**Software Announcement**
**March 25, 1997**

# IBM Communications Server for Windows NT, Version 5.0 Offers Robust Communications, Networking, and System Management

## Overview

Communications Server for Windows® NT, Version 5.0 is a new member of the IBM Software Server series, a family of modular application servers. These servers enable you to rapidly implement client/server applications and extend application capabilities to meet future business requirements.

Communications Server for Windows NT interconnects diverse networks and should prove to be a winner for your business. With Communications Server, workstation users and applications can communicate with other workstations and central computer applications, regardless of the networking protocols. Communications Server can help you get users communicating between networks of all sizes, from small workgroups to large corporate headquarters.

Communications Server for Windows NT provides an industrial-strength networking solution for your workstation for host terminal emulation, client/server and distributed applications, or connectivity across LANs and WANs.

For true networking flexibility, a wide range of connectivity services and options are provided. Workstations and gateways can communicate using protocols such as TCP/IP and SNA. The connection can be over WANs using SDLC or X.25 protocols on switched or nonswitched lines or over LANs using IBM Token-Ring or Ethernet protocols. Mobile users can directly access their host system or another Communications Server using public telephone networks.

Communications Server supports a variety of APIs and protocols ideal for client/server applications and distributed processing. Communications Server also protects your investment in applications by providing compatible APIs for clients and servers. Programs using these APIs can run on any node in the network, whether it is a client or server.

Communications Server for Windows NT provides businesses with the opportunities to:

- Expand the use of applications while protecting current network investments
- Reduce operation and management costs by connecting networks without impacting existing applications
- Reduce costs of central computer and peer-to-peer connectivity by sharing communication resources
- Gain efficiency in response times by assigning priority to short, interactive data transmissions rather than to batch-oriented, bulk data traffic
- Increase productivity and convenience by providing employees access to applications from either the office or mobile environments

## Intended Customers

For customers who need a full range of communications and connectivity offerings on the Windows NT platform

## Key Prerequisites

- Windows NT 3.51, or Version 4.0
- 100MHz Intel® Pentium®-based processors with 32MB RAM (recommended minimum)

**One-Time Charge:** $995 (Base)

**Planned Availability Date**

March 28, 1997

## At a Glance

Use applications written for one protocol in networks using another protocol, without changing the applications.

- A broad range of communication, connectivity, and networking options
- A powerful SNA gateway
- A wide variety of 32-bit APIs
- Local and wide-area connectivity support
- Extensive APPN® support
  - End and Network node
  - High Performance Routing
  - Discovery of service providers
  - Dependent LU Requester
- TCP/IP-attached clients can access SNA APIs without SNA protocols between the client and server
- Extensive multiprotocol support
  - AnyNet® SNA over TCP/IP and Sockets over SNA (access node and gateway)
  - TN3270E Server
  - Host On-Demand
- Local and remote configuration and administrative support
- Web-based server administration
- Entry-level terminal emulation function

**For ordering, contact:**
Your IBM representative, an IBM Business Partner, or IBM North America Sales Call Center at

**800-IBM-CALL** Reference: SE001

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## Description

### *Advanced Peer-to-Peer Networking® (APPN)*

APPN is a networking extension to Advanced Program-to-Program Communications (APPC) that simplifies configuration and enhances management of a group of workstations using APPC or Common Programming Interface for Communications (CPI-C) using transaction programs. An APPN network consists of end nodes and network nodes. The end node serves an end point in an APPN network and maintains directory information for local resources and the registration of these resources with a network node. The network node contains the full category of APPN functions and provides directory services, route selection, and management service to all the end nodes.

APPN provides customers and network administrators with a decreasing configuration workload and greater flexibility in managing networks. With APPN, you can:

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

### *Dependent LU Requester (DLUR)*

DLUR lets you transport dependent LU traffic through an APPN network. A DLUR is an APPN end node or network node that uses dependent LUs but requests that a Dependent LU Server (DLUS) provide the system service control point (SSCP) for those dependent LUs through an APPN network. A DLUS controls conversion from a subarea environment to an APPN environment, allowing central management control of remote dependent LUs to be maintained while benefiting from an APPN network.

