Migration to IBM eNetwork Personal Communications and Communications Server

…One Smart Move

If your enterprise has an S/390® or an AS/400®, chances are that you've relied on Communications Manager/2 to fulfill some specific needs over the past few years. We hope that CM/2 has served your business well. But in many ways, it's like the stereo system that won't play CDs. There's nothing wrong with it, but now you simply wish it could do more. That's very much the concept behind IBM® eNetwork™ Software. You wanted to do more things, so we're removing the boundaries that keep you from doing them. Instead of providing software that only supports SNA, we're providing multiprotocol software that helps you move beyond existing network boundaries.

This information is designed to help you understand how migrating from CM/2 to eNetwork Software is *one smart move*. We've tried to answer many of your outstanding questions, including the most basic one, "Why migrate?" There's an explanation of how changing customer needs resulted in the refined strategy behind eNetwork Software, as well as a functional view of the evolution of CM/2. We'll help you understand some of the benefits of using eNetwork Personal Communications (PCOMM) client software as well as the benefits of using eNetwork Communications Server. And finally, you'll want to understand the migration assistance and incentives that can help you move up to the world of eNetwork Software.

Why migrate?

Nothing stays the same.
And that includes your network and employee information needs. But we also know that to keep up with your evolving needs, it is essential that we alter our product offerings, add new function, and enhance usability. Learn more about how and why CM/2 has evolved into the eNetwork Software product line by reading this document. Additional information about eNetwork Software is available on our Web site (http://www.networking.ibm.com/eNetwork).

There's no better time.
With the migration assistance and special incentives available to you and with defect service for CM/2 ending on March 30, 1998, there's no better time to explore how one smart move can open up a whole new world to users in your network.

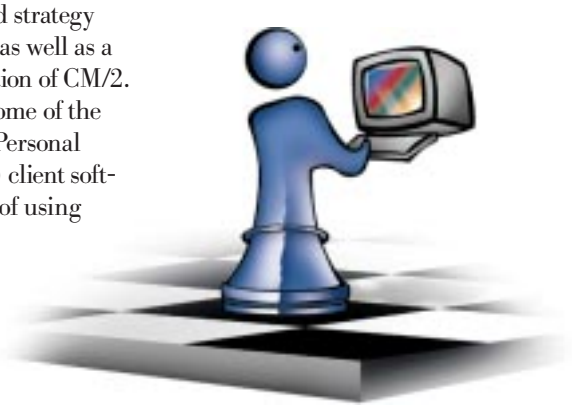


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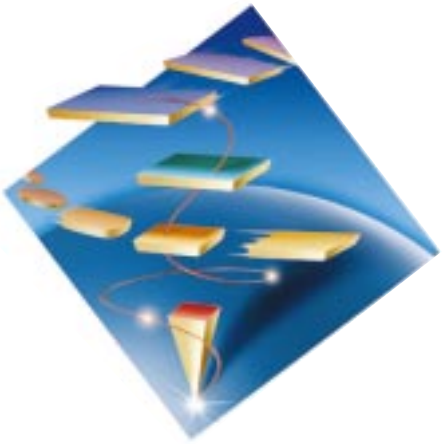
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A refined strategy: eNetwork Software addresses changing customer needs



Making network computing a reality

A whole new era of network computing has dawned with the availability of IBM eNetwork Software. By listening to our customers, we've found a way to make network computing a very simple concept. It means removing all the boundaries — and turning *the network* into a collection of all the information any user needs to access. So, with eNetwork Software, we accepted the challenge of eliminating the boundaries that separate users from the information they need.

The best way for us to go about this task is to give you the right eNetwork **client** software for the desktop (or notebook, or wireless device). And also give you supporting eNetwork **server** software that simply and cost-effectively transcends the different types of networks that can separate users from key information sources. Consistent with this approach, the functions in CM/2 have evolved and are extended.

A broader range of improved client offerings

Different types of users have different needs and different preferences, but all users like their software to be intuitive and easy to use. So, in migrating the desktop from CM/2, you can match user needs to the type of eNetwork client that is most appropriate. Most CM/2 desktop users find **Personal Communications AS/400 and 3270 (PCOMM)** satisfies their needs and also provides simpler interfaces and productivity options.

In addition to PCOMM, we've tried to cover the whole gamut of today's user needs with the eNetwork client software offerings[1], while still keeping system administrators in mind. For example, we've got offerings that let you:

- Support the varied needs of the entire enterprise, using a single comprehensive offering, eNetwork Communications Suite. (For more information on Communications Suite, visit our Web site at http://www.networking.ibm.com/ecs/ecshome.htm, or order G325-1193.)
- Minimize the footprint on the client machine using:
  - OS/2® Access Feature or Windows® Access Feature, available with Communications Server for OS/2, if you only need support for advanced program-to-program communication (APPC) and Common Programming Interface for Communications (CPI-C™) desktop applications. (For more information on OS/2 Access Feature, visit our Web site at http://www.networking.ibm.com/cms/cms3568.html, or order G325-3568. For more information on Windows Access Feature, visit our Web site at http://www.networking.ibm.com/cms/cms3566.html, or order G325-3566.)
  - SNA API client solution, the *thin client* support available with Communications Server for Windows NT, that lets TCP/IP or IPX users access SNA applications without installing an SNA protocol stack. (For more information on the SNA API client solution, visit our Web site at http://www.networking.ibm.com/cms/csnabt.html.)
- Extend support for 3270-based applications to Web-oriented users using Host On-Demand and their existing Web browsers. (For more information on Host On-Demand, visit our Web site at http://www.networking.ibm.com/hex/hexprod_en.html.)

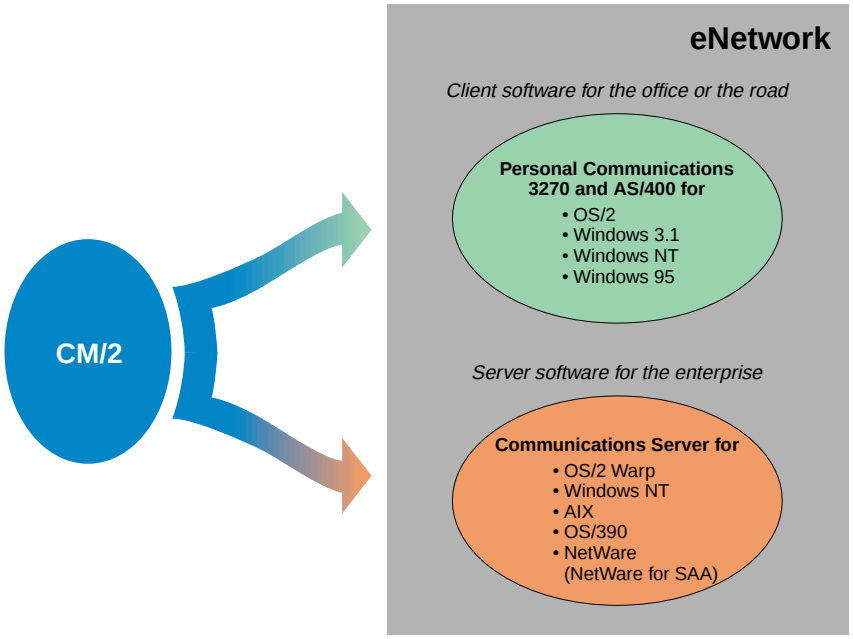
Not just about accessing S/390 and AS/400 applications

