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Seventh Edition (October 2000)

This is a major revision of, and obsoletes, GH19-6792-05. See “Summary of Changes for NetView DM for MVS Release 7” on page xv for an overview of the changes made to this manual. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

This edition applies to Release 7, Modification Level 0 of the licensed program NetView Distribution Manager for MVS, Program Number 5685-016, and to all subsequent releases and modifications until otherwise indicated in new editions. Make sure you are using the correct edition for the level of the product.

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About This Document

This document provides a general introduction to the IBM NetView Distribution Manager for MVS (NetView DM for MVS) licensed program. NetView DM for MVS runs in a central site host system controlled by the MVS operating system.

The document describes how NetView DM for MVS, as part of the NetView DM family of products, meets your major requirements for electronic software and data distribution across distributed networks from a central location.

This document uses the term NetView DM for MVS to refer to NetView DM for MVS Release 7.

Who Should Read This Document

The document is intended for information systems professionals who require a basic understanding of how NetView DM for MVS provides a solution to data distribution and change control requirements in distributed networks.

How This Document Is Organized

The document contains the following chapters:

- Chapter 1, “Introducing NetView DM for MVS” on page 1, outlines the functions of NetView DM for MVS and describes its users.
- Chapter 2, “NetView DM for MVS Highlights” on page 9, describes the NetView DM for MVS functions in more detail.
- Chapter 3, “Managing Multiple Servers” on page 31, shows how NetView DM for MVS works in conjunction with the other products in the NetView DM family to provide centralized control over your network.
- Chapter 4, “Software Distribution Using the SPMF Feature” on page 35, provides sample scenarios to show how you can use the SPMF feature of NetView DM for MVS to automate software distribution and change control.
- Appendix A, “Installation Requirements” on page 41, describes the hardware and software requirements both for NetView DM for MVS and for the nodes it supports.

The document also contains a bibliography, glossary, and index.
Where to Find More Information

This section describes the other documents in the Tivoli NetView Distribution Manager for MVS library.

Tivoli NetView Distribution Manager for MVS Library

The Tivoli NetView Distribution Manager for MVS library contains the following documents:

*Installation and Customization*, SH19-6794, describes what you need to install NetView DM for MVS, and how to customize NetView DM for MVS for your environment, using either an interactive dialog or batch jobs. There are also details for migrating from previous releases, including how to migrate from VSAM data sets to IBM's DATABASE 2 (DB2) relational database. The book also describes how to install the SPMF feature.

*Overview and Scenarios*, GH19-6797, describes the structure of NetView DM for MVS, how it works, and how you use it. This book provides scenarios to illustrate the ways in which you can use NetView DM for MVS in different environments.

*User's Guide*, SH19-6795, describes how to use the generalized interactive executive (GIX) and Batch Utilities components of NetView DM for MVS to create transmission plans and distribute software, and to manage your network. The book also describes how to monitor and control transmission activities using the interactive operator facility (IOF).

*SPMF User's Guide*, SH19-4148, describes how to use the Software Profile Management Facility (SPMF) feature of NetView DM for MVS to create transmission plans, distribute software, and manage your network.

*SPMF Database Model*, SH19-4160, provides information about the structure of the NetView DM for MVS and SPMF database model based on a DATABASE 2™ (DB2™) relational database.

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*SPMF Database Model*, SH19-4160, provides information about the structure of the NetView DM for MVS and SPMF database model based on a DATABASE 2™ (DB2™) relational database.
Base Application Programming, SH19-6958, is for users who develop application programs that use the NetView DM for MVS base programming interface.

Diagnosis, LY19-6374, defines how to isolate the cause of a NetView DM for MVS problem and how to extract additional data for analysis. The book also explains how to apply a program temporary fix (PTF).

Publications for the other products in the NetView DM family are listed in the bibliography at the back of this document.

Online Publications

Softcopy versions of the documentation in BookManager format are available in the Tivoli Online Library Omnibus Edition OS/390 Collection, order number SK2T-6700 (December 2000).

Softcopy versions of the documentation in Adobe Acrobat PDF format are available at http://www.support.tivoli.com/Prodman/html/AB.html Choose Availability, then Tivoli NetView Distribution Manager for MVS.

Tivoli NetView Distribution Manager for MVS Documents on CD-ROM

The NetView DM for MVS Release 7 publications are available in displayable softcopy form on CD-ROM as part of:

- IBM OS/390 Softcopy Collection Kit, SK2T-6700
- IBM MVS Softcopy Collection Kit, SK2T-0710

The entire library is available, except for the Diagnosis book.

Customers currently licensed for OS/390, MVS, and Networking Systems Software products are entitled to a free copy of the corresponding CD-ROM Collection Kits, which are shipped on request.

Extra copies of the CD-ROM Collection Kits can be ordered for an annual subscription charge.

Related Publications

The following publications may also be useful:

- System Modification Program Extended Reference, SC28-1107
- OS/390 SMP/E Reference, SC28-1806
- ISPF User's Guide, SC34-4484
- ISPF Dialog Developer's Guide and Reference, SC34-4486
- OS/390 TSO/E Command Reference, SC28-1969
- DFSMS/MVS Access Method Services for ICF, SC26-4906
- DFSMS/MVS Utilities, SC26-4926
- OS/390 SMP/E Commands, SC28-1805
Where to Find More Information

- OS/390 SMP/E Messages and Codes, SC28-1738
- OS/390 MVS JCL Reference, GC28-1757
- DB2 for MVS/ESA Administration Guide, SC26-3265
- DB2 for MVS/ESA Messages and Codes, SC26-3268
- DB2 for MVS/ESA SQL Reference, SC26-3270
- IBM DB2 for OS/390 V 5 Administration Guide, SC26-8957
- IBM DB2 for OS/390 V 5 Application Programming and SQL Guide, SC26-8958
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- IBM DB2 V 4 SQL Reference, SC26-3270
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- IBM DATABASE 2 Version 3 Application Programming and SQL Guide, SC26-4889
- IBM DATABASE 2 Version 3 Command and Utility Reference, SC26-4891
- IBM DATABASE 2 Version 3 Messages and Codes, SC26-4892
- IBM DATABASE 2 Version 3 SQL Reference, SC26-4890 SC26-4378
Summary of Changes for NetView DM for MVS Release 7

NetView DM for MVS Release 7 contains the following enhancements:

- Sysplex support
- SMS extended resource repository
- Delete pending request from host
- SQL definition for SPMF supergroups
- Support for RACF control on IOF logon
- Control of default exit options on SPMF panels
- Extended CC clients support

Sysplex Support

Each component of NetView DM for MVS Release 7 can now run in a separate OS/390 Parallel Sysplex, by implementing the XCF cross system communication protocol and SMSVSAM for sharing VSAM files.

This means that, for example, TCP, GIX, SPMF and BU can be run simultaneously in different OS/390 partitions of the same Sysplex.

To take advantage of this facility, SMSVSAM must be configured and activated, and the appropriate options selected in the installation and customization phases.

**Warning:** If you attempt to run different modules of NetView DM for MVS in different OS/390 partitions of the same Sysplex without configuring and activating SMSVSAM, there is a risk of data corruption. However, if you run all modules of NetView DM for MVS in the same Sysplex partition, there is no need to activate SMSVSAM.

D&CC API No Longer Supported

The Distribution and Change Control Application Programming Interface (D&CC API), is no longer supported or delivered as part of the product.

SMS Extended Resource Repository

It is now possible to extend the maximum size of the SMS Resource Repository above the previous limits of 4 GB. By taking advantage of the XRBA architecture the maximum size has been raised to 400 GB, the limitations of the initialization procedure making it impossible to realize the theoretical maximum of $2^{64}$ bytes.

To take advantage of this facility you must be using DFSMS Version 1.5 or later, and must define an SMS Data Class for the Extended Addressability (see full details in the NetView DM for MVS User’s Guide, and Installation and Customization).
Delete Pending Request From Host

Implemented concurrently in this release and in TME 10 Software Distribution Version 3.1.5, this new feature allows NetView DM for MVS Release 7 to delete any request in pending status at the remote destination, whenever the plan or phase in which the request is included is deleted at the host.

By pending status is intended plans or phases that have been transmitted to the remote destination but have not yet been executed.

SQL Definition of SPMF Supergroups

The Software Profile Management Facility (SPMF) allows you to define supergroups as being names of nodes, groups and other supergroups linked by Boolean operators (for example, and, or). It is now also possible to define supergroups using an SQL expression to search the DB2 tables maintained by SPMF, or any other accessible DB2 tables.

This allows you to use a different naming convention for nodes and groups, taking advantage of the power of the SQL search language.

Support for RACF Control on IOF Logon

NetView DM for MVS now supports Resource Access Control Facility (RACF) control for operators logging on to Input-Output Formatting (IOF). An additional parameter has been added to one of the customization macros (see the NDMTCP macro description in the NetView DM for MVS Installation and Customization).

Control of Default Exit Options on SPMF Panels

A new feature has been added whereby it is possible to set parameters that insert an ‘E’ in the command line of the SPMF panels, such that SPMF exits from the panel flow without processing the panel if Enter is pressed inadvertently. A separate parameter controls the default exit for each panel.

The default exits are enabled when SPMF is started, and it is necessary to close and restart SPMF to enable any changes to them. The parameters are detailed in the table NVDM_PARAMETER in the SPMF Database Model Manual.

Extended CC Server and Clients Support

TME 10 Software Distribution Version 3.1.5, which carries out NetView DM for MVS-originated change control operations at distributed workstations, now supports the following platforms:
<table>
<thead>
<tr>
<th>Platform</th>
<th>Version</th>
<th>Server</th>
<th>Client</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows</td>
<td>2000 Professional and Server</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>NT 3.51 and 4.0 (SP5 &amp; 6A)</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>3.11, 95 and 98</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>OS/2</td>
<td>3.0x - 4.5</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>AIX</td>
<td>3.2.5 - 4.3.3</td>
<td>Y</td>
<td>Y</td>
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<tr>
<td>NetWare</td>
<td>4.11 - 4.2x</td>
<td>Y</td>
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</tr>
</tbody>
</table>
Chapter 1. Introducing NetView DM for MVS

Distributed computer systems have become an integral part of the information technology strategies of many companies. Installing, updating, and tracking software across the numerous workstations linked in these systems is a time-consuming and costly endeavor, especially when one considers the level of skill required to perform distribution and change control tasks efficiently. In answer to this need, the telecommunications market offers automated network management solutions that span multiple hardware platforms. Within the NetView Distribution Manager family of products, NetView DM for MVS provides software and data distribution and change control functions from an MVS environment across networks composed of workstations running on a variety of platforms, and linked by a variety of transmission protocols.

This chapter describes the functions NetView DM for MVS uses to automate data distribution and software change control across various platforms linked in an enterprise network.

What NetView DM for MVS Is

NetView DM for MVS is a systems management licensed program that controls software installation, software change management, and data distribution across networks composed of the following systems:

- AIX
- NetWare™
- OS/2
- Windows
- Windows NT

NetView DM for MVS is installed on one of the MVS systems in the network, which becomes the change control manager (CC manager), or focal point, for the network. Each of the systems in the network managed by this focal point can act in one or more of the following roles:

- A change control server (CC server) performs distributed management for other systems in a subnetwork.

The following products provide the CC server function:

- TME 10 Software Distribution Version 3.1.5 for Windows 2000
- TME 10 Software Distribution Version 3.1.5 for Windows NT
- TME 10 Software Distribution Version 3.1.5 for OS/2
- TME 10 Software Distribution Version 3.1.5 for NetWare
- TME 10 Software Distribution Version 3.1.5 for AIX

- A change control client (CC client) is a system managed by a CC server.

The following products provide the CC client function:

- TME 10 Software Distribution Version 3.1.5 Client for Windows 2000
- TME 10 Software Distribution Version 3.1.5 Client for Windows NT
- TME 10 Software Distribution Version 3.1.5 Client for Windows 9x
- TME 10 Software Distribution Version 3.1.5 Client for Windows 3.11
- TME 10 Software Distribution Version 3.1.5 Client for OS/2
- TME 10 Software Distribution Version 3.1.5 Client for NetWare
Introducing NetView DM for MVS

- TME 10 Software Distribution Version 3.1.5 Client for AIX

- A change control single node (CC single node) is managed directly by the focal point.

All CC Servers can provide the CC single node function using LU 6.2 protocols:

- A change control intermediate node (CC intermediate node) performs store and forward and functions for data transmission, but not distributed management.

All CC Server products provide the CC intermediate node function using LU 6.2 protocols:

For more details about the product releases and products that use LU 0 protocols, and a complete list of the hardware and software supported by NetView DM for MVS, see Appendix A, “Installation Requirements” on page 41.

Figure 1 on page 3 shows an example of a NetView DM for MVS network.
Users of NetView DM Family Products

Users of NetView DM family products are the:

- Change control (CC) administrators
  - Enterprise CC administrators at NetView DM for MVS
  - Local or remote CC administrators in CC domains managed by CC servers
- Builders
- Users
Introducing NetView DM for MVS

Change Control Administrator

A CC administrator is responsible for ensuring that software packages are installed across the network, kept up to date, and removed when no longer required. Depending on the type of network, a CC administrator is also referred to as a:

- **Local CC administrator**, when managing a local CC domain composed of a CC server with its CC clients
- **Remote CC administrator**, when managing a network composed of more than one CC server with their CC clients
- **Enterprise CC administrator**, when managing remote CC domains from a NetView DM for MVS site

The role of enterprise CC administrator is typically divided among different people that work in the MVS environment:

- **System administrators**, responsible for setting up and maintaining the NetView DM for MVS environment after it has been installed. The administration tasks include:
  - Defining a user profile for each NetView DM for MVS user
  - Defining the nodes in the network to NetView DM for MVS
  - Defining the resources in the network to NetView DM for MVS
  - Organizing nodes and resources into groups
  - Assigning resources to nodes
  - Tracking resources using resource history records
  - Maintaining the NetView DM for MVS files

  System administrators should have a basic knowledge of MVS, Virtual Storage Access Method (VSAM), and Virtual Telecommunications Access Method (VTAM).

- **Users**, performing the central NetView DM for MVS task of distributing resources throughout the network. The end use tasks include:
  - Preparing resources for transmission
  - Preparing and submitting transmission plans
  - Managing transmission plans
  - Monitoring the progress of transmissions
  - Unloading resources after transmission
  - Preparing messages

- **Network operators**, responsible for controlling and monitoring the transmission of resources. The operation tasks include:
  - Starting transmission
  - Monitoring and controlling transmission
  - Stopping transmission
  - Handling unsolicited messages and transmission problems

  Operators should have some knowledge of MVS and VTAM.

All NetView DM for MVS users should be familiar with data communications, particularly the basic concepts and terminology of SNA.

Local or remote CC administrators use CC server products to:

- Define the CC client workstations in their CC domain
- Define the users of the CC client workstations in their CC domain
Introducing NetView DM for MVS

- Initiate the distribution of data files
- Initiate the managed installation of software packages by the CC server on CC client workstations
- Authorize which software packages are available for installation by users of CC client workstations
- View the status of the software packages already installed on CC client workstations by the CC server or an agent product
- Change the software installed on workstations across the network
- Run applications on remote, unattended workstations across the network

The local or remote CC administrator can perform software installation and data distribution functions from any CC client workstation that has a NetView DM agent program installed. This is in addition to the CC administrator using the CC server to carry out these functions.

