Using Network Computers Today

A Look at the Manufacturing Industry

D.H.
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GROUP

April 1998

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About the Authors

David Andrews founded D.H. Andrews Group in 1984 after 17 years as an IS executive. As a principal author and an editor of the D.H. Andrews Group reports, he is one of the most widely read sources in the computer industry. He is frequently quoted in the computer and general business press. Andrews is regularly invited to speak at conferences, seminars, and user groups throughout the world.

Steven Aufderheide is Director of Research and Publications for D.H. Andrews Group. He has 32 years of experience with the IBM Corporation in development, marketing, and strategy planning.

Jennifer Honen is a Senior Consultant with D.H. Andrews Group. She has been a professional science and technical writer for 10 years and has several years experience in the IT education field. Jennifer also has an expertise in multimedia CD-ROM development and production.

Using Network Computers Today is published by:

D.H. Andrews Group
700 West Johnson Avenue
Cheshire, CT 06410
Phone: (203) 271-1300
Fax: (203) 272-8744
E-mail: dha@dhagroup.com
Internet: http://www.dhagroup.com

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Jennifer Honen
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Executive Summary

An El Niño, called *network computers* (NCs), is raging in the computer industry, threatening to change the weather forever. The storm is roaring so loudly that even Microsoft is paying attention. Will network computers take a big bite out of the PC market? Or will Java's immaturity stall network computers at the starting gate? Advocates wax poetic about lower cost of ownership and increased productivity. Critics throw rocks, pointing out that Java is immature and that running Windows applications on network computers is no easy endeavor.

While most people are busy taking sides, a growing number of companies—including manufacturers—are putting network computers to work right now. These companies are using network computers to bring more order and organization to their business, increase productivity and customer satisfaction, and lower costs in the process.

Manufacturers around the world are under unprecedented pressures. While most businesses share common pressures, manufacturers bear a unique burden. Heated competition among retailers is forcing manufacturers into new roles. The days of manufacturers selling to wholesalers, who in turn sell to retailers, is rapidly disappearing. Many large retailers, such as Wal-Mart, now want the manufacturer to also act as wholesale distributor. This is not easy.

The Internet changes everything. Competition can now come from anyplace, at anytime, without warning or cost-of-entry. Physical transactions are transitioning to digital transactions. Mass supply is transforming to custom demand. The ability to digitally satisfy the custom demand will be the key to survival. Browser use for external access to the Internet is already here. Browser use internal to a business is coming. If any business is not making internal use of browsers today, they will in the future.

PCs are supposed to make things easier. They do for many tasks, but PCs are very expensive to own. Annual maintenance and support can cost $10,000 or more, and most of the cost is hidden. The high cost of PC ownership and the promise of Java are behind the network computer movement.

A network computer can be thought of as a stripped-down PC whose permanent storage, external devices, and software are shared among many users. This sharing not only saves money, but it vastly reduces support costs. NCs are simple and have no moving parts, such as a hard drive or floppy drive, that can break down. The software that NCs use is stored within the network and sent to them as needed. Applications are simply pulled down and run on the desktop.

The Java language developed by Sun Microsystems is gaining rapid acceptance as the best mechanism for sending applications to remote devices. Most, but not all, network computers can run applications written in Java. The combination of the Internet and Java led major industry leaders to imagine the possibility of sending applications and data to any type of computer anywhere on the network.

Executive Summary

With centralized administration, network computers can remove the complexities associated with enterprise-wide upgrades of applications, security problems, and hard drive crashes. Network computers can also increase productivity by offering all the functionality a user needs to get a job done correctly. All of this is accomplished at very low cost.

Many more Java applications must be designed for the network computer environment before this vision can be fully realized. Leading the way is the Lotus Java-based personal productivity package called *eSuite*. Yet, critics say that until Java matures, network computers will not be as useful as projected. The good news is that organizations don't have to wait for Java in order to make use of network computers. There is a compelling case for using them right now. Companies that adopt network computers now will also be poised to take advantage of them in the future, as Java progresses.