While the majority of your core business applications and data stores probably reside on an S/390 or AS/400, today's business managers know that real power lies in synthesizing or combining those applications and data with other new sources of information, both public and private. It can mean having the competitive edge. But employees are frequently out of touch with key applications or data because of network diversity or because they're not in the office. That's where the eNetwork Communications Server comes into play, providing seamless access to *any information* at *any time* or *any place*. Working hand-in-hand with the improved eNetwork client interfaces, **Communications Server** eliminates boundaries that exist in your network.

[1]IBM also offers Client Access/400™, specialized client support for workstations attached to an AS/400.

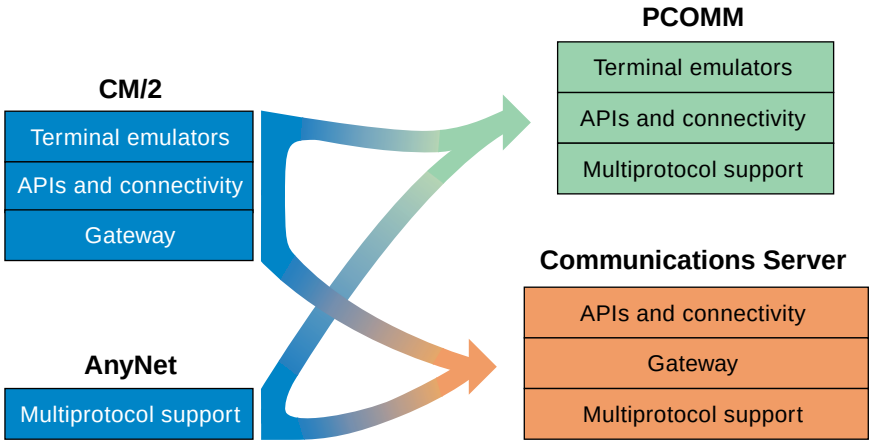
Where did the CM/2 functions go?

You will find the same functions (and more!) present in eNetwork **Personal Communications 3270 and AS/400** for client-related needs, or eNetwork **Communications Server** for server-related needs. PCOMM is available for OS/2, Windows 3.1, Windows NT™, and Windows 95. Communications Servers are available for OS/2 Warp, Windows NT, AIX®, OS/390™, and NetWare (NetWare for SAA®). The most typical server migration is from CM/2 to Communications Server for OS/2 Warp, Windows NT, or AIX.



A closer look at where functions reside

Here's a high-level view of where functions have migrated. For still more detailed information about the evolution of client (PCOMM) and server (Communications Server) functions, refer to the table comparisons on pages 8 and 14 in this document.



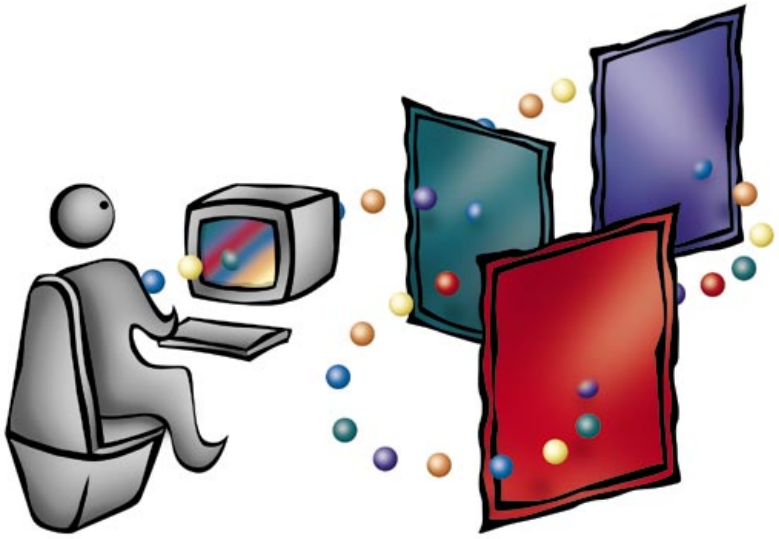
Before you develop your CM/2 migration plans, make sure you understand other advantages of migrating desktops to PCOMM and the advantages of migrating your servers to Communications Server.

PCOMM: Client support that melds the Internet/intranet into your world!

Take the stability of a proven product – one that you've always relied on to access core business applications. Add the ability to seamlessly access the Internet and intranets. Make it easy to meld the information from both worlds. Provide access to that critical information at any time from any place – office, home, or on the road. That's what we've done with PCOMM – it's that simple!

You can look forward to some great benefits as you migrate from CM/2 to PCOMM. The PCOMM benefits you receive vary depending on your network, your needs and objectives, and your responsibility. On the pages that follow, we've classified the benefits that your enterprise can realize according to responsibility: *user benefits*, *system and network administrator benefits*, and *application developer benefits*. We hope you'll understand why moving to PCOMM can be a world-class move for your enterprise.

To better help you realize the practical application of some of these benefits, review the scenario on page 15 of this document. You may also want to review other network configuration scenarios in *Positioning IBM's Family of OS/2 and Windows Desktop Communications Software Products*, available on our Web site at http://www.networking.ibm.com/cms/cms3642.html, or by ordering G325-3642. Better yet, try some of these benefits on for size using our no-charge evaluation kit! You can order the PCOMM Evaluation Kit from our Web site at http://service.software.ibm.com/reg/pcom/pcom-r, or in the United States by calling 1-800-901-2205, priority code 6C7AB002.



More benefits for users



Look how accessing applications and data you need can become easier with PCOMM!

Applications naturally embrace the Internet

- PCOMM lets you run your existing applications over the Internet and your intranet without any modification. Sharing real-time information with customers and suppliers is a cinch. The multiprotocol capability in PCOMM also lets you run TCP/IP applications (unchanged!) over an SNA network.
- Put the full *power of the net* into your critical business systems by melding the information from existing SNA applications with information from the Internet and your intranet. Incorporate information from traditional sources into your new e-business applications.
- You can launch your Web browser by clicking on a Web icon. PCOMM for OS/2 and PCOMM for Windows NT offer additional productivity aids that let you quickly navigate to URLs that appear on the page.

