

eNetwork Connection

August 1998



THE IBM NETWORKING SOFTWARE NEWSLETTER

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Building a Better Network

IBM eNetwork Software connects Homag Maschinenbau employees across multiple locations



Founded in 1960, Homag Maschinenbau has built a reputation as a leading maker of furniture and other wood products. The company is also recognized around the world as a leading provider of machinery used for manufacturing furniture. From its headquarters in the Black Forest region of Germany, Homag's IT staff manages a network that connects the company with 12 subsidiaries in Europe, Asia, and South America. According to Hans Dieter Wehle, Homag director of System Management, IBM's eNetwork™ Software plays a key role in keeping information flowing across this vast network.

To facilitate the flow of information in such a widespread and busy organization, Homag requires a scalable, reliable host integration solution that can meet the needs of a variety of information users. For instance, sales personnel in different countries need access to product descriptions and parts lists. System

engineers need access to new service information. Customers and prospective customers need Homag's Web site to find information about the company and its products. But perhaps the most vital flow of information—and the one that places the highest demand on the network—is the sharing of technological data among the engineers who develop and maintain Homag's sophisticated machinery.

DEPLOYING THE ENETWORK SOFTWARE SOLUTION

To build a network that could handle all of these requirements, Homag implemented an IBM eNetwork Software host integration solution in late 1997. Homag's IT staff were immediately impressed by the ease of configuration and the absence of any serious implementation problems.

The overall solution includes IBM eNetwork Communications Server for AIX®,

Continued on page 13

Global e-Business Solutions

You've heard us say that IBM e-business solutions can put you in touch with a world of new opportunities. Here's the proof.

Networking truly has become a worldwide phenomenon. This was impressed on me recently when I looked at the mailing list for *eNetwork Connection*. Although *eNetwork Connection* is produced by IBM in the United States, 42 percent of our readers live and work outside the U.S.

The mailing list for *eNetwork Connection* includes addresses in 89 countries, on every continent except Antarctica. You are part of an audience that stretches from Iceland to New Zealand, from Canada to Chile, from Algeria to Zimbabwe. In virtually every part of the world, businesses like yours

are using eNetwork Software and other IBM products to transform themselves into e-businesses.

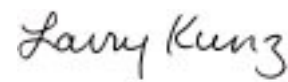
Want more proof? Each year, the e-Business and Networking Systems Technical Conference attracts business people, as well as networking specialists, from all over the globe. Last year's conference in Miami attracted 1,100 people—173 of whom came from outside the U.S. Don't miss the announcement on page 7 about this year's conference in Las Vegas, where you will once again have the opportunity to network with colleagues from many different countries.

Perhaps the best proof of all is the success with which enterprises all over the world are creating powerful, secure, and dependable worldwide communications networks. For example, Homag Maschinenbau (featured in this issue's cover story) has extended the reach of its business by using IBM networking software to connect people working in Europe, Asia, and South America.

Homag's employees, using eNetwork Software products in their corporate network, now find it easy to communicate and do business with their colleagues—whether they are across the hallway or across the globe. Like many other companies, Homag has found that e-business solutions are good for its business. With IBM e-business solutions, you too can reach faraway customers and take advantage of

business opportunities that previously were beyond your reach.

It's as if the globe has shrunk to a more manageable size. And after all, when it comes to transforming your business into an e-business, IBM truly does offer solutions for a small planet.



Larry Kunz
Editor, *eNetwork Connection*

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Write Your e-Business Success Story Today

I read a lot of articles, and I'm sure you do too. There are articles about electronic commerce, articles about VPNs and extranets, and articles about new business opportunities on the Web—in short, articles about how you can become an e-business. Have you noticed how many of these articles point toward the future? They talk about how many million people will be online by the year 2000 or how much faster the Web will be five years from now.

At IBM, our e-business message is about *today*. Of course, we have a vision of the future, and we've put together detailed, well-defined strategies to prepare you for the future and keep your e-business moving in the right direction. But many of our customers have already transformed themselves into e-businesses by using solutions, products, and services that are available from IBM today.

Many of our customers—like Homag Maschinenbau, featured in this issue's cover story—are already telling exciting e-business success stories. They describe how IBM e-business solutions have helped them reach new markets, sell products and services more effectively, serve their customers better, and—best of all—win against their competition. (Visit <http://www.software.ibm.com/enetwork/casestudies/> to see many more of these success stories.)

You can begin writing your own e-business success story today:

- ◆ Today, your employees, business partners, and even customers can access data and applications—no matter where they are, and no matter where the information is in your network. Using the eNetwork Software Host Integration Solution—featuring Communications Server on the server and either Personal Communications or the Java™-based Host On-Demand on the client—you can make the power of network computing a reality.

- ◆ Today, you can provide universal, yet completely secure data access to your enterprise and beyond. The eNetwork Software security and directory solution—which features a number of leading products and technologies—preserves the integrity of data and ensures that data can be accessed only by people with proper authorization.

- ◆ Today, you can deploy new applications and devices to take advantage of global business opportunities and to support users in new environments. The eNetwork Software mobile solution, for example—featuring products such as eNetwork Equalizer and eNetwork Wireless—extends the reach of your network to the growing numbers of mobile users who work in home offices or on the road.

There's no need to wait for future strategies—IBM can help you launch your e-business success story today. IBM provides everything you need to enable secure access for every user, regardless of platform or network environment. You can open new markets for your products and services, reach new customers, and gain a strategic edge against your competition.

I invite you to call on IBM, the leader in e-business solutions. There's no better time than today.



Al Zollar
General Manager,
IBM Network Computing Software Division



A Comprehensive Security