Manufacturers in particular should be interested in network computers. Right now, many are finding that network computers enable them to improve the flow and availability of information throughout the enterprise, increase productivity, and save substantially on computer maintenance and administration. This drives real cost savings. *All businesses must manage cost. Few do it better than manufacturers.* This report contains a number of brief summaries of why and how some manufacturing businesses are already implementing network computers.

The real issue is how to decide when and where to use a network computer. Most manufacturers have a mixture of non-programmable "dumb" terminals, older technology PCs functioning as terminal emulators, and new technology PCs for the sophisticated power user.

The trick is to determine which machine is best and most cost effective for the task at hand and for the infrastructure already in place. Sometimes the answer is a PC; sometimes it is a network computer.

Network computers combine the easy administration associated with dumb terminals with the functionality and flexibility associated with PCs. Even Microsoft is beginning to recognize the need for less expensive devices that fit the task. The software giant's new Windows terminal (NetPC) and Microsoft's recent acquisition (WebTV) each attempt to solve some of the problems that network computers address.

Using Network Computers Today: A Look at the Manufacturing Industry is the first in a series of short industry-specific reports that point out how network computers can be used today. The report outlines a brief description of network computers, their capabilities and current limitations, and a discussion of the key business and IT pressures manufacturers face. Most importantly, this report introduces a three-step methodology for assessing likely areas for network computer use.

- Step One is a generic segmentation to help frame thinking around high-level areas.
- Step Two is an evaluation matrix specific to manufacturing.
- Step Three is an evaluation matrix to help determine network computer versus dumb terminal versus PC usage and benefits.

Any manufacturing firm facing any one of the three following situations should read this report:

- Replacement or addition of dumb terminals.
- Replacement or addition of new PCs.
- Design and/or purchase of new manufacturing computer systems.

The wisest course of action is to conduct a pilot and proof-of-concept for the operations in question. Nominal investments are required to take a test ride. Very significant savings are possible. ◆

What Is a Network Computer?

There are typically two types of network computers (NCs) discussed in the industry: business and consumer. Most of the hype in the media has been focused on the consumer devices, such as WebTV, which are also called Internet appliances. These tend to be in the $500 US price range, include a browser, but offer no terminal emulation or LAN connection capabilities, and have little utility for business use. This report will deal with the business side of the network computer equation for which street prices typically approach $1,000 US.

Some common elements and characteristics of network computers include:

- A small but powerful microprocessor.
- Enough memory to locally run Java applets and other applications.
- A Java Virtual Machine (JVM) to provide the ability to run Java applications.
- Connections for a monitor, keyboard, mouse, and expansion slots.
- Storage of applications and data on the server, allowing applications to run locally as needed.
- Web browsing software.
- No storage devices (hard drives, diskette drive, tape).
- TCP/IP support.

Network computers are a middle ground between PCs and dumb terminals. Sometimes the user does not need all the functionality a PC provides but must still pay full price for its maintenance and support. Network computers offer a less expensive way to provide PC functionality at dumb terminal prices. Although purchase prices of PCs and NCs are converging, it is the ongoing support costs of PCs which continue to drive the dramatically higher costs of ownership.

A number of the more important benefits that network computers provide are:

- Lower cost of ownership.
- Ease of use which reduces training time.
- Reliability due to lack of moving parts.
- Central administration of software which eases the implementation of upgrades.
- More flexibility than dumb terminals.
- Web browser.
- High security because there is no floppy drive to pull off information or to introduce viruses.
- Standards-based connectivity.
- Access to robust applications.
- Access to the Internet and corporate intranets.

Several types of business needs and tasks are not currently well suited to the architecture that supports NCs, though new applications may soon address these issues:

- Client/server applications with heavy client emphasis.
- Tasks that require large amounts of local processing power, such as designing with Computer Aided Design (CAD) applications which require high-power graphics modeling and animation. Note, however, that IBM's CATweb Navigator (see page 10) enables network computers to access CAD/CAM systems for viewing and light manipulation of data.
- Networks with limited bandwidth to remote servers.