Familiar interface, regardless of where you are

Does your job take you from one location to another throughout the day? Even if all the workstations in those areas aren't OS/2, you can still enjoy the same familiar interface, because PCOMM is available with a consistent appearance for OS/2, Windows, Windows 95, and Windows NT™. Do you need the same interface in the office, at home, and on your notebook? With our user-based licensing, you can buy one license and install it on your office, home, and on-the-road workstation.

New ease-of-use functions

- Iconic toolbar provides a more intuitive interface.
- File transfer is as simple as drag and drop.
- ISO-compliant font selection (type and size) and cursor selection make it easier to view windows. And just like with CM/2, you can simultaneously stretch windows and fonts sizes.

More ways to improve efficiency by customizing your workstation

- Customize the iconic toolbar to meet your specific needs.
- Create better keypads than ever before using color, macro support, up to 64 keys per pad, and sticky keys that stay up all the time!
- Quickly create macros, even if you're not a programmer, using the *record* icon on the toolbar. Use the *playback* icon to invoke the macro, invoke it from the keypad, or create a hotspot or a special icon for it on your toolbar.
- Make windows for your emulator sessions appear with the titles you want, in the size you want, and at the place you want.
- Use CMMouse to provide an intelligent, context-sensitive interface that lets you use a mouse to manipulate S/390 and AS/400 applications.
- Take advantage of the extended clipboard capabilities: *select all*, *copy append*, *copy link*, and *paste next* are now supported!
- Use drag-and-drop color remapping to select the colors most pleasing to you.

Expanded print capabilities for PROFS® and OfficeVision® users

The ZipPrint utility in PCOMM lets you print to your desktop or LAN printer without having to define a printer emulation session.

Improved emulator performance and more emulator capabilities than ever before

- Our 3270 emulation is faster than ever, especially because PCOMM for OS/2 takes advantage of special enhancements in OS/2 Warp, Version 4.0.
- And if you've wanted TN3270, TN5250, or CUT emulation support, you have that with PCOMM, too.

Reduced workstation footprint

If you're running out of disk space, check with your system or network administrator about the new installation option that lets you minimize your footprint by using a supporting data server.

More benefits for system and network administrators



After you've migrated, we think your phone might ring less frequently, so you can start working on your list of special user challenges. Users often ask for the world, and we've made it easier for you to give it to them!

Familiar interface for users of different workstation operating systems

With availability of PCOMM for OS/2, Windows, Windows 95, and Windows NT, you'll now be able to easily support more users who might not currently be using OS/2. Our new user-based licensing also means that there are no additional charges if you need to migrate users from one Windows operating system to another. More important, PCOMM's consistent interface across operating systems can prevent added phone calls to you if users do change operating systems. For your convenience, there's a single CD-ROM that contains PCOMM for all operating systems.

New ease-of-use functions mean less training and fewer questions or calls

It's easier to bring new users on board with the more intuitive interface provided by PCOMM, including an iconic toolbar and drag-and-drop file transfer. With the new record capability for creating macros, you can help new users bypass any difficult application interface sequences and get directly to the information they need.

Customizable desktops for special groups of users

- Customize the iconic toolbar to support the needs of a special set of users.
- Create better keypads than ever before, using color, macro support, up to 64 keys per pad, and sticky keys that stay up all the time!
- Quickly create macros using the *record* icon on the toolbar to record difficult sequences in an application's interface. Then, customize the user desktop so that it can be invoked from a hotspot, a keypad, a special toolbar icon, or using the *playback* icon.
- Make windows for emulator sessions appear with easily understood titles, at a special size, or at a special place.
- Use CMMouse to provide an intelligent, context-sensitive interface that lets you use a mouse to manipulate S/390 and AS/400 applications.
- Use drag-and-drop color remapping to take advantage of color significance in defining a standard user desktop.

Expanded print capabilities for PROFS and OV users

The ZipPrint utility in PCOMM lets users print using a desktop or LAN printer without having to define a printer emulation session.

Easy integration of the Internet, your intranet, and TCP/IP applications with the user environment

- You can launch your Web browser by clicking on a Web icon. PCOMM for OS/2 and PCOMM for Windows NT offer additional productivity aids that let you quickly navigate to URLs that appear on the page.
- PCOMM incorporates AnyNet® sockets-over-SNA capability, which lets you run TCP/IP applications (unchanged!) over your SNA network. And if you have users in a TCP/IP network who need to run SNA applications, they can run those unchanged over that network, using the SNA over TCP/IP support available in PCOMM.

Automatic definition of LUs for emulator sessions

With PCOMM, you can greatly reduce the number of LUs you need to define in VTAM®, using the self-defining dependent LU (SDDLU) capability. In addition, default LU attribution means that users can open additional emulator sessions using the *next available* LU, so there's no need for them or you to predetermine and define all the sessions they'll need.

Printer definitions made easier

With more working samples and a more comprehensive command set, it is easier than ever to create Printer Definition Tables (PDTs). And PDT printing for the AS/400 is now fully supported.

Improved emulator performance and more emulator capabilities than ever before

- Our 3270 emulation is faster than ever, especially because PCOMM for OS/2 takes advantage of special enhancements in OS/2 Warp, Version 4.0.
- And if you've wanted TN3270, TN5250, or CUT emulation support, you have that with PCOMM, too.

Reduced workstation footprint

If users are already running out of disk space, check out our new installation option that lets you minimize the desktop footprint by using a supporting data server.

More benefits for application developers



Demand for new applications seems to be growing faster than ever. Take a look at the additional capabilities in PCOMM that can help you satisfy that demand.

APIs?

Yes, there are more than there were in CM/2! With PCOMM, you now have 32-bit support, PCSAPI, and dynamic data exchange (DDE). Use DDE to easily establish linkage between applications that need to process related information.

No more worries about rewriting applications because of a new TCP/IP backbone

Maybe you thought you'd have to rewrite that APPC application because of a TCP/IP backbone that is being installed. With our SNA over TCP/IP support, you can continue to enhance your existing application and run it over the TCP/IP network.

Personal Communications Toolkit

There are additional tools in the Personal Communications Toolkit that can help address some of your challenges:

New GUI front-ends for existing S/390 and AS/400 applications

Use the Toolkit to help eliminate *green screens*. Present a new application front-end that improves user productivity by capturing data and text from an existing application. And you can accomplish that without even doing the programming, using QuickFRONT generator (QFG) if you're developing PowerBuilder and Visual Basic programs.

New client/server applications to combine information from different sources

Go one step further than just putting a new front-end on S/390 or AS/400 applications using our Toolkit. Quickly create new client applications that can powerfully synthesize information that resides on one or more application servers.