The local or remote CC administrator can use a CC client workstation can be configured in user-interface-only mode to perform administrative functions. It provides an interface to access the CC server and the capability to initiate change control actions on CC client workstations.

Builder

The builder is typically a programmer who is authorized by the change control administrator to prepare the software to be installed. Each separate application or system software product must be prepared as a package suitable for installation by the agent program it is destined for.

The builder uses either a CC server or CC single node system as a preparation site for software.

In the NetView DM/2 environment, the NetView DM Easy Preparer for OS/2 (NetView DM EasyPrep) product complements the functions of NetView DM/2 to simplify the task of the builder (see “NetView DM Easy Preparer for OS/2” on page 22.).

User

The user is anyone who uses the services of a NetView DM family product to:
- Install software packages on a CC client or CC single node workstation
- Distribute data files to any other CC client or CC single node across the network

NetView DM for MVS Functions

NetView DM for MVS is an automated solution to many of the data distribution and software distribution and control needs in a distributed system.

NetView DM for MVS provides the following functions, that are described in more detail in Chapter 2, “NetView DM for MVS Highlights” on page 9:
- Control the distribution and collection of data and software from a central location
Introducing NetView DM for MVS

- Schedule the installation and activation of software updates across the enterprise
- Eliminate the need to mail diskettes or tapes and provide distribution records for the remote subsystems
- Drive host distribution and installation processes through user-written, automated applications
- Collect daily reports or user data from nodes and distribute consolidated results
- Centrally control what data is distributed and retrieved, as well as who distributes and receives the data
- Execute a program at a remote site and retrieve results at a specified time
- Use either a user interface or a set of batch utilities to define, validate, and execute distributions, track their progress and results, and print reports
- Use a central repository to store and track data objects

NetView DM for MVS Components

NetView DM for MVS consists of the following major components:

- Base components:
  - Generalized interactive executive (GIX)
  - Batch utilities
  - Base programming interface
  - Transmission control program (TCP)
  - Interactive operator facility (IOF)
  - Service provider (SVP) (activation is optional)
  - Sysplex support (not with SVP)

- Optional features:
  - Software profile management facility (SPMF)
  - SPMF command line interface (CLI)
  - Display and control interface (DCI), used only with SPMF

NetView DM for MVS System Files

These components use a set system files to store all the information needed for their operation. The main NetView DM for MVS system files are:

- Distributed resource directory (DRD)
- Plan library
- Transmission control file (TCF)
- Resource repository
- Request queue file (RQF)
Some Common Terms

Data objects, called resources in NetView DM for MVS, are transmitted between the host system and the nodes according to specifications contained in transmission plans. Resources can be retrieved from nodes, sent to nodes, installed at nodes, or executed at nodes. These activities are referred to as transmission functions. The transmission plan specifies the date and time when these transmission functions will take place, as well as other information.

Some types of node are also capable of requesting NetView DM for MVS to receive a resource available at the node without being driven by the specifications of a plan. This is called a node-solicited request (NSR).

A transmission plan is composed of phases. A phase is composed of transmission functions, such as send or retrieve, that refer to one or more resources and that are to be executed at a given date and time at one or more nodes.

Plans are prepared using facilities provided by both GIX and Batch Utilities, and then submitted to the transmission control file. Once submitted, the plans are executed by the transmission control program.

If a phase addresses more than one node, called a node group, the phase is "exploded" when it is submitted into as many phases for nodes as there are nodes in the group.

If a transmission function refers to more than one resource, called a resource group, the function is "exploded" when it is submitted into as many functions as there are resources in the group.

NSRs can only refer to a single resource and to a single node (the node that issues the NSR).
Chapter 2. NetView DM for MVS Highlights

This chapter describes the facilities offered by NetView DM for MVS to help you manage a distributed network.

It describes these features:

- Central control and tracking
- Unattended node operations
- Remote initiation of NetView DM for MVS services
- Data transfer integrated with data processing
- Efficient data management
- Efficient data transfer
- Security and auditability
- Flexible transmission
- Interactive and batch interfaces
- Application programming interfaces
- Problem determination
- Software profile management facility (SPMF)
- Other major features

This chapter then describes the major components, system files, and nodes supported by NetView DM for MVS.

Central Control and Tracking

With NetView DM for MVS, you can control the distribution of resources, the distribution and installation of software and microcode, and any modifications to these, from the host central site. You can also control the initiation of procedures at a node.

All functions are driven from the host. NetView DM for MVS stores and updates the status of transmission functions in the TCF. You can view the status of transmission functions to help you track the execution of transmission plans and to manage exception conditions.

You can display the status and progress of a node, details of logical unit activity, and details of the active transmission requests for the node. For each active transmission request, NetView DM for MVS displays the number and percentage of resource bytes that have been transmitted.

In distributed and departmental networks, you need to track the status of the resources at the nodes. This information consists of the date and time when operations are performed on specific resources, and, if applicable, their version and modification level. For example, this can include the date and time a resource is installed at a node, or the date and time it is deleted from a node.

CC servers and CC single nodes send reports to NetView DM for MVS that allow you to track changes. These are for changes initiated locally by CC administrators using the facilities provided by CC servers or CC single nodes.

NetView DM for MVS reports information related to errors occurring at CC servers or CC single nodes. When an agent or server exception is detected at a CC server...
or CC single node, the node reports to NetView DM for MVS the message that was issued.

Unattended Node Operations

The counterpart programs at the nodes can run commands that they receive from NetView DM for MVS. For example, NetView DM for MVS can send a command to a node that results in the node executing a command list, or it can send a command that causes the node to install a given program with its corequisites. The remote nodes can then operate in unattended mode.

Remote Initiation of NetView DM for MVS Services

In many large networks, nodes only need to be linked to the host system for transmission of data objects for occasional business needs. This type of environment requires that the connection with the NetView DM for MVS host system be established only when the node has data objects to send, as a result of local processing, or when it needs data objects from the host system to start local processing.

You can submit a phase of a plan to NetView DM for MVS as held. This phase addresses one node and could include, for example, transmission functions to retrieve some resources from that node. When a phase has been held, NetView DM for MVS suspends the running of the phase until it is released.

After the processing that prepares these resources at the node has finished, the node can issue a command that causes the TCP to release the held phase. This allows the host to retrieve the resources from the node. The release function is available for:

- LU 0 nodes running under control of SSP or DPPX/370
- IBM PC and IBM PS/2 systems equipped with the NetView DM for MVS counterpart programs PC Node Manager and LAN Distributed Platform
- IBM 4684 systems equipped with the NetView DM for MVS counterpart program Retail Industry Programming Support Services

LU 6.2 nodes are capable of sending resources to NetView DM for MVS without being solicited by NetView DM for MVS and without the need for a plan with a held phase.

These facilities ensure the flexibility needed for the quick availability of data objects for specific business needs.

Data Transfer Integrated with Data Processing

NetView DM for MVS helps in synchronizing the data transmission and execution of applications by providing services that let you integrate data transfer and data processing. These services are as follows:

- Planning data transfer
- Interacting with exit routines
- Submitting a transmission plan by a user application
- Initiating job processing at the nodes
Planning Data Transfer
You can plan all data transfer to avoid overloading the line during peak periods.

You can define a plan as recursive. Recursive plans allow transmissions to be executed on a daily basis, without the burden of having to resubmit the plan every day.

Interacting with User Application Programs
User application programs can control the transmission activity of NetView DM for MVS.

Using the application programming interfaces provided by NetView DM for MVS, an application program can perform the following types of tasks:

- Submit transmission functions for NetView DM for MVS to run
- Query the results of transmission functions or resources
- Receive notification of unsolicited events originated by the nodes
- Load or unload resources into or from the NetView DM for MVS resource repository

For a more detailed description, refer to “Application Programming Interfaces” on page 17.

A transmission return code is always associated with each transmission function and phase. It shows whether the processing was successful. The return code for a phase is the highest return code of the functions in that phase. When the phase ends, NetView DM for MVS can schedule a user-written exit routine. The routine receives from NetView DM for MVS the values of the return codes related to all the functions in the phase. It can then act appropriately based on the values of the return codes.

You can use an application program to prepare a plan or submit a plan already stored in the plan library. This capability is very useful when network operations must be driven by events resulting from application processing, rather than driven by time schedules established in transmission plans. However, you can also perform combinations of event-driven and schedule-driven operations.

Submitting a Transmission Plan by a User Application
A user application can trigger the appropriate NetView DM for MVS batch utility to perform the following functions:

- Prepare and submit plans
- Submit plans existing in the plan library
- Load or unload resources into or from the resource repository

Initiating Job Processing at the Nodes
You can start jobs or procedures at the nodes by sending the appropriate command from NetView DM for MVS. This ability to initiate node system functions or node applications from the host means that you do not need skilled operators at the node.
Efficient Data Transfer

Efficient Data Management

NetView DM for MVS enhances the data management process for LU 6.2 resources.

NetView DM for MVS offers the following new services:

- Embedded control statements
- ERASE and UNLOAD of multiple files
- SEND with disposition DELETE
- SEND with dynamic selection (wildcard)

Embedded Control Statements

NetView DM for MVS enables you to load multiple resources from one data set and to append data to resources already existing in the repository. This means that you can manage the LU6.2 resources embedded control statements with disposition modify (DISP=MOD).

ERASE and UNLOAD of Multiple Files

NetView DM for MVS enables you to erase and unload many LU6.2 resources at the same time. You can specify a wildcard in the operand name for the commands ERASE and UNLOAD.

SEND with Option DELETE

NetView DM for MVS enables you to send a resource and to delete it at the same time from the repository by specifying the disposition DELETE parameter directly in the SEND function. Also, this deletion can be grouped at LU level, when the LU is specified as parameter in the SEND function.

SEND by Dynamic Selection (Wildcard)

NetView DM for MVS enhances the capability to perform the SEND function by dynamic grouping for LU6.2 resources. This means that you can send a group of LU6.2 resources even if the resource group was not previously defined and is not specified in the SEND function statement. The use of one or more wildcards in the resource name allows you to dynamically process all the resources matching the partial resource name you specified.

Efficient Data Transfer

When large volumes of data move across a communication network, transmission efficiency is a key factor in reducing time and cost.

NetView DM for MVS helps transmission efficiency by offering the following services:

- Transmission windows
- Concurrent transmissions
- Data compression
- Data translation
- Fanout support
- Transmission retry
- Transmission profiles
Efficient Data Transfer

- Connection profiles
- Resynchronization
- Timeout facility
- Disk space checking

Transmission Windows

NetView DM for MVS enables transmission activities to take place within predefined time windows. These transmission windows are defined for individual phases within a transmission plan. Up to seven windows can be scheduled for a single phase, one per day.

Concurrent Transmissions

NetView DM for MVS can handle several transmissions concurrently, where you define the maximum number. In such an environment, transmission activity also runs in parallel with other NetView DM for MVS activities, for example, planning and reporting.

Data Compression

NetView DM for MVS can send or retrieve data in compressed form to and from the following nodes:

- Workstations running TME 10 Software Distribution Version 3.1.3 or later or NetView DM/2 Version 2 or later
- IBM RISC System/6000 workstations running NetView DM/6000
- Workstations running NetView DM for NetWare
- IBM AS/400 systems
- IBM 9371 systems running under control of the DPPX/370 operating system
- IBM processors running NetView DM for MVS Release 4 or later
- IBM System/36
- IBM processors running under control of the VSE operating system

Line transmission time can be reduced by sending data in a compressed form. After transmission, the data is decompressed and becomes available in its original form.
Data Translation

NetView DM for MVS can perform data translation for resources composed of characters belonging to the same character set, called *uniform text*. NetView DM for MVS does the following:

- When loading a resource from a user file or when receiving it from a node, NetView DM for MVS stores the coded character set identifier (CCSID) associated with the resource in its resource repository.

- When NetView DM for MVS unloads the resource from its resource repository to a user file, it translates the data from the CCSID associated with the resource to the NetView DM for MVS CCSID, defined when you customized NetView DM for MVS. You can define (only for SBCS code pages) translation tables for source and target CCSIDs.

This process allows conversion from ASCII to EBCDIC for NetView DM/2 resources. Data translation is also supported for data from NetView DM/6000 and NetView DM for NetWare nodes.

Fanout Support

Reduced line transmission can also be achieved with the NetView DM for MVS fanout support. The following systems can act as SNA/DS intermediate nodes for fanout support:

- IBM PS/2 workstations running NetView DM/2
- IBM RISC System/6000 workstations running NetView DM/6000
- IBM AS/400 systems running IBM SystemView Managed System Services/400
- IBM S/36

When you instruct NetView DM for MVS to send a file to multiple destinations through these intermediate nodes, it sends just one copy of the file and attaches a distribution list. The counterpart program at the node will fan out the file—it sends one copy to each node on the list.

Transmission Retry

Transmission interruptions due to persistent line errors can be managed effectively with the NetView DM for MVS retry option, which attempts to reestablish the connection automatically.

You can specify both the time delay before reattempting to initiate the SNA session and how many retries are to be done. These values apply to all nodes, unless otherwise specified in transmission profiles.

Transmission Profiles

Transmission profiles provide a way of grouping nodes connected to the central site through the same type of transmission lines in order to optimize line usage. For example, assume a multipoint line connects eight nodes to the host. You could assign these nodes to a transmission profile defined in such a way that no more than three concurrent transmissions can take place with these nodes. This allows a better balancing of the load among the different lines. Each transmission profile can have its own retry specifications.
Connection Profiles

Connection profiles provide a way of grouping LU 6.2 logical units with the same set of attributes and connection capability. For example, you can define a specific connection profile for logical units that cannot initiate an SNA session (for example, IBM 3174 subsystems), or that cannot establish a physical connection to the host system (for example, NetView DM/2 linked to the host system through switched lines and not equipped with hardware that allows dialing out).

NetView DM for MVS regularly provides the activation of SNA sessions with these logical units (polling) to allow them to send reports or data, related to functions previously requested by NetView DM for MVS. If the function has been requested with an execution timing, NetView DM for MVS starts polling the node after the scheduled date and time.

Resynchronization

If a transmission is interrupted because of a line failure, the resynchronization capability lets you restart the transmission from the point of interruption.

Timeout Facility

You can specify a timeout interval that establishes how long the TCP will wait for a response from a node before timing out. This applies to all node types.

Disk Space Checking

NetView DM for MVS provides a facility to prevent change requests failing due to insufficient disk space at a remote node. NetView DM for MVS can check the disk space available at a target node before the change request takes place, using GIX or Batch Utilities.

This facility applies only to NetView DM/2 Version 2 Release 1 target workstations. NetView DM/6000 and NetView DM for NetWare products check the disk space automatically.

Security and Auditability

Users must be authorized before they can use the various NetView DM for MVS facilities and functions.