- The full spectrum of multimedia capabilities.
- Mobile users.

Where attaching special devices such as scanners or barcoders are required, the user may need a PC unless there is hardware and software support available for those devices to run on a network computer.

Step One: High Level Assessment for Your Business

Step One in the methodology of assessing NCs for any manufacturing business is to start with the following checklist. This provides high-level guidance in four basic situations that a manufacturer may be facing. The four are prioritized from those where it is easiest to implement NCs to those that are more dependent upon the future maturity of Java.

1. Non-Programmable Terminal Replacement
- Emulations for accessing legacy applications.
- Additional functionality, such as multi-sessioning and multi-tasking.
- GUI for improved user interface.
- Access to Web-based applications and the Internet.
- Access to an intranet.
- Same task performed by many people (i.e., call centers and customer service).
- Electronic workflow and office automation.
- Self-service access to system by customers and business partners.

2. PC Replacement of Older Technology
- Upgrade of 286 and 386 PCs.
- Typically terminal emulation or single function.
- Low function where productivity applications are ancillary.

3. PC Replacement of Newer Technology
- Replacement or consolidation of 486 and Pentiums by moving functionality and administration to the server.
- Full-function end-user productivity.

4. New Java Applications
- Expansion of the range of capabilities to include applications typically found on a thick client.
- Off-the-shelf ISV solutions, such as Lotus eSuite.
- Personal productivity applications.
- Custom thick client. ◆

Construction Firm Builds Network Computer Base

At the Fort Wayne, Indiana, headquarters of the construction engineering firm Shambaugh & Son, network computers are becoming a common sight. Users there are accessing AS/400 business applications as well as PC server applications through IBM Network Stations. The company, which has branches across the US, decided to replace terminals with the network computers because they provide low-cost access to multiple servers simultaneously.

Kevin Dunn, Information Systems Manager at Shambaugh, was happy to avoid the cost and maintenance of replacing terminals with PCs. “Upgrades that require software installation at several workstations with a personal computer network can be centralized at the server with a network computer system,” says Dunn.

Easy access to the Internet is another benefit of network computers, especially for retrieving up-to-date information on product specifications and pricing. Moving away from green screens has also allowed Shambaugh to access graphical spreadsheets, word processing, and more user-friendly e-mail. ◆

Manufacturing Industry

Environment

Most manufacturers are justifiably frustrated by computers. They would be happy to live in a world without computers and their pitfalls. Manufacturers like the instantaneous information that computers provide, but they understandably don't like the messy inconvenience that accompanies most computers. Technology has become a competitive tool even in industries that have traditionally viewed it as a bitter medicine. It is crucial that manufacturers get work through the system in the most efficient way. Poorly implemented technology can slow the process and pull workers from their primary objectives.

Key Business Pressures on Manufacturers

Being in business is pressure. Large, medium, and small manufacturing firms alike are feeling an unprecedented squeeze. As more and more consolidation of large retailers takes place, they are reaching back to the manufacturers for improved cycle times, services, and additional profit. Manufacturers are being pressured to offer more. That usually does not mean offering different products, but providing more services around the products.

Manufacturers are being forced into the new role of wholesaler. A manufacturer who can anticipate the needs of the retailer, notify the retailer exactly when and how much product will be delivered, and physically stock the shelves will win contracts. At the same time, the world is moving from mass supply to custom demand. The target market of "one" impacts the manufacturing floor directly.

Add to all the above the normal pressure of competition and the new dimension of digitization of world economies, and manufacturers have their hands full. Below is a synopsis of the key pressures faced by small, medium, and large manufacturing companies:

- Cost, cost, and cost without sacrificing quality.
- Retailer pressure on manufacturers to act as distributors.
- Dramatic changes in consumer-to-retailer-to-manufacturer environment:
  - Shift from mass supply to custom demand, which reaches directly into the heart of manufacturing.
  - Shift from physical transactions to digital transactions (the ability to satisfy custom demand is directly related to the ability to handle digital transactions).
- Supply chain power shifts to consumers and to a consolidation of fewer mega-retailers.
- Business performance driven to new levels of excellence by an acceleration of technology.
- Global competition and sourcing enabled by the Internet—competition can come from anywhere, at anytime.
- Communications speed.
- Time-to-market for new products.
- Product life-cycle management.
- Mergers, acquisitions, liquidations.
- Unforgiving stock market (profitability and growth demanded).

