTIL	MOVECHAR	RSLVRID	TVSREF
BNC	DOWHILE	MVQUE	RSLVSNP	TVSRTRN
BNDH	DTRACE	NCHNG	RSLVSSCP	TVSTIME
BNE	ECB	NEOAXT	RSLVTGB	UACTRTN
BNH	ECBINIT	NEOENQ	RSLVVVTI	UNCHAIN
BNL	ELSE	NEOXPORT	SAVE	UPARMS
BNZ	ENDCASE	NPAPIU	SAVEAREA	URETURN
BP	ENDDO	NPAQINFO	SAVESQ	VALQCB
BPZ	ENDIF	NPAQSTAT	SCAN	VRACT
BTDELETE	ENQUE	NPARMS	SDB	VRACTCK
BTECHECK	EXCR	NVRID	SETEVNTL	VREVENT
BTINSERT	EXTRACT	ORIF	SETIME	VRIMTASK
BTSEARCH	FETRACE	OUTICW1	SETLATO	XIO
BUFCHK	FINDUACB	PACEMAP	SETPRI	XIOFL
BUILDPIU	FVTABLE	PCIL4	SETRP1C	XPC
BZR	GALERT	PERFORM	SETTGB	XPORTVR
CAIO	GETBYTE	PIUDEALL	SETXTRN	

Appendix B. Cross-Product Compatibility Tables

This appendix shows the compatibilities between the current releases of NCP, SSP, and related products.

NCP to NCP

All supported versions and releases of NCP are compatible.

NCP to SSP

Table 17. NCP-to-SSP Compatibility

	NCP Releases									
	V4R1	**V4R2**	**V4R3.1**	**V5R3**	**V5R4**	**V6R1**	**V6R2**	**V6R3**	**V7R1**	**V7R2**
	3720 3725	**3720 3725**	**3725**	**3720 3745**	**3720 3745**	**3745**	**3745**	**3745**	**3745**	**3745**
		MVS VM	**MVS VM**		**MVS VM**	**MVS VM**	**MVS VM**	**MVS**	**MVS VM**	**MVS**
SSP Releases	**VSE**		**VSE**	**VSE**	**VSE**				**VSE**	
V3R5 VSE*	Y		Y	Y						
V3R6 VSE	Y		Y	Y	Y					
V3R8 MVS	Y	Y	Y	Y	Y	Y	Y			
VM		Y	Y	Y	Y	Y	Y			
V3R9 MVS	Y	Y	Y	Y	Y	Y	Y	Y		
V4R1 MVS		Y	Y		Y	Y	Y	Y	Y	
VM		Y	Y		Y	Y	Y		Y	
VSE	Y		Y		Y				Y	
V4R2 MVS	Y	Y	Y		Y	Y	Y	Y	Y	Y

Legend:

Y Yes, can generate, load, and dump.
Blank Not supported.

Notes: *V3R5 VSE will no longer supported as of 1/95.

NCP and Related Products

Table 18. NCP-to-Related-Product Compatibility

Related Product Releases	NCP Releases									
	V4R1	V4R2	V4R3.1	V5R3	V5R4	V6R1	V6R2	V6R3	V7R1	V7R2
	3720 3725 MVS VSE	3720 3725 MVS VM	3725 MVS VM VSE	3720 3745 VSE	3720 3745 MVS VM VSE	3745 MVS VM	3745 MVS VM	3745 MVS	3745 MVS VM VSE	3745 MVS
EP MVS	R3	R4	R6.1[1]	R7[1]	R9[1]	R10[1]	R11[1]	R11[1]	R12[1]	R12[1]
VM		R4	R6.1[1]	R7[1]	R9[1]	R10[1]	R11[1]		R12[1]	
VSE	R3		R6.1[1]	R7[1]	R9[1]				R12[1]	
NPSI MVS	R4.2	R4.3	V2R1	V3R3	V3R4	V3R5	V3R6	V3R6	V3R7	V3R7
VM		R4.3	V2R1	V3R3	V3R4	V3R5	V3R6		V3R7	
VSE	R4.2		V2R1	V3R3	V3R4				V3R7	
NRF MVS	R2	R3	R3.3,R4	R5	R6	R7	R8	R8	R9	R9
VM			R4	R5	R6	R7	R8		R9	
NSI MVS	R4	R4	R5	R5.1	R6					
VSE	R4		R5	R5.1						
NTO MVS	R3	R4	R5.1	R6	R7	R8	R9	R9	R10	R10
VM		R4	R5.1	R6	R7	R8	R9		R10	
VSE	R3		R5.1	R6	R7				R10	
XI MVS		V1.1	V1.2	V2R2	V2R3	V2R4	V2R4.1		V2R4.2	V2R4.2
VM			V1.2	V2R2	V2R3	V2R4	V2R4.1		V2R4.2	

Notes:

1. PEP only. The support of EP R5, R6, R7, R9, and R10 is provided by PEP mode only. EP R4 provides support for the 3720 in a stand-alone environment. EP R8 provides support for the 3745 in a stand-alone environment.

NCP to NetView

All supported versions and releases of NCP are compatible with all supported versions and releases of NetView. For full function, NetView requires VTAM V3R2 and NCP V4R3.1 or NCP V5R3 or later.

NCP to VTAM for LU-LU Sessions

Table 19. NCP-to-VTAM Compatibility for LU-LU Sessions

VTAM Releases	NCP Releases									
	V4R1 3720 3725 VSE	V4R2 3720 3725 MVS VM	V4R3.1 3725 MVS VM VSE	V5R3 3720 3745 VSE	V5R4 3720 3745 MVS VM VSE	V6R1 3745 MVS VM	V6R2 3745 MVS VM	V6R3 3745 MVS	V7R1 3745 MVS VM VSE	V7R2 3745 MVS
V3R2 VSE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
V3R3 MVS/XA	YS	YS	Y	Y	Y	Y	Y	Y	Y	Y
VSE/ESA	YS	YS	Y	Y	Y	Y	Y	Y	Y	Y
V3R4 VM/ESA	YS	YS	Y	Y	Y	Y	Y	Y	Y	Y
VSE/ESA	YS	YS	Y	Y	Y	Y	Y	Y	Y	Y
V3R4.1 MVS/ESA	YS	YS	Y	Y	Y	Y	Y	Y	Y	Y
VM/ESA	YS	YS	Y	Y	Y	Y	Y	Y	Y	Y
V3R4.2 MVS/ESA	YS	YS	Y	Y	Y	Y	Y	Y	Y	Y
V4R1 MVS/ESA	YS	YS	Y	Y	Y	Y	Y	Y	Y	Y
V4R2 MVS/ESA	YS	YS	Y	Y	Y	Y	Y	Y	Y	Y

Legend:

Y Yes, the VTAM and NCP LUs can have LU-LU sessions.

S Extended subarea addressing requirements and restrictions must be investigated.

Blank Not supported.

NCP to VTAM for SSCP-PU Sessions

Table 20. NCP-to-VTAM Compatibility for SSCP-PU Sessions

VTAM Releases	NCP Releases									
	V4R1 3720 3725 VSE	V4R2 3720 3725 MVS VM	V4R3.1 3725 MVS VM VSE	V5R3 3720 3745 VSE	V5R4 3720 3745 MVS VM VSE	V6R1 3745 MVS VM	V6R2 3745 MVS VM	V6R3 3745 MVS	V7R1 3745 MVS VM VSE	V7R2 3745 MVS
V3R2 VSE	Y	A	Y	Y[1]	Y[1]	A	A	A	Y[1]	A
V3R3 MVS/XA	Y	Y	Y	Y	Y[1]	Y[1]	Y[1]	Y[1]	Y[1]	Y[1]
V3R3 VSE/ESA	Y	A	Y	Y[1]	Y[1]	A	A	A	Y[1]	A
V3R4 VM/ESA	A	Y	Y	Y	Y	Y	Y	A	Y	A
V3R4 VSE/ESA	Y	A	Y	Y	Y	A	A	A	Y	A
V3R4.1 MVS/ESA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
V3R4.1 VM/ESA	A	Y	Y	Y	Y	Y	Y	A	Y	A
V3R4.2 MVS/ESA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
V4R1 MVS/ESA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
V4R2 MVS/ESA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Legend:

A Activate only: NCP cannot be generated or loaded from the operating system for this VTAM. However, if a copy of the NCP resource resolution table (RRT) and a copy of the NCP definition deck are moved to this operating system, VTAM can then activate this NCP. Program temporary fix (PTF) requirements must be investigated.

D Data host attachment only: this VTAM can be attached to this NCP only as a data host (contact without ACTPU). Load or activation of an NCP from this VTAM is not supported.

Y Load and activate: this VTAM level can load and activate this NCP level. Specifics must be investigated on an individual basis.

Blank Not supported.

Notes:

1. Compatible with the appropriate VTAM PTF.
2. If 3720, compatible with the appropriate VTAM PTF; no disk support. If 3745, data host attachment only.

Glossary

This glossary includes terms and definitions from:

- The *American National Standard Dictionary for Information Systems*, ANSI X3.172-1990, copyright 1990 by the American National Standards Institute (ANSI). Copies may be purchased from the American National Standards Institute, 11 West 42nd Street, New York, New York 10036. Definitions are identified by the symbol (A) after the definition.
- The ANSI/EIA Standard—440-A, *Fiber Optic Terminology*. Copies may be purchased from the Electronic Industries Association, 2001 Pennsylvania Avenue, N.W., Washington, DC 20006. Definitions are identified by the symbol (E) after the definition.
- The *Information Technology Vocabulary*, developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition; definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating that final agreement has not yet been reached among the participating National Bodies of SC1.
- The Network Working Group Request for Comments: 1208.

The following cross-references are used in this glossary:

Contrast with: This refers to a term that has an opposed or substantively different meaning.

Synonym for: This indicates that the term has the same meaning as a preferred term, which is defined in its proper place in the glossary.

Synonymous with: This is a backward reference from a defined term to all other terms that have the same meaning.

See: This refers the reader to multiple-word terms that have the same last word.

See also: This refers the reader to terms that have a related, but not synonymous, meaning.

Deprecated term for: This indicates that the term should not be used. It refers to a preferred term, which is defined in its proper place in the glossary.

A

abend. (1) Abnormal end of task. (2) Synonym for *abnormal termination.*

abnormal end. Synonym for *abnormal termination.*

abnormal end of task (abend). Termination of a task before its completion because of an error condition that cannot be resolved by recovery facilities while the task is executing.

abnormal termination. (1) The cessation of processing prior to planned termination. (T) (2) A system failure or operator action that causes a job to end unsuccessfully. (3) Synonymous with *abend* and *abnormal end.*

ACCESS. In the Simple Network Management Protocol (SNMP), the clause in a Management Information Base (MIB) module that defines the minimum level of support that a managed node provides for an object.

access method. (1) A technique, implemented in software, that controls the flow of information through a network. (2) A technique for moving data between main storage and input/output devices.