DLUR and VTAM′s DLUS function enables dependent LUs (1, 2, 3, and dependent LU6.2) to operate unchanged in an APPN network without changing applications. It supports dynamic and multiple paths through the network and eliminates the need for dependent LUs (or their gateway) to be adjacent to the VTAM® host.

### *Discovery of Service Providers*

Discovery is a LAN address resolution protocol that can be used by a node on the LAN to find another node that matches specific search criteria. By specifying the search parameters, a node can search for APPN network nodes, nodes that provide SNA boundary function, AS/400s, SNA gateways, or user-defined classes of server. Discovery support further simplifies configuration by automatically finding network nodes for the end nodes.

A Communications Server for Windows NT server can respond to requests from clients as a network node server, PU2.0 gateway, or as a user-defined class of server.

### *SNA Gateway*

The full-function SNA gateway allows multiple LAN-attached workstations to access one or more System/370™, System/390®, or AS/400® host systems through one or more physical connections. The gateway acts as an intermediary between the workstation and the host system and reduces the cost of host connections per workstation. From the host perspective, the gateway appears as an SNA PU2.0 node, supporting one or more LUs per workstation, with all LUs belonging to the gateway PU. To the supported workstations, the gateway appears like an SNA PU4 communications controller and forwards such host requests as BIND and UNBIND. The workstation LUs are not aware of the SNA gateway. The gateway, however, is aware of all LUs at the workstation.

SNA gateway capabilities include:

- LU types 0, 1, 2, 3, and dependent LU6.2
- Any type of downstream workstations that support standard IBM SNA connectivity protocols
- Support for LUs 0, 1, 2, and 3 to an AS/400 host system using SNA passthrough; the AS/400 host passes the data through to a System/390 host
- Support for the forwarding of network management vector transports (NMVTs) between the workstations and the host system
- LU pooling, a condition where the LUs defined in the gateway can be grouped together in a “pool” for multiple workstations providing benefits such as reduced configuration, and load balancing/backup
- Multiple LU pools, each pool associated with a specific application
- Common pools associated with multiple hosts
- Up to 254 LUs per PU, with no limit on the number of PUs

### *SNA API Client Support*

The SNA API client support allows TCP/IP-attached clients to access SNA APIs without requiring SNA protocols to flow between the clients and the server. This remote API allows most SNA configurations to take place at the central server. The SNA clients provide support for CPI-C, EHNAPPC, LUA RUI, APPC, and limited support for NOF, MS, and Common Services interfaces, while providing the actual SNA processing at the server. These clients are delivered as part of the server but are actually installed and configured at the client.

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

Communications Server for Windows NT supports SNA API clients on Windows 95, Windows NT, Windows 3.x, and OS/2® platforms.

### *32-bit APIs*

Communications Server for Windows NT supports a wide range of 32-bit APIs on the server for the application program developer. These APIs provide convenient ways for application programs to access Communications Server functions and allow applications to address the communication needs of connections to both IBM and other computers. In addition, the interfaces provided support SNA protocols so standardization is ensured.

API support includes:

- APPC
- CPI-C
- Conventional LU Application Interface (LUA) RUI

- WinSock
- Network Operator Facility
- Management Services
- Common Services

### *AnyNet SNA over TCP/IP (Access Node and Gateway)*

The AnyNet SNA over TCP/IP function allows SNA applications to communicate over interconnected TCP/IP and SNA networks. The SNA over TCP/IP access node allows SNA applications to communicate between workstations or a host to a workstation across a TCP/IP network. This function supports independent LU6.2 and dependent LU 0, 1, 2, 3, or 6.2. In addition, the SNA over TCP/IP access node can be used with SNA gateway to enable SNA gateway sessions over a TCP/IP network.

The SNA over TCP/IP gateway function extends the reach of SNA applications by allowing these applications in an SNA network to communicate with SNA applications in an IP network. This gateway supports independent LU6.2 sessions.

### *AnyNet Sockets over SNA (Access Node and Gateway)*

The Sockets over SNA access node function enables TCP/IP application programs using the WinSock 1.1 and WinSock 2.0 socket interface to communicate over an SNA network.

The Sockets over SNA gateway function enables sockets applications in SNA and TCP/IP networks to communicate. Sockets over SNA gateways are often used to connect isolated TCP/IP networks using an SNA backbone network.