Key IT Pressures

An interesting mix of centralized host-based and client/server modes of computing exist in many manufacturing businesses. The promise of distributed client/server has not been fulfilled. Companies large and small face the frustration of growing complexity, higher than expected infrastructure costs (PCs in particular), and the inability to scale.

The classic three-tiered client/server architecture is made up of clients, application servers, and database servers. Most consulting firms, Microsoft, and all of the PC Server vendors tend to advocate the three-tiered model as a physical architecture. This means each application has its own server which results in a high volume of servers (and services revenue for the consultants). However, three-tiered client/server architectures can also be logically three-tiered. In the logical model, both data and application serving are done on one larger, but very scalable and reliable, server. This is essentially a physical two-tiered architecture. Now centrally managed operations are possible and provide substantial cost savings.

Network computers offer another dimension to reducing cost in the client/server world. Amalgamated with a more centralized server model of computing, very significant efficiencies are emerging.

Overall, key areas of focus for information technology in manufacturing are:

- Predictable cost and implementation time.
- Network security.
- Version control.
- More manageable administration.
- Control of PC costs.
- Global capability.
- Data available when and where needed.
- Year 2000.
- Low-risk implementation.
- Investment protection.
- Internet strategy.

Step Two: Manufacturing Assessment

When evaluating where and how to use network computers, it is important to consider the type of business, infrastructure, and critical tasks performed in the execution of the business. The following types of repetitive tasks are well suited for a network computer:

- Viewing or looking up data.
- Inputting data into pre-specified fields.
- Updating data such as change of address.
- Retrieving data in a more structured way, as if through a query.

Customer Brief: Rotary Corp., Glennville, GA

A manufacturer of parts for lawn mowers and gasoline-powered equipment.

Business Needs

- Improve customer service.
- Update business processes.
- Reduce costs.
- Assure compatibility with the Lawson Enterprise software.
- Have access to both the AS/400 and RS/6000.

Solution

Rotary Corp is using the IBM Network Station to access Microsoft Windows applications, Lawson's Enterprise/400 Drill Around feature, Supply Chain module, and financials, as well as Symix (an application on the RS/6000).

Immediate Benefits

- Quick installation.
- Low deployment costs.
- GUI access to applications on different servers.
- Immediate savings of $1,000 per Network Station. ◆

In general, the following types of tasks currently tend to require PCs:

- Creating data, such as representing data in a graphical way, or using processor-intensive applications to manipulate data.
- Publishing data, where high-end, processor-intensive graphics applications and peripherals are needed.

The evaluation matrix below will provide a way to look at the key elements of most manufacturing business processes. Readers of this report can expand each of these elements into their component parts based upon the structure of their own business. Each component task should be evaluated against how the task is carried out (i.e., how the user views, updates, and creates data, etc.) These answers will enable companies to assess the viability of using network computers for those tasks. Keep in mind that in some cases, the suitability of network computers will be dictated by the application software.

Manufacturing Process Elements	View	Input/ Update	Query	Create	Publish
Project development and design					
Engineering drawing, creating, and management					
Job and work order processing and status					
Part number data management					
Machine serial numbers and identification					
Quality inspection data					
Labor data (direct and indirect)					
Customer identification					
Customer (distributor/retailer) inventory, requirements, status					
Supplier/vendor identification, inventory, status					
Manufacturing build instructions and routings					
Bills of materials					
Shipping instructions					
Plant floor status					
Downtime reporting and analysis					
Purchasing status					
Reject and defect, scrap and rework reporting					
Engineering change data, status, break-in					
Test equipment data analysis					
Order status and tracing job costing					
Inventory tracking					
Taking physical inventory					
Shipping data and status					
Sales price quotes					
Forecasting and planning process execution and data access					
Customer relationship management					

Step Three: Evaluation Matrix

Manufacturers can perform the tasks outlined in Step Two with a mixture of NCs, dumb terminals, and PCs. But network computers leverage the strengths of both devices in the most cost-effective way. Step Three in the methodology clearly outlines the benefits of network computers as compared to both dumb terminals and PCs.