ACF. Advanced Communications Function.

ACF/TAP. Advanced Communications Function/Trace Analysis Program. Synonymous with *TAP.*

ACF/TCAM. Advanced Communications Function for the Telecommunications Access Method. Synonym for *TCAM.*

ACF/VTAM. Advanced Communications Function for the Virtual Telecommunications Access Method. Synonym for *VTAM.*

activate. To make a resource ready to perform its function. Contrast with *deactivate.*

active. (1) Operational. (2) Pertaining to a node or device that is connected or is available for connection to another node or device. (3) The state of a resource when it has been activated and is operational. Contrast with *inactive* and *inoperative.* See also *pending active session.* (4) In VTAM, pertaining to a major or minor node that has been activated by VTAM. Most resources are activated as part of VTAM start processing or as the result of a VARY ACT command. Contrast with *inactive.*

ACTPU. Activate physical unit. In SNA, a command used to start a session on a physical unit.

adapter. A part that electrically or physically connects a device to a computer or to another device.

adaptive pacing. Synonym for *adaptive session-level pacing* and *virtual route pacing.*

adaptive session-level pacing. A form of session-level pacing in which session components exchange pacing windows that may vary in size during the course of a session. This allows transmission within a network to adapt dynamically to variations in availability and demand of buffers on a session-by-session basis. Session-level pacing occurs within independent stages along the session path according to local congestion at the intermediate and endpoint nodes. Synonymous with *adaptive pacing* and *adaptive session pacing.* See *pacing, session-level pacing,* and *virtual route pacing.*

adaptive session pacing. Synonym for *adaptive session-level pacing.*

address. In data communication, the unique code assigned to each device or workstation connected to a network.

addressing. (1) The assignment of addresses to the instructions of a program. (2) A means of identifying storage locations. (3) In data communication, the way in which a station selects the station to which it is to send data. (4) Specifying an address or location within a file.

adjacent link station (ALS). (1) In SNA, a link station directly connected to a given node by a link connection over which network traffic can be carried.

Note: Several secondary link stations that share a link connection do not exchange data with each other and therefore are not adjacent to each other. (2) With respect to a specific node, a link station partner in an adjacent node.

Advanced Communications Function (ACF). A group of IBM licensed programs, principally VTAM, TCAM, NCP, and SSP, that use the concepts of Systems Network Architecture (SNA), including distribution of function and resource sharing.

Advanced Communications Function/Trace Analysis Program (ACF/TAP). An SSP program service aid that assists in analyzing trace data produced by VTAM, TCAM, and NCP and provides network data traffic and network error reports. Synonymous with *Trace Analysis Program (TAP).*

Advanced Peer-to-Peer Networking (APPN). An extension to SNA featuring (a) greater distributed network control that avoids critical hierarchical dependencies, thereby isolating the effects of single points of failure; (b) dynamic exchange of network topology information to foster ease of connection, reconfiguration, and adaptive route selection; (c) dynamic definition of network resources; and (d) automated resource registration and directory lookup. APPN extends the LU 6.2 peer orientation for end-user services to network control and supports multiple LU types, including LU 2, LU 3, and LU 6.2.

Advanced Peer-to-Peer Networking (APPN) end node. A node that provides a broad range of end-user services and supports sessions between its local control point (CP) and the CP in an adjacent network node. It uses these sessions to dynamically register its resources with the adjacent CP (its network node server), to send and receive directory search requests, and to obtain management services. An APPN end node can also attach to a subarea network as a peripheral node or to other end nodes.

Advanced Peer-to-Peer Networking (APPN) network. A collection of interconnected network nodes and their client end nodes.

Advanced Peer-to-Peer Networking (APPN) network node. A node that offers a broad range of end-user services and that can provide the following:

- Distributed directory services, including registration of its domain resources to a central directory server
- Topology database exchanges with other APPN network nodes, enabling network nodes throughout the network to select optimal routes for LU-LU sessions based on requested classes of service
- Session services for its local LUs and client end nodes
- Intermediate routing services within an APPN network

Advanced Peer-to-Peer Networking (APPN) node. An APPN network node or an APPN end node.

alert. (1) A message sent to a management services focal point in a network to identify a problem or an impending problem. (2) In the NetView and NETCENTER programs, a high priority event that warrants immediate attention.

allocate. A logical unit (LU) 6.2 application program interface (API) verb used to assign a session to a conversation for the conversation's use. Contrast with *deallocate.*

ALS. Adjacent link station.

ANA. Assign network address.

application. A collection of software components used to perform specific types of user-oriented work on a computer.

APPN. Advanced Peer-to-Peer Networking.

APPN connection. A link over which APPN protocols are used.

APPN end node. See *Advanced Peer-to-Peer Networking (APPN) end node.*

APPN network. See *Advanced Peer-to-Peer Networking (APPN) network.*

autotask. An unattended NetView operator station task that does not require a terminal or a logged-on user. Autotasks can run independently of VTAM and are typically used for automated console operations. Contrast with *logged-on operator.*

B

batch. (1) An accumulation of data to be processed. (2) A group of records or data processing jobs brought together for processing or transmission. (3) Pertaining to activity involving little or no user action. Contrast with *interactive.*

binary synchronous communication (BSC). A form of telecommunication line control that uses a standard set of transmission control characters and control character sequences, for binary synchronous transmission of binary-coded data between stations. Contrast with *Synchronous Data Link Control (SDLC).*

block. A string of data elements recorded or transmitted as a unit. The elements may be characters, words, or physical records. (T)

border node. An APPN network node that interconnects APPN networks having independent topology databases in order to support LU-LU sessions between these networks. See *extended border node* and *peripheral border node.*

bracket protocol. In SNA, a data flow control protocol in which exchanges between two session partners are achieved through the use of brackets, with one partner designated at session activation as the first speaker and the other as the bidder. The bracket protocol involves bracket initiation and termination rules.

BSC. Binary synchronous communication.

buffer. (1) A routine or storage used to compensate for a difference in rate of flow of data, or time of occurrence of events, when transferring data from one device to another. (A) (2) To allocate and schedule the use of buffers. (A) (3) A portion of storage used to hold input or output data temporarily.

C

call. (1) The action of bringing a computer program, a routine, or a subroutine into effect, usually by specifying the entry conditions and jumping to an entry point. (I) (A) (2) In data communication, the actions necessary to make a connection between two stations on a switched line. (3) In communications, a conversation between two users. (4) To transfer control to a procedure, program, routine, or subroutine. (5) To attempt to contact a user, regardless of whether the attempt is successful.

CCP. (1) Communication Control Program. (2) Configuration Control Program.

CCU. Central control unit.

chain. (1) A group of logically linked user data records processed by LU 6.2. (2) A group of request units delimited by begin-chain and end-chain. Responses are always single-unit chains.

channel. (1) A path along which signals can be sent, for example, data channel, output channel. (A) (2) A functional unit, controlled by the processor, that handles the transfer of data between processor storage and local peripheral equipment. See *input/output channel.*

channel adapter. A communication controller hardware unit that is used to attach the communication controller to a host channel.

channel-attached. (1) Pertaining to the attachment of devices directly by input/output channels to a host processor. (2) Pertaining to devices attached to a controlling unit by cables, rather than by telecommunication lines. Contrast with *link-attached.* Synonymous with *local.*

circuit. (1) One or more conductors through which an electric current can flow. See *physical circuit* and *virtual circuit.* (2) A logic device.

circuit switching. (1) A process that, on demand, connects two or more data terminal equipment (DTEs) and permits the exclusive use of a data circuit between them until the connection is released. (I) (A) (2) Synonymous with *line switching.* (3) See also *message switching* and *packet switching.*

cluster. (1) A station that consists of a control unit (a cluster controller) and the terminals attached to it. (2) A group of APPN nodes that have the same network ID and the same topology database. A cluster is a subset of a NETID subnetwork.

CMS. Conversational monitor system.

coattailing. The concept of VTAM's writing PIUs to NCP and reading PIUs from NCP with a single channel program. The values coded for the DELAY keywords on the VTAM PCCU definition statement and the NCP LINE definition statement affect the degree of coattailing. A user can increase the probability of VTAM's writing and reading PIUs with a single channel program by adjusting these DELAY keywords. An increase in the degree of coattailing improves channel efficiency but may increase response time.

command. (1) A request from a terminal for the performance of an operation or the execution of a particular program. (2) In SNA, any field set in the transmission header (TH), request header (RH), and sometimes portions of a request unit (RU), that initiates an action or that begins a protocol; for example: (a) Bind Session (session-control request unit), a command that activates an LU-LU session, (b) the change-direction indicator in the RH of the last RU of a chain, (c) the virtual route reset window indicator in an FID4 transmission header. See also *VTAM operator command.*

Communication Control Program (CCP). A portion of the network control program communication interrupt control program (CICP) that initiates and ends I/O line operations, handles first-level line error recovery and recording, and administers commands issued by background programs.

communication controller. A type of communication control unit whose operations are controlled by one or more programs stored and executed in the unit. It manages the details of line control and the routing of data through a network.

communication management configuration host node. The type 5 host processor in a communication management configuration that does all network-control functions in the network except for the control of devices channel-attached to data hosts. Synonymous with *communication management host.* Contrast with *data host node.*

communication management host. Synonym for *communication management configuration host node.* Contrast with *data host.*

configuration. (1) The manner in which the hardware and software of an information processing system are organized and interconnected. (T) (2) The devices and programs that make up a system, subsystem, or network.