A Toolkit that's compatible with popular languages

The Toolkit can be used with C, C++, PowerBuilder, and Visual Basic. And if you don't know EHLLAPI, don't worry about it – the Toolkit can do that for you. (You can tell your boss you learned it overnight!)

A Toolbar that's more like a magic wand

- Handy whether you're writing applications developed in IBM VisualAge® for C++, Borland C++, Sybase PowerBuilder, Microsoft® C and C++, or Microsoft Visual Basic
- Just a click away from a screen capture tool and a map maintenance tool that can extend those screens
- And a click away from the matchlist maintenance tool that can help match screens that are being sent between host applications and workstations
- Drag-and-drop creation and maintenance of matchlists using the screen match tool
- Another click to use the merge tool that can help you create a merged window, structure, or form with fields that come from multiple host screens
- Customization options match the toolbar to the PowerBuilder, Visual Basic, or C environments
- A connection to an online help facility
- Conversion of 3270 and 5250 screens into objects using the data structure generator

Run-time support

Run-time support included in the Toolkit is a set of Windows DLLs that work with the IBM Personal Communications 3270 and 5250 terminal emulators. The DLLs support a variety of functions for controlling and interacting with S/390 and AS/400 applications. These DLLs are called by application programs or front-end processes created with the Toolkit. (And there's no additional charge for this run-time support if the workstation has a valid PCOMM license.)

CM/2 and PCOMM comparison

In the table below, use the center column to confirm the presence of a CM/2 function or feature in PCOMM, and use the last column to help you understand all the additional capabilities included in PCOMM. Use the table on page 9 to compare system requirements for the products.

Function and feature

	Common to PCOMM and CM/2	***PCOMM additions***
	Emulators	
Terminal emulation types	• 3270 • 5250	• TN3270 • TN5250 • CUT
Emulator user functions	• Menu bar • Pop-up keypad • Hotspots • Color remapping • Keyboard remap • Automatic font sizing • Clipboard editing • File transfer • Online help • Host graphics • Integrated mouse support	• Auto "Start" of Web Browser • Macro function, including Record/Playback • Iconic toolbar, including toolbar customization and toolbar pop-up description • Enhanced clipboard editing • Shared folders (AS/400) • Data Transfer (AS/400) • Keyboard remap layout by language • Printer set up for form feed option • TCP/IP Host Print (RFC1646-RFC1647) • Column separator customization support
	Communication APIs	
Application programming interface (API) support	• EHLLAPI • SRPI • Kernel API (PCSAPI) • CPI-C • APPC • APPC3270 • LUA	• 32-bit • DDE • PCSAPI
	Connection and protocol support	
Connection types and communications protocol support	• Coaxial • Twinaxial • Leased lines • Switched lines • Ethernet • Token ring • SNA over Asynchronous • Hays AutoSync • PCMCIA adapters • SDLC • 802.2 • 3174 Peer Communication • FDDI • ISDN • X.25	• SDLC through AS/400 • Non-SNA DFT • Home terminal (including Turbo file transfer) • Asynchronous for IBM Global Network™ (IGN) • IPX/SPX • TCP/IP
Additional support	• Session-level encryption (SLE) for OS/2 • Data compression	• Response time monitor • IGN data security with DES
Communication line speeds for WANs	• Switched -19.2 Kbps • Leased - up to 2 Mbps • Asynchronous - 57.6 Kbps	
Major enhancements	• APPN® End Node • Non-APPN LEN Node • DLUR	• High-Performance Routing (HPR)

System requirements and packaging

	CM/2	***PCOMM***
Hard disk requirements	• 10 - 12 MB	• 17 - 30 MB, depending on operating system • Only 0.3 MB for thin client installation option that relies on a network server
Memory requirement	• 4 MB	• 4 MB
Translations available	• French • German • Italian • Spanish • Japanese • Korean • Chinese (simplified) • Keyboard and code page for many other languages	• French • German • Italian • Spanish • Japanese • Korean • Chinese (simplified) • Chinese (traditional) • Swedish • Brazilian-Portuguese • Keyboard and code page for many other languages
Packaging media	• CD-ROM and 3.5 diskettes	• CD-ROM and 3.5 diskettes
Platform	• OS/2 V2 and OS/2 V3	• OS/2 V2, OS/2 V3, OS/2 V4, Windows 3.1, Windows NT, and Windows 95

Communications Server: More power than ever before!

You can look forward to some great benefits as you migrate your server from CM/2 to Communications Server. IBM eNetwork Communications Servers are available for OS/2 Warp, Windows NT, AIX, OS/390, and NetWare (NetWare for SAA). The most typical migration is from CM/2 to Communications Server for OS/2 Warp, Windows NT, or AIX. For that reason, the information that follows focuses on those three eNetwork Software products. IBM remains committed to OS/2 Warp, and our Communications Server for OS/2 Warp takes advantage of some of the new features in the OS/2 Warp operating system to give you more capability and performance than ever before. If you want to know how Communications Server for OS/2 Warp compares to Microsoft's offering, review the results from the Tolly Group, an independent testing firm, on the Tolly Group Web site at http://www.tolly.com.

How will one smart move to Communications Server help your enterprise move up in the world? The Communications Server benefits you receive vary depending on your network, your needs and objectives, and your responsibility. On the pages that follow, we've classified the benefits that your enterprise can realize according to responsibility: *user benefits*, *system and network administrator benefits*, and *application developer benefits*.

To better help you realize the practical application of some of these benefits, review the scenario on page 15 of this document.



More benefits for users



The barriers that used to exist between you and other resources suddenly start melting away!

Share applications and data with users in another type of network

Do you find yourself wishing that your department could access some of the TCP/IP applications that reside in your company or in a business partner's network? Or do you wish you could share your SNA applications with them, if they're in a TCP/IP network? Both of these wishes can come true. Talk to your system or network administrator about deploying an eNetwork Communications Server to help you and your business partners be more productive.

Resources on remote LANs become accessible

- As a user who relies on SNA or APPC applications, you'll love the way Communications Server gateways make your world larger. You can put yourself in touch with other SNA and APPC sites, even if you have to get there by way of a TCP/IP network, such as the Internet. And if you've already started using TCP/IP applications, too, you can be in touch with other TCP/IP networks going across your SNA backbone network.
- If you're on an IPX LAN and need to connect to applications and data that reside on a remote IPX LAN, Communications Server for OS/2 Warp can make that happen, regardless of whether the network between them is SNA or TCP/IP. A gateway solution using Communications Server for OS/2 Warp breaks down those old boundaries, making your network as large as your job needs it to be!
- If you're on a NetBIOS LAN and need to connect to applications or data that reside on a remote NetBIOS LAN, a gateway solution using Communications Server for OS/2 Warp lets that happen, too, regardless of whether the network in between is SNA or TCP/IP.