NC Benefit	Versus Dumb Terminals	Versus PCs
Low cost of ownership	• Retains higher value. • Future use of Java applications. • Ease of integration in mixed application environments. • Coexistence with PCs.	• NCs have lower cost to purchase and install, and *much* lower costs to support. • System designs are less complex and require less design time. • Eliminates unused PC function. • Retains higher value.
Ease of use	• Training time reduced; graphical interface more intuitive.	• Training time much lower for NCs.
Reliability		• PCs need to be rebooted an average of 1 to 2 times daily. • NCs have no moving parts. • Server reliability passes through.
Central administration of software from the server		• Speed of deployment. • Applications delivered on demand. • Ease of upgrades and maintenance. • Device independence. • Easier Year 2000 and Eurocurrency management. • Huge cost advantage.
Security		• Data on the server. • Applications on the server. • Viruses eliminated. • Secure information cannot be copied to a diskette. • Ability to enforce standards across users. • Asset loss is lower if stolen.
Flexibility	• Much more flexible than dumb terminals. • Web enabled. • Legacy applications can be converted to GUI. • Customizable screens for each user are possible. • Introduction of PC functionality in stages. • Multi-server or network access. • Multi-sessioning and multi-tasking. • Common interface to clients, phones, kiosks, smartcards, Web, etc.	• Introduction of PC functionality in stages.
Access to robust applications	• Identical functionality of existing legacy applications. • Access to any other server and application. • New Java applets will run. • Access to Web-based applications.	
Internet/intranet access.	• Better service to and retention of customers. • Improved flow of information in the business.	
Standards-based connectivity.	• TCP/IP, et al., supported.	

CATweb Navigator: A True Network Computing Solution for CAD/CAM Environments

Most businesses today recognize the value of the Internet, from providing information to current and potential customers to selling products and services through electronic commerce. Manufacturers in particular should be interested in IBM's CATweb technology which joins together two powerful tools: the Internet and CAD/CAM systems. Most of the design work in the manufacturing industry employs CAD/CAM applications which are processor-intensive programs originally thought not to be well suited to the network computer environment. While CAD/CAM design continues to be best carried out on a fully loaded PC, CATweb Navigator provides an invaluable service—it allows users to access designs via the Internet.

Previously, those who needed to access CAD/CAM models had to use heavily loaded PCs to download all the parts of a complex assembly or model—literally hundreds of megabytes worth of data and files. PCs or network computers (NCs) with plug-ins can be used to view only static images.

CATIA has long been IBM's worldwide CAD/CAM product that generates digital 3D engineering images. In October 1997, IBM introduced CATweb technology and literally opened up the doors of CATIA to the Internet. There is no other product on the market today like CATweb that gives network computers with Java-enabled browsers the ability to dynamically view CAD/CAM images without plug-ins.

CATweb Navigator works with CATIA to generate images that can be accessed by a NC over the Internet/intranet/extranet. Using CATweb Navigator, any user can access and manipulate CATIA data from anywhere, at anytime, in seconds. With CATweb Navigator Version 2, a NC can dynamically access a CATIA 3D assembly or model for remote viewing, manipulation, and query. CATweb Navigator allows a NC to access what is essentially a photograph or snapshot image and allows new views to be generated on the fly, in seconds.