### *TN3270E Server*

TN3270E Server provides a method, based on standards, that allows TCP/IP clients easy access to the large number of existing legacy applications residing on IBM host systems without changing to the application programs.

The TN3270E Server is compliant with the industry-standard Request for Comment (RFC) 1576, 1646, and 1647. This capability provides 3270 terminal and printer emulation to TCP/IP users in an open, standard environment. TN3720E defines a new Telnet option and sub-negotiations that allow a client or server to negotiate exactly which terminal type and features are supported. Clients and servers supporting TN3270E can now negotiate to pass SNA responses to guarantee end-to-end printer confirmation.

TN3270E Server supports any downstream TN3270 or TN3270E client which adheres to the RFCs stated above.

### *Local and Remote Configuration and Administration*

A configuration GUI provides a user interface for entering configuration data. Local configuration is supported at both the client and server level.

The Node Operations application allows users to remotely or locally stop, start, and monitor resources in the network. The Node Operations application is also supported from any Windows NT client.

### *Web-based Server Administration*

Communications Server for Windows NT includes a new Web-based tool that provides a remote integrated cross-server administration capability. IBM takes Web-based server administration to a new dimension. A simple GUI provides a convenient, at-a-glance status of Communications Server while a consistent user interface preserves a common look and feel across server platforms.

### *Host On-Demand*

Continuing to advance our strategy of providing network computing solutions, Communications Server for Windows NT provides Host On-Demand, designed to provide fast and easy access to host information from intranets and the Internet. Host On-Demand is a Java™-based solution that incorporates industry-standard Telnet 3270 protocols. It provides a high-performance, low-cost solution for intranet and Web users who need occasional access to their central computer applications or databases from any Java-enabled user platform.

The license for Communications Server for Windows NT, Version 5.0 includes the use of the product Host On-Demand. Host On-Demand can be used to support as many concurrent users/clients as allowed by the terms of the associated Communications Server for Windows NT license.

For additional information on Host On-Demand refer to URL:

http://www.networking.ibm.com/hex/hexprod_en.html

### *Entry-Level Emulator*

Communications Server for Windows NT includes an entry-level version of the popular Personal Communications 3270 and 5250 emulator for administrative purposes. This emulator provides basic 5250 and 3270 support and provides a subset of the features and functions in the full-function IBM Personal Communications family of emulators. The emulator is authorized to run on the server only.

The entry-level emulator functions include:

- Color mapping
- Command line transfer (3270 only)
- Full font set
- Various screen sizes (Models 2 through 5)
- Two sessions

### *Data Security*

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

## Product Positioning

Communications Server for Window NT takes advantage of IBM′s experience with SNA, TCP/IP, and communications servers to provide a high-performance, high-quality communications solution for the Windows NT environment.

The Communications Server provides an essential foundation for networked computing by supporting the most widely used networking technologies, enabling customers and business partners to build client/server applications independent of networking protocol or hardware.

The full implementation of APPN (end node and network node), HPR, and DLUR, along with the integrated SNA gateway capabilities, positions the Communications Server as a participant in either a host (hierarchical) or peer-to-peer distributed network environment.

With the integrated AnyNet (access node and gateway), TN3270E Server, and the Host On-Demand capabilities, the Communications Server is well positioned for customers with multiprotocol networking environments.

Communications Server for Windows NT is the solution for companies in the Windows NT environment that:

- Run multiprotocol or multiple networks
- Want to consolidate or change their backbone networks
- Have existing SNA applications they want to extend over TCP/IP networks
- Have existing sockets applications they want to extend over SNA networks
- Want to provide SNA 3270 host access to TCP/IP users via TN3270E
- Want to provide SNA host access to any Java-enabled Web browser
- Want to improve network availability
- Want to access data from anywhere using familiar interfaces and protocols
- Need to support users in a variety of locations, in the office, at home, or traveling

***Trademarks***

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# IBM US Announcement Supplemental Information

March 25, 1997

## Publications

One copy of *Communications Server for Windows® NT: Quick Beginnings* (GC31-8424) is shipped in the program package.