Internet and intranet access for your department

If you've been anxious to have Internet access, or to access a corporate intranet, Communications Server makes it easy to add that to your normal routine. If you're trying to create an intranet, Communications Server works hand-in-hand with other IBM server offerings to give you a comprehensive solution to those needs. The good news is that your intranet can be the design of your choice. eNetwork servers will handle SNA or TCP/IP effectively and efficiently for you.

An end to application denial because it won't work on your network

Sure, you remember that wonderful application you read about in the trade magazine that could have put your department two months ahead! But your system or network administrator laughed when you asked for it because the application was incompatible with your network, and a network overhaul was neither in-plan or affordable. That answer should fade into only a bad memory when your company starts taking advantage of the real power behind the eNetwork Communications Server.

More benefits for system and network administrators



After you've migrated from CM/2, we think your phone might ring more frequently — but not because you're trying to support the same functions you did with CM/2. If users find out about the many barriers that can be eliminated with eNetwork Communications Server, your life may never be the same again. But you can always put up a sign that says, "The magician is out!" when you need to take a break. Web-based management tools, which are on the way for all Communications Server platforms, will make your life simpler. (They're already available in Communications Server for Windows NT!) With these tools you can even remotely manage the server from home over the Internet, if you want!

Connect users to applications and data in another type of network

"There's vanilla and there's chocolate, but everybody's asking for fudge ripple." If you're like most administrators, you've noticed users who have traditionally used SNA applications and data are starting to demand access to TCP/IP applications and data. And, the reverse is true as well. Communications Server was designed to satisfy both types of requests.

Put users on remote LANs in touch with each other

- If users rely on SNA or APPC applications, you'll love the way Communications Server gateways make their world larger. You can put users in touch with other SNA and APPC sites, even if you have to get there by way of a TCP/IP network, such as the Internet. And if users have already started using TCP/IP applications, too, you can put them in touch with other TCP/IP networks going across your SNA backbone network.
- If you need to connect an IPX LAN to a remote IPX LAN, Communications Server for OS/2 Warp helps that happen, regardless of whether the network between them is SNA or TCP/IP. A gateway solution using Communications Server for OS/2 Warp breaks down those old boundaries, making your network as large as it needs to be to keep users happy.
- If you need to connect two NetBIOS LANs, a gateway solution, using Communications Server for OS/2 Warp, can make that happen, too, regardless of whether the network in between is SNA or TCP/IP.

Make e-commerce a reality

You can become a hero with application developers who are struggling to develop e-commerce solutions. With the growth in Internet connectivity, e-commerce is rapidly becoming a necessity for many businesses. With the TN3270E function available in Communications Server, e-commerce doesn't have to mean building new networks or rewriting SNA applications. You can provide TCP/IP users access to SNA applications and data. With Communications Server support for High-Performance Routing (HPR), you can count on great performance. In addition, Communications Servers for Windows NT and AIX provide you with channel connectivity if you're concerned about optimizing the speed of transactions. If your e-commerce plans are wide-reaching, and you're having difficulty predicting how rapidly you might need to expand your support, you can investigate the special industry-leading TN3270 load-balancing support available in Communications Server for AIX with SNA Client Access. The sophisticated load-balancing algorithms let you add in more servers to support many thousands of users as the customer demand for e-commerce swells.

Let Web-based users have access to 3270 applications

Quickly extend the reach of existing 3270 applications to users of any Java®-enabled Web browser. Host On-Demand is a very simple way to provide critical information to users who are more accustomed to using Web browsers! For more information on Host On-Demand, visit our Web site at http://www.networking.ibm.com/hex/hexprod_en.html.

More benefits for application developers



Take a look at these additional capabilities that come to you when your company migrates from CM/2 to eNetwork Communications Server.

New 32-bit APIs

In addition to the 16-bit APIs that were present in CM/2, you now have 32-bit support for LUA, APPC, CPI-C, ACDI, and X.25.

Easy support for APPC desktop applications

If you're migrating from CM/2 to Communications Server for OS/2 Warp, you'll want to check out the OS/2 Access Feature and the Windows Access Feature for those APPC desktop applications under development. These features provide an easy way to access applications such as CICS®, DB/2®, DDCS, and DCAF programs.

E-commerce solution development that's a snap

If you've been struggling to develop e-commerce solutions, you'll want to check out the TN3270E support available in Communications Server. Perhaps, there won't be as much new code required as you thought, once you check out the TCP/IP-over-SNA and SNA-over-TCP/IP access node and gateway capabilities of the Communications Server. You can provide TCP/IP users access to SNA applications and data. With Communications Server support for HPR, you can count on great performance. In addition, Communications Servers for Windows NT and AIX provide you with channel connectivity if you're concerned about optimizing the speed of transactions. If your e-commerce plans are wide-reaching, and you're having difficulty predicting how rapidly you might need to expand your support, you can have your system or network administrator investigate the special industry-leading TN3270 load-balancing support available in Communications Server for AIX with SNA Client Access™. These sophisticated load-balancing algorithms let you add in more servers to support many thousands of users as the customer demand for e-commerce swells.

CM/2 and Communications Server comparison

In the table below, use the center column to confirm the presence of a CM/2 function or feature in Communications Server, and use the last column to help you understand all the additional capabilities included in Communications Server for OS/2 Warp, Windows NT, and AIX. Use the table at the bottom of this page to compare system requirements for the products.

Function and feature

	Common to CM/2 and Communications Server	***Communications Server for OS/2, Windows NT, and AIX additions***
Industry-leading SNA support		
SNA gateway	• APPN End Node and Network Node function	• High-Performance Routing (HPR) • 3270 support over APPN or dependent logical unit server/requester (DLUS/R)
Internetworking		
Multiprotocol support	• None	• Host On-Demand • TN3270E • TN5250 (AIX with SNA Client Access) • Sockets over SNA access node and gateway • SNA over TCP/IP access node and gateway • IPX over SNA or TCP/IP (OS/2) • NetBIOS over SNA or TCP/IP (OS/2)
WAN connectivity and communication		
Line speeds for WAN	• Switched - 9.6 Kbps • Leased - up to 19.2 Kbps • Asynchronous - 57.6 Kbps	• Leased - up to 2 Mbps
Additional support	• ISDN	• Channel (Windows NT and AIX) • ATM • SDLC full-duplex • 16 SDLC lines (OS/2) • Frame relay (OS/2 and Windows NT) • OEM cards
Communication API support		
Application programming interface (API) support	16-bit • LUA • APPC • CPI-C • ACDI • X.25	32-bit • LUA (OS/2 and Windows NT) • APPC • CPI-C • ACDI (OS/2) • X.25 (OS/2)