In most installations different users have different data processing requirements. An effective authorization strategy protects the system from misuse by authorizing users to access specific:

- Types of node
- Classes of nodes
- Types of resources
- Classes of resource
- Distribution and change control functions

A security profile for each user is maintained in the DRD. The profile contains the user ID, an optional password, and specific authorization classifications to allow access to the various NetView DM for MVS functions, resource types and classes, and node types and classes.
User profiles defined for GIX users are used not only for security, but also for tailoring their interactive dialogs. The GIX panels show only the GIX options, types of node, and types of resource for which the user is authorized. This helps to minimize the possibility of the user making mistakes in entering selections and data on the panels.

For LU 6.2 nodes, you can define profiles to authorize a node to perform unsolicited transmission of given resource types.

The TCP log file provides additional security. In addition to events related to the transmission activities, such as lost connections with nodes, the start and end of SNA sessions, or results of the transmission functions, the TCP log file also records actions performed in response to external stimuli. These stimuli could be requests to delete a plan or a phase, the ID of the user who logged on to IOF, or the requests to “hold” a node. You can use these messages for auditing purposes.

NetView DM for MVS also provides exit routines to extend its security facilities. Users can take advantage of these exit routines to implement their own exit routines to perform an extended check of the following:

- Logging on to GIX
- Logging on to IOF
- Using the Batch Utilities
- Requesting transmission functions on specified resources to specified nodes

**RACF Interface**

You can use the RACF class *facility* to control access to the GIX, Batch Utilities, and SPMF feature interfaces.

**Flexible Transmission and Scheduling**

With NetView DM for MVS you can execute phases and transmission conditionally, based on the value of transmission return codes. For example, when you have more than one phase in a plan, you can request the execution of a phase only if the return code of a previous phase is lower than a given value. The same applies for individual phases for nodes.

When a phase has more than one function, you can request that, when any of the functions terminate with a return code greater than a predefined value, the functions that follow are not executed.

**Plan Priority**

You can specify ten different priorities for the scheduling and processing of plans.

Phases that belong to a plan that is submitted have the same priority as the plan itself. The phases in the plan are scheduled and processed according to both the priority of the plan and the scheduling date and time that is specified for each phase.

If phases that belong to different plans have the same scheduling date and time, the phase that has the higher priority is processed first. If phases have the same priority, they are processed according to the scheduling date and time.
When plans are running, and a higher priority plan is submitted, the system does not interrupt the running phases. The phases belonging to the higher priority plan are processed as soon as the session that addresses the specific logical unit is available.

**NetView DM for MVS Interfaces**

NetView DM for MVS provides the following types of interfaces:

- Interactive
- Batch
- Application programming

**Interactive Interface**

Interactive facilities (GIX and IOF) are easy to use. In interactive mode the user at a terminal is prompted through a logical sequence of steps through an ordered set of display panels. There is also an online help facility.

NetView DM for MVS also provides an interface that allows users to issue MVS commands to the TCP directly from the system console. This facility provides the same functions for controlling the TCP as IOF.

**Batch Interface**

The same functions provided by the GIX interactive interface are also available through a batch interface. This interface is useful because it allows a user-written program to submit to MVS the JCL needed to invoke a NetView DM for MVS function, providing a convenient way to organize repetitive operations.

**Application Programming Interfaces**

This section describes the NetView DM for MVS base application programming interface.

A base programming interface is shipped as part of NetView DM for MVS. This interface allows the integration of the NetView DM for MVS licensed program into customer procedures, by means of macros, user exit routines, and services that provide a means to access the information stored in the NetView DM for MVS system files.

With these programmable interfaces, you can perform the following tasks:

- Access information in the resource repository to import or export resources
- Compress and decompress resources
- Access information in the DRD to produce customized reports
- Access information in the TCF to produce statistical analysis on NetView DM for MVS transmission activities
- Access completed resources, for example, to notify the successful or unsuccessful completion of a resource or the acceptance of the resource at a node
- Check user authorization to access NetView DM for MVS facilities
- Manage notification of transmission events
• Control network definition

Importing and Exporting Resources
In some applications, it may be necessary to import or export resources that are not structured for NetView DM for MVS, from or to user files to the NetView DM for MVS resource repository. Access to the resource repository is available through a user exit interface that can be invoked by processing the appropriate batch utility. These functions permit a user application program to manage the conversion of resources to be called.

Compressing and Decompressing Resources
Line transmission time can be reduced by sending data in a compressed form. In addition to the algorithms supplied by NetView DM for MVS in conjunction with NetView DM/2 (LZW and SNA string control byte), other algorithms can be defined by the user to compress resources. User exit calls provide an interface between NetView DM for MVS and the algorithms when loading, unloading, or printing the resources. The name of the algorithm used is saved in the resource repository and transferred to the node when sending the resource.

Accessing the DRD
The base programming interface allows the user to access the DRD to retrieve the network configuration, definition and status of resources, and user profiles that can be processed by user-written programs. The language used to access this interface can be Assembler language, COBOL, or PL/I.

The API services permit keyed or sequential access to the information stored in the DRD, but do not provide authorization checking. It is the user's responsibility to ensure that access to the DRD information is controlled.

DRD records contain the following definitions:
• The nodes in the network
• How the nodes are grouped
• The resources that are managed by NetView DM for MVS
• How resources are assigned to nodes
• The status of resources at nodes
• How the resources are grouped
• The user authorization profiles

Retrieving Plan Information
Plan and node-solicited request information in the TCF can be saved in a user file using a batch utility. A user-written program can then access this file and process the required information. For example, the status of transmission plans can be retrieved for statistical purposes.

Handling TCP Events
NetView DM for MVS provides user exit routines for processing the following events:
• TCP initialization
• Issue of a message from the TCP
• Completion of a resource
• Completion of a transmission phase-for-node
• Completion of a node-solicited request or unsolicited report
Problem Determination

In environments where NetView DM for MVS runs unattended, these user exit routines allow user applications to be run to manage exception conditions.

Controlling Access to NetView DM for MVS Facilities

NetView DM for MVS provides user exit routines to extend its security facilities. Installations where the Resource Access Control Facility (RACF) is used can take advantage of this exit routine to implement their own exit routines to perform, in addition to what is provided by NetView DM for MVS, an extended checking of the authorizations of the various users to log on to GIX or IOF, and to use the batch utilities.

The submission authorization exit routine is available when you submit a plan addressing LU 6.2 nodes. A user application program can ensure that the requested transmission function is authorized on specific resources to specific nodes.

Controlling Network Definition

The network changes exit routine is called (if defined when you customized NetView DM for MVS) when nodes are defined, changed, or deleted in the NetView DM for MVS distributed resource directory. The network changes exit routine is invoked when operations on nodes are performed by the GIX operator, or the batch utilities. This allows a user application program to keep its own network database synchronized with the NetView DM for MVS network definition.

Problem Determination

NetView DM for MVS provides a set of tools that you can use to diagnose problems.

Trace Tools

The following trace tools help isolate the cause of problems that might occur during TCP operation.

Storage Trace

The storage trace uses an improved trace table that is printed into the SNAP data set when an abend occurs. This type of trace is active during a run of the TCP.

GTF Trace

This trace is written into the generalized trace facility (GTF) data set, if GTF is active. The GTF trace is not active at TCP startup. You can activate it by entering an appropriate command from the system console. You can also use selection criteria for the trace, so that only certain events are recorded in the GTF data set. The system operator can request deactivation of the GTF trace.

SNAP Trace

This trace is written into a SNAP data set. As with the GTF trace, the SNAP trace is not activated at TCP startup time. It is activated and
SPMF Feature

deactivated by the system operator. Options can be specified in the activation request, to limit the trace activity to some TCP tasks. The events handled by this trace are different from those handled by the storage trace and the GTF trace.

Environmental Diagnostic Aids

These are diagnostic aids that are not part of NetView DM for MVS. You can use them, however, to diagnose a NetView DM for MVS problem. They are as follows:

- VTAM buffer, I/O trace, and the TCAM program interface utility, which you use to analyze the data that NetView DM for MVS has sent or received.
- VSAM utility, for printing NetView DM for MVS VSAM files. For instance, you can use a printout of the NetView DM for MVS TCF to see if there is something wrong in the file.

Formatted Printout of Control Blocks in Dumps

In the event of an abnormal termination, NetView DM for MVS prints those control blocks that will be useful for debugging at the beginning of the dump.

Keyword String

The NetView DM for MVS Diagnosis book explains how to build a keyword string that you then use to see whether a solution for a problem already exists. The book also tells you what information you should have available when contacting the IBM Support Center.

The SPMF Feature

The Software Profile Management Facility (SPMF) is a feature of NetView DM for MVS Release 6.1 that supports the system administrator in the task of managing software distribution and change management in a large network of workstations. SPMF enables you to distribute software and manage changes to large numbers of workstations as if there were only a few. It provides productivity functions that enable you to manage groups of workstations and products as single entities.

One of the most common problems in distributing software to many workstations is how to keep track of the software already installed and decide which workstations within an enterprise needs a certain level of software. For example, you might already have distributed an application to a subset of workstations in your enterprise and now you want to be able to distribute the same application to the rest of the enterprise, without having to know which workstations already have the application installed. You might also want to distribute an updated version of an application to workstations that are already running the base application, without having to know where the base application is currently running.

SPMF is designed specifically for users who need to manage different, frequent software changes to different groups of workstations, a process which can be time consuming and error-prone in a large network. SPMF simplifies and automates the management of software changes for any size environment, using the concept of workstation profiles.
Workstation Profiles

Using the SPMF feature, you group change files into a higher level entity, the software functional package, and you group packages into another, yet higher level entity, the node software profile.

You can define this grouping to suit your needs, and SPMF ensures that the target workstations are maintained at the level you define, as you change that definition over time.

In this way, you manage workstation software based on the role that the workstations play within the enterprise, rather than having to manage the individual software. This approach assumes that a network is composed of large numbers of end users who can be organized into logical, functional groups. For each of these groups, you define a single profile that describes the primary function of that group of workstations. You can describe many workstations using a relatively small number of profiles. If workstations also have secondary functions, you can also associate more than one profile to a workstation.

SPMF is most beneficial when the workstations in an enterprise can be described by a relatively small number of profiles, as it is then easier to maintain the network. The number of profiles depends on the number of different types of workstations in the network. Workstations that have the same functions share the same profile. The software contained in the profile is installed and maintained for each workstation that has the same function. Profiles make it possible to manage software for thousands of workstations efficiently.

You may also need to manage some software outside of profiles. SPMF also provides functions to distribute and manage individual software packages and change files to any workstation or group of workstations. This flexible approach means that you can define the primary functions of a workstation in a profile and then distribute additional packages or change files as required.

Automatic Plan Generation

With SPMF you can use all the distribution functions of NetView DM for MVS. When you are ready to distribute, the SPMF dialogs guide you through the options that you can use, depending on the functions you select.

You can then focus your attention on distributing change files, packages, and profiles to a large number of nodes, selectable by means of the powerful node selection criteria tool.

Based on your selections, SPMF automatically generates a complete NetView DM for MVS transmission plan to update the software in your network. SPMF optimizes the numbers of objects to be distributed and installed and the number of workstation restarts required, taking into account:

- The client/server relationships in the managed networks
- The network configuration, including multitiered connections
- The time zones of the target workstations
- Grouping of targets and resources automatically at distribution time
- Distribution windows that you specify
With automatic plan generation, you are not obliged to prepare complex transmission plans; rather, your full attention can be given to deciding what to distribute and where to distribute it.

The plan generation dialog guides you through the steps of creating a plan. If you select a function to be executed, you are prompted with functions that should logically be performed next in sequence. For example, if you request an Install action, the next action that you need is Activate (not Remove or Accept). If you request an Activate action, there is no logical follow-on function for you to request.

NetView DM Easy Preparer for OS/2
You can prepare change files to use in SPMF using NetView DM Easy Preparer for OS/2 (NetView DM EasyPrep). This product complements the functions of NetView DM/2 to improve the processes of the preparation site, that is, the tasks that a system administrator must perform to prepare software objects for distribution and installation.

NetView DM EasyPrep provides a front-end to NetView DM/2 that makes the preparation steps easier and more automated. Using NetView DM EasyPrep together with SPMF, you can synchronize DB2/2 and MVS DB2 databases containing configuration data and software package definitions.

Use of a DB2 Relational Database
SPMF provides all the advantages of working in a relational database environment, since SPMF data is stored in a DB2 database. You can write your own SQL queries to build your own reports and control the network.

ISPF Workstation-Based Interface
SPMF exploits all the capabilities offered by ISPF Version 4 Release 1, supporting a workstation-based interface. Usability of the SPMF interface is improved; you can use features such as pop-up menus, check boxes, scroll bars, and point-and-click.

Dynamic Node Grouping
With the SPMF feature you can organize your network topology in nodes, groups, supergroups, and categories. You can combine these entities to identify the right group of workstations for a distribution. You can select a group either when you define the topology, or when you set up a distribution.

SPMF Node Autoregistration
This function allows a new client to be automatically defined in the DB2 tables (with the SPMF feature installed only) when it registers itself to the server, or a server defines it locally.

SPMF Remote Node Definition
This function complements SPMF node autoregistration. It allows you to define any node in the network, and to reflect this definition in the local server catalog.
SPMF Transmission Plan Generation
A more flexible transmission plan is now automatically generated when SPMF feature is installed. If a SEND or an INSTALL is requested for a SFP/NSP with all the change files already sent or installed, the send or install status of the SFP/NSP is automatically updated in the database, in the tables containing the node-software relationship.

SPMF DB2 Table Cleaning Facility
This facility allows you to clean up the DB2 tables in an efficient way. You can, for example, delete resources from the repository and, at the same time, delete the related history from the DB2.

SPMF Procedure Enabling
This function allows you to schedule a procedure from SPMF in a flexible way. You can, for example, specify an input procedure data field up to 256 characters.

Fanout Support
Fanout enables you to send only one copy of software to an intermediate node, to be copied and forwarded to more than one CC server or CC single node that can be reached through that intermediate node.

Distribution Time Windows
With windowing you specify periods of time, recursive if desired, for transmission activities to occur. For example, a software installation can start on Monday at 9 a.m. and run until 11, go through a checkpoint, restart on Tuesday at 11 a.m., and finish at 11:30. You can also define a cut-off time to establish a time limit for the distribution.

Windows are specified at the plan level and apply to each phase and function in the plan. When time windows expire, the plan is interrupted until the next time window opens, at which time the plan is resumed. Time windows can be specified according to either the time of the sending NetView DM for MVS system, or the local time of the target group. In the latter case, each target in the group must be in the same time zone.

Installation in Service or Active Areas
You can install software in either the service or active areas. By installing software in the service area, you can distribute and install software at one time and activate it later.

Resending and Reinstalling Software
You can resend previously sent software, and reinstall software that is already installed. This is useful, for example, to resynchronize the software installation status between the SPMF database and the local catalog.
Conditioning by LAN

If an installation phase is conditioned on a successful send phase, it will start only when the send phase has completed successfully for every CC server and CC single node in the target group. However, if the SPMF feature is installed and you let SPMF generate the plan, SPMF automatically starts the installation phase for each CC single node and for each CC client managed by a CC server as soon as its send phase has completed successfully. This avoids blocking the installation phase for all targets in the group when, for example, one of them is not active.

Also, SPMF tracks the completion of the distribution at the end of the phase. This allows you to work with those nodes already completed, without waiting for the entire completion of the plan.