The following Communications Server publications can be ordered separately from IBM after March 28, 1997. To order, contact your IBM representative or phone 800-879-2755.

| Title | Order Number |
|---|---|
| Communications Server for Windows NT: Quick Beginnings | GC31-8424 |
| Client/Server Communications Programming | SC31-8425 |
| System Management Programming | SC31-8426 |

An HTML version of the Quick Beginnings publication will be placed on the Communications Server for Windows NT product home page on the World Wide Web (http://www.networking.ibm.com/csn/csnprod.html). The HTML requires an HTML browser that supports HTML 3.0.

***Displayable Softcopy Publications:*** Communications Server for Windows NT publications are provided in displayable softcopy form. All unlicensed publications are included.

The publications are provided as Adobe Acrobat.PDF files and are included with the program package on the same CD-ROM.

Also included with the program package on the same CD-ROM is a product tutorial. The tutorial is launched from the product during the "Configuration task" with the Help button. The tutorial is translated in the following languages: German, French, Italian, Spanish, Japanese, Taiwanese, and Brazilian Portuguese.

***Open Enterprise:*** Communications Server for Windows NT supports the Multiprotocol Transport Network (MPTN) from X/Open.

## Technical Information

### *Specified Operating Environment*

***Hardware Requirements:*** Communications Server for Windows NT Server, Version 5.0 can be used on all Intel®-based systems supported by Windows NT Version 3.51 or Version 4.0. A 100MHz processor and 32MB RAM is recommended; depending on the network environment, a faster processor and larger memory can be necessary. Disk space of 10MB is required on a startup drive for temporary use and 70MB on any hard drive for permanent use.

The Communications Server for Windows NT Remote Administration clients and the SNA API clients will run on any hardware required by Windows 3.1, Windows 95, OS/2®, and Windows NT (Intel only).

***Communications Adapters:*** One or more network communication adapters (and appropriate cable) can be required.

Communications Server for Windows NT, Version 5.0 is compatible with the following adapters:

- IBM ISA/EISA WAN Adapters
  - Multiprotocol Communications Adapter for SDLC over leased and switched connections
  - Wide Area Connector for SDLC, X.25 over leased and switched connections
  - Serial/Parallel Adapters (synchronous port) for SDLC
- IBM Micro-Channel WAN Adapters
  - Multiprotocol Communications Adapter for SDLC over leased and switched connections
  - Wide Area Connector for SDLC, X.25 over leased and switched connections
  - Serial/Parallel Adapters (asynchronous port) over asynchronous connections
- IBM PCI and PCMCIA WAN Adapters
  - Serial/Parallel Adapters (asynchronous port) over asynchronous connections
- Non-IBM ISA/EISA WAN Adapters
  - BusTech, Inc, (Bus and Tag and ESCON® adapters) over SNA channel connections
  - Eicon Technology for Frame Relay over leased and switched connections

**Note:** The Communications Server for Windows NT also is compatible with a wide variety of LAN adapters including any adapters with NDIS drivers supported by Microsoft® Windows NT. For current and complete information relative to hardware and software compatibility for LAN and WAN adapters, refer to the Communications Server Web pages at URL:

http://www.networking.ibm.com/csn/csnprod.html

***Software Requirements:*** Communications Server for Windows NT requires either Windows NT Server, Version 3.51 or Windows NT Server, Version 4.0. Additionally:

- When using Windows NT Server, Version 3.51, service pack 4, or above, is required to support the SNA API clients
- TCP/IP is required for communication with the Remote Administration and SNA API clients

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Remote Administration Clients require either Windows NT Workstation or Server Versions 3.51 or 4.0. TCP/IP is required for communications with Communications Server for Windows NT (Server).

SNA API Clients requires either:

- OS/2 Warp Version 3.0, or later
- Windows 3.1.1, or later
- Windows 95, with service pack 1 and the following fix:
  - Microsoft Knowledge Base article ID: Q128366
  - Creation date: March 11, 1996
  - Web site for downloading fix:

    www.microsoft.com/windows/software/krnlupd.htm
- Windows NT Workstation or Server
- Windows NT Server 3.51 with service pack 4, or above
- Windows NT Server 4.0
- TCP/IP is required for communications with Communications Server for Windows NT (Server)

Host On-Demand requires any Web server capable of serving Java™ applets to be installed on the same machine as Communications Server for Windows NT.