This provides particular benefit to manufacturers. Internally, the entire manufacturing enterprise from purchasing to sales to the shop floor can have access to up-to-date design information. Externally, suppliers can also have access to this information. Currently, some suppliers receive manuals or technical drawings that are usually out of date before they arrive via fax or mail. Even if a supplier has electronic access to the manufacturer's server, it is cumbersome to download CAD/CAM files of any significant size. For some model assemblies, more than 500 to 600 1MB files are required. Specialized software is also needed to view the image. As designs are updated, the traffic would be immense and repetitive. In this scenario, security would also be an issue since the whole model has to be downloaded to view or query a design.

CATweb allows network computers to receive snapshots of CAD/CAM images. The NC sends a request over the intranet to the server. The server processes the request, then sends what is essentially a photograph to the NC. The server does all the work—it allows many NCs to concurrently request and view a generated image. With a NC, users are not looking at a copy of the CAD/CAM file, but rather they are linked directly to the model. The snapshot that is sent is a small packet—20KB to 50KB, depending on the resolution. Users can rotate their view or zoom in. The request goes back to the server, and the server returns the new picture in seconds.

Not only is CATweb Navigator an elegant solution for NCs, it is also a global one that dovetails perfectly with IBM's e-business solution. Many NCs, located all over the world, can view the same CATIA models and information at the same time through CATweb Navigator. If a CAD/CAM design is changed just minutes prior to access by a client, the image will reflect the change.

CATweb Navigator enhances the value proposition of the NC because:

- Users can access designs in real-time, thereby saving the high costs associated with changes made after the fact, as well as missed deadlines.
- Ease of use allows non-engineering types to successfully use the product and provide early input in the design process.
- Security risks are diminished.
- A higher quality product can be generated because current data is being used.
- Images can be accurately viewed when a reviewer sign-off is needed.
- The concern for version control is significantly reduced.
- There is no application software that needs to be maintained on NCs.
- NCs are considerably less expensive than PCs to purchase and maintain. ◆

What to Do Next

Replacing dumb terminals with PCs or more dumb terminals could be a big mistake. Buying PCs for certain tasks can be overkill and, therefore, is equally problematic. Manufacturers should consider network computers if they are:

- Implementing a new system.
- Replacing or purchasing new green screens.
- Replacing or purchasing new PCs.

The most sensible course of action is to purchase a few network computers and run a pilot. Talking with the application providers can also help to determine the suitability of network computers in each specific circumstance.

To purchase network computers or find out more about them, companies can contact their IBM representative or visit the Web sites listed below.

www.ibm.com/nc
IBM's network computer home page that includes information about the Network Station family of network computers, case studies, downloads, support and services, and business partners.

www.ncd.com/pwin/pwin.html
Information on Network Computing Devices, Inc., (NCD) WinCenter product which delivers Microsoft Windows applications to multi-platform enterprise networks.

www.as400.ibm.com/nstation/infopage.htm
Installation, configuration, and use of information for the IBM Network Station.

www.hursley.ibm.com/networkstation
Information about IBM's Network Station business partners.

Customer Brief: C G Technical, Inc., Phoenix, AZ

A sheet metal machine shop that manufactures raw and custom sheet metal products.

Business Needs

- Enhance speed to market.
- Extend global reach.
- Find new revenue sources.
- Improve customer service.
- Improve quality.
- Reduce costs.
- Move from green-screen dumb terminals running applications in Uniball on the RS/6000 to an AS/400 to provide more capabilities to the desktop.

Solution

C G Technical is using Network Stations tied to the AS/400 9406 to run MRP/ERP, shop floor accounting, process tracking, and Simply Color. Java capability is available for future use.

Immediate Benefits

- Replacement of green screens with reliable desktop solution.
- No moving parts to fail in a shop floor environment.
- Easy to maintain. ◆

www.internet.ibm.com
Valuable information related to network computing.

www.nc.ihost.com
Information regarding the NC Reference Profile 1 which will provide a common set of standard features and functions across a broad range of scalable NCs.

www.esuite.lotus.com
Information about Lotus eSuite, a set of Java-based tools and applications that deliver software designed for network computers and PCs. The eSuite WorkPlace contains office productivity applications for the desktop, and the eSuite DevPack provides tools for building Web applications.

www.citrix.com/support/default.asp
Citrix Systems Inc. home page with information on WinFrame software which provides access to most Windows applications across all network and client types.

www.financing.ibm.com
IBM financial services page.

www.gartner.com
Gartner Group services which include a specific area devoted to network computers.