Managing Prerequisites and Corequisites

SPMF enables you to specify prerequisite and corequisite relationships between change files associated to the same package or profile, or between packages associated to the same profile. This is especially useful for complex software installation, when a package must be installed together with, or after, other packages.

You can specify change files within a package to be prerequisites of each other, and you can specify packages within a profile to be prerequisites of each other.

Automatic plan generation constructs plans to activate change files when necessary. For example, assume that change file 1 is installed in the service area and change file 2 is installed in the active area, and that you choose to specify change file 3 to be a prerequisite of both change files 1 and 2. In this case, change file 1 must be installed in the active area before change file 3 can be installed. If corequisites are specified, these will be installed together in a group (as usual, in the order that you specified).

Monitoring and Controlling Transmissions

SPMF enables you to run a set of operation control functions from its dialog, in parallel with other users. You can track the results of the distribution and installation as SPMF receives reports from the network. You can:

- Apply selection criteria by function status, by node, or by object
- Hold or release phases
- Delete or reset your plan, or only part of your plan

You can do this monitoring using the SPMF interface without having to switch to IOF, and without having to rely on messages.

SPMF provides new error messages that explain the source of a problem when a client or server exception is detected.

Customization Dialog

You can install and customize SPMF using an ISPF panel-based dialog. Context-sensitive online help has been added for the customization dialog.
SPMF Command Line

A TSO command line interface (CLI) allows you to use the functions implemented by SPMF. For example, using the command line you can create software objects, like packages and profiles, assign these objects to nodes, and distribute them in the network without logging on to SPMF. The CLI allows you to invoke SPMF from customized REXX program, or from batch jobs, in order to automate the SPMF process.

Other Major Features of NetView DM for MVS

Other major features of NetView DM for MVS are:

- Message routing to NetView
- Automation control
- Support of multiple focal points

Message Routing to NetView

Because NetView DM for MVS can run on a system where NetView is used, in many cases the NetView operators need to be able to monitor specific TCP messages at their consoles. User-selected TCP messages can be routed to the NetView console for display or can be used as input to trigger the processing of NetView command lists.

Automation Control

An extended set of modify commands, to control NetView DM for MVS from a system console or a NetView console, is available. You can use these commands to:

- Start transmission.
- Display information about the status of a node and the active transmission requests for the node.
- Hold transmission for a single node, a group of nodes, or a phase for a specific node (referred to as a phase by node).
- Release transmission for a single node, a group of nodes, or a phase by node.
- Quiesce transmission.
- Display the progress of transmission activities for a node. You can display the status of the node and also details of active transmission requests for the node. For each active transmission request, NetView DM for MVS displays the number and percentage of resource bytes that have been transmitted.
- Hold all the nodes belonging to an LU and the transmission related to the node.
- Immediately interrupt any phase or NSR that NetView DM for MVS is executing for any node belonging to a LU and hold the nodes.
- Release all the nodes belonging to an LU that are held either by a MODIFY command or by the system if the TCP loses contact with the node.
- Delete all transmissions for a phase by node.
- Delete an NSR.
Major Components

Support of Multiple Focal Points

To respond to particular company organizational needs, large network installations can be split into several distribution management locations, each acting as the focal point for a part of the network. Each focal point distributes objects to its own nodes in the network.

In this type of environment you might need to send resources stored in the resource repository at one focal point to another focal point. NetView DM for MVS provides functions to establish links, in a peer-to-peer communication, between focal points. Each NetView DM for MVS at a host has both the role of focal point for its own nodes and the role of entry point for another NetView DM for MVS host system.

This capability, called NetView DM for MVS Transfer (NDMT), allows a quick exchange of objects between distributed and departmental networks sharing common information.

Major Components

This section describes the main functions performed by each of the major NetView DM for MVS components.

Base Components

The base components are:

- **Generalized Interactive Executive (GIX)**
  
  GIX provides an online interface where you can perform administration and data distribution and change control tasks, as follows:
  
  - Define or modify the network
  - Define or modify transmission plans stored in the plan library
  - Check the consistency of the specifications contained in the plans
  - Submit the plans for execution by the TCP
  - Track the progress and results of the plan execution
  - Load or unload resources to or from the resource repository
  - Define user authorization profiles
  - Print reports
  - Monitor and control the TCP operations

  A few of these functions are performed by the Batch Utilities, which are automatically invoked by GIX.

- **Batch Utilities**

  The Batch Utilities constitute a batch interface that, in addition to the functions available in GIX, provides facilities for maintaining the NetView DM for MVS system files, and for migrating the contents of the DRD, the resource repository, and the plan library.

- **Base Programming Interface**

  For a description of the base programming interface, see “Application Programming Interfaces” on page 17.

- **Transmission Control Program (TCP)**
The TCP executes the transmissions according to the instructions stored in the TCF. These instructions may have originated from transmission plans submitted through GIX or Batch Utilities, from NSRs received from the nodes.

When transmission is complete, the TCP stores the results of the transmission in the TCF (for example, the return code and the number of bytes transmitted). If requested, the TCP also stores tracking information in the DRD, for example, the date and time of installation, or whether the function executed was an installation function.

The TCP transmission activity can be monitored and controlled through an interactive interface called the interactive operator facility (IOF). GIX also provides some monitoring and control facilities.

**Service Provider**

The service provider is a function of NetView DM for MVS that you can choose to install at your option.

The service provider is a VSAM interface. It issues VSAM requests against NetView DM for MVS files in response to requests from GIX, Batch Utilities, and TCP. The NetView DM for MVS files are the TCF, DRD, and resource repository (the holding file and library).

The service provider improves VSAM I/O performance because it works in a separate address space. Without the service provider, these files are normally shared by the NetView DM for MVS components running in different address spaces. Having all the I/O requests issued by a single address space allows the files to be accessed with the VSAM SHAREOPTION set to (2 3), which means that data sets can be accessed by any number of address spaces for read processing and by one address space for write processing. This results in a substantial improvement in I/O performance.

**Sysplex support** Each component of NetView DM for MVS Release 7 can run in a separate OS/390 Parallel Sysplex, by implementing the XCF cross system communication protocol and SMSVSAM for sharing VSAM files.

This means that, for example, TCP, GIX, SPMF and BU can be run simultaneously in different OS/390 partitions of the same Sysplex.

To take advantage of this facility, SMSVSAM must be configured and activated, and the appropriate options selected in the installation and customization phases.

**Warning:** If you attempt to run different modules of NetView DM for MVS in different OS/390 partitions of the same Sysplex without configuring and activating SMSVSAM, there is a risk of data corruption. However, if you run all modules of NetView DM for MVS in the same Sysplex partition, there is no need to activate SMSVSAM.

**Optional Features**

The optional features are:

- **Software Profile Management Facility (SPMF)**
  For a description of SPMF, see “The SPMF Feature” on page 20.

- **SPMF Command Line Interface (CLI)**
  For a description of SPMF CLI, see “SPMF Command Line” on page 25.
**Distribution Control Interface (DCI)**

You install and use the DCI only if you install SPMF. Using the DCI, you can:

- Hold or release transmission for nodes
- Hold or release nodes
- Display phases that are running
- Display the status of transmission

A typical NetView DM for MVS installation may contain one TCP, several instances of GIX, Batch Utilities, running concurrently in different address spaces under the control of the same operating system.

You can also install multiple TCPs on the same system to split the network into a number of subnetworks, for example, production and test.

The Distribution and Change Control Application Programming Interface (D&CC API), is no longer supported or delivered as part of the product.

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**System Files**

This section provides an overview of the type of information and data contained in the NetView DM for MVS system files.

- **Distributed Resource Directory (DRD)**
  
  The DRD contains the following type of information:
  
  - Definitions of the NetView DM for MVS nodes, such as the node name and node type.
  - Definitions of the authorization profiles for the various NetView DM for MVS users, for example, authorization to prepare plans for a specific node type.
  - Resource history records that show when a resource was sent, installed, or deleted at the nodes. These records allow for the tracking of the various versions of software or microcode that are sent to a node over time.

- **Plan Library**

  The plan library is the repository where the plans defined by the user are stored. Plans stored in the plan library can then be submitted for execution by the TCP. Plans stored in the plan library can also be used as templates to be modified to build new plans.

- **Transmission Control File (TCF)**

  The TCF contains the following type of data:
  
  - Specifications of the transmission to be performed by the TCP. These can originate from the plans that are submitted for execution, and from the requests that the TCP has received from the nodes (NSRs).
  - Results of the transmissions, for example, whether or not the transmission was successful, the transmission return code, and the number of bytes transmitted.

- **Resource Repository**

  The resource repository holds all of the resources that are to be sent to, or that have been received from, the nodes.
• Request Queue File (RQF)

The RQF is used by GIX and Batch Utilities to inform the TCP that, for example, plan ABC has been submitted, or phase XYZ of plan ABC is to be deleted.

Nodes

NetView DM for MVS supports a variety of nodes, including workstations, computers, and subsystems equipped with NetView DM for MVS counterpart programs. For a complete list of the hardware and software supported by NetView DM for MVS, see Appendix A, “Installation Requirements” on page 41.

The nodes that constitute the network to be managed by NetView DM for MVS must be defined to NetView DM for MVS by a symbolic name. This name is used by NetView DM for MVS to refer to the node. In addition to the symbolic name, these nodes must also be qualified by a node type, which generally relates to the operating system or other specific characteristics of the node. For some nodes, the node type is established by NetView DM for MVS. For other nodes, the user must define the node type. These are called user-defined node types.

User-defined nodes communicate with NetView DM for MVS using the SNA LU 6.2 transmission protocol. These nodes are referred to as LU 6.2 nodes.

The functional capability, which is an attribute that must be specified when defining a node type for an LU 6.2 node, defines whether the nodes associated with this node type are capable of acting as a Change Management Focal Point (CMFP), a Change Management Entry Point (CMEP), or as a NetView DM for MVS Transfer (NDMT) node.

LU 6.2 nodes based on the same hardware or software can be assigned to different node types. This means that you can define different node types to support different sets of commands (for example, IBM PS/2 clients and servers in a local area network connected to NetView DM for MVS). It may also be convenient to define two different node types (for example, TYPA and TYPB) for two different groups of IBM PS/2s that run different applications, so that a person can be authorized to prepare and submit plans for only those nodes whose type is TYPA.

Nodes that use an LU 0 SNA protocol have an established node type. These nodes are referred to as LU 0 nodes.

Nodes can be organized into node groups to save time when defining transmission plans. For LU 6.2 nodes with either CMEP or CMFP functional capabilities, groups of nodes with different node types are supported.
Chapter 3. Managing Multiple Servers

This chapter describes how you can perform software and data distribution and change control centrally using NetView DM for MVS in hierarchical networks, composed of the following:

- Microsoft Windows workstations, in conjunction with TME 10 Software Distribution Version 3.1.5 for Windows
- OS/2 workstations, in conjunction with TME 10 Software Distribution Version 3.1.5 for OS/2
- An IBM RISC System/6000 distributed TCP/IP environment, in conjunction with TME 10 Software Distribution Version 3.1.5 for AIX
- An environment of NetWare requesters and servers, in conjunction with TME 10 Software Distribution Version 3.1.5 for NetWare
- An IBM AS/400 distributed nodes environment, in conjunction with IBM SystemView Managed System Services/400

Table 1 shows the change control support provided in each of these kinds of networks.

<table>
<thead>
<tr>
<th>Product</th>
<th>CC server</th>
<th>CC intermediate node</th>
<th>CC single node</th>
</tr>
</thead>
<tbody>
<tr>
<td>TME 10 Software Distribution Version 3.1.5 for Windows</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>TME 10 Software Distribution Version 3.1.5 for OS/2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>TME 10 Software Distribution Version 3.1.5 for AIX</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>TME 10 Software Distribution Version 3.1.5 for NetWare</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>IBM SystemView Managed System Services/400 for NetWare</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Advantages of a Centrally Managed Network

Figure 2 on page 32 shows a network managed centrally using NetView DM for MVS.

A centrally managed system using NetView DM for MVS enables the following change management functions to be run from a central site across the enterprise's network:

- Management of a central library (or repository) of change files
- Data collection from CC servers and CC clients for onward distribution to any other servers and clients
Managing Multiple Servers

- Advanced planning and execution of software installation, updates, and fixes to avoid overloading lines at peak periods
- Execution of sequencing, conditioning, and scheduling operations
- Maintenance of change control history records, data distribution, and transmission operations
- Remote execution of user applications on any of the workstations in the network

Transmission of data can be scheduled on a regular basis. NetView DM for MVS allows conditional execution of distribution and change control functions based on the value of the transmission return codes. For example, the enterprise CC
administrator can request conditional execution of a set of functions based on the result of the preceding set of functions.

In addition to the facilities provided by NetView DM for MVS, users can take advantage of the central control functions provided by NetView DM for MVS for sequencing, conditioning, and tracking change control operations. Users can write applications to submit transmission requests to one or several targets, receive the results as reports, and implement their own sequencing rules.

The results of any change control activity by a remote user at a CC server, CC client, or a CC single node are reported back to the managing system to provide tracking and central control across the entire network.

**Change Management Planning and Scheduling**

NetView DM for MVS enables the enterprise CC administrator to create plans, which contain the sequencing, conditioning, and scheduling instructions to be carried out on the data and the change files that are to be distributed and installed.

The enterprise CC administrator can either write an application or use the NetView DM for MVS user interface to:

- Prepare and submit plans to be executed by NetView DM for MVS
- Schedule plans already defined in NetView DM for MVS
- Load or unload data and change files into or from the NetView DM for MVS resource repository

**Support of Multiple Managing Systems**

The use of several focal points located in different parts of the organization provides some advantages.

With multiple managing systems you can manage a large network as a number of smaller networks, each with its own managing system. Each managing system distributes data and change files to the CC servers in its part of the network, and installs change files on the CC clients in the CC domain of each CC server.

NetView DM for MVS provides peer-to-peer communication between focal points to facilitate the exchange of data between them.

Figure 3 on page 34 illustrates this type of network.
Figure 3. Network with Multiple Focal Points
Chapter 4. Software Distribution Using the SPMF Feature

This chapter provides scenarios that illustrate how the SPMF feature of NetView DM for MVS can be used to automate centralized software and data distribution and change control.

Installing and Updating an Application

This scenario illustrates how you can use SPMF to distribute software. It shows you how to create a new SPMF package that contains a user application, install the application at branch nodes, and then update the package. You assign an update level of the application to the package and install the package on a group of workstations, some of which are already running the application.

The objective of this scenario is to show how SPMF manages the installation of packages that contain different levels of the same application. SPMF checks the current level that is actually running on a workstation in advance, so that only the software level needed by the workstation is installed.

In this scenario, the organization consists of a central site host running NetView DM for MVS Release 6.1 with the SPMF feature. A workstation running NetView DM/2 acts as a preparation site. The user at the preparation site prepares the software to be distributed and installed.

The network consists of just one branch with one workstation acting as change control (CC) server and six workstations acting as change control (CC) clients.

Figure 4 on page 36 illustrates the environment at a single branch and the steps that take place in this scenario.

Follow these steps to install and update the application:

Note: You can use the dialog or the command line to complete all the steps in this scenario.