Configuration Control Program (CCP). An IBM licensed program used interactively to define, display, and alter configurations that contain network controllers.

configuration report program (CRP). An SSP utility program that creates a configuration report listing network resources and resource attributes for networks with NCP, EP, PEP, or VTAM.

connected. In VTAM, the state of a physical unit (PU) or a logical unit (LU) that has an active physical path to the host processor containing the system services control point (SSCP) that controls the respective PU or LU.

connection. (1) In data communication, an association established between functional units for conveying information. (I) (A) (2) In Open Systems Interconnection architecture, an association established by a given layer between two or more entities of the next higher layer for the purpose of data transfer. (T) (3) In VTAM, synonym for *physical connection.* (4) In SNA, the network path that links together two logical units (LUs) in different nodes to enable them to establish communications. (5) In X.25 communication, a virtual circuit between two data terminal equipments (DTEs). A switched virtual circuit (SVC) connection lasts for the duration of a call; a permanent virtual circuit (PVC) is a permanent connection between the DTEs. (6) In TCP/IP, the path between two protocol applications that provides reliable data stream delivery service. In Internet, a connection extends from a TCP application on one system to a TCP application on another system.

connection network. A representation within an APPN network of a shared-access transport facility (SATF), such as a token ring, that allows nodes identifying their connectivity to the SATF by a common virtual routing node to communicate without having individually defined connections to one another.

connectivity. (1) The capability of a system or device to be attached to other systems or devices without modification. (T) (2) The capability to attach a variety of functional units without modifying them.

connectivity subsystem (CSS). An expansion frame, such as the 3746 Model 900, that extends connectivity and enhances the performance of the IBM 3745 Communication Controller.

constraints. In NETDA/2, the set of essential requirements specified with the node, connection, or application definitions. A change in a constraint value changes the input to the network design. Contrast with *parameters.*

control block. (1) A storage area used by a computer program to hold control information. (I) (2) In the IBM Token-Ring Network, a specifically formatted block of information provided from the application program to the Adapter Support Interface to request an operation.

control point (CP). (1) A component of an APPN or LEN node that manages the resources of that node. In an APPN node, the CP is capable of engaging in CP-CP sessions with other APPN nodes. In an APPN network node, the CP also provides services to adjacent end nodes in the APPN network. (2) A component of a node that manages resources of that node and optionally provides services to other nodes in the network. Examples are a system services control point (SSCP) in a type 5 subarea node, a network node control point (NNCP) in an APPN network node, and an end node control point (ENCP) in an APPN or LEN end node. An SSCP and an NNCP can provide services to other nodes.

control program. (1) A computer program designed to schedule and to supervise the execution of programs of a computer system. (I) (A) (2) The part of the AIX Base Operating System that determines the order in which basic functions should be performed. (3) See *VM/370 control program (CP).*

controller. A device that coordinates and controls the operation of one or more input/output devices, such as workstations, and synchronizes the operation of such devices with the operation of the system as a whole.

conversational monitor system (CMS). A virtual machine operating system that provides general interactive time sharing, problem solving, and program development capabilities, and operates only under control of the VM/370 control program.

CP. (1) VM/370 control program. (2) Control point.

CRP. Configuration report program.

CSS. Connectivity subsystem.

D

data. (1) A re-interpretable representation of information in a formalized manner suitable for communication, interpretation, or processing. Operations can be performed upon data by humans or by automatic means. (T) (2) Any representations such as characters or analog quantities to which meaning is or might be assigned. (A) (3) A representation of facts or instructions in a form suitable for communication, interpretation, or processing by human or automatic means. Data include constants, variables, arrays, and character strings.

Note: Programmers make a distinction between instructions and the data they operate on; however, in the usual sense of the word, data includes programs and program instructions.

data circuit. (1) A pair of associated transmit and receive channels that provide a means of two-way data communication. (I) (2) In SNA, synonym for *link connection.* (3) See also *physical circuit* and *virtual circuit.*

Notes:

1. Between data switching exchanges, the data circuit may include data circuit-terminating equipment (DCE), depending on the type of interface used at the data switching exchange.
2. Between a data station and a data switching exchange or data concentrator, the data circuit includes the data circuit-terminating equipment at the data station end, and may include equipment similar to a DCE at the data switching exchange or data concentrator location.

data host. Synonym for *data host node.* Contrast with *communication management configuration host.*

data host node. In a communication management configuration, a type 5 host node that is dedicated to processing applications and does not control network resources, except for its channel-attached or communication adapter-attached devices. Synonymous with *data host.* Contrast with *communication management configuration host node.*

data link level. (1) In the hierarchical structure of a data station, the conceptual level of control or processing logic between high level logic and the data link that maintains control of the data link. The data link level performs such functions as inserting transmit bits and deleting receive bits; interpreting address and control fields; generating, transmitting, and interpreting commands and responses; and computing and interpreting frame check sequences. See also *packet level* and *physical level.* (2) In X.25 communications, synonym for *frame level.*

data network. An arrangement of data circuits and switching facilities for establishing connections between data terminal equipment. (I)

deactivate. To take a resource of a node out of service, rendering it inoperable, or to place it in a state in which it cannot perform the functions for which it was designed. Contrast with *activate.*

deallocate. A logical unit (LU) 6.2 application program interface (API) verb that terminates a conversation, thereby freeing the session for a future conversation. Contrast with *allocate.*

definite response (DR). In SNA, a protocol requested in the form-of-response-requested field of the request header that directs the receiver of the request to return a response unconditionally, whether positive or negative, to that request chain. Contrast with *exception response* and *no response.*

definition statement. (1) In VTAM, the statement that describes an element of the network. (2) In NCP, a type of instruction that defines a resource to the NCP. See Figure 3 on page 38, Figure 4 on page 38, and Figure 5 on page 38. See also *macroinstruction.*

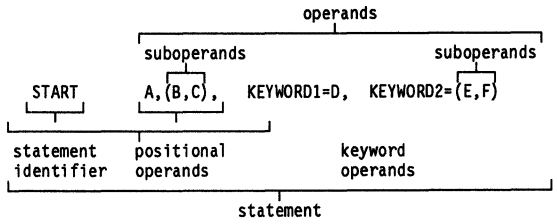

Figure 3. Example of a Language Statement

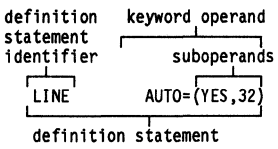

Figure 4. Example of an NCP Definition Statement

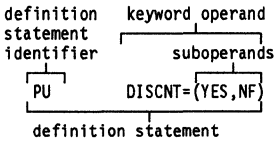

Figure 5. Example of a VTAM Definition Statement

domain operator. In a multiple-domain network, the person or program that controls operation of resources controlled by one system services control point (SSCP). See also *network operator.*

dump. (1) To record, at a particular instant, the contents of all or part of one storage device in another storage device. Dumping is usually for the purpose of debugging. (T) (2) Data that has been dumped. (T) (3) To copy data in a readable format from main or auxiliary storage onto an external medium such as tape, diskette, or printer. (4) To copy the contents of all or part of virtual storage for the purpose of collecting error information.

dynamic. (1) In programming languages, pertaining to properties that can only be established during the execution of a program; for example, the length of a variable-length data object is dynamic. (I) (2) Pertaining to an operation that occurs at the time it is needed rather than at a predetermined or fixed time. (3) Contrast with *static.*

dynamic reconfiguration (DR). The process of changing the network configuration (peripheral PUs and LUs) without regenerating complete configuration tables or deactivating the affected major node.

E

emulation mode. The function of a network control program that enables it to perform activities equivalent to those performed by a transmission control unit. Contrast with *network control mode.*

Emulation Program (EP). An IBM control program that allows a channel-attached 3705 or 3725 communication controller to emulate the functions of an IBM 2701 Data Adapter Unit, an IBM 2702 Transmission Control, or an IBM 2703 Transmission Control. See also *network control program.*

enable. To make functional.

end node (EN). (1) See *Advanced Peer-to-Peer Networking (APPN) end node* and *low-entry networking (LEN) end node.* (2) In communications, a node that is frequently attached to a single data link and cannot perform intermediate routing functions.

Enterprise Systems Connection (ESCON). A set of IBM products and services that provide a dynamically connected environment within an enterprise.

entry point (EP). In SNA, a type 2.0, type 2.1, type 4, or type 5 node that provides distributed network management support. It sends network management data about itself and the resources it controls to a focal point for centralized processing, and it receives and executes focal-point initiated commands to manage and control its resources.

EP. (1) Emulation Program. (2) Entry point.

ER. (1) Explicit route. (2) Exception response.

ESCON. Enterprise Systems Connection.

Ethernet. A 10-Mbps baseband local area network that allows multiple stations to access the transmission medium at will without prior coordination, avoids contention by using carrier sense and deference, and resolves contention by using collision detection and transmission. Ethernet uses carrier sense multiple access with collision detection (CSMA/CD).

Ethernet-type LAN. A local area network that uses either the Ethernet Version 2 or IEEE 802.3 protocol.

event control block (ECB). A control block used to represent the status of an event.

exception response (ER). In SNA, a protocol requested in the form-of-response-requested field of a request header that directs the receiver to return a response only if the request is unacceptable as received or cannot be processed; that is, a negative

response, but not a positive response, can be returned. Contrast with *definite response* and *no response.*

exit. (1) To execute an instruction within a portion of a computer program in order to terminate the execution of that portion. Such portions of computer programs include loops, subroutines, modules, and so on. (T) (2) See *installation exit* and *user exit.*

explicit route (ER). In SNA, a series of one or more transmission groups that connect two subarea nodes. An explicit route is identified by an origin subarea address, a destination subarea address, an explicit route number, and a reverse explicit route number. Contrast with *virtual route (VR).*

extended architecture (XA). An extension to System/370 architecture that takes advantage of continuing high performance enhancements to computer system hardware.

extended border node. A border node that interconnects (a) APPN networks having different network identifiers or (b) separate partitions of the same APPN network, where the partitioning is to allow isolated topology subnetworks (or clusters). An extended border node supports intermediate network routing, allowing it to support LU-LU sessions that do not terminate in its native network. Contrast with *peripheral border node.*

extended network addressing. The network addressing system that splits the address into an 8-bit subarea and a 15-bit element portion. The subarea portion of the address is used to address host processors or communication controllers. The element portion is used to permit processors or controllers to address resources.

extended subarea addressing. A network addressing system that is used in a network with more than 255 subareas.

F

feature. A part of an IBM product that may be ordered separately by the customer.

FHSP. Frame handler subport.

File Transfer Protocol (FTP). In the Internet suite of protocols, the protocol used to transfer files between hosts. It is an application layer protocol in TCP/IP that uses TCP and Telnet protocols to transfer bulk-data files between machines or hosts.

flow control. In SNA, the process of managing the rate at which data traffic passes between components of the network. The purpose of flow control is to optimize the rate of flow of message units with minimum congestion in the network; that is, to neither overflow the buffers at the receiver or at intermediate routing nodes, nor leave the receiver waiting for more message units. See also *adaptive session-level pacing, pacing,* and *session-level pacing.*

frame. (1) In Open Systems Interconnection architecture, a data structure pertaining to a particular area of knowledge and consisting of slots that can accept the values of specific attributes and from which inferences can be drawn by appropriate procedural attachments. (T) (2) The unit of transmission in some local area networks, including the IBM Token-Ring Network. It includes delimiters, control characters, information, and checking characters. (3) In SDLC, the vehicle for every command, every response, and all information that is transmitted using SDLC procedures.

frame handler (FH). Synonym for *frame-relay frame handler (FRFH).*

frame relay. (1) An interface standard describing the boundary between a user's equipment and a fast-packet network. In frame-relay systems, flawed frames are discarded; recovery comes end-to-end rather than hop-by-hop. (2) A technique derived from the integrated services digital network (ISDN) D channel standard. It assumes that connections are reliable and dispenses with the overhead of error detection and control within the network.

frame handler subport (FHSP). The access point of a frame-relay frame handler to a PVC segment. Frame handler subports function in pairs; frames enter the frame handler through one frame handler subport and exit through the other.

frame-relay frame. The frame-relay frame structure defined by American National Standards Institute (ANSI) Standard T1.618.