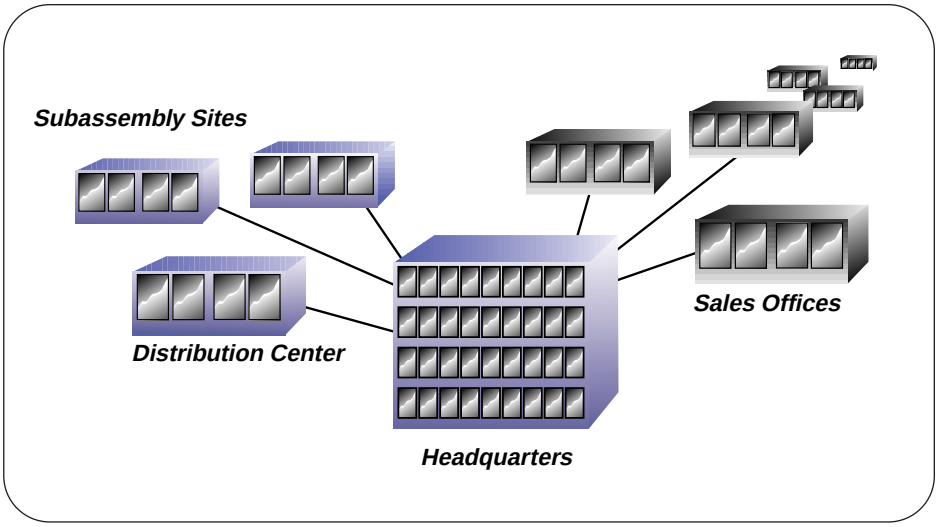
System requirements and packaging

	CM/2	***Communications Server for OS/2, Windows NT, and AIX***
Memory requirement	• 4 MB	• 4 - 8 MB OS/2 Server • 2 MB OS/2 Access Feature • 32 MB Windows NT Server • 32 MB AIX Server
Translations available	• French • German • Italian • Spanish • Japanese • Korean • Chinese (simplified) • Keyboard and code page for many other languages	• French • German • Italian • Spanish • Japanese • Korean • Chinese (simplified) • Chinese (traditional) • Brazilian-Portuguese • Keyboard and code page for many other languages N/A
Packaging media	• CD-ROM and 3.5 diskettes	• CD-ROM only

Manufacturing solution

… there's no place like home

This hypothetical scenario and solution will help you understand some of the additional benefits that can be realized with one smart move from CM/2 to eNetwork Software clients and servers. This scenario explains the business environment and needs, the network view before and after the migration, the additional benefits, and the cost/benefit estimate. You may also want to review other network configuration scenarios in *Positioning IBM's Family of OS/2 and Windows Desktop Communications Software Products*, available on our Web site at http://www.networking.ibm.com/cms/cms3642.html, or by ordering G325-3642.



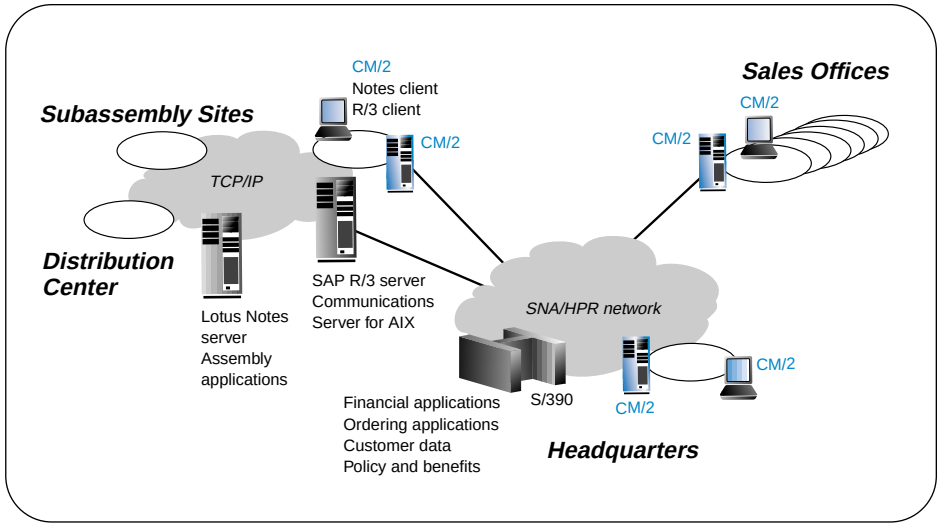
The Chief Financial Officer of this major appliance manufacturer was pleased about the advances that the company had enjoyed in the last few months. The company recently deployed SAP R/3 to streamline its manufacturing processes at the two subassembly sites and at the final assembly and distribution site, located in the midwestern United States. It was already clear that profits would be on the rise as a result of this change. The Chief Executive Officer, likewise, was pleased — to the point that he had requested the next turn of the crank.

This new request hit a bit closer to home for the CFO; it meant integrating the company's financial system into the manufacturing process using SAP R/3. While she was excited about streamlining the financial operations, it also meant that the CFO might need to relocate her staff of 100 from the current East Coast headquarters location to the Midwest to take advantage of the new SAP system and the network that supported it. An overhaul of the headquarters network, or installation of a parallel network, was out of the question financially. With so much personally at stake for her and 100 employees, the CFO decided to ask the information technology (IT) director whether there wasn't some other solution. Perhaps something could be done simultaneously with the planned upgrades of desktop software in the headquarters location and prevent a final relocation decision from being made!

The IT director agreed to investigate possible alternative solutions at the same time that he was evaluating other outstanding requirements to be addressed when desktops in the company's headquarters were being upgraded. The result of this more detailed evaluation brought a smile to the CFO's face for more than just financial reasons. The move would now be unnecessary! Take a look at what happened with this network and how it will benefit the company in the short term and for many years to come.

The network view

Once you understand the network configuration before migration and after migration, you'll be able to see the additional benefits realized during this migration.



Before migration

In this enterprise, CM/2 was being used for client-related needs and in a server capacity. This enterprise had already realized the added benefits offered by Communications Server. Installation of a Communications Server for AIX six months earlier helped with the rapid deployment of a SAP R/3 solution for the company's manufacturing environment.

Environment

- An SNA/High-Performance Routing (HPR) backbone network provides access to core SNA business applications and data that reside on an S/390 in the eastern United States.
- A Token-Ring LAN in the headquarters location supports 1000 users with CM/2 on desktops. CM/2 is also used as the gateway for access to the S/390.
- The two subassembly sites and the distribution center, where final assembly occurs, have identical network configurations and application environments, and are part of a TCP/IP network. Each environment consists of a Token-Ring LAN, which now supports chiefly TCP/IP traffic from the workstations to access the SAP R/3 manufacturing process and Lotus Notes™ applications. With the R/3 application, users now indirectly – but efficiently – access information that resides on the S/390 with the support provided by the Communications Server for AIX. Users on the LANs have CM/2 on their desktops to access current corporate policy and benefits information. Access to that information is provided through a CM/2 gateway that resides on the LAN.
- Ten employees in each of 30 sales offices located across the United States are supported by a Token Ring LAN and CM/2 on their desktops. CM/2 is used as a gateway for sales representatives to access S/390 applications to retrieve customer data, place orders, and obtain policy and benefits information.