Step 1. Retrieve the change file called CORP.LOTUS123.REF.110 containing the Lotus**1-2-3** application from the preparation site.

Step 2. Define a package called LOTUSPKG at level 1.

Step 3. Assign the change file you retrieved to the LOTUSPKG package.

Step 4. Lock the package before installing it.

You lock the package in order not to allow any other changes to the package before distribution.

Step 5. Install the LOTUSPKG package at level 1 at the following CC client workstations:

- CLIENT1
- CLIENT2
- CLIENT3
- CLIENT4
You can specify the date and time when you want the distribution to take place, and also that the package is to be installed at the target workstations.

Step 6. Retrieve a second change file containing an update to the Lotus 1-2-3 application from the preparation site. This change file is called CORP.LOTUS123.UPD.110.111.

Step 7. Add a new level to LOTUSPKG.

Step 8. Assign the updated change file CORP.LOTUS123.UPD.110.111 to the LOTUSPKG package at level 2.

Step 9. Lock the package before you can distribute and install it.
Step 10. Install the package at level 2 at the following CC client workstations:

- CLIENT1
- CLIENT2
- CLIENT3
- CLIENT4
- CLIENT5
- CLIENT6

The results of the installation are as follows:

- The change file CORP.LOTUS123.UPD.110.111 is installed on the CC client workstations CLIENT1, CLIENT2, CLIENT3, and CLIENT4.
- The change files CORP.LOTUS123.REF.110 and CORP.LOTUS123.UPD.110.111 are installed on the CC client workstations CLIENT5 and CLIENT6.

---

**Organizing the Enterprise into Groups and Profiles**

This scenario shows you how to divide the workstations in the network into logical and functional groups: managers, employees, and secretaries. For each of these groups, you define a single profile that describes the primary function of the group of workstations. You can then install software based on profiles that identify all of the workstations in the enterprise.

Figure 5 on page 38 illustrates the environment at a single branch and the steps that take place in this scenario.

The scenario consists of the following steps:

**Note:** Apart from the first step, you can use the dialog or the command line to complete the steps in this scenario.

Step 1. Define groups of workstations according to the role that the workstations play in the enterprise. Table 2 shows the groups that you define:

<table>
<thead>
<tr>
<th>Workstation</th>
<th>Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIENT1</td>
<td>MGRGRP</td>
<td>Group of workstations used by managers</td>
</tr>
<tr>
<td>CLIENT2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLIENT3</td>
<td>SECGRP</td>
<td>Group of workstations used by secretaries</td>
</tr>
<tr>
<td>CLIENT4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLIENT5</td>
<td>EMPLGRP</td>
<td>Group of workstations used by employees</td>
</tr>
<tr>
<td>CLIENT6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 2. Retrieve change files from the preparation site and assign them to packages, as shown in Table 3:
Figure 5. Organizing the Enterprise into Groups and Profiles
Organizing the Enterprise into Groups and Profiles

Step 3. Define the following profiles:

- MANAGER
- SECRETARY
- EMPLOYEE

The profiles are now at level 1 with a status of PENDING.

Step 4. Assign the packages to profiles, as shown in Table 4:

Step 5. Lock and install the profiles on the workstation groups, as shown in Table 5.

You lock the profiles in order not to allow any other changes to the profile before distribution.

The results of the installation are as follows:

- The change file CORP.PERSONNEL.REF.100 is installed on the CC client workstations MANAGER1 and MANAGER2.
- The change file CORP.SPACEMON.REF.100 is installed on the CC client workstations CLIENT3, CLIENT4, and CLIENT5.
- The change file CORP.TELNOS.REF.100 is installed on the CC client workstation CLIENT6.
- The LOTUSPKG package at level 2 is not installed during this distribution because the level of the package did not change. The package was already installed in “Installing and Updating an Application” on page 35.

### Table 3. Relationship between Change Files and Packages

<table>
<thead>
<tr>
<th>Change File Name</th>
<th>Package Name</th>
<th>Description</th>
<th>Package Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORP.LOTUS123.REF.110</td>
<td>LOTUSPKG</td>
<td>Lotus 1-2-3 applications</td>
<td>2</td>
</tr>
<tr>
<td>CORP.LOTUS123.UPD.110.111</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORP.PERSONNEL.REF.100</td>
<td>PERSONNELPKG</td>
<td>Personnel evaluation programs</td>
<td>1</td>
</tr>
<tr>
<td>CORP.TELNOS.REF.100</td>
<td>TELPKG</td>
<td>Corporate telephone book (flat file)</td>
<td>1</td>
</tr>
<tr>
<td>CORP.SPACEMON.REF.100</td>
<td>REXXPKG</td>
<td>Space monitor procedure</td>
<td>1</td>
</tr>
</tbody>
</table>

### Table 4. Relationship between Packages and Profiles

<table>
<thead>
<tr>
<th>Package Name</th>
<th>Profile Name</th>
<th>Description</th>
<th>Profile Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERSONNELPKG</td>
<td>MANAGER</td>
<td>Identifies manager workstations</td>
<td>1</td>
</tr>
<tr>
<td>TELPKG</td>
<td>SECRETARY</td>
<td>Identifies secretary workstations</td>
<td>1</td>
</tr>
<tr>
<td>REXXPKG</td>
<td>EMPLOYEE</td>
<td>Identifies employee workstations</td>
<td>1</td>
</tr>
<tr>
<td>LOTUSPKG</td>
<td>MANAGER</td>
<td>All profiles</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>SECRETARY</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EMPLOYEE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5. Profile Installation

<table>
<thead>
<tr>
<th>Profile Name</th>
<th>Installed On</th>
<th>Profile Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANAGER</td>
<td>MGRGRP</td>
<td>Complete</td>
</tr>
<tr>
<td>SECRETARY</td>
<td>SECGRP</td>
<td>Complete</td>
</tr>
<tr>
<td>EMPLOYEE</td>
<td>EMPLGRP</td>
<td>Complete</td>
</tr>
</tbody>
</table>

Chapter 4. Software Distribution Using the SPMF Feature
Appendix A. Installation Requirements

This appendix describes what you need in order to install NetView DM for MVS. It also includes information about the requirements for the associated node system hardware and software.

The versions and releases of products shown here are the minimum versions and releases that are supported. Subsequent levels are supported unless stated otherwise.

Machine and Programming Requirements

This section describes the hardware and licensed programs supported by NetView DM.

NetView DM runs on any IBM System/370 or System/390 host processor equipped with the operating systems and software described in this section.

MVS

You can install NetView DM for MVS Release 7 on any system that operates under MVS/SP Version 5, or OS/390 Version 1 or later, by using the System Modification Program Extended (SMP/E) Release 8 or later.

Installing certain options may require a higher level of base system; see the target system requirements specification in the NetView DM for MVS Base Program Directory.

VTAM

NetView DM runs on the following:

- ACF/VTAM Version 4 (5695-117) Release 1 or higher for MVS/ESA

Requirements for Generalized Interactive Executive (GIX)

The machine requirements for the generalized interactive executive (GIX) are as follows:

- A full-screen display device must be available for each operator who logs on to GIX.
- GIX operates with any of the display terminals supported by the IBM Interactive System Productivity Facility (ISPF), with a screen size of at least 24 lines and 80 columns. For color terminals, default colors are used.
- GIX allows the printing of hard copies on all the printers supported by ISPF (color support is not provided).
- GIX supports the Katakana feature of the IBM 3270 and IBM 3174 displays supported by ISPF.

The programming requirements for GIX are as follows:

- ISPF Version 3 (5685-054) Release 5 or higher for MVS
- If you want to access the ISPF/PDF primary option menu from the GIX master menu, ISPF/PDF Version 3 (5665-402) Release 5 for MVS is required.
Machine and Programming Requirements

- If you want to print GiX reports on a local printer, the JES/328X Print Facility Version 3 (5785-BAZ) or Version 2 (5785-BAC) is required.

Requirements for Interactive Operator Facility (IOF)

The machine requirements for the interactive operator facility (IOF) interface are as follows:

- IOF requires a display station capable of displaying at least 24 lines and 80 columns that can be attached to IBM 3274 or 3174 (all models) Control Units (or equivalent). For color terminals, default colors are used.
- The Katakana feature of the IBM 3270 and IBM 3174 Displays is supported.
- To take advantage of the copy function provided by IOF, a printer must be attached to the IBM 3274 or 3174 Control Units (or equivalent). Color is not supported.

IOF can be accessed by an operator using any of the following programs:

- TME 10 NetView (5697-B82) for OS/390
- NetView Version 3 (5655-007) for MVS/ESA

Selected messages originating from the TCP can be routed to NetView.

Requirements for Software Profile Management Facility (SPMF)

The machine requirements for the Software Profile Management Facility (SPMF) are as follows:

- A full-screen display device must be available for each operator who logs on to SPMF.
- SPMF operates with any of the display terminals supported by the IBM Interactive System Productivity Facility (ISPF), with a screen size of at least 32 lines and 80 columns. For color terminals, default colors are used.
- SPMF allows the printing of hard copies on all the printers supported by ISPF (color support is not provided).
- SPMF supports the Katakana feature of the IBM 3270 and IBM 3174 displays supported by ISPF.

The programming requirements for SPMF are as follows:

- Database 2 Version 2 Release 3, PUT level 12/93 or higher, or a higher version of Database 2.
- ISPF Version 3 (5685-054) Release 5 or higher.
- To take advantage of the OS/2 interface, ISPF Version 4 (5655-042) Release 1 or higher is required.
- If you want to print SPMF reports on a local printer, the JES/328X Print Facility Version 3 (5785-BAZ) or Version 2 (5785-BAC) is required.
Requirements for SPMF Command Line Interface

To use the SPMF command line, you need the Language Environment (5688-198) for MVS, Release 4 or higher.

Requirements for Installation Dialog

The machine requirements for the installation dialog are as follows:

- A display terminal supported by the IBM Interactive System Productivity Facility (ISPF), with a screen size of at least 32 lines and 80 columns. For color terminals, default colors are used.
- The dialog supports the Katakana feature of the IBM 3270 and IBM 3174 displays supported by ISPF.

The programming requirements for the dialog are as follows:

- ISPF Version 3 (5685-054) Release 5 with PTF OW07719 installed, or a higher version of ISPF.
- If you want to print on a local printer, the JES/328X Print Facility Version 3 (5785-BAZ) or Version 2 (5785-BAC) is required.

Important

To implement the code page translation, you need the following software programs installed:

- DFSMS Release 2 for MVS (5695-DF1) with PTF UW90206 installed, or higher.
- Language Environment Release 4 (5688-198) for MVS or higher.

Requirements for Sysplex support

The machine requirements for Sysplex support are as follows:

- DFSMS for MVS, Release 3 or higher

Requirements for Extended Addressability

The machine requirements for Extended Addressability are as follows:

- DFSMS for SMS, Release 5 or higher

Processors and Software Using LU 6.2 Protocols

This section lists the processors and software supported by NetView DM at the nodes. NetView DM communicates with these nodes using LU 6.2 protocols.

Processors Supported

NetView DM communicates with the following nodes using SNA/Management Services (SNA/MS), SNA/File Services (SNA/FS), and SNA/Distribution Services (SNA/DS) protocols, each of which uses the SNA LU 6.2 protocols:

- 3174 Subsystem Control Unit
Processors and Software Using LU 6.2 Protocols

- IBM AS/400 systems, connected to the host in one of the following ways:
  - Directly attached to the host
  - Connected to the host through an intermediate node

- Workstation systems, connected to the host in one of the following ways:
  - Directly attached to the host
  - Connected to the host through an intermediate node
  - In a NetBIOS LAN attached to the host
  - In a TCP/IP LAN attached to the host
  - In an IPX LAN attached to the host

- IBM RISC System/6000 processors, connected to the host in one of the following ways:
  - Directly attached to the host
  - In a TCP/IP LAN attached to the host

- Any workstations capable of running TME 10 Software Distribution Version 3.1.5 Server or Client

- Another NetView DM for MVS system directly attached

Software Supported
This section describes the software supported for each of the nodes listed in the previous section.

3174 Subsystem Control Unit
All models of the 3174 Subsystem Control Unit can participate in the licensed internal code distribution and installation support provided by NetView DM for MVS. The 3174 models 81R and 82R cannot be used as central site controllers, but can participate as network controllers. The required level of 3174 licensed internal code support is Release 4 or higher.

AS/400 System Directly Attached to Host
An AS/400 system can be directly attached to the host and communicate with NetView DM using LU 6.2 protocols, providing it has the following software installed:

- IBM Operating System/400 Version 2 (5738-SS1) Release 3
- IBM SystemView Managed System Services/400 Version 2 (5738-MG1) Release 3

or:

- IBM Operating System/400 Version 3 (5763-SS1) Release 1
- IBM SystemView Managed System Services/400 Version 3 (5763-MG1) Release 1
AS/400 System Connected to the Host through an Intermediate Node

Through an AS/400 system equipped with SystemView Managed System Service/400 acting as an intermediate node, NetView DM can communicate with another AS/400 system that has the following software installed:

- IBM Operating System/400 Version 2 (5738-SS1) Release 3
- IBM SystemView Managed System Services/400 Version 2 (5738-MG1) Release 3

or:

- IBM Operating System/400 Version 3 (5763-SS1) Release 1
- IBM SystemView Managed System Services/400 Version 3 (5763-MG1) Release 1

Through a workstation functioning as an intermediate node equipped with TME 10 Software Distribution Version 3.1.5 NetView DM can communicate with an AS/400 system that has the following software installed:

- IBM Operating System/400 Version 2 (5738-SS1) Release 3
- IBM SystemView Managed System Services/400 Version 2 (5738-MG1) Release 3

or:

- IBM Operating System/400 Version 3 (5763-SS1) Release 1
- IBM SystemView Managed System Services/400 Version 3 (5763-MG1) Release 1

Workstations Fulfilling the CC Server Role

NetView DM supports workstation nodes fulfilling the CC Server role described in Chapter 1, “Introducing NetView DM for MVS” on page 1. These workstations can be of the following types:

- Stand-alone workstations connected directly to the host
- Workstations functioning as an intermediate node between the host and a software distribution server
- Software distribution servers connected either directly to the host or via an intermediate node.

Communications protocols available for connecting CC Servers to the host depend on the operating system of the CC Server.

The following operating systems are supported:

**Windows 2000**

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 for Windows 2000
- Microsoft Windows 2000 Professional or Server
- Communications Server Version 6.1 or higher

**Windows NT**

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 for Windows NT
- Microsoft Windows NT 3.51 or 4.0 (Service Pack 5 or 6A)
Processors and Software Using LU 6.2 Protocols

- One of the following:
  - Communications Server Version 5.0.1 or higher
  - Personal Communications, Version 4.3 or higher
  - SNA Server 4.0, SP 3 or higher.

**OS/2 Versions 3.0x — 4.0**

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 for OS/2
- OS/2, Warp 3.0x — Warp 4.0
- One of the following:
  **NetBIOS**  Multiprotocol Transport Services (MPTS) 1.0 or later (LAPS level WR08000)

  NetBIOS resources required on an OS/2 distribution server are 25 sessions, 25 commands, and 2 names.