frame-relay frame handler (FRFH). (1) The function in a frame-relay node that routes (or switches) frames along a permanent virtual circuit (PVC). A frame handler receives frames from an adjacent frame-relay node and uses the DLCI to forward them to the next node on the PVC. Synonymous with *frame handler.* See also *frame-relay switching equipment support* and *frame-relay terminating equipment.* (2) In NCP, the function that switches frames between frame handler subports on an internal PVC segment. The NCP frame handler function can also switch frames to the frame-relay terminating equipment function.

frame-relay network. A network that consists of frame-relay frame handlers (FRFH) and in which frames are passed from one frame-relay terminal equipment (FRTE) station to another through a series of one or more FRFHs.

frame-relay switching equipment (FRSE) support. In NCP, a set of frame-relay functions that include the frame-relay frame handler function and the local management interface (LMI) function. These functions are defined by American National Standards Institute (ANSI) Standards T1.617 and T1.618 and International Telegraph and Telephone Consultative Committee (CCITT) Standards Q.922 and Q.933. NCP provides additional functions, including performance measurement and enhanced reliability, that are not defined by ANSI or CCITT standards.

frame-relay terminal equipment. A device that can connect to a frame-relay network and provide the frame-relay terminating equipment function. See also *frame-relay frame handler* and *frame-relay terminating equipment.*

frame-relay terminating equipment (FRTE). The function at the end of a frame-relay permanent virtual circuit (PVC). Frame-relay terminating equipment provides higher-layer protocols with access to a frame-relay network through terminating equipment subports (TESPs). It does this by (a) adding frame-relay frame headers to data for another protocol and sending the frames to adjacent frame-relay nodes, and (b) receiving frames from adjacent frame-relay nodes and removing the frame headers. See also *frame-relay frame handler*, *frame-relay switching equipment support*, and *frame-relay terminal equipment.*

FTP. File Transfer Protocol.

G

gateway. (1) A functional unit that interconnects two computer networks with different network architectures. A gateway connects networks or systems of different architectures. A bridge interconnects networks or systems with the same or similar architectures. (T) (2) In TCP/IP, a device used to connect two systems that use either the same or different communications protocols. (3) The combination of machines and programs that provide address translation, name translation, and system services control point (SSCP) rerouting between independent SNA networks to allow those networks to communicate. A gateway consists of one gateway NCP and at least one gateway VTAM. (4) In the IBM Token-Ring Network, a device and its associated software that connect a local area network to another local area network or a host that uses different logical link protocols.

generation. The process of assembling and link editing definition statements so that resources can be identified to all the necessary programs in a network.

generation definition. The definition statement of a resource used in generating a program.

generic alert. A product-independent method of encoding alert data by means of both (a) code points indexing short units of stored text and (b) textual data.

H

handle. (1) In the Advanced DOS and IBM OS/2 operating systems, a binary value created by the system that identifies a drive, directory, and file so that the file can be found and opened. (2) In OS/400 application programming interfaces, a variable that represents an object.

hardcopy. (1) A permanent copy of a display image generated on an output device such as a printer or plotter, and which can be carried away. (T) (2) A printed copy of machine output in a visually readable form; for example, printed reports, listings, documents, and summaries. (3) Contrast with *softcopy.*

hardware configuration definition. An interactive tool that can be used to define hardware configurations to the operating system and the channel subsystem.

header. (1) System-defined control information that precedes user data. (2) The portion of a message that contains control information for the message such as one or more destination fields, name of the originating station, input sequence number, character string indicating the type of message, and priority level for the message.

help panel. Information displayed by a system in response to a help request from a user.

host. In the Internet suite of protocols, an end system. The end system can be any workstation; it does not have to be a mainframe.

host ID. In TCP/IP, that part of the Internet address that defines the host on the network. The length of the host ID depends on the type of network or network class (A, B, or C).

host processor. (1) A processor that controls all or part of a user application network. (T) (2) In a network, the processing unit in which the data communication access method resides.

hypertext link. A pointer from a location in an online book to another location in the same book or another book. When selected, a hypertext link enables you to move quickly to the new location containing related information. BookManager associates terms with related information such as the glossary, a message or code, an index entry, or a language element reference. Cross-references indicated by markup are automatically linked to the referenced location.

I

IBM software distribution (ISD). The IBM department responsible for software distribution.

IEEE. Institute of Electrical and Electronics Engineers.

inactive. (1) Not operational. (2) Pertaining to a node or device not connected or not available for connection to another node or device. (3) In VTAM, the state of a resource or a major or minor node that has not been activated or for which the VARY INACT command has been issued. Contrast with *active.* See also *inoperative.*

information (I) format. A format used for information transfer.

information (I) frame. A frame in I format used for numbered information transfer.

initial program load (IPL). (1) The initialization procedure that causes an operating system to commence operation. (2) The process by which a configuration image is loaded into storage at the beginning of a work day or after a system malfunction. (3) The process of loading system programs and preparing a system to run jobs. (4) Synonymous with *system restart* and *system startup.*

inoperative. The condition of a resource that has been active but is not currently active. A resource may be inoperative for reasons such as the following: a) it may have failed, b) it may have received an INOP request, or c) it may be suspended while a reactivate command is being processed. See also *inactive.*

input/output channel. (1) In a data processing system, a functional unit that handles transfer of data between internal and peripheral equipment. (I) (A) (2) In a computing system, a functional unit, controlled by a processor, that handles transfer of data between processor storage and local peripheral devices. See *channel.* See also *link.*

insert. In LANs, to make an attaching device an active part of the LAN.

installation. (1) In system development, preparing and placing a functional unit in position for use. (T) (2) A particular computing system, including the work it does and the people who manage it, operate it, apply it to problems, service it, and use the results it produces.

installation exit. The means specifically described in an IBM software product's documentation by which an IBM software product may be modified by a customer's system programmers to change or extend the functions of the IBM software product. Such modifications consist of exit routines written to replace one or more existing modules of an IBM software product, or to add one or more modules or subroutines to an IBM software product, for the purpose of modifying or extending the functions of the IBM software product. Synonymous with *installation-wide exit.* See *user exit.*

installation-wide exit. Synonym for *installation exit.*

interactive. (1) Pertaining to a program or system that alternately accepts input and then responds. An interactive system is conversational, that is, a continuous dialog exists between user and system. Contrast with *batch.* (2) Pertaining to the exchange of information between a user and a computer.

interactive problem control system (IPCS). A component of VM that permits online problem management, interactive problem diagnosis, online debugging for disk-resident CP abend dumps, problem tracking, and problem reporting.

interconnection. See *SNA network interconnection (SNI).*

interface. (1) A shared boundary between two functional units, defined by functional characteristics, signal characteristics, or other characteristics, as appropriate. The concept includes the specification of the connection of two devices having different functions. (T) (2) Hardware, software, or both, that links systems, programs, or devices.

internet. A collection of networks interconnected by a set of routers that allow them to function as a single, large network. See also *Internet.*

Internet. The internet administered by the Internet Architecture Board (IAB), consisting of large national backbone networks and many regional and campus networks all over the world. The Internet uses the Internet suite of protocols.

Internet Protocol (IP). A connectionless protocol that routes data through a network or interconnected networks. IP acts as an intermediary between the higher protocol layers and the physical network. However, this protocol does not provide error recovery and flow control and does not guarantee the reliability of the physical network.

IP. Internet Protocol.

IPCS. Interactive problem control system.

IPL. (1) Initial program loader. (A) (2) Initial program load.

J

JCL. Job control language.

job control language (JCL). A control language used to identify a job to an operating system and to describe the job's requirements.

K

keyword. (1) In programming languages, a lexical unit that, in certain contexts, characterizes some language construct; for example, in some contexts, IF characterizes an if-statement. A keyword normally has the form of an identifier. (I) (2) One of the predefined words of an artificial language. (A) (3) A significant and informative word in a title or document that describes the content of that document. (4) A name or symbol that identifies a parameter. (5) The part of a command operand that consists of a specific character string (such as DSNAME=). See also *definition statement* and *keyword operand.* Contrast with *positional operand.*

keyword operand. An operand that consists of a keyword followed by one or more values (such as DSNAME=HELLO). See also *definition statement.* Contrast with *positional operand.*

keyword parameter. A parameter that consists of a keyword followed by one or more values.

L

LAN. Local area network.

LIC. In NCP, line interface coupler.

line. (1) The portion of a data circuit external to data circuit-terminating equipment (DCE), that connects the DCE to a data switching exchange (DSE), that connects a DCE to one or more other DCEs, or that connects a DSE to another DSE. (I) (2) Synonymous with *channel* and *circuit.*

line control discipline. Synonym for *link protocol.*

line discipline. Synonym for *link protocol.*

line switching. Synonym for *circuit switching.*

link. (1) The combination of the link connection (the transmission medium) and two link stations, one at each end of the link connection. A link connection can be shared among multiple links in a multipoint or token-ring configuration. (2) To interconnect items of data or portions of one or more computer programs: for example, the linking of object programs by a linkage editor, linking of data items by pointers. (T)

link-attached. Pertaining to devices that are connected to a controlling unit by a data link. Contrast with *channel-attached.* Synonymous with *remote.*

link connection. The physical equipment providing two-way communication between one link station and one or more other link stations; for example, a telecommunication line and data circuit-terminating equipment (DCE). Synonymous with *data circuit.*

link level. A part of Recommendation X.25 that defines the link protocol used to get data into and out of the network across the full-duplex link connecting the subscriber's machine to the network node. LAP and LAPB are the link access protocols recommended by the CCITT. See *data link level.*

link protocol. (1) The rules for sending and receiving data at the link level. (2) See *protocol.* (3) See also *link level.*

link station. (1) The hardware and software components within a node representing a connection to an adjacent node over a specific link. For example, if node A is the primary end of a multipoint line that connects to three adjacent nodes, node A will have three link stations representing the connections to the adjacent nodes. See also *adjacent link station.* (2) In VTAM, a named resource within an APPN or a subarea node that represents the connection to another APPN or subarea node that is attached by an APPN or a subarea link. In the resource hierarchy in a subarea network, the link station is subordinate to the subarea link.

load module. All or part of a computer program in a form suitable for loading into main storage for execution. A load module is usually the output of a linkage editor. (T)

local. Pertaining to a device accessed directly without use of a telecommunication line. Synonym for *channel-attached.*

local area network (LAN). (1) A computer network located on a user's premises within a limited geographical area. Communication within a local area network is not subject to external regulations; however, communication across the LAN boundary may be subject to some form of regulation. (T) (2) A network in which a set of devices are connected to one another for communication and that can be connected to a larger network. See also *Ethernet* and *token ring.* (3) Contrast with *metropolitan area network (MAN)* and *wide area network (WAN).*

local directory database. That set of resources (LUs) in the network known at a particular node. The resources included are all those in the node's domain as well as any cache entries.