***Compiler Requirements:*** The compilers for applications under Communications Server for Windows and SNA API clients for Windows 95 and Windows NT, Versions 3.51 and 4.0 are:

- VisualAge® for C++ for Windows, Version 3.5
- Microsoft Visual C++ for Windows NT, Version 4.1

The compiler for applications under SNA API clients for OS/2 is VisualAge for C++ for OS/2, Version 3.

The compiler for applications under SNA API clients for Windows 3.1 is Microsoft Visual C++, Version 1.51 or 1.52.

***Compatibility:*** Communications Server for Windows NT, Version 5.0:

- Compatible with Transaction Server for Windows NT, Version 4
- Supports both APPN® and traditional SNA functionality as a type 2.1/2.2 node
- API client software for OS/2, Microsoft Windows 3.1, Windows 95, and Windows NT support SNA application programs without requiring a full SNA product on each workstation
- Will interoperate completely with any other full SNA product

Communications Server for Windows NT does not support other implementations of partial-stack SNA clients.

***Limitations:*** Communications Server for Windows NT, Version 5.0 runs only on the Windows NT operating system in the Intel environment.

***Performance Considerations:*** Performance can be affected by:

- Type of connection and network characteristics
- Number of users and concurrent sessions
- Type of tasks
- Available installed memory
- Reliability, availability, serviceability (RAS) and/or trace activity

***Communications Server Family Technology Highlights:*** The following summarizes the functional contents of the IBM Communications Server family of products:

| | CS/2 4.1 | CS/NT 5.0 | CS/AIX 4.2 | OS/400 | Net-Ware 2.2 | CS/MVS OS/390 |
|---|---|---|---|---|---|---|
| Industry-leading SNA support: | | | | | | |
| o 3270 SNA gateway | X | X | X | | X | |
| o APPN EN and NN function | X | X | X | X | | X |
| o High Performance<br>– Intermediate node routing<br>– HPR connection endpoint | X<br>X | X<br>X | X | X | | X<br>X |
| o 3270 support over APPN (DLUS/DLUR) | X | X | X | | | X |
| Multiprotocol support: | | | | | | |
| o TN3270E server | X | X | X | | X | |
| o Sockets over SNA access node | X | X | X | X | | X |
| o APPC over TCP/IP access node | | | X | X | | |
| o SNA over TCP/IP access node | X | X | | | | X |
| o Sockets over SNA gateway | X | X | X | | X | |
| o APPC over TCP/IP gateway | | | X | X | | |
| o SNA over TCP/IP gateway | X | X | | | | X |
| o IPX over SNA gateway | X | | | | X | |
| o IPX over TCP/IP gateway | X | | | | | |
| o NetBIOS over SNA gateway | X | | | | | |
| o NetBIOS over TCP/IP gateway | X | | | | | |
| | | | | | | |
| NetWare Directory Services integration | | | | | X | |

## *Planning Information*

***License Management:*** Communications Server for Windows NT includes a tool for license management. This license is included in the program package on the CD-ROM and is installed along with the product. During installation, you are prompted to enter the number of concurrent licenses purchased. Each workstation counts as one licensed user regardless of the number of sessions that are active with the Communications Server.

If the number of concurrent users exceeds the number of concurrent licenses purchased, then an error message is logged. No product function is disabled even in the case of the licenses being exceeded. Further connections are still allowed with an error message being logged for each connection as long as the license count is exceeded. You are expected to monitor the log and purchase additional

licenses if you consistently exceed your initial license quantity.

***Packaging:*** The Communications Server for Windows NT package includes:

- One CD-ROM
- Hardcopy publication: Quick Beginnings
- IBM International Program License Agreement Booklet
- IPLA Pointer Sheet
- License Information
- Proof of Entitlement (PoE)

There is no registration card in the program package. The product contains the software registration tool, Axtive Registration Tool.

This tool should be used to register the Communications Server for Windows NT.

### *Security, Auditability, and Control*

Communications Server for Windows NT uses the security and auditability features of the Windows NT operating system, Version 3.51 or 4.0.

User management is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

## Ordering Information

Some changes have been made to the terminology used for IBM software. These changes do not affect terms and conditions, charges, or ordering processes.