Additional customer requirements considered during this migration

Short-term requirements

- Integrate the company's financial (purchasing and accounts payable) system with the manufacturing processes. If possible, find a way to avoid tentative plans to relocate the financial organization to the Midwest to achieve this business objective.
- Replace the current green-screen interfaces for S/390 applications (ordering, customer data, policy, and benefits) with more intuitive graphical interfaces that can increase present and new employee productivity.
- Provide consistent e-mail support across the enterprise for all headquarters employees to improve internal and external communication.

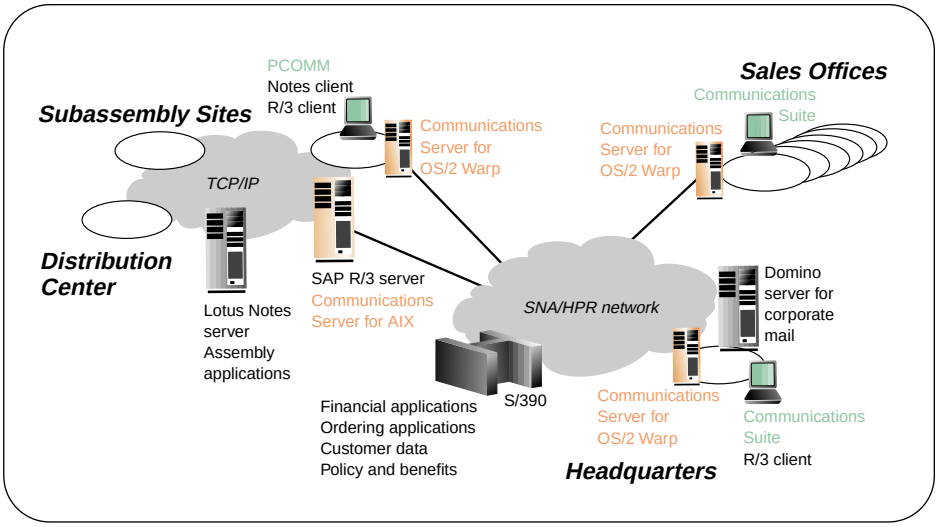
Long-term or general requirements

- During this overhaul of desktops and servers, create an environment that will be able to support Internet access for headquarters and sales employees to gather competitive and customer information – so that additional desktop, server, and major network overhauls can be avoided.
- Create an infrastructure that will be able to support e-commerce.

After migration

Solution

- Migrate 1500 CM/2 desktops at the subassembly sites and distribution center to PCOMM.
- Upgrade 3 CM/2 gateways at the subassembly sites and distribution center to Communications Server for OS/2 Warp. Working in conjunction with PCOMM, the Communications Server becomes a TN3270 server, eliminating the need for two types of network protocols on the LAN.
- Add a Lotus® Domino™ server in headquarters to support Lotus Notes Mail® as the corporate e-mail platform.
- Migrate the CM/2 desktops in the headquarters location (1000 desktops) and in the sales offices (300 desktops) to Communications Suite. (Communications Suite includes PCOMM capabilities, but also provides the needed Lotus Notes Mail client support.)
- Upgrade the CM/2 gateway in headquarters to Communications Server for OS/2 Warp to provide access to the Lotus Domino server from the sales offices. This gateway also provides the financial group in headquarters with access to the new SAP R/3 financial application, located on the existing SAP R/3 server in the Midwest.
- Upgrade the CM/2 gateway in each branch office to Communications Server for OS/2 Warp to provide the gateway support for Lotus Notes Mail.



The IBM eNetwork Software product line includes communications servers for Windows NT, NetWare, AIX, OS/390, and OS/2 systems. IBM eNetwork Software clients are available for Windows NT, Windows 95, Windows 3.1, and OS/2 systems.

Additional benefits from the migration

For users

- *Simpler interfaces to S/390 applications*
  With the new front-ends that were developed using the PCOMM Toolkit, existing and new sales force members are more efficient in placing orders and in providing and using customer data. All employees can more easily access policy and benefit information.
- *Familiar interfaces regardless of employee location*
  Sales representatives enjoy the same familiar PCOMM interface, whether in the office or traveling with their notebook. User-based licensing permits installation on the sales representative's desktop and notebook for the cost of a single license.
- *Interfaces for the Internet, an intranet, or TCP/IP applications*
  In keeping with the long-range objectives of the organization, every employee in headquarters and the sales offices has Netscape Navigator, as well as a TCP/IP protocol stack and applications. This capability can also be deployed in future e-commerce solutions.

For system and network administrators

- *Custom desktops created quickly*
  PCOMM was easy to customize to meet specific needs of small groups of users. This was accomplished using custom keypads, toolbar customization, hotspots, and sticky keys. Record and playback capabilities also provide the ability to simulate cumbersome and repetitive sequences of keystrokes to increase user productivity.
- *Simpler LU definitions*
  Automatic definition of LUs means that system administrators no longer have to predetermine and define the number of LUs needed to support each user's emulation sessions.
- *Migration to a different Windows desktop environment without additional product expense*
  Purchasing PCOMM and Communications Suite means that future migrations to a different Windows platform can occur without additional charges for a new PCOMM or Communications Suite product license. For convenience, both products offer support for various operating systems on a single CD-ROM. To plan ahead for even more new functions that may be offered in future releases of these products, an upgrade protection option is also available.

For application developers

- *An easy way to eliminate green screens*
  Developers were able to complete the revisions to S/390 applications three months ahead of schedule, using the PCOMM Toolkit.

For the enterprise

- *Cost savings*
  Take a look at the cost/benefit estimate on page 18.

Cost/benefit estimate[1]

The IBM eNetwork Software product line includes communications servers for Windows NT, NetWare, AIX, OS/390, and OS/2, and clients for Windows 3.1, Windows NT, Windows 95, and OS/2. Although products may be substituted based on operating system preference, prices may vary.

The benefits and implementation costs[2] associated with this scenario are defined below. The savings associated with the benefits were calculated for a two-year period, although the benefits and this implementation will endure far beyond that period of time. This estimate does not include the costs or the savings associated with network integration, the SAP R/3 financial implementation, line costs, application training, or maintenance.