Locate. Synonym for *Locate/CD-Initiate.*

Locate/CD-Initiate. An abbreviated term for a message exchanged between APPN nodes that contains one of the following sets of general data stream (GDS) variables:

- A Locate, a Find Resource, and a Cross-Domain Initiate GDS variable used for a network search request
- A Locate, a Found Resource, and a Cross-Domain Initiate GDS variable used for a search reply when a network resource has been located

These message structures correspond to the CP components that perform the search of the distributed network directory and establish the session. The Locate GDS variable contains information used to control the delivery of the search messages in the network. The Find and Found GDS variables contain information used in the directories: origin cache data (control point information) and search arguments (destination LU name), and located resource information, respectively. The Cross-Domain Initiate GDS variable contains endpoint TG vector information to be used in selecting the route for the session. The length of the Locate/CD-Initiate message is limited to 1024 bytes.

logged-on operator. A NetView operator station task that requires a terminal and a logged-on user. Contrast with *autotask.*

logical line. In NCP, the representation of the connection between NCP and a node communicating with NCP over a physical line such as token-ring or frame-relay. A single physical line can support multiple logical lines. Contrast with *physical line.*

logical link control (LLC) protocol. In a local area network, the protocol that governs the exchange of transmission frames between data stations independently of how the transmission medium is shared. (T)

Note: The LLC protocol was developed by the IEEE 802 committee and is common to all LAN standards.

logical unit (LU). A type of network accessible unit that enables end users to gain access to network resources and communicate with each other.

logical unit (LU) 6.2. A type of logical unit that supports general communication between programs in a distributed processing environment. LU 6.2 is characterized by (a) a peer relationship between session partners, (b) efficient utilization of a session for multiple transactions, (c) comprehensive end-to-end error processing, and (d) a generic application program interface (API) consisting of structured verbs that are mapped into a product implementation.

low-entry networking (LEN) end node. A LEN node receiving network services from an adjacent APPN network node.

LU. Logical unit.

LUS. Logical unit services.

M

MAC. Medium access control.

macroinstruction. (1) An instruction in a source language that is to be replaced by a defined sequence of instructions in the same source language and that may also specify values for parameters in the replaced instructions. (T) (2) In assembler programming, an assembler language statement that causes the assembler to process a predefined set of statements called a macro definition. The statements normally produced from the macro definition replace the macroinstruction in the program. See also *definition statement.*

major node. In VTAM, a set of resources that can be activated and deactivated as a group. See *minor node.*

MAN. Metropolitan area network.

medium access control (MAC). In LANs, the sublayer of the data link control layer that supports medium-dependent functions and uses the services of the physical layer to provide services to the logical link control (LLC) sublayer. The MAC sublayer includes the method of determining when a device has access to the transmission medium.

medium access control (MAC) protocol. In a local area network, the protocol that governs access to the transmission medium, taking into account the topological aspects of the network, in order to enable the exchange of data between data stations. (T) See also *logical link control protocol.*

medium access control (MAC) sublayer. In a local area network, the part of the data link layer that applies a medium access method. The MAC sublayer supports topology-dependent functions and uses the services of the physical layer to provide services to the logical link control sublayer. (T)

message. (1) An assembly of characters and sometimes control codes that is transferred as an entity from an originator to one or more recipients. A message consists of two parts: envelope and content. (T) (2) In VTAM, the amount of function management data (FMD) transferred to VTAM by the application program with one SEND request.

message switching. The process of receiving a message, storing it, and forwarding it to its destination unaltered. (T)

method. In the NetView program, the code that runs within the Resource Object Data Manager (RODM) address space. Methods are used to implement behavior specified by an operation.

metropolitan area network (MAN). A network formed by the interconnection of two or more networks which may operate at higher speed than those networks, may cross administrative boundaries, and may use multiple access methods. (T) Contrast with *local area network (LAN)* and *wide area network (WAN).*

migration. The installation of a new version or release of a program to replace an earlier version or release.

minor node. In VTAM, a uniquely defined resource within a major node. See *major node* and *node.*

mode. See *mode name.*

mode name. The name used by the initiator of a session to designate the characteristics desired for the session, such as traffic pacing values, message-length limits, sync point and cryptography options, and the class of service within the transport network.

module. A program unit that is discrete and identifiable with respect to compiling, combining with other units, and loading; for example, the input to or output from an assembler, compiler, linkage editor, or executive routine. (A)

Multiple Virtual Storage (MVS). See *MVS.*

MVS. Multiple Virtual Storage. Implies MVS/370, the MVS/XA product, and the MVS/ESA product.

MVS/ESA product. Multiple Virtual Storage/Enterprise Systems Architecture.

MVS/XA product. Multiple Virtual Storage/Extended Architecture product, consisting of MVS/System Product Version 2 and the MVS/XA Data Facility Product, operating on a System/370 processor in the System/370 extended architecture mode. MVS/XA allows virtual storage addressing to 2 gigabytes. See also *MVS.*

N

NCP. Network Control Program.

NCP major node. In VTAM, a set of minor nodes representing resources, such as lines and peripheral nodes, controlled by a network control program. See *major node.*

NCP/EP definition facility (NDF). A program that is part of System Support Programs (SSP) and that is used to generate a load module for a partitioned emulation program (PEP), a Network Control Program (NCP), or an Emulation Program (EP).

NCP/Token-Ring interconnection (NTRI). An NCP function that allows a communication controller to attach to the IBM Token-Ring Network and that provides both subarea and peripheral node data link control (DLC) services in the SNA network.

NDF. NCP/EP definition facility.

NetView-NetView task (NNT). The task under which a cross-domain NetView operator session runs. See *operator station task.*

NetView Performance Monitor (NPM). An IBM licensed program that collects, monitors, analyzes, and displays data relevant to the performance of a VTAM telecommunication network. It runs as an online VTAM application program.

NetView program. An IBM licensed program used to monitor and manage a network and to diagnose network problems.

network. (1) An arrangement of nodes and connecting branches. (T) (2) A configuration of data processing devices and software connected for information interchange. (3) A group of nodes and the links interconnecting them.

network architecture. The logical structure and operating principles of a computer network. (T)

Note: The operating principles of a network include those of services, functions, and protocols.

network control (NC). In SNA, a request/response unit (RU) category used for requests and responses exchanged between physical units (PUs) for such purposes as activating and deactivating explicit and virtual routes and sending load modules to adjust peripheral nodes. See also *session control.*

network control mode. The mode in which a network control program can direct a communication controller to perform such activities as polling, device addressing, dialing, and answering. See also *emulation mode.*

network control program. A program, generated by the user from a library of IBM-supplied modules, that controls the operation of a communication controller.

Network Control Program (NCP). An IBM licensed program that provides communication controller support for single-domain, multiple-domain, and interconnected network capability.

network controller. A concentrator and protocol converter used with SDLC links. By converting protocols, which manage the way data is sent and received, the IBM 3710 Network Controller allows the use of non-SNA devices with an SNA host processor.

network management. The process of planning, organizing, and controlling a communication-oriented data processing or information system.

network operator. (1) A person who controls the operation of all or part of a network. (2) In a multiple-domain network, a person or program responsible for controlling all domains. Contrast with *domain operator.*

Network Routing Facility (NRF). An IBM licensed program that resides in NCP. NRF provides a path for routing messages between terminals and routes messages over this path without going through the host processor.

Network Terminal Option (NTO). An IBM licensed program, used in conjunction with NCP, that allows certain non-SNA devices to participate in sessions with SNA application programs in the host processor. When data is sent from a non-SNA device to the host processor, NTO converts non-SNA protocol to SNA protocol; and when data is sent from the host processor to the non-SNA device, NTO converts SNA protocol to non-SNA protocol.

no response. In SNA, a protocol requested in the form-of-response-requested field of the request header that directs the receiver of the request not to return any response, regardless of whether or not the request is received and processed successfully. Contrast with *definite response* and *exception response.*

node. (1) In a network, a point at which one or more functional units connect channels or data circuits. (I) (2) Any device, attached to a network, that transmits and receives data. (3) An endpoint of a link or a junction common to two or more links in a network. Nodes can be processors, communication controllers, cluster controllers, or terminals. Nodes can vary in routing and other functional capabilities. (4) In VTAM, a point in a network defined by a symbolic name. See *major node* and *minor node.* (5) In NETDA/2, a combination of hardware, software, and microcode that can generate message traffic, receive and process message traffic, or receive and relay message traffic.

Non-SNA Interconnection (NSI). An IBM licensed program that provides format identification (FID) support for selected non-SNA facilities. Thus, it allows SNA and non-SNA facilities to share SDLC links. It also allows the remote concentration of selected non-SNA devices along with SNA devices.

NPM. NetView Performance Monitor.

NPSI. X.25 NCP Packet Switching Interface.

NRF. Network Routing Facility.

NSI. Non-SNA Interconnection.

NTO. Network Terminal Option.

NTRI. NCP/Token-Ring interconnection.

NTune. A set of programs (NTuneMON and NTuneNCP) that allow monitoring and tuning of active NCPs. See *NTuneMON* and *NTuneNCP.*

NTuneMON. A program that runs on NetView, and monitors NCPs that were activated, by VTAM, on the host where NTuneMON is running. See *NTune* and *NTuneNCP.*

NTuneNCP. A program that runs in the communications controller and, together with NTuneMON and VTAM provides interactive tuning capability of internal NCP resources. See *NTune* and *NTuneMON.*

O

offline. (1) Pertaining to the operation of a functional unit that takes place either independently of, or in parallel with, the main operation of a computer. (T) (2) Neither controlled by, nor communicating with, a computer. Contrast with *online.*

online. (1) Pertaining to the operation of a functional unit when under the direct control of the computer. (T) (2) Pertaining to a user's ability to interact with a computer. (A) (3) Pertaining to a user's access to a computer via a terminal. (A) (4) Controlled by, or communicating with, a computer. (5) Contrast with *offline.*

operand. (1) An entity on which an operation is performed. (I) (2) That which is operated upon. An operand is usually identified by an address part of an instruction. (A) (3) Information entered with a command name to define the data on which a command processor operates and to control the execution of the command processor. (4) An expression to whose value an operator is applied. See also *definition statement, keyword, keyword parameter,* and *parameter.*

operating system (OS). Software that controls the execution of programs and that may provide services such as resource allocation, scheduling, input/output control, and data management. Although operating systems are predominantly software, partial hardware implementations are possible. (T)

Operating System/Virtual Storage (OS/VS). A family of operating systems that control IBM System/360 and

System/370 computing systems. OS/VS includes VS1, VS2, MVS/370, and MVS/XA.

operator. (1) In a language statement, the lexical entity that indicates the action to be performed on operands. See also *definition statement*. (2) A person or program responsible for managing activities controlled by a given piece of software such as MVS, the NetView program, or IMS. See *logged-on operator* and *network operator*. See also *autotask* and *operator station task*. (3) A person who operates a device. (4) A person who keeps a system running.

operator station task (OST). The NetView task that establishes and maintains the online session with the network operator. There is one operator station task for each network operator who logs on to the NetView program. See *NetView-NetView task*.