Key elements are:

- License: The license shows rights and obligations that complement copyright protection provided by law, and applies to all use of IBM software.
- Charging: IBM software is charged according to the number of Use Authorizations acquired. Definition of this Use and its associated charges for a given product are stated in the hardware announcement. Use Authorizations come with the program package or are available separately, and can be for users or resources. They are reflected as PoEs, provided by IBM.

  Use Authorizations continue to be available for some products in use packs of 1, 5, 10, and 50.
- Supply of Code: The software program itself will be available in various forms; for example, on magnetic media, CD-ROM, or electronically. This supply is accompanied by a Use Authorization.

The following highlights the key changes:

| Previous Terminology | New Terminology |
|---|---|
| Program Package | Program Package |
| Additional License | Use Authorization for the Right to Copy and Use the Program, (for example, a PoE for "1 Server Install") |
| Use-Based Feature | Use Authorization for Users or Resources, (for example, a PoE for "5 Concurrent Users" or "10 Connected Ports") |
| Distributed Feature | Use Authorization for Optional or Selectable Portions of a Program, (for example, a PoE for "5 Client Installs") |

***Ordering Notes***

- Charges for Communications Server for Windows NT, Version 5.0 are based on concurrent users (not sessions). A workstation counts as one user regardless of the number of active sessions.
- The program package includes authorization for one user.
- You can determine the maximum (total) number of users required in the network and allocate these users to one Communications Server for Windows NT.

Orders for new licenses will be accepted now.

Shipments will begin on March 28, 1997.

To order these programs for order type, specify the order type number, feature number, part number, program name, media, and quantity.

***Program Package:*** Program supply (for example, diskettes, CDs, and electronic programs) documentation and PoE.

| Program Name | Feature Number | Part Number |
|---|---|---|
| ***Order Type 5801-AAR*** | | |
| Communications Server for Windows NT, Version 5.0 | 1723 | 4231747 |

***Use Authorization for the Right to Copy and Use the Program — Non-Software Advantage:*** Authorization to copy and use the program package supply and documentation.

| Definition of Use | Feature Number | Part Number |
|---|---|---|
| ***Order Type 5802-AAR*** | | |
| Copy and Use Program | 1994 | 4231748 |

***Use Authorization for the Right to Copy and Use the Program — Software Advantage:*** Authorization to copy and use the program package supply and documentation. PoE will be provided monthly as a report.

***Communications Server for Windows NT, Version 5.0 Authorization for Software Advantage***

| Definition of Use | Part Number |
|---|---|
| ***Order Type 5802-AAR*** | |
| Copy and Use Program | 4231749 |

***User or Resource Authorization — Non-Software Advantage:*** Authorization for a user of the program or authorization for a resource to be used or managed by the program.

| Program Name | Definition of Use | Feature Number | Part Number |
|---|---|---|---|
| ***Order Type 5807-AAR*** | | | |
| Communications Server for Windows NT, Version 5.0 User Authorization 1-Pack | Concurrent User | 2271 | 4231750 |
| Communications Server for Windows NT, Version 5.0 User Authorization 5-Pack | Concurrent User | 2272 | 4231751 |
| Communications Server for Windows NT, Version 5.0 User Authorization 10-Pack | Concurrent User | 2273 | 4231752 |
| Communications Server for Windows NT, Version 5.0 User Authorization 50-Pack | Concurrent User | 2274 | 4231753 |

***User or Resource Authorization — Software Advantage***

| Program Name | Part Number |
|---|---|
| ***Order Type 5807-AAR*** | |
| Communications Server for Windows NT Version 5.0 User Authorization for Software Advantage | 4231754 |

***Program Package Upgrade Ordering Notes***

- Upgrades are available from any IBM or non-IBM (Competitive Offering) SNA gateway or communications server product.
- The Communications Server for Windows NT, Version 5.0 Upgrade Program Package includes authorization for one user.
- When upgrading from a user-based product, you are authorized to purchase the equivalent number of users at a reduced price using the User Authorization for Upgrade — 1-Pack feature (refer to part number 4231784).
- New and additional users must be acquired at the full price using the User Authorization features for 1-, 5-, 10-, and 50-Packs (refer to part numbers 4231750, 4231751, 4231752, and 4231753).
- When upgrading from a non user-based product, you are not entitled to any User Authorization for Upgrade. All users are considered as new users and must be acquired at the full price.