- **TCP/IP**  IBM TCP/IP for OS/2; the version required depends on the level of MPTS/LAPS installed:

<table>
<thead>
<tr>
<th>MPTS/LAPS level</th>
<th>TCP/IP Version to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>WR08210</td>
<td>3.x</td>
</tr>
<tr>
<td>WR08415</td>
<td>4.0</td>
</tr>
<tr>
<td>WR08600</td>
<td>4.1</td>
</tr>
</tbody>
</table>

- **IPX/SPX**  Novell NetWare Requester 2.10 or later

- **APPC**  Communications Server 4.1 or later or Personal Communications 4.1 or later.

**OS/2 Version 4.5**

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 for OS/2
- OS/2, Warp server for e-business 4.5
- With OS/2 4.5, the following resources are automatically installed as part of the Operating System package:

  **NetBIOS**  Multiprotocol Transport Services (MPTS) 5.5

  NetBIOS resources required on an OS/2 distribution server are 25 sessions, 25 commands, and 2 names.

- **TCP/IP**  IBM TCP/IP for OS/2 4.2.1

- **IPX/SPX**  Novell NetWare Requester 2.10 or later

  The following needs to be installed:

  **APPC**  Communications Server 5.0 or later.

**Note:**  For communication with TME 10 Software Distribution Version 3.1.5 for AIX over TCP/IP, IBM TCP/IP for OS/2 3.0 or later, is required on the distribution server.

**NetWare**

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 for NetWare
- NetWare Version 4.x
• NetWare for SAA Version 1.2B or 2.0 (if you want to use SNA communication)

If you are using NetWare for SAA 2.0, the Attach Manager must be dated November 15, 1995, or later. If your Attach Manager is older, apply the CSD issued by Novell on that date, which replaced the Attach Manager.

AIX

The software requirements for these workstations are as follows:

• TME 10 Software Distribution Version 3.1.5 for AIX
• The following AIX software:

  AIX Base Operating System (BOS)
  AIX Version 3.2.5 Extended or higher must be installed on a workstation before installing any TME 10 Software Distribution Version 3.1.5 options. Later versions must be backward compatible with Version 3.2.5 Extended. Version 4.3.3 is the latest version of the AIX operating system supported by TME 10 Software Distribution Version 3.1.5.

  AIX BOS Network Facilities (BOSNET) TCP/IP Option
  This facility must be installed on a workstation before installing the base option with the server option. More precisely, the bosnet.tcpip and the bos.net.tcp.client filesets must be installed.

  Data link control drivers
  You need suitable data link control drivers installed so that you can achieve remote communication. These drivers are supplied with the basic AIX operating system, as part of the BOSNET extension.

  The drivers that you need depend upon the physical link that you are using. There are drivers for Token Ring and SDLC.

  SNA Server/6000
  You need SNA Server/6000 Version 2.1 installed if your configuration includes an SNA network. SNA Services Version 1.2 at fix level 366 or higher can also be used for the same purpose.

  For AIX Version 4.3.3, Communications Server Version 5.0 should be used.

  NetView/6000
  You need NetView/6000 Version 2 or later, together with IBM AIX Service Point installed in the network if you intend to make use of the facility that routes SNA alerts from TME 10 Software Distribution Version 3.1.5 to NetView/6000 and then to NetView DM on the mainframe. To use this facility you must also have the BOSNET bosnet.snmpd fileset installed on TME 10 Software Distribution Version 3.1.5.
AIXwindows

You need AIXwindows Version 1.2, Motif 1.2, and the appropriate font support if you intend to install the graphical interface. For Motif 1.2, install PTF U424846, PTF U435138, and any other prerequisite PTFs.

In addition, you must also have the following filesets installed:

- **AIX 3.2.5**
  - x11rte.obj
  - x11rte.motif1.2.obj.1.2.3

- **AIX 4.x**
  - x11.base.rte
  - x11.motif.lib
  - x11.motif.mwm

Workstations Filling the CC Client Role

NetView DM supports workstation nodes fulfilling the CC Client role described in Chapter 1, “Introducing NetView DM for MVS” on page 1. These workstations will be connected in a LAN to a software distribution server, which itself will be connected to the host, either directly or through an intermediate node.

Communications protocols available for connecting CC Clients to the CC Server depend on the operating system of the CC Client and the CC Server.

The following operating systems are supported:

**Windows 2000**

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 Client for Windows 2000
- Microsoft Windows 2000 Professional or Server

**Windows NT**

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 Client for Windows NT
- Microsoft Windows NT 3.51 or 4.0 (Service Pack 5 or 6A)

**Windows 98 or Windows 95**

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 Client for Windows 9x
- Microsoft Windows NT 3.51 or 4.0 (Service Pack 5 or 6A)

**Windows 3.11**

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 Client for Windows 3.11
- Microsoft Windows 3.11
- One of the following:
  - MS-DOS 6.2 or later
  - IBM-DOS 6.3 or later
  - PC-DOS 7.0 or later
OS/2 Versions 3.0x — 4.5

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 Client for OS/2
- OS/2, Warp 3.0x — Warp Server for e-business 4.5

AIX

The software requirements for these workstations are as follows:

- TME 10 Software Distribution Version 3.1.5 Client for AIX
- The following AIX software:

  **AIX Base Operating System (BOS)**
  
  AIX Version 3.2.5 Extended or higher must be installed on a workstation before installing any TME 10 Software Distribution Version 3.1.5 options. Later versions must be backward compatible with Version 3.2.5 Extended. Version 4.3.3 is the latest version of the AIX operating system supported by TME 10 Software Distribution Version 3.1.5.

  **AIX BOS Network Facilities (BOSNET) TCP/IP Option**
  
  This facility must be installed on a workstation before installing the base option with the server option. More precisely, the bosnet.tcpip and the bos.net.tcp.client filesets must be installed.

  **Data link control drivers**
  
  You need suitable data link control drivers installed so that you can achieve remote communication. These drivers are supplied with the basic AIX operating system, as part of the BOSNET2 extension.

  The drivers that you need depend upon the physical link that you are using. There are drivers for Token Ring and SDLC.

  **NetView/6000**
  
  You need NetView/6000 Version 2 or later, together with IBM AIX Service Point installed in the network if you intend to make use of the facility that routes SNA alerts from TME 10 Software Distribution Version 3.1.5 to NetView/6000 and then to NetView DM on the mainframe. To use this facility you must also have the BOSNET bosnet.snmpd fileset installed on TME 10 Software Distribution Version 3.1.5.

  **AIXwindows**
  
  You need AIXwindows Version 1.2, Motif 1.2, and the appropriate font support if you intend to install the graphical interface. For Motif 1.2, install PTF U424846, PTF U435138, and any other prerequisite PTFs.

  In addition, you must also have the following filesets installed:

  - **AIX 3.2.5**
    - x11rte.obj
    - x11rte.motif1.2.obj.1.2.3
Processors and Software Using LU0 Protocols

This section lists the processors and software supported by NetView DM at the nodes. NetView DM communicates with these nodes using LU 0 protocols.

Processors Supported

The following processors are supported by NetView DM for MVS at the nodes:

- IBM systems running under VSE
- IBM AS/400
- IBM System/36
- IBM Personal System/2 (PS/2), Personal System/55 (PS/55), and personal computer (PC)
- IBM Store System Processors
- IBM RISC System/6000
- IBM processors running under DPPX/370

Software Supported

This section describes the software supported for each of the nodes listed above.

VSE

NetView DM communicates with IBM processors that have the following software installed:

- VSE/ESA Version 2 (5690-VSE) Release 1 or VSE/ESA Version 1 (5750-ACD)
- VSE/DSNX Version 2 (5686-041) Release 1

These products allow NetView DM for MVS to exchange VSE data, to support VSAM variable-length records, and to distribute microcode. Microcode can be distributed using VSE data sets and installed by initiating a remote procedure, making it possible to perform centrally controlled distribution and installation of 9371 licensed internal code (LIC) on 9371 VSE systems.

AS/400

To communicate with NetView DM using the LU 0 protocol supporting the compression/decompression feature, the AS/400 system must have the following software installed:

- IBM OS/400 Version 2 (5738-SS1)
- IBM AS/400 PC Support Version 2 (5738-PC1) (required for the IBM PC and PS/2 end node support)
PS/2, PS/55, and PC
NetView DM supports PS/2, PS/55, and PC nodes that have the following software installed:

- LAN Distributed Platform/Disk Operating System (LANDP/DOS) Version 2
- IBM DOS Version 5.0 or higher

or:

- LAN Distributed Platform/2 (LANDP/2) Version 2
- IBM OS/2 Version 2.0 or higher

or:

- IBM Personal Computer Node Manager (PCNM) Version 1.1
- IBM DOS Version 3.3 or higher, or IBM OS/2 Version 1.1 or higher

Note: VTAM Protocol Conversion Application (VPCA) (5785-GCL) Release 2 is required at the host to communicate with PCNM.

System/36
To communicate with NetView DM, the System/36 must be equipped with the following:

- For 5360 or 5362 system units:
  - System/36 System Support Program (SSP) Version 5 (5727-SS1) Release 1, with the SSP Communications feature
  - The Communications and System Management feature (required when the System/36 is directly connected to NetView DM for MVS)
  - Distributed Systems Node Executive – Network Distribution (5799-CQX) (required if the System/36 is an intermediate node, or connected through an intermediate node)
  - PC-Support/36 Version 5 (5727-WS1) Release 1 (required for the PC end node support)

- For 5363 and 5364 system units:
  - System/36 System Support Program (SSP) Version 5 (5727-SS6) Release 1, with the SSP Communications feature
  - The Communications and System Management feature (required if the System/36 is directly connected to NetView DM for MVS)
  - Distributed Systems Node Executive – Network Distribution (5799-CQY) (required if the System/36 is an intermediate node, or connected through an intermediate node)
  - PC-Support/36 Version 5 (5727-WS6) Release 1 (required for the PC end node support)

Store System Processors
NetView DM communicates with IBM 468x and 469x Store System Processors that have one of the following operating systems installed:

- IBM 4680 Operating System Version 2 (5601-192) Release 1 with APAR IR8187
- IBM 4680 Operating System Version 4 (5696-039) Release 1
Processors and Software Using LU0 Protocols

- IBM 4690 Operating System (5696-538)

**DPPX/370**
NetView DM for MVS communicates with DPPX/370 (5660-292).

To use NetView DM for MVS to perform centrally controlled distribution and installation of 9371 licensed internal code (level A83835 or higher) on 9371 DPPX/370 systems requires DPPX/370 Release 3 or higher.

**RISC System/6000**
NetView DM can use SNA LU0 protocols to communicate with an IBM RISC System/6000 processor that has the following software installed:

- IBM AIX Version 4.1 or higher
- IBM AIX NetView Host Command and Distribution Facility/6000 (5765-221)
- IBM Communications Server for AIX Version 4
Appendix B. Summary of Changes for NetView DM for MVS Release 6.2

NetView DM for MVS Release 6.2 contains the following enhancements:

- Year 2000 ready
- Plan priority
- Performance and usability enhancements

Year 2000 Ready

NetView DM for MVS Release 6.2, when used in accordance with its associated documentation, will correctly process, provide, and receive date data within and between the 20th and 21st centuries.

The external input date-year fields and the external output date-year fields on the product panels still have two digits, except for the date fields on the TCP Sysprint panels, which have been changed to include four digits.

Two-digit year fields are resolved as follows:

\[ YY < 70 \quad \text{------} \quad 20YY \]
\[ YY \geq 70 \quad \text{------} \quad 19YY \]

Plan Priority

With NetView DM for MVS Release 6.2 you can specify ten different priorities for the scheduling and processing of plans.

Phases that belong to a plan that is submitted have the same priority as the plan itself. The phases in the plan are scheduled and processed according to both the priority of the plan and the scheduling date and time that is specified for each phase.

If phases that belong to different plans have the same scheduling date and time, the phase that has the higher priority is processed first. If phases have the same priority, they are processed according to the scheduling date and time.

When plans are running, and a higher priority plan is submitted, the system does not interrupt the running phases. The phases belonging to the higher priority plan are processed as soon as the session that addresses the specific logical unit is available.

Performance and Usability Improvements

The performance and usability of the product has been improved in the following areas:

- Scheduling mechanisms have been improved to reduce CPU usage. Memory management has also been improved.
Performance and Usability Improvements

- SPMF list functions, especially those that involve the management of change files on the nodes, have been improved to reduce processing and response times.

- Usage of the space in the DB2 tables and management of the DB2 buffers:
  Each of the following tables has been split into two tables to enable you to organize the data better:
  - NVDM_PHASE
  - NVDM_PHASE_NODE
  - NVDMRESOURCE
  - NVDM_NSR_RESOURCE

  This splitting of the tables improves the management of the DB2 buffers and optimizes the use of space in the DB2 tables. In addition, the record lengths for these tables have been reduced to enable you to store more rows.

- Displaying submitted SPMF plans
  You can now use more selection criteria to query the units of work for submitted plans.

- Ability to change default parameters
  The NVDM_PARAMETER table has been created to enable you to customize the default parameters that appear in the SPMF panels.

- Reduction of required resources
  The NVDM_DTMUCKP table has been split into the following three tables:
  - NVDM_DTMUCK1
  - NVDM_DTMUCK2
  - NVDM_DTMUCK3

  The tables are now defined in buffer pool BP4K instead of BP32K, which reduces resources required by the application.

- Access to table space
  Simple table spaces have been replaced by segmented table spaces to improve access to the tables.

- DB2 usability
  The Owner keyword has been added to the bind package and plan jobs to improve usability.
Appendix C. Summary of Changes - NetView DM for MVS
Release 6.1

NetView DM for MVS Release 6.1 includes enhancements in the areas of operation, automation, usability, and functionality.

Improved Operation and Automation

You can control NetView DM for MVS directly from the system console using an extended set of MVS MODIFY commands. This means, for example, that NetView DM for MVS can be controlled from NetView. There are commands to perform the following tasks:

- Hold all the nodes belonging to a logical unit (LU) and the transmission related to the nodes.
- Immediately interrupt any phase or node-solicited request (NSR) that NetView DM for MVS is executing for any node belonging to a LU and hold the nodes.
- Release all the nodes belonging to a LU that are held either by a MVS MODIFY command or by the system if the transmission control program (TCP) loses contact with the node.
- Delete all transmissions for a phase by node.
- Delete an NSR.

NetView DM for MVS with SPMF feature provides three new functions that improve automation:

- SPMF node auto-registration
  A new node is automatically defined in the DB2 tables (with SPMF feature installed only) when it registers itself to the server, or a server defines it locally. If you use the immediate network change option, the new node becomes available immediately to SPMF.
  This function works in conjunction with Software Distribution for AIX change control (CC) server only.
- SPMF remote node definition
  This function complements SPMF node auto-registration. It allows you to centrally define any node in the network, and to reflect this definition in the local server catalog.
- SPMF command line
  A new TSO command line interface (CLI) uses the functions implemented by SPMF. With this CLI you can invoke SPMF from customized REXX programs, or from batch jobs, in order to automate all the SPMF processes managed through the ISPF interface only. By using the CLI, you can now create software objects, including packages (SFP) and profiles (NSP), to assign the objects to nodes, and distribute the objects through the network, all without logging on to the SPMF feature through the ISPF interface.
Usability Enhancements

The major usability enhancements are for:

- Transmission plans
  A more flexible transmission plan is now automatically generated when the SPMF feature is installed. If a SEND or an INSTALL is requested for a SFP/NSP with all the change files already sent or installed, the send or install status of the SFP/NSP is automatically updated in the database, in the tables containing the node-software relationship.