OS. Operating system.

OS/VS. Operating System/Virtual Storage.

P

pacing. A technique by which a receiving component controls the rate of transmission of a sending component to prevent overrun or congestion. See *session-level pacing*, *send pacing*, and *virtual route (VR) pacing*. See also *flow control*.

packet. In data communication, a sequence of binary digits, including data and control signals, that is transmitted and switched as a composite whole. The data, control signals, and, possibly, error control information are arranged in a specific format. (I)

packet level. (1) The packet format and control procedures for exchange of packets containing control information and user data between data terminal equipment (DTE) and data circuit-terminating equipment (DCE). See also *data link level* and *physical level*. (2) A part of Recommendation X.25 that defines the protocol for establishing logical connections between two DTEs and for transferring data on these connections.

packet mode operation. Synonym for *packet switching*.

packet switching. (1) The process of routing and transferring data by means of addressed packets so that a channel is occupied only during transmission of a packet. On completion of the transmission, the channel is made available for transfer of other packets. (I) (2) Synonymous with *packet mode operation*. See also *circuit switching*.

panel. (1) In Basic CUA architecture, a particular arrangement of information that is presented in a window or pop-up. If some of the information is not visible, a user can scroll through the information. (2) A formatted display of information that appears on a display screen. See *help panel* and *task panel*. (3) In computer graphics, a display image that defines the locations and characteristics of display fields on a display surface.

parameter. (1) A variable that is given a constant value for a specified application and that may denote the application. (I) (A) (2) In Basic CUA architecture, a variable used in conjunction with a command to affect its result. (3) An item in a menu for which the user specifies a value or for which the system provides a value when the menu is interpreted. (4) Data passed to a program or procedure by a user or another program, namely as an operand in a language statement, as an item in a menu, or as a shared data structure. See also *keyword*, *keyword parameter*, and *operand*.

parameters. In NETDA/2, the set of restrictions that affect only the output of a network design. A change in a parameter value does not change the input to the network design. Contrast with *constraints*.

partitioned emulation programming (PEP) extension. A function of a network control program that enables a communication controller to operate some telecommunication lines in network control mode while simultaneously operating others in emulation mode.

path. (1) In a network, any route between any two nodes. A path may include more than one branch. (T) (2) The series of transport network components (path control and data link control) that are traversed by the information exchanged between two network accessible units. See also *explicit route (ER)*, *route extension*, and *virtual route (VR)*. (3) In VTAM when defining a switched major node, a potential dial-out port that can be used to reach that node. (4) In the NetView/PC program, a complete line in a configuration that contains all of the resources in the service point command service (SPCS) query link configuration request list.

path information unit (PIU). A message unit consisting of a transmission header (TH) alone, or a TH followed by a basic information unit (BIU) or a BIU segment. See also *transmission header*.

peer. In network architecture, any functional unit that is in the same layer as another entity. (T)

pending active session. In VTAM, the state of an LU-LU session recorded by the system services control point (SSCP) when it finds both logical units (LUs) available and has sent a CINIT request to the primary logical unit (PLU) of the requested session.

PEP. Partitioned emulation programming.

peripheral border node. A border node that interconnects adjacent APPN networks having different network identifiers in order to support LU-LU sessions that have one partner LU in its native network. Contrast with *extended border node.*

peripheral link. In SNA, a link between a subarea and a peripheral node. See also *route extension (REX).*

peripheral logical unit (LU). In SNA, a logical unit in a peripheral node.

peripheral PU. In SNA, a physical unit (PU) in a peripheral node.

physical circuit. A circuit established without multiplexing. See also *data circuit.* Contrast with *virtual circuit.*

physical connection. (1) A connection that establishes an electrical circuit. (2) In VTAM, a point-to-point or multipoint connection.

physical level. In X.25, the mechanical, electrical, functional, and procedural media used to activate, maintain, and deactivate the physical link between the data terminal equipment (DTE) and the data circuit-terminating equipment (DCE). See *data link level* and *packet level.*

physical line. In NCP, the physical connection between NCP and an adjacent device or local area network (LAN). A single physical line, such as token-ring or frame-relay, can support multiple logical lines. Contrast with *logical line.*

physical unit (PU). The component that manages and monitors the resources (such as attached links and adjacent link stations) associated with a node, as requested by an SSCP via an SSCP-PU session. An SSCP activates a session with the physical unit in order to indirectly manage, through the PU, resources of the node such as attached links. This term applies to type 2.0, type 4, and type 5 nodes only. See also *peripheral PU* and *subarea PU.*

physical unit (PU) services. In SNA, the components within a physical unit (PU) that provide configuration services and maintenance services for SSCP-PU sessions. See also *logical unit (LU) services.*

PIU. Path information unit.

positional operand. An operand in a language statement that has a fixed position. See also *definition statement.* Contrast with *keyword operand.*

problem determination. The process of determining the source of a problem; for example, a program component, machine failure, telecommunication facilities, user or contractor-installed programs or equipment, environmental failure such as a power loss, or user error.

process. (1) A course of the events defined by its purpose or by its effect, achieved under given conditions. (2) In data processing, the course of events that occurs during the execution of all or part of a program. (T) (3) Any operation or combination of operations on data. (4) A function being performed or waiting to be performed. (5) To perform operations on data in a process. (I) (A)

processor. In a computer, a functional unit that interprets and executes instructions. A processor consists of at least an instruction control unit and an arithmetic and logic unit. (T)

program temporary fix (PTF). A temporary solution or bypass of a problem diagnosed by IBM in a current unaltered release of the program.

protocol. (1) A set of semantic and syntactic rules that determine the behavior of functional units in achieving communication. (I) (2) In Open Systems Interconnection architecture, a set of semantic and syntactic rules that determine the behavior of entities in the same layer in performing communication functions. (T) (3) In SNA, the meanings of, and the sequencing rules for, requests and responses used for managing the network, transferring data, and synchronizing the states of network components. Synonymous with *line control discipline* and *line discipline.* See *bracket protocol* and *link protocol.*

PTF. Program temporary fix.

PU. Physical unit.

R

read-only memory (ROM). Memory in which stored data cannot be modified by the user except under special conditions.

receive pacing. In SNA, the pacing of message units being received by a component. See also *send pacing.*

release. (1) A distribution of a new product or new function and APAR fixes for an existing product. Normally, programming support for the prior release is discontinued after some specified period of time following availability of a new release. The first version of a product is announced as Release 1, Modification Level 0. (2) In VTAM, to relinquish control of resources (communication controllers or physical units). See also *resource takeover.*

remote. Pertaining to a system, program, or device that is accessed through a telecommunication line. Contrast with *local.* Synonym for *link-attached.*

reset. On a virtual circuit, reinitialization of data flow control. At reset, all data in transit are eliminated.

resource. (1) Any facility of a computing system or operating system required by a job or task, and including main storage, input/output devices, the processing unit, data sets, and control or processing programs. (2) In the NetView program, any hardware or software that provides function to the network.

resource resolution table (RRT). In NPM, this table contains the names of network resources for which data is to be collected. The NPM RRT corresponds with an NCP and is built by NPMGEN from an NCP Stage I and an NCP RRT.

resource takeover. In VTAM, an action initiated by a network operator to transfer control of resources from one domain to another without breaking the connections or disrupting existing LU-LU sessions on the connection. See also *release.*

Restructured Extended Executor (REXX). A general-purpose, procedural language for end-user personal programming, designed for ease by both casual general users and computer professionals. It is also useful for application macros. REXX includes the capability of issuing commands to the underlying operating system from these macros and procedures. Features include powerful character-string manipulation, automatic data typing, manipulation of objects familiar to people, such as words, numbers, and names, and built-in interactive debugging.

REX. Route extension.

REXX. Restructured Extended Executor.

ring. See *ring network.*

ring network. (1) A network in which every node has exactly two branches connected to it and in which there are exactly two paths between any two nodes. (T) (2) A network configuration in which devices are connected by unidirectional transmission links to form a closed path.

RIP. Routing Information Protocol.

ROM. Read-only memory. (A)

route. (1) An ordered sequence of nodes and transmission groups (TGs) that represent a path from an origin node to a destination node traversed by the traffic exchanged between them. (2) The path that network traffic uses to get from source to destination.

route extension (REX). In SNA, the path control network components, including a peripheral link, that make up the portion of a path between a subarea node and a network addressable unit (NAU) in an adjacent peripheral node. See also *explicit route (ER), path,* and *virtual route (VR).*

routing. (1) The process of determining the path to be used for transmission of a message over a network. (T) (2) The assignment of the path by which a message is to reach its destination. (3) In SNA, the forwarding of a message unit along a particular path through a network, as determined by parameters carried in the message unit, such as the destination network address in a transmission header.

Routing Information Protocol (RIP). In the Internet suite of protocols, an interior gateway protocol used to exchange intradomain routing information and to determine optimum routes between internet hosts. RIP determines optimum routes on the basis of route metrics, not link transmission speed.

RRT. Resource resolution table.

S

SDLC. Synchronous Data Link Control.

send pacing. In SNA, pacing of message units that a component is sending. See also *receive pacing.*

session control (SC). In SNA, either of the following:

- One of the components of transmission control. Session control is used to purge data flowing in a session after an unrecoverable error occurs, to resynchronize the data flow after such an error, and to perform cryptographic verification.
- A request unit (RU) category used for requests and responses exchanged between the session control components of a session and for session activation and deactivation requests and responses.

session-level pacing. A flow control technique that permits a receiving half-session or session connector to control the data transfer rate (the rate at which it receives request units) on the normal flow. It is used to prevent overloading a receiver with unprocessed requests when the sender can generate requests faster than the receiver can process them. See *pacing* and *virtual route pacing.*

SMP. System Modification Program.

SMP/E. System Modification Program Extended.

SNA. Systems Network Architecture.

SNA network. The part of a user-application network that conforms to the formats and protocols of Systems Network Architecture. It enables reliable transfer of data among end users and provides protocols for controlling the resources of various network configurations.

The SNA network consists of network accessible units (NAUs), boundary function, gateway function, and intermediate session routing function components; and the transport network.

SNA network interconnection (SNI). The connection, by gateways, of two or more independent SNA networks to allow communication between logical units in those networks. The individual SNA networks retain their independence.

SNI. SNA network interconnection.

softcopy. (1) A nonpermanent copy of the contents of storage in the form of a display image. (T) (2) One or more files that can be electronically distributed, manipulated, and printed by a user. Contrast with *hardcopy.*

SSCP. System services control point.