***Program Package Upgrade:*** Program supply (for example, diskettes, CDs, and electronic programs) with documentation and PoE.

| Program Name | Feature Number | Part Number |
|---|---|---|
| ***Order Type 5803-AAR*** | | |
| Upgrade from any IBM or non-IBM communications server product to Communications Server for Windows NT, Version 5.0 | 0835 | 4231755 |

***Use Authorization for Upgrade — Non-Software Advantage:*** Authorization to copy and use the program package supply and documentation acquired as an upgrade.

***Communications Server for Windows NT, Version 5.0 Authorization for Upgrade***

| Definition of Use | Feature Number | Part Number |
|---|---|---|
| ***Order Type 5804-AAR*** | | |
| Copy and Use Program | 0977 | 4231756 |

***Use Authorization for Upgrade — Software Advantage:*** Authorization to copy and use the program package supply and documentation acquired as an upgrade. PoE will be provided monthly as a report.

***Communications Server for Windows NT, Version 5.0 Authorization for Upgrade for Software Advantage***

| Definition of Use | Part Number |
|---|---|
| ***Order Type 5804-AAR*** | |
| Copy and Use Program | 4231757 |

***User or Resource Authorization for Upgrade — Non-Software Advantage:*** Authorization for a user of the program or authorization for a resource to be used or managed by the program acquired as an upgrade.

***Communications Server for Windows NT, Version 5.0 Authorization for Upgrade — 1-Pack***

| Definition of Use | Feature Number | Part Number |
|---|---|---|
| ***Order Type 5808-AAR*** | | |
| Concurrent User | 0167 | 4231784 |

***User or Resource Authorization for Upgrade — Software Advantage: Communications Server for Windows NT, Version 5.0 Authorization for Upgrade — 1-Pack for Software Advantage***

| Definition of Use | Part Number |
|---|---|
| ***Order Type 5808-AAR*** | |
| Concurrent User | 4231785 |

***Software Advantage Media Packs and Documentation Packs:***

| Program Name/Description | Part Number |
|---|---|
| IBM Communications Server for Windows NT, V5.0 Media Pack | 4231758 |
| IBM Communications Server for Windows NT, V5.0 Documentation Pack | 4231759 |

Optionally available media packs and documentation packs are only available through an authorized Software Advantage remarketer.

***Upgrade Protection (New Product):*** The following upgrade protection products are only available under the Software Advantage for Workstations offering:

| Program Name | Part Number |
|---|---|
| ***Order Type 5809-AAR*** | |
| Upgrade Protection for Communications Server for Windows NT, Version 5.0 One-Time Charge (OTC) | 4231760 |
| Upgrade Protection for Communications Server for Windows NT, Version 5.0 Quarterly Charge | 4231761 |
| Upgrade Protection for User Authorization for Users OTC | 4231780 |
| Upgrade Protection for User Authorization for Users Quarterly Charge | 4231781 |

### *Program Upgrade*

The program package upgrade option allows currently licensed users of any IBM or non-IBM (Competitive Offerings) SNA gateway or communications server product to obtain the new function for a program upgrade charge. The program upgrade package includes authorization for one user. The program upgrade to Communications Server for Windows NT, Version 5.0 will be available on March 28, 1997. Orders will be accepted after March 25, 1997. These upgrades will be available through IBM authorized remarketers. The remarketer can require a PoE for each upgrade ordered.

Customers can also order upgrades through the local IBM office. End-user customers can acquire upgrades up to the number of qualifying programs for which they are currently authorized. Use Authorization for upgrades can be entered through the local IBM office or ordered through an authorized remarketer.

## Terms and Conditions

***Licensing:*** IBM International Program License Agreement. PoEs are required for all authorized use.

***Limited Warranty:*** Yes

***Program Services:*** Available until March 28, 1999

***Guarantee:*** 30-day, money-back guarantee

***Copy and Use on Home/Portable Computer:*** No

***Program Transfer:*** Yes

***Support Line:*** Personal Systems

***Complimentary Introductory Support:*** Not available for OS/2 platform

***Volume Orders:*** Contact your IBM representative.

***Software Advantage Applies:*** Yes

***Software Advantage:*** Optional Software Advantage media and documentation packs are only available through an authorized Software Advantage remarketer and do aggregate for Software Advantage credit but are not eligible for Software Advantage discounting.