Total benefits savings	**$1,870,890**

- Increased productivity 239,640
  Savings of 0.5 minutes per transaction using ordering system with new front end
  0.0083 hours/transaction x 100 transactions/month x 300 sales representatives x 24 months x $15/hour = $89,640

  Savings from easier systems and network management using Web-based management interfaces (This headcount savings was being reapplied to develop special profiles for different types of PCOMM users, which should result in additional productivity savings not quantified in this estimate.)
  2 person years x $75,000/year = $150,000
- Application development savings 131,250
  Ability to implement new interfaces to S/390 applications 3 months earlier, using PCOMM and PCOMM Toolkit
  0.25 person years x 7 employees x $75,000/year = $131,250
- Relocation avoidance 1,500,000
  Savings from not relocating 100 employees in Finance to the Midwest
  $15,000/employee relocation expense and lost time from work x 100 employees = $1,500,000

Total implementation costs	**$626,453**

- Hardware implementation costs 10,000
  Server for Lotus Domino server *(1 x $10,000 = $10,000)*
- Software implementation costs[3] 616,453
  Upgrade 1500 desktops to PCOMM, including upgrade protection option *(1500 x $175 = $262,500)*

  Upgrade 1300 desktops to Communications Suite, including upgrade protection option *(1300 x $250 = $325,000)*

  Lotus Domino to create a Lotus Mail server *(1 x $495 = $495)*

  PCOMM Toolkit for 15 programmers *(15 x $995 = $14,925)*

  Upgrade 34 CM/2 servers to Communications Server for OS/2, including upgrade protection offering
  [(1 x $299 base) + (1 x $199 protection offering)] + (33 x $395) = $13,533

Savings (Benefits - Implementation Costs) =	**$1,244,437**

[1] *This is a hypothetical estimate of the potential cost savings to a business enterprise, resulting from the proper use of certain IBM software. It is not a promise or guarantee on the part of IBM that any associated savings will result. The hypothetical estimate is based on assumed costs and/or business practices for average businesses, and assume proper installation, use, and maintenance of IBM software, and do not take into account potential negative interaction with hardware or software provided from non-IBM sources, or different personnel costs and needs.*

Customers or potential customers of IBM should perform an independent estimate of the potential costs and savings to their enterprises which might result from implementation of IBM software or an IBM solution and should not rely on anything in this business case as a guarantee of performance or costs/savings. IBM representatives who deal with customers should not use these charts to make any performance or savings promise or guarantee, and should provide each customer with whom these charts are discussed with the assumptions underlying such IBM estimates.

[2] All figures provided in this estimate are in U.S. dollars.

[3] Special eNetwork migration discounts, in effect until September 30, 1997, have been applied to this estimate. The IBM Software Advantage Program for Workstations could also be applied to this purchase. Discounts of up to 45 percent are available. Contact your IBM sales representative or reseller for more information.

Migration assistance and incentives

You're only one smart move away from eliminating boundaries that exist in the networks in your enterprise. And we're here to help you make that world-class move!



Support for CM/2 is still available to you so that you can time your migration appropriately:

- Support is available through the support line until March 30, 1998
- Support is available through the special bid process after March 30, 1998

Special migration assistance is always available to you. If services are needed to ease or speed your transition from CM/2 to PCOMM or Communications Server, contact your IBM representative, or contact Mary Ann Cappelletti at MCAPPELLETTI@VNET.IBM.COM or by phone at 919-254-7960 (United States).

Favorable pricing is currently available to you. Because you're migrating from CM/2, upgrade pricing is available to you when you purchase either PCOMM or Communications Server for OS/2. You may also be eligible for other discounts.

Additional sources of information

For the latest information on Migration to IBM eNetwork Personal Communications and Communications Servers, visit our Web site at http://www.networking.ibm.com/cmm/cmmmain.html. Additional questions can be sent to Elizabeth Peters at EPETERS@VNET.IBM.COM.

For PCOMM

- eNetwork PCOMM Web site http://www.networking.ibm.com/pcf/pcfprod.html
- *Personal Communications Windows NT Up and Running* (GC31-8314)
- *Personal Communications Reference* (SC31-8259)
- *Personal Communications AS/400 and 3270 for Windows NT User and Reference Information* (SC31-8315)
- *Personal Communications Tell Me About OS/2 Access Feature* (SC31-8257)

For Communications Server (general)

- eNetwork Communications Server Web site http://www.networking.ibm.com/cms/commserv.html
- *IBM Communications Server Specification Sheet* (G325-3565), also available at http://www.networking.ibm.com/cms/cms3565.html
- *Communications Server White Paper* (An IBM Software Server) available at http://www.networking.ibm.com/cms/cmswp01.html
- *Communications Server Planning and Reference Guide* (SBOF-7016)
- *Communications Server Programming Reference Package* (SBOF-7015)
- *IBM Enterprise Communications Server Family Brochure* (G325-5207), also available at http://www.networking.ibm.com/cms/cms5207.html

For Communications Server for OS/2

- eNetwork Communications Server for OS/2 Warp information on our Web site http://www.networking.ibm.com/cms/cs2abt.html
- *Tools and Techniques* (Instructions for migrating from CM/2 to Communications Server for OS/2 Warp will be available in June, 1997 at http://www. networking.ibm.com/cmm/cmmmain.html)
- *Communications Server for OS/2 Warp* (G325-3596)
- *Communications Server for OS/2 Warp, Version 4.0, Up and Running* (GC31-8189)
- *Communications Server for OS/2 Warp OS/2 Access Feature* (G325-3568), also available at http://www.networking.ibm.com/cms/cms3568.html
- *Communications Server for OS/2 Warp Windows Access Feature* (G325-3566), also available at http://www.networking.ibm.com/cms/cms3566.html
- *IBM Communications Server for OS/2 Warp, Version 4.1 Enhancements* (SG24-4916)
- *IBM Communications Server for OS/2 Warp, Version 4.0 Enhancements* (SG24-4587)

For Communications Server for Windows NT

- eNetwork Communications Server for Windows NT information on our Web site http://www.networking.ibm.com/cms/csnabt.html
- *Tools and Techniques* (Instructions for migrating from CM/2 to Communications Server for Windows NT will be available in June, 1997 at http://www.networking.ibm.com/cmm/cmmmain.html)
- *Communications Server for Windows NT, Version 5.0, Quick Beginnings* (GC31-8424), also available at http://www.networking.ibm.com/cms/enu/csnqb.html

For Communications Server for AIX

- eNetwork Communications Server for AIX information on our Web site http://www.networking.ibm.com/cms/csxabt.html
- Comprehensive *Assessment Guide for IBM Communications Server for AIX with SNA Client Access* can be requested by e-mail message to Rick Zuburg at ZUBURG@US.IBM.COM or Elizabeth Peters at EPETERS@VNET.IBM.COM



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