Summary

Network computers are here to stay. They offer authentic solutions to many costly technology problems. They can provide users with more functionality and flexibility, while drastically reducing administrative costs associated with PC management.

Global competition is exploding. Competitors can come from anywhere at any time. Manufacturers are not alone in being asked to do more for their customers. All businesses are being asked to provide new services to make themselves more competitive.

Customer Brief: Steelcase Strafor, United Kingdom

A manufacturer of office furniture.

Business Needs
- Increase IT infrastructure manageability of remote locations.
- Ensure Year 2000 compliance.
- Reduce installation time and maintenance and hardware costs.
- Handle manufacturing transactions, ordering, and e-mail.
- Link to existing mainframe, AS/400s, and PC Servers, with links to Unix and Novell.

Solution
Digital midrange and 3270 terminal installations were replaced with Network Stations running off a new RS/6000 which runs the manufacturing applications. The Network Stations will access the mainframe, where the sales order processing and e-mail applications reside, via 3270 emulation. PC Servers run multiuser WinCenter Pro.

Immediate Benefits
- Established good communication with both existing and new systems.
- Enabled central management of devices across a large geographic area.

John Sanford, IT Manager, Steelcase Strafor: "…the IBM Network Station works well with our existing technology infrastructure. It communicates well with the RS/6000 and the AS/400 which is running our human resources applications. Over time, we plan to replace every dumb terminal and most PCs with Network Stations." ◆

Internally, companies must be sure that company employees have access to all the resources that will help them to sell the product. That means having access to customer information and applications that help them understand the customer's particular situation.

Externally, providing new services also means allowing customers and business partners to conduct self-service, via the Internet, at their convenience. Network computers help companies meet new demands. With them, businesses can provide new services, both internally and externally, in a cost-effective way.

The three-step methodology outlined in this report helps decision-makers frame their thinking about network computers both at a high level and at a manufacturing task-specific level. The methodology also helps executives compare network computers with PCs and dumb terminals.

Determining where and how network computers can best provide value to a business is vital. Once this is completed, the next step is to buy a few network computers and run a pilot. The investment is minimal compared to the potential benefits of a NC environment, including significant savings in desktop support, maintenance, and administration. A detailed overview of network computers is provided in the D.H. Andrews Group report, *Why Buy A Network Computer Today*. ◆

Customer Brief: The Crosby Group, Tulsa, Oklahoma

A manufacturer of components for lifting and material handling equipment including hooks, shackles, wire rope clips, blocks, sleeves, and sheaves.

Business Needs

The Crosby Group had a traditional AS/400 topology with no WAN or LAN. The help desk had to constantly call engineering to help distributors provide spec sheets. In addition, the old terminals went off maintenance. The company needed to:

- Have enterprise-wide access to new and existing databases.
- Reduce costs.
- Replace obsolete non-programmable terminals.
- Extend information inside and outside the enterprise.
- Have access to internal e-mail and the Internet.

Solution

A NCD server was installed to support the Network Stations (replacements for the terminals) and the personal productivity package Lotus SmartSuite. IBM installed Lotus Notes Domino on an IPCS card in the AS/400 to:

- Support FAQs.
- Support product databases.
- Enable internal e-mail.

Immediate Benefits

- Improved support for distributors and customers through better database access.
- Decreased load on the engineering staff.
- Improved communications within the organization.
- Established an infrastructure for extending new capabilities to the Internet.

Chris Housely, The Crosby Group: "With NCs, you don't open yourself up to the problems of PCs. PCs are more expensive to buy and more expensive to maintain. You're fixing them everyday as users go in and modify their configuration files, introduce unsupported software, or have a hard drive or diskette problem. With NCs, you have a controlled environment, but one that gives you a lot of flexibility as well." ◆