- SPMF installation.
  You can now generate a DB2 bind package job based on a customized list of DB2 packages.

- SPMF database access
  Access to DB2 tables has been dramatically improved. Deadlocks and timeouts are now minimized, allowing better contention when accessing the transmission control file (TCF).

- SPMF DB2 table cleaning facility
  This facility allows you to clean up the DB2 tables in a simple and easy way. For example, you can delete resources from the repository and, at the same time, delete the related history from the DB2 tables.

- SPMF procedure enabling
  You can now schedule a procedure from SPMF flexibly, specifying for example, an input procedure data field up to 256 characters.

- Code page enabling
  You can manage standard SBCS and DBCS code pages. You can also manage customized SBCS code pages by using user-defined translation tables for source and target CCSIDs.

Added Functions

Increased flexibility of data management for LU 6.2 resources with the following new functions:

- Embedded control statements
  This function allows you to load multiple resources from one data set and to append data to resources already existing in the repository. This means that you can manage LU 6.2 resources embedded control statements with disposition 'modify' (DISP=MOD).

- ERASE and UNLOAD of multiple files
  This function allows you to erase or unload many LU 6.2 resources at the same time.

- SEND with option DELETE
  This function allows you to send a resource and to delete it at the same time from the repository. This deletion can be grouped at the LU level, when the LU is specified as a parameter in the SEND function.

- SEND by dynamic selection (wildcard)
This function enhances the capability of the SEND function by dynamically grouping the LU 6.2 resources. This means that a group of LU 6.2 resources can be sent even if resources group has not been previously defined. Using one or more wildcards in the resource name allows you to dynamically process all the resources matching the partial resource name specified.

Security Enhancements

Integration with RACF has been enhanced. You can now use the RACF class facility to control access to the Generalized Interface (GIX), Batch Utilities Interface (BU), and SPMF feature interfaces in a way compatible with previous security mechanisms.
Appendix D. Summary of Changes for Release 6

NetView DM for MVS offers a new feature called the Software Profile Management Facility (SPMF). The SPMF feature is a complete replacement of, and is fully compatible with, the SPMF PRPQ (5799-EPA); however, the SPMF feature eliminates any duplication of data with NetView DM for MVS and fully supports all the NetView DM products.

Addition of the Software Profile Management Facility Feature

The SPMF feature provides an interface to manage all LU 6.2 node types in the NetView DM for MVS environment. Previously, the SPMF PRPQ supported only NetView DM/2.

The SPMF feature allows you to manage software by grouping change files into a higher level entity, the software functional package, and by grouping packages into another, yet higher level entity, the node software profile.

You can define this grouping to suit your needs, and SPMF ensures that the target workstations are maintained at the level you define, as you change that definition over time.

SPMF generates NetView DM transmission plans to update the software in your network, automatically optimizing the numbers of objects to be distributed and installed and the number of workstation restarts required, taking into account:

- The client/server relationships in the managed networks
- The network configuration, including multitiered connections
- The time zones of the target workstations
- Grouping of targets and resources automatically at distribution time
- Distribution windows that you specify

Using SPMF, you can track the results of the distribution and installation as it receives reports from nodes. You can monitor these results by querying SPMF. You can:

- Apply selection criteria by function status, by node, or by object
- Hold or release phases
- Delete or reset your plan, or only part of your plan

You can do this monitoring using the SPMF interface, without having to switch to IOF or having to rely on messages.

The functions of SPMF are:

- Use of a DB2 relational database
  - Note: You can no longer use the D&CC API after you install SPMF.
- ISPF workstation-based interface
- Powerful distribution capabilities
  - Automatic plan generation
  - Distribution using a dynamic list of nodes
  - Fanout support
Other Enhancements to NetView DM for MVS

- Distribution of resources during predefined time windows
- Installation in the service or active areas
- Resending and reinstalling software
- Conditioning by LAN

- Managing prerequisites and corequisites
- Monitoring and controlling transmissions
  - Distribution and control interface (DCI)
  - Information on reporting by nodes
- Customization dialog

Support for More Platforms

With NetView DM for MVS Release 6, you can distribute, install, activate, and maintain system software, application software, microcode, and user files to an increased number of platforms.

NetView DM for MVS Release 6 supports additional agent products for the IBM RISC System/6000 running NetView Distribution Manager/6000 (NetView DM/6000) in a Transmission Control Protocol/Internet Protocol (TCP/IP) network:

- IBM PS/2, PS/55, and PC workstations running IBM DOS and NetView Distribution Management Agent/DOS (NetView DM Agent/DOS)
- IBM PS/2, PS/55, and PC workstations running Microsoft** Windows** and NetView Distribution Management Agent for Windows (NetView DM Agent for Windows)
- SunOS** workstations running NetView Distribution Management Agent for Solaris (NetView DM Agent for Solaris)
- Sun Solaris** workstations running NetView Distribution Management Agent for Solaris (NetView DM Agent for Solaris)

NetView DM for MVS Release 6 also supports the following workstations running the following products, connected through a workstation running NetView DM for NetWare** in an internetwork packet exchange (IPX)** network:

- NetView DM Agent/2
- NetView DM Agent/DOS
- NetView DM Agent for Windows

Other Enhancements to NetView DM for MVS

The NetView DM for MVS base product has been enhanced in the areas of operation, automation, usability, and functionality.

Improved Operation and Automation

You can control NetView DM for MVS directly from the system console using an extended set of MVS MODIFY commands. This means, for example, that NetView DM for MVS can be controlled from NetView.
There are commands to perform the following tasks:

- Start transmission.
- Display information about the status of a node and the active transmission requests for the node.
- Hold transmission for a single node, a group of nodes, or a phase for a specific node (referred to as a phase by node).
- Release transmission for a single node, a group of nodes, or a phase by node.
- Quiesce transmission.
- Display the progress of transmission activities for a node. You can display the status of the node and also details of active transmission requests for the node. For each active transmission request, NetView DM for MVS displays the number and percentage of resource bytes that have been transmitted.

NetView DM for MVS provides two new functions that improve automation:

- Transmission windows, enabling transmission activities to take place within predefined time windows. You can also define a cut-off time to establish a time limit for the distribution.
- An LU 6.2 timeout facility, enabling you to specify the maximum time that the transmission control program (TCP) should wait for a response from a node.

**Usability Enhancements**

The major usability enhancements are:

- Information on reporting by nodes.

  NetView DM for MVS provides information to the host system user when a NetView DM/2 node detects an agent or server exception.

  New error messages have been added to NetView DM for MVS Release 6. Each unit of work that contains change management or file services functions (a plan or phase, D&CC API request, or node-solicited request) reports a different error message.

  These messages are displayed in IOF and stored in the SYSPRINT file of the TCF at the NetView DM for MVS host system.

- A user exit at the function resource level. This user exit gives you control when functions complete for LU 6.2 resources. For the Initiate function, the user exit provides you with a new completion code for the initiated resource. You can choose either to process this completion code in your user exit, or to use the previously existing Initiate return code.

- A new installation and customization dialog, based on ISPF panels.

**Added Functions**

To fully support all of the new NetView DM platforms, the following new functions have been added to NetView DM for MVS:

- A disk space checking facility that prevents change requests from failing because of insufficient disk space at a remote node running NetView DM/2.

  To use this facility, you must assign an estimated size of the required DASD space to the resource, either in the transmission function or in the Load function.
This facility is available for the following transmission functions:

- Install
- Send_and_Install
- Remove

This facility applies to NetView DM/2 Version 2 Release 1 target workstations only. NetView DM/6000 and NetView DM for NetWare products check the disk space automatically.

- The ability to force the installation of a resource at a target NetView DM/6000 or NetView DM for NetWare node, even if the change file history at the target node forbids the installation.
Glossary

This glossary defines important terms and abbreviations for NetView DM for MVS and related IBM products. It includes terms and definitions from the *IBM Dictionary of Computing*, New York: McGraw-Hill, 1994, which defines many additional data processing terms.

It also 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 *Information Technology Vocabulary*, developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Committee (ISO/IEC JTC1/SC1). Definitions from 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.

For abbreviations, the definition usually consists only of the words represented by the letters; for complete definitions, see the entries for the words.

Reference Words Used in the Entries:
The following reference words may be used in this glossary:

*Contrast with.* Refers to a term that has an opposed or substantively different meaning.

*Deprecated term for.* Indicates that the term should not be used. It refers to a preferred term, which is defined.

*See.* Refers to multiple-word terms that have the same last word.

*See also.* Refers to related terms that have similar (but not synonymous) meanings.

*Synonym for.* Appears in the commentary of a less desirable or less specific term and identifies the preferred term that has the same meaning.

*Synonymous with.* Appears in the commentary of a preferred term and identifies less desirable or less specific terms that have the same meaning.

**B**

**batch utilities.** A set of NetView DM for MVS programs that provide a batch interface to NetView DM for MVS facilities. Batch utilities can be invoked by application programs or using JCL, and allow the user to:

- Define nodes and resources to NetView DM for MVS
- Assign resources to nodes
- Manage data objects in the resource repository
- Prepare and submit transmission plans
- Maintain the NetView DM for MVS files

**builder.** A person, working at a preparation site, who prepares software packages and data files for installation at application sites.

**C**

**change control.** The control of software and data at a target, by means of commands such as Install, Remove, Accept, Uninstall, and Activate.

**change control (CC) administrator.** A person who is responsible for distribution and change control activities. A CC administrator can be (1) a local administrator, (2) a remote administrator, or (3) an enterprise administrator.

**change control (CC) client.** A workstation to which software and data files are distributed by a change control server. A change control client is an application site.

**change control (CC) server.** A workstation that controls and tracks the distribution of software and data files to other workstations (its change control clients).

In a NetView DM/2 environment, a CC server and all its CC clients must be on the same LAN. In a NetView DM/6000 environment, a CC server and all its CC clients must be in the same TCP/IP network. In a NetView DM for NetWare environment, a CC server and all its CC clients must be in the same IPX network.

**change control (CC) single node.** A workstation running NetView DM/2, NetView DM/6000, or NetView DM for NetWare that is not a CC server or a CC client. A CC single node can serve as a preparation site, an application site, or a remote administrator workstation.

**change management.** The area of activity concerned with centrally managed changes to the program code and data made available in a network. Change
management is done by applying to resources commands such as Install, Remove, Accept, Uninstall, and Activate.

**Change Management Entry Point (CMEP)**. An SNA node that provides change management support. It can be a type 2, type 2.1, type 4, or type 5 node. It sends SNA formatted change management data about itself and the resources it controls to a focal point for centralized processing. It receives and executes focal point initiated requests to manage and control its resources.

**Change Management Focal Point (CMFP)**. An entry point that provides centralized management and control for other entry points within its sphere of control for change management.

CMEP. Change Management Entry Point.

CMFP. Change Management Focal Point.

**communications and systems management (C&SM)**. A feature of the System/36 SSP that contains the change management support (called DSNX) that allows System/36 to communicate with NetView DM.

**compression**. The process of condensing the representation of data by replacing a string of repetitive characters with a number that indicates how many characters were eliminated. Contrast with **decompression**.

**conditioning**. In NetView DM for MVS, to make the execution of a phase in a plan dependent on the successful or unsuccessful completion of a previous phase in the plan.

Database 2. An IBM relational database management system.

DB2. Database 2.

**decompression**. The process of restoring compressed data to its original form. Contrast with **compression**.

**Distributed Processing Program Executive/370 (DPPX/370)**. An operating system of the System/370 Information System.

**distributed resource directory (DRD)**. A NetView DM for MVS system file containing the description of the NetView DM for MVS network, its users, the defined resources, and their status tracking records.

**Distributed Systems Node Executive**. A licensed program at the VSE node (VSE/DSNX), or a program feature at the IBM System/36 SSP node enabling communication with NetView DM for MVS at the host system.

**double-byte character set (DBCS)**. A set of characters in which each character is represented by a 2-byte code. Languages such as Japanese, Chinese, and Korean, which contain more symbols than can be represented by 256 code points, require double-byte character sets. Because each character requires 2 bytes, the typing, display, and printing of DBCS characters requires hardware and programs that support DBCS. Contrast with **single-byte character set**.

DPPX/370. Distributed Processing Program Executive/370.

DRD. Distributed resource directory.

DSNX. Distributed Systems Node Executive.

**entry point**. Any distributed system, subsystem, or PSW whose software, microcode, customizing data, user data, updates for each of them, and maintenance information are controlled and tracked by a focal point. While entry points can initiate distributions of objects to their peers and to the focal point, remote change management functions can be initiated only by the focal point. An entry point is often referred to simply as a **node or end node**.

**function**. In NetView DM for MVS, the specification of a transmission activity on a resource or group of resources. Functions are grouped into phases. See also **phase and plan**.

**G**

generalized interactive executive (GIX). That part of NetView DM for MVS that provides the user of the host system with interactive access to NetView DM for MVS functions.

GIX. Generalized interactive executive.

**group**. A logical association of SPMF and NetView DM for MVS nodes that provides a mechanism for organizing nodes for software distribution.

**H**

hold. In NetView DM for MVS, a command to suspend the processing of a scheduled phase or to suspend the transmission to one or more nodes. Contrast with **release**.

**holding file**. A NetView DM for MVS system file containing resources that are ready to be sent to the nodes and resources that have been received from the nodes. See also **resource repository**.
host. The central or controlling processing unit in a configuration with more than one processing unit. The processing unit in which NetView DM for MVS resides.

I

I/O trace. In NetView DM for MVS, a service aid that records the activity requests to the communication access method.

Internetwork packet exchange (IPX). A Novell** communication protocol that creates, maintains, and terminates connections between network devices (workstations, file servers, or routers, for example).

Interactive operator facility (IOF). That part of NetView DM for MVS that allows the NetView DM for MVS control operator to monitor the progress of transmissions and intervene as necessary.

Interactive System Productivity Facility (ISPF). An IBM licensed program that serves as a full-screen editor and dialog manager. Used for writing application programs, it provides a means of generating standard screen panels and interactive dialogs between the application programmer and the terminal user.

IOF. Interactive operator facility.

IPX. Internetwork packet exchange

ISPF. Interactive System Productivity Facility.

K

kanji. An ideographic character set used in Japanese. See also double-byte character set.

katakana. A character set of symbols used in one of the two common Japanese phonetic alphabets, which is used primarily to write foreign words phonetically. See also kanji.

local administrator. A person who works at a workstation and is responsible for controlling distribution and maintenance of software packages and data files across a domain that consists of (1) a CC server and its CC clients or (2) one CC single node.

Logical unit (LU). In SNA, a type of network addressable unit that enables end users to gain access to network resources and communicates with each other.

LU 6.2. Logical unit 6.2.

M

microcode. A code, representing the instructions of an instruction set, that is implemented in a part of storage that is not program-addressable.