SSP. System Support Programs.

statement. A language syntactic unit consisting of an operator, or other statement identifier, followed by one or more operands. See *definition statement.*

static. (1) In programming languages, pertaining to properties that can be established before execution of a program; for example, the length of a fixed length variable is static. (I) (2) Pertaining to an operation that occurs at a predetermined or fixed time. (3) Contrast with *dynamic.*

station. An input or output point of a system that uses telecommunication facilities; for example, one or more systems, computers, terminals, devices, and associated programs at a particular location that can send or receive data over a telecommunication line.

status. The condition or state of hardware or software, usually represented by a status code.

subarea. A portion of the SNA network consisting of a subarea node, attached peripheral nodes, and associated resources. Within a subarea node, all network accessible units (NAUs), links, and adjacent link stations (in attached peripheral or subarea nodes) that are addressable within the subarea share a common subarea address and have distinct element addresses.

subarea PU. In SNA, a physical unit (PU) in a subarea node.

subsystem. A secondary or subordinate system, usually capable of operating independently of, or asynchronously with, a controlling system. (T)

switched major node. In VTAM, a major node whose minor nodes are physical units and logical units attached by switched SDLC links.

synchronous. (1) Pertaining to two or more processes that depend upon the occurrence of specific events such as common timing signals. (T) (2) Occurring with a regular or predictable time relationship.

Synchronous Data Link Control (SDLC). A discipline conforming to subsets of the Advanced Data Communication Control Procedures (ADCCP) of the American National Standards Institute (ANSI) and High-level Data Link Control (HDLC) of the International Organization for Standardization, for managing synchronous, code-transparent, serial-by-bit information transfer over a link connection. Transmission exchanges may be duplex or half-duplex over switched or nonswitched links. The configuration of the link connection may be point-to-point, multipoint, or loop. (I) Contrast with *binary synchronous communication (BSC).*

SYNTAX. In the Simple Network Management Protocol (SNMP), a clause in the MIB module that defines the abstract data structure that corresponds to a managed object.

system definition. The process, completed before a system is put into use, by which desired functions and operations of the system are selected from various available options. Synonymous with *system generation.*

system generation. Synonym for *system definition.*

System Modification Program (SMP). A program used to install software and software changes on MVS systems.

System Modification Program Extended (SMP/E). An IBM licensed program used to install software and software changes on MVS systems. In addition to providing the services of SMP, SMP/E consolidates installation data, allows more flexibility in selecting changes to be installed, provides a dialog interface, and supports dynamic allocation of data sets.

system restart. Synonym for *initial program load (IPL).*

system services control point (SSCP). A component within a subarea network for managing the configuration, coordinating network operator and problem determination requests, and providing directory services and other session services for end users of the network. Multiple SSCPs, cooperating as peers with one another, can divide the network into domains of control, with each SSCP having a hierarchical control relationship to the physical units and logical units within its own domain.

system services control point (SSCP) domain. The system services control point, the physical units (PUs), the logical units (LUs), the links, the link stations, and

all the resources that the SSCP has the ability to control by means of activation and deactivation requests.

system startup. Synonym for *initial program load (IPL).*

System Support Programs (SSP). An IBM licensed program, made up of a collection of utilities and small programs, that supports the operation of the NCP.

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through, and controlling the configuration and operation of, networks. The layered structure of SNA allows the ultimate origins and destinations of information, that is, the end users, to be independent of and unaffected by the specific SNA network services and facilities used for information exchange.

T

TAP. Synonym for *ACF/TAP.*

task. In a multiprogramming or multiprocessing environment, one or more sequences of instructions treated by a control program as an element of work to be accomplished by a computer. (I) (A)

task panel. Online display from which you communicate with the program in order to accomplish the program's function, either by selecting an option provided on the panel or by entering an explicit command. See *help panel.*

TCAM. Telecommunications Access Method. Synonymous with *ACF/TCAM.*

TCP. Transmission Control Protocol.

TCP/IP. Transmission Control Protocol/Internet Protocol.

Telecommunications Access Method (TCAM). An access method used to transfer data between main storage and remote or local terminals.

token. (1) In a local area network, the symbol of authority passed successively from one data station to another to indicate the station temporarily in control of the transmission medium. Each data station has an opportunity to acquire and use the token to control the medium. A token is a particular message or bit pattern that signifies permission to transmit. (T) (2) In LANs, a sequence of bits passed from one device to another along the transmission medium. When the token has data appended to it, it becomes a frame.

token ring. (1) According to IEEE 802.5, network technology that controls media access by passing a token (special packet or frame) between media-attached stations. (2) A FDDI or IEEE 802.5 network with a ring topology that passes tokens from one attaching ring station (node) to another. (3) See also *local area network (LAN).*

token-ring network. (1) A ring network that allows unidirectional data transmission between data stations, by a token passing procedure, such that the transmitted data return to the transmitting station. (T) (2) A network that uses a ring topology, in which tokens are passed in a circuit from node to node. A node that is ready to send can capture the token and insert data for transmission.

trace. (1) A record of the execution of a computer program. It exhibits the sequences in which the instructions were executed. (A) (2) For data links, a record of the frames and bytes transmitted or received.

Trace Analysis Program (TAP). Synonym for *Advanced Communications Function for the Trace Analysis Program (ACF/TAP).*

Transmission Control Protocol (TCP). A communications protocol used in Internet and in any network that follows the U.S. Department of Defense standards for internetwork protocol. TCP provides a reliable host-to-host protocol between hosts in packet-switched communications networks and in interconnected systems of such networks. It assumes that the Internet protocol is the underlying protocol.

Transmission Control Protocol/Internet Protocol (TCP/IP). A set of communications protocols that support peer-to-peer connectivity functions for both local and wide area networks.

transmission control unit (TCU). A communication control unit whose operations are controlled solely by programmed instructions from the computing system to which the unit is attached. No program is stored or executed in the unit. Examples are the IBM 2702 and 2703 Transmission Controls. Contrast with *communication controller.*

transmission header (TH). Control information, optionally followed by a basic information unit (BIU) or a BIU segment, that is created and used by path control to route message units and to control their flow within the network. See also *path information unit.*

U

user exit. (1) A point in an IBM-supplied program at which a user exit routine may be given control. (2) A programming service provided by an IBM software product that may be requested during the execution of an application program for the service of transferring

control back to the application program upon the later occurrence of a user-specified event.

V

version. A separately licensed program that usually has significant new code or new function.

virtual circuit. (1) In packet switching, the facilities provided by a network that give the appearance to the user of an actual connection. (T) See also *data circuit.* Contrast with *physical circuit.* (2) A logical connection established between two DTEs.

virtual machine (VM). In VM, a functional equivalent of a computing system. On the 370 Feature of VM, a virtual machine operates in System/370 mode. On the ESA Feature of VM, a virtual machine operates in System/370, 370-XA, ESA/370, or ESA/390 mode. Each virtual machine is controlled by an operating system. VM controls the concurrent execution of multiple virtual machines on an actual processor complex.

Virtual Machine/Enterprise Systems Architecture (VM/ESA). An IBM licensed program that manages the resources of a single computer so that multiple computing systems appear to exist. Each virtual machine is the functional equivalent of a *real* machine.

Virtual Machine/Extended Architecture (VM/XA). An operating system that facilitates conversion to MVS/XA by allowing several operating systems (a production system and one or more test systems) to run simultaneously on a single 370-XA processor. The VM/XA Migration Aid has three components: the control program (CP), the conversational monitor system (CMS), and the dump viewing facility.

virtual route (VR). In SNA, either a) a logical connection between two subarea nodes that is physically realized as a particular explicit route or b) a logical connection that is contained wholly within a subarea node for intranode sessions. A virtual route between distinct subarea nodes imposes a transmission priority on the underlying explicit route, provides flow control through virtual route pacing, and provides data integrity through sequence numbering of path information units (PIUs). See also *explicit route (ER)*, *path*, and *route extension (REX).*

virtual route (VR) pacing. In SNA, a flow control technique used by the virtual route control component of path control at each end of a virtual route to control the rate at which path information units (PIUs) flow over the virtual route. VR pacing can be adjusted according to traffic congestion in any of the nodes along the route. See also *pacing* and *session-level pacing.*

virtual storage. The storage space that may be regarded as addressable main storage by the user of a computer system in which virtual addresses are mapped into real addresses. The size of virtual storage is limited by the addressing scheme of the computer system and by the amount of auxiliary storage available, not by the actual number of main storage locations. (I) (A)

Virtual Storage Extended (VSE). An IBM licensed program whose full name is the Virtual Storage Extended/Advanced Function. It is a software operating system controlling the execution of programs.

Virtual Telecommunications Access Method (VTAM). An IBM licensed program that controls communication and the flow of data in an SNA network. It provides single-domain, multiple-domain, and interconnected network capability.

VM. Virtual machine.

VM/ESA. Virtual Machine/Enterprise Systems Architecture.

VM/SP. Virtual Machine/System Product.

VM/XA. Virtual Machine/Extended Architecture.

VM/370 control program (CP). The component of VM/370 that manages the resources of a single computer with the result that multiple computing systems appear to exist. Each virtual machine is the functional equivalent of an IBM System/370 computing system.

VR. Virtual route.

VS. Virtual storage.

VSE. Virtual Storage Extended. Synonymous with *VSE/Advanced Functions.*

VSE/Advanced Functions. The basic operating system support needed for a VSE-controlled installation. Synonym for *VSE.*

VSE/ESA. Virtual Storage Extended/Enterprise Systems Architecture.

VSE/SP. Virtual Storage Extended/System Package.

VTAM. Virtual Telecommunications Access Method. Synonymous with *ACF/VTAM.*

VTAM operator command. A command used to monitor or control a VTAM domain. See also *definition statement.*

W

WAN. Wide area network.

wide area network (WAN). (1) A network that provides communication services to a geographic area larger than that served by a local area network or a metropolitan area network, and that may use or provide public communication facilities. (T) (2) A data communications network designed to serve an area of hundreds or thousands of miles; for example, public and private packet-switching networks, and national telephone networks. Contrast with *local area network (LAN)* and *metropolitan area network (MAN).*

workstation. (1) A functional unit at which a user works. A workstation often has some processing capability. (T) (2) One or more programmable or nonprogrammable devices that allow a user to do work. (3) A terminal or microcomputer, usually one that is connected to a mainframe or to a network, at which a user can perform applications.

X

X.25. An International Telegraph and Telephone Consultative Committee (CCITT) recommendation for the interface between data terminal equipment and packet-switched data networks. See also *packet switching.*

X.25 NCP Packet Switching Interface (NPSI). An IBM licensed program that allows SNA users to communicate over packet switching data networks that have interfaces complying with CCITT Recommendation X.25. It allows SNA programs to communicate with SNA or non-SNA equipment over such networks.

XA. Extended architecture.