***Upgrades:*** Customers can acquire upgrades up to the quantity of the qualifying programs licensed to them.

***Upgrade Protection applies:*** Yes

***Entitled Upgrade for Current Upgrade Protection Licensees:*** No

***Variable Charges Apply:*** No

***Educational Allowance Available:*** Yes, to qualified education customers

## Charges

| Description | Part Number | Feature Number | OTC | UPC[1] |
|---|---|---|---|---|
| Program Package | 4231747 | 1723 | $ 995 | |
| Use Authorization for Right to Copy and Use a Program | 4231748 | 1994 | 965 | |
| Use Authorization for Right to Copy and Use a Program Software Advantage | 4231749 | 1995 | 965 | |
| Use Authorization for User 1-Pack | 4231750 | 2271 | 69 | |
| Use Authorization for User 5-Pack | 4231751 | 2272 | 328 | |
| Use Authorization for User 10-Pack | 4231752 | 2273 | 642 | |
| Use Authorization for User 50-Pack | 4231753 | 2274 | 3,174 | |
| Use Authorization for User Software Advantage | 4231754 | 2275 | 69 | |
| Program Package Upgrade | 4231755 | 0835 | 419 | |
| Use Authorization for Right to Copy and Use a Program for Upgrade | 4231756 | 0977 | 389 | |
| Use Authorization for Right to Copy and Use a Program for Upgrade Software Advantage | 4231757 | 0978 | 389 | |

| Description | Part Number | Feature Number | OTC | UPC[1] |
|---|---|---|---|---|
| Use Authorization for Users for Upgrade —1-Pack | 4231784 | 0167 | 29 | |
| Use Authorization for Users for Upgrade —1-Pack Software Advantage | 4231785 | 0168 | 29 | |
| Upgrade Protection —Full Charge | 4231760 | 1600 | | $289.00 |
| Upgrade Protection —Quarterly Payment Charge | 4231761 | 1601 | | 36.13 |
| Upgrade Protection —User Authorization for Users Full Charge | 4231780 | 1602 | | 21.00 |
| Upgrade Protection —User Authorization for Users Quarterly Payment Charge | 4231781 | 1603 | | 2.63 |

[1] Upgrade Protection Charge

***Optional Support Line Charge:*** $210

***Use Authorization Charge for the Right to Copy and Use the Program:*** Customers who pay an OTC for Use Authorizations can copy and use machine-readable program materials and printed documentation previously acquired from IBM in a program package. One copy can be made for each Use Authorization ordered.

***Charge for Use Authorizations for Users or Resources:*** Customers who pay an OTC for Use Authorizations for users or resources are authorized for a number of users to access the program and/or resources available. Use cannot exceed the total number of users or amount of resource authorized.

***Upgrade Protection:*** Customers who acquire upgrade protection through an OTC or quarterly payment charges (when meeting minimum revenue criteria) will be entitled at no charge to future versions and releases when announced within their Software Advantage agreement period. Following availability of the new program, IBM will provide a program package (including media and documentation) and a PoE authorizing right to copy, distribute, and install equal to the number of programs protected.

***Program Upgrade Charge:*** A program upgrade charge will apply for upgrades from any IBM or non-IBM gateway or server product.

## Call Now to Order

To order, contact IBM North America Sales Call Center, your local IBM representative, or your IBM Business Partner.

IBM North America Sales Call Center, our national direct marketing organization, can also arrange to put your name on the mailing list for catalogs of IBM products.

Phone: 800-IBM-CALL
Fax: 800-2IBM-FAX
Internet: ibm_direct@vnet.ibm.com
Mail: IBM North America Call Sales Center
Dept. SE001
P.O. Box 16848
Atlanta, GA 30321-0848
Reference: SE001

To identify your local IBM Business Partner or IBM representative, call 800-IBM-4YOU.

**Note:** Shipments will begin after the planned availability date.

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