Multiple Virtual Storage (MVS). An IBM licensed program whose full name is the Operating System/Virtual Storage (OS/VS) with Multiple Virtual Storage/System Product for System/370. It is a software operating system controlling the execution of programs.

MVS. Multiple Virtual Storage.

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

MVS/SP. Multiple Virtual Storage/System Product.

MVS/XA. Multiple Virtual Storage/Extended Architecture.

N

NetView DM for MVS Transfer. The functional capability of a NetView DM for MVS focal point to exchange data objects from its resource repository with another NetView DM for MVS focal point resource repository.

node name. (1) In VTAM, the symbolic name assigned to a specific major or minor node during network definition. (2) In NetView DM for MVS, the symbolic name assigned to an end node during the definition of the nodes managed by NetView DM for MVS.

Node software profile. A combination of software packages that satisfies the business needs for a set of workstation users within an enterprise. For SPMF, the node software profile is a combination of software functional packages.

Node type. In SNA, a designation of a node according to the protocols it supports or the role it plays in a network. Node type was originally denoted numerically (as 1 2.0, 2.1, 4, and 5) but is now characterized more specifically by protocol type (APPN network node, subarea node, and interchange node, for example) because type 2.1 nodes and type 5 nodes support multiple protocol types and roles.
**object.** The unit of distribution in a network controlled by the NetView DM product family to manage software distribution and changes. It can contain any kind of software or user data.

**package.** A user-defined collection of related change files required to maintain an application or system software product. Typically, the package contains all files necessary to run an application or product; it may contain updates and fixes as well as the base. Also called a *software functional package.*

**phase.** In NetView DM for MVS, a structured description of one or more functions addressing a node or a group of nodes in the network. Phases are grouped into plans.

**plan.** In NetView DM for MVS, a structured description of one or more phases logically grouped together for validation, submission, and monitoring. Each plan contains one or more phases, and each phase contains one or more functions. See also phase and function.

**plan library.** In NetView DM for MVS, the repository where all transmission plans are stored.

**profile.** A combination of software packages that satisfies the business needs for a set of workstation users within an enterprise. For SPMF, the node software profile is a combination of software functional packages. Also called a *node software profile.*

**release.** (1) For VTAM, to relinquish control of resources (communication controllers or physical units). See also resource takeover. Contrast with acquire (2). (2) In NetView DM for MVS, a command to remove a phase from a hold status. Contrast with hold.

**remote administrator.** A person who works at a workstation and is responsible for controlling distribution and maintenance of software packages and data files across a domain that can include multiple CC servers and their clients, and multiple CC single nodes. In NetView DM/2 only, a remote administrator’s workstation can, optionally, be configured so that all change control activities within the domain are reported to a focal point or to a higher-level remote administrator workstation.

**repository.** In NetView DM for MVS, the VSAM files where data resources (holding file) and software resources (NetView DM for MVS library) are stored.

**resource.** (1) Any facility of the 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. (3) In NetView DM for MVS, all the devices, features, data and software belonging to a node.

**Resource Access Control Facility (RACF).** A licensed program that provides for access control by identifying and verifying users to the system, authorizing access to DASD data sets, logging detected unauthorized attempts to enter the system, and logging detected accesses to protected data sets.

**resource repository.** In NetView DM for MVS, the VSAM files where data resources (holding file) and software resources (NetView DM for MVS library) are stored.

**resource types.** In the NetView program, a concept to describe the organization of panels. Resource types are defined as central processing unit, channel, control unit, and I/O device for one category; and communication controller, adapter, link, cluster controller, and terminal for another category. Resource types are combined with data types and display types to describe display organization. See also data types and display types.

**scheduling.** In NetView DM for MVS, the process of requesting that the transmission of a phase should be started at a particular time of day or upon the successful or unsuccessful transmission of a previous phase.

**service provider (SVP).** A NetView DM for MVS component that acts as a VSAM interface between the NetView DM for MVS components (GIX, batch utilities, and the TCP) and the NetView DM for MVS distributed resource directory (DRD), transmission control file (TCF), holding file, and library files. It runs in a separate address space in order to improve I/O performance.

**SNA.** Systems Network Architecture.

**SNA/Distribution Services (SNA/DS).** A connectionless communications service that distributes objects over a network of LU 6.2 connections.

**SNA/FS.** A service that allows files to be fetched, moved, and stored at nodes in an SNA/DS network. SNA/FS provides name structure and
version identification mechanisms that uniquely identify files in a network.

**SNA/FS.** SNA/File Services

**SNA/Management Services (SNA/MS).** The services provided to assist in the management of SNA networks.

**software.** Programs, procedures, rules, and any associated documentation pertaining to the operation of a computer system. (T)

**software functional package.** A user-defined collection of related change files required to maintain an application or system software product. Typically, the software functional package contains all files necessary to run an application or product; it may contain updates and fixes as well as the base.

**Software Profile Management Facility (SPMF).** A feature of NetView DM for MVS that allows software distribution based on workstation profiles.

**source.** A node from which data originates. Contrast with target.

**SPMF.** Software Profile Management Facility.

**SQL.** Structured Query Language. A language that can be used within host programming languages, or interactively, to define and manipulate data and to control access to resources.

**submit.** In NetView DM for MVS, to send a plan to the transmission control file (TCF) for subsequent execution by the TCP. When a transmission plan is submitted, it is automatically validated before being written in the TCF.

**SVP.** Service provider.

**Systems Network Architecture (SNA).** A description of the logical structure, formats, protocols, and operational sequences for transmitting information units through and controlling the configuration and operation of networks.

**TCP/IP.** Transmission control protocol/internet protocol (TCP/IP).

**trace.** (1) See I/O trace. (2) A NetView DM for MVS resource type.

**track.** In NetView DM for MVS, to inquire interactively about the results of a plan or phase that is being processed or has been executed. NetView DM for MVS also has an online service that displays the status of software and hardware resources in the network.

**transmission control file (TCF).** A NetView DM for MVS system file that contains the plans describing the work to be done by the transmission control program (TCP). It also contains the results of executed plans.

**transmission control program (TCP).** That part of NetView DM for MVS that controls the sending and receiving of all data to and from the various nodes in the network.

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

**transmission plan.** In NetView DM for MVS, a structured description of one or more phases logically grouped together for validation, submission, and monitoring. Each plan contains one or more phases, and each phase contains one or more functions. See also phase and function.

**transmission profile (TP).** A set of logical units that have the same type of connection with NetView DM for MVS, and some other common characteristics.

**transmission window.** In NetView DM for MVS, a user-defined time window within which transmission activities for a phase are to take place.

**U**

**user exit.** (1) A point in a program supplied by IBM at which a user routine may be given control. (2) A programming service provided by an IBM software product that can be requested during the execution of an application program for the purpose of transferring control back to the application program on the later occurrence of a user-specified event.

**user profile.** A description of a user, including user ID, user name, defaults, password, access authorization, and attributes.
validate

**V**

**validate.** In NetView DM for MVS, to examine a plan in the plan library and check whether the various scheduling criteria and limitations have been followed.

**Virtual Storage Access Method (VSAM).** An access method for direct or sequential processing of fixed- and variable-length records on direct access devices. The records in a VSAM data set or file can be organized in logical sequence by a key field (key sequence), in the physical sequence in which they are written on the data set or file (entry sequence), or by relative-record number.

**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, multidomain, and interconnected network capability. Its full name is Advanced Communications Function for the Virtual Telecommunications Access Method. Synonymous with ACF/VTAM.

**VTAM.** Virtual Telecommunications Access Method.

**W**

**window.** (1) In SNA, synonym for pacing group. (2) On a visual display terminal, a small amount of information in a framed-in area on a panel that overlays part of the panel. (3) In data communication, the number of data packets a data terminal equipment (DTE) or data circuit-terminating equipment (DCE) can send across a logical channel before waiting for authorization to send another data packet. The window is the main mechanism of pacing, or flow control, of packets. (4) In NetView DM for MVS, synonym for transmission window.
Bibliography

This bibliography contains a list of related documentation for users who want additional information.

TME 10 Software Distribution Version 3.1.5 Publications

The following hardcopy publications are available with TME 10 Software Distribution Version 3.1.5:

- TME 10 Software Distribution Version 3.1.5 for AIX Quick Beginnings, SH19-4333
- TME 10 Software Distribution Version 3.1.5 for OS/2 Quick Beginnings, SH19-4334
- TME 10 Software Distribution Version 3.1.5 for Windows NT Quick Beginnings, SH19-4335
- TME 10 Software Distribution Version 3.1.5 Clients Installation and Configuration SH19-4337
- TME 10 Software Distribution Version 3.1.5 for NetWare Quick Beginnings SH19-4341
- TME 10 Software Distribution Version 3.1.5 for NetWare Command Reference SH19-4342

The following publications are available with TME 10 Software Distribution Version 3.1.5 only in softcopy format:

- TME 10 Software Distribution Version 3.1.5 for AIX Command Reference
- TME 10 Software Distribution Version 3.1.5 for AIX Installation Scenarios
- TME 10 Software Distribution Version 3.1.5 Command Reference
- TME 10 Software Distribution Version 3.1.5 Messages Reference
- TME 10 Software Distribution Version 3.1.5 Pristine and Migration Scenarios

OS/390 Publications

Current documentation about OS/390 can be found on the World Wide Web at http://www.s390.ibm.com/os390/

NetView Distribution Manager/2 Publications

The following publications are available with NetView DM/2 Version 2 Release 1:

- NetView Distribution Manager/2 Concepts and Overview, GH19-4009, is an introduction to NetView DM/2 and how it is used for change control and data distribution.
- NetView Distribution Manager/2 Getting Started, SH19-4067, is a tutorial containing exercises to install and use NetView DM/2.
- NetView Distribution Manager/2 Installation and Customization Guide, SH19-6915, describes how to install and customize NetView DM/2. It outlines the operations that need to be done at host systems running NetView DM for MVS so that they can cooperate with workstations running NetView DM/2.
- NetView Distribution Manager/2 Change Distribution Manager User's Guide, SH19-5048, describes how to use the Change Distribution Manager (CDM).
- NetView Distribution Manager/2 Messages and Error Recovery Guide, SH19-6924, describes how to diagnose problems and recover from errors when installing or using NetView DM/2.

NetView Distribution Manager/6000 Publications

The following publications are available with NetView DM/6000 Release 1.2:

- NetView Distribution Manager/6000 Concepts and Overview, GH19-5001
- NetView Distribution Manager/6000 Getting Started, SH19-4149, is a tutorial containing exercises to install and use NetView DM/6000.
- NetView Distribution Manager/6000 Messages and Error Recovery Guide, SH19-5004, describes normal operational messages and the error
messages that can be produced when using NetView DM/6000.

AS/400 Publications

The following publications may be of use for the AS/400 environment:

- SystemView Managed System Services/400 User's Guide, SC41-0142

MVS Publications

The following master indexes list the publications for MVS:

- MVS/ESA Master Index for MVS/ESA Version 5, GC28-1425

VTAM Publications

The following section lists publications for VTAM Version 4:

- Planning for NetView, NCP, and VTAM, SC31-8063
- Planning for Integrated Networks, SC31-8062
- VTAM V4R3 for MVS/ESA Operation, SC31-6549
- VTAM V4R3 for MVS/ESA Installation and Migration Guide, GC31-6547
- VTAM V4R3 for MVS/ESA Network Implementation Guide, SC31-6548
- VTAM V4R3 for MVS/ESA Operation Quick Reference, SX75-0207
- VTAM V4R3 for MVS/ESA Programming, SC31-6550
- VTAM V4R3 for MVS/ESA Messages and Codes, SC31-6546
- VTAM V4R3 for MVS/ESA Programming for LU 6.2, SC31-6551
- VTAM V4R3 for MVS/ESA Resource Definition Reference, SC31-6552
- VTAM V4R3 for MVS/ESA Resource Definition Samples, SC31-6554
- Estimating Storage for VTAM V4R3, SK2T-6400, a diskette
- VTAM V4R3 for MVS/ESA Glossary, GC31-6556
- VTAM V4R3 for MVS/ESA CMIP Services and Topology Agent Programming Guide, SC31-6544
- VTAM AnyNet Feature: Guide to SNA over TCP/IP, SC31-6560
- VTAM AnyNet Feature: Guide to Sockets over SNA, SC31-6559

NCP Publications

The following section lists publications for NCP Version 7:

- Planning for NetView, NCP, and VTAM, SC31-8063
- Planning for Integrated Networks, SC31-8062
- NCP V7R3, SSP V4R3, and EP R12 Library Directory, SC30-3832
- NCP V7R3, SSP V4R3, and EP R12 Generation and Loading, SC31-6221
- NCP V7R4 X.25 V2R8 Planning and Installation, SC30-3470
- NCP V7R5 Migration Guide, SC30-3833
- NCP, SSP, and EP Resource Definition Guide, SC31-6223
- NCP, SSP, and EP Resource Definition Reference, SC31-6224
- NCP V7R5, SSP V4R5, and EP R12 Messages and Codes, SC31-6222

ISPF Publications

The following section lists publications for ISPF Version 4:

- ISPF Getting Started, SC34-4440
- ISPF Dialog Developer's Guide and Reference, SC34-4486
- ISPF Services Guide, SC34-4485
- ISPF User's Guide, SC34-4484
- ISPF Dialog Tag Language Guide and Reference, SC34-4441

Related Publications

The following list shows other related publications that may be useful:

- AIX NetView DM and LPS, GC31-7008
- AIX SNA Server/6000 User's Guide, SC31-7002
- Centralized Files Distribution Using NetView DM for MVS and PC Node Manager, GC24-3459
• DB2 for MVS/ESA Administration Guide, SC26-3265
• DB2 for MVS/ESA Messages and Codes, SC26-3268
• DB2 for MVS/ESA SQL Reference, SC26-3270
• DFSMS/MVS Access Method Services for ICF, SC26-4906
• DFSMS/MVS Utilities, SC26-4926
• DPPX/370 General Information, GC23-0640
• IBM 3174 Subsystem Control Unit Central Site Customization User's Guide, GA23-0342
• IBM 3174 Establishment Controller Central Site Customization Guide - Configuration Support B, GA27-3868
• IBM 4680 Store System Programming Guide, SC30-3517
• IBM 4690 Store System Communication Programming Reference, SC30-3582
• LAN Distributed Platform Licensed Programs Family Programmer's Reference, SC19-5320
• NetView General Information Manual, GC31-7098
• OS/390 MVS JCL User's Guide, GC28-1758
• OS/390 MVS JCL Reference, GC28-1757
• OS/390 SMP/E User's Guide, SC28-1740
• OS/390 SMP/E Reference, SC28-1806
• OS/390 TSO/E Command Reference, SC28-1969
• Personal Computer/Distributed Systems Node Executive Installation and Operation, SH19-6585
• S/36 Communications and Systems Management Guide, SC21-8010
• SNA Technical Overview, GC30-3073
• SNA Formats, GA27-3136
• SNA Management Services Reference, SC30-3346
• SNA Distribution Services Reference, FS1 & FS2, SC30-3098
• SNA Distribution Services Reference, FS1 only, ST00-4665
• SNA File Services Reference, SC31-6807
• VSE/DSNX Planning Installation Operation, SC33-6210
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