XI. X.25 SNA Interconnection.

3

37CS. Deprecated term for *3746 Model 900 connectivity subsystem (CSS).*

Bibliography

NCP, SSP, and EP Library

The following paragraphs briefly describe the library for NCP, SSP, and EP. The other publications dealing with the networking systems products—NTune, VTAM, NPSI, the NetView program, and NPM—are listed without the accompanying descriptions.

NCP V7R2, SSP V4R2, and EP R12 Library Directory (SC31-6259)

This book helps users locate information on a variety of NCP, SSP, and EP tasks. It also provides a high-level understanding of NCP, SSP, and EP and summarizes the changes to these products and to the library for NCP V7R2, SSP V4R2, and EP R12.

NCP V7R2 Migration Guide (SC31-6258)

This book helps users migrate an NCP generation definition from an earlier release to NCP V7R2. It also describes how to add new functions for NCP V7R2.

NCP, SSP, and EP Resource Definition Guide (SC31-6223)

This book helps users understand how to define NCP and EP (in the PEP environment) using SSP. It describes functions and resources and lists the definition statements and keywords that define those functions and resources.

NCP, SSP, and EP Resource Definition Reference (SC31-6224)

This book helps users code definition statements and keywords to define NCP and EP (in the PEP environment) using SSP. It also provides a quick reference of definition statement coding order and keyword syntax.

NCP, SSP, and EP Generation and Loading Guide (SC31-6221)

This book provides detailed explanations of how to generate and load NCP and EP (in the PEP environment) using SSP. It contains information for generating and loading under MVS, VM, and VSE.

NCP and SSP Customization Guide (LY43-0031)

This book helps users who are familiar with the internal logic of NCP and SSP to modify these products. It describes how to change NCP and SSP to support stations that IBM-supplied programs do not support.

NCP and SSP Customization Reference (LY43-0032)

This book supplements the *NCP and SSP Customization Guide*. It describes the resources and macroinstructions provided by IBM for customizing NCP and SSP.

NCP, SSP, and EP Messages and Codes (SC31-6222)

This book is a reference book of abend codes issued by NCP and EP in the PEP environment, and messages issued by the System Support Programs associated with NCP. This information is also available through the online message facility, an IBM OS/2 application available on diskette.

NCP, SSP, and EP Trace Analysis Handbook (LY43-0037)

This book describes how to use the trace analysis program and how to read trace analysis program output.

NCP, SSP, and EP Diagnosis Guide (LY43-0033)

This book helps users isolate and define problems in NCP and EP (in the PEP environment) using SSP. The primary purpose of the book is to help the user interact with the IBM Support Center to resolve a problem. In addition, it explains some of the diagnostic aids and service aids available with SSP.

NCP, SSP, and EP Diagnosis Aid (LK2T-1999, diskettes)

The Diagnosis Aid is an IBM OS/2 application used to diagnose NCP, SSP, and EP problems. This tool helps programmers and program support personnel who are responsible for isolating, diagnosing, and debugging problems in NCP and EP (in the PEP environment) using SSP. The Diagnosis Aid, available on diskette, provides online access to all the information contained in the *NCP, SSP, and EP Diagnosis Guide*, the *NCP and EP Reference Summary and Data Areas*, the *NCP, SSP, and EP Messages and Codes*, and the *NCP, SSP, and EP Trace Analysis Handbook*.

NCP and EP Reference (LY43-0029)

This book describes various aspects of the internal processing of NCP and EP in the PEP environment. It provides information for customization and diagnosis.

NCP and EP Reference Summary and Data Areas (LY43-0030)

This two-volume book provides quick access to often-used diagnostic and debugging information about NCP and EP in the PEP environment.

Other Networking Systems Products Libraries

The following publications provide cross-product information for NTune, VTAM, NPSI, NetView, and NPM. For detailed information about these products, refer to the library for each.

Networking Systems Library

The following list shows the publications in the Networking Systems library (this library currently contains information about NCP at the V7R1 level).

Planning for NetView, NCP, and VTAM (SC31-7122)

Planning for Integrated Networks (SC31-7123)

Planning Aids: Pre-Installation Planning Checklist for NetView, NCP, and VTAM (SX75-0092)

IBM Networking Systems Softcopy Collection Kit (CD-ROM, SK2T-6012)

IBM Online Libraries: Softcopy Collection Kit User's Guide (GC28-1700)

NTune Library

The following list shows the publications in the NTune library.

NTune User's Guide (SC31-6247)

NTuneNCP Reference (LY43-0035)

VTAM Library

The following list shows the publications in the VTAM V4R2 library.

VTAM Migration Guide (GC31-6491)

VTAM Release Guide (GC31-6492)

Estimating Storage for VTAM (SK2T-2007)

VTAM Network Implementation Guide (SC31-6494)

VTAM Resource Definition Reference (SC31-6498)

VTAM Resource Definition Samples (SC31-6499, book and diskettes)

VTAM Customization (LY43-0063)

VTAM Operation (SC31-6495)

VTAM Operation Quick Reference (SX75-0205)

Using IBM CommandTree/2 (SC31-7013)

VTAM Messages and Codes (SC31-6493)

VTAM Licensed Program Specifications (GC31-6490)

VTAM Programming (SC31-6496)

VTAM Programming Quick Reference (SX75-0206)

VTAM Programming for LU 6.2 (SC31-6497)

VTAM Diagnosis (LY43-0065)

VTAM Diagnosis Quick Reference (LX75-0204)

VTAM Data Areas for MVS (LY43-0064)

NPSI Library

The following list shows the publications in the NPSI Version 3 library.

X.25 NCP Packet Switching Interface General Information (GC30-3469)

X.25 NCP Packet Switching Interface Planning and Installation (SC30-3470)

X.25 NCP Packet Switching Interface Host Programming (SC30-3502)

X.25 NCP Packet Switching Interface Diagnosis, Customization, and Tuning (LY30-5610)

X.25 NCP Packet Switching Interface Data Areas (LY43-0034)

X.25 NCP Packet Switching Interface Master Index (GC31-6206)

NetView Library

The following list shows the publications in the NetView V2R4 library.

NetView General Information (GC31-7098)

Learning about NetView (SK2T-6017, diskettes)

Learning about NetView Graphic Monitor Facility (SK2T-6018, diskettes)

NetView Graphic Monitor Facility Reference Poster (SX75-0100)

NetView Automation Planning (SC31-7083)

NetView Storage Estimates (SK2T-6016, diskette for a PS/2 or a PS/55)

NetView Installation and Administration Guide (SC31-7084 for MVS)

NetView Installation and Administration Facility/2 Guide (or *NIAF/2 Guide*, SC31-7099)

NetView Administration Reference (SC31-7080)

NetView Bridge Implementation (SC31-6131)

NetView Tuning Guide (SC31-7079)

NetView Automation Implementation (LY43-0016)

NetView Customization Guide (SC31-7091)

NetView Customization: Writing Command Lists (SC31-7092)

NetView Customization: Using PL/I and C (SC31-7093)

NetView Customization: Using Assembler (SC31-7094)

NetView Operation (SC31-7086)

NetView Graphic Monitor Facility User's Guide (SC31-7089)

NetView Command Quick Reference (SX75-0090)

NetView Messages (SC31-7096)

NetView Resource Alerts Reference (SC31-7097)

NetView Application Programming Guide (SC31-7081)

NetView Resource Object Data Manager Programming Guide (SC31-7095)

NetView Problem Determination and Diagnosis (LY43-0101)

NPM Library

The following list shows the publications in the NPM V2 library.

NetView Performance Monitor at a Glance (GH19-6960)

NetView Performance Monitor Concepts and Planning (GH19-6961)

NetView Performance Monitor User's Guide (SH19-6962)

NetView Performance Monitor Messages and Codes (SH19-6966)

NetView Performance Monitor Graphic Subsystem (SH19-6967)

NetView Performance Monitor Installation and Customization (SH19-6964)

NetView Performance Monitor Reports and Record Formats (SH19-6965)

NetView Performance Monitor Diagnosis (LY19-6381)

NetView Performance Monitor Desk/2 User's Guide (SH19-6963)

Related Publications

The following publications, though not directly related to NCP, may be helpful in understanding your network.

Interactive System Productivity Facility/Program Development Facility (MVS) Guide (SC34-4299)

Network Routing Facility Planning (SC27-0593)

Network Terminal Option Planning, Migration, and Resource Definition (SC30-3347)

Remote Loading/Activation Guide (SA33-0161)

9370 LAN—Volume 2, IEEE 902.3 Support (GG24-3227)

IBM MVS/ESA Hardware Configuration Definition: Using the Dialog (GC33-6457)

IBM 3745 Communication Controller Publications

The following list shows selected publications for the IBM 3745 Communication Controller.

IBM 3745 Communication Controller Introduction (GA33-0092 for the 3745-210, 3745-310, 3745-410, and 3745-610)

IBM 3745 Communication Controller Introduction (GA33-0138 for the 3745-130, 3745-150, and 3745-170)

IBM 3745 Communication Controller Configuration Program (GA33-0093)

IBM 3745 Communication Controller (All Models): Principles of Operation (SA33-0102)

IBM 3745 Basic Operations Guide for MOSS Operations (SA33-0098)

3745 Models 21A through 61A Migration and Planning Guide (GA33-0183)

IPCS Publications

The following publications contain information on IPCS.

MVS Interactive Problem Control System Command Reference (GC28-1834)

MVS Interactive Problem Control System User's Guide (GC28-1833)

SNA Publications

The following publications contain information on SNA.

Systems Network Architecture Technical Overview (GC30-3073)

Systems Network Architecture Format and Protocol Reference Manual: Management Services (SC30-3346)

Systems Network Architecture Formats (GA27-3136)

TCP/IP Publications

The following publications contain information on Transmission Control Protocol/Internet Protocol (TCP/IP).

General: The following list shows selected publications with general information on TCP/IP.

TCP/IP Introduction (GC31-6080)

IBM TCP/IP Tutorial and Technical Overview (GG24-3376)

MVS Publications: The following list shows selected publications on TCP/IP for MVS.

IBM TCP/IP Version 2 Release 2.1 for MVS: Planning and Customization (SC31-6085)

IBM TCP/IP Version 2 Release 2.1 for MVS: User's Guide (SC31-6088)

VM Publications: The following list shows selected publications on TCP/IP for VM.

IBM TCP/IP Version 2 Release 2 for VM: Planning and Customization (SC31-6082)

IBM TCP/IP Version 2 Release 2 for VM: User's Guide (SC31-6081)

IBM OS/2 Publications: The following list shows selected publications on TCP/IP for IBM OS/2.

IBM TCP/IP Version 2.0 for OS/2: Installation and Administration (SC31-6075)

IBM TCP/IP Version 2.0 for OS/2: User's Guide (SC31-6076)

DOS Publications: The following list shows selected publications on TCP/IP for DOS.

IBM TCP/IP Version 2.0 for DOS: Installation and Maintenance (SC31-6154)

IBM TCP/IP Version 2.0 for DOS: User's Guide (SC31-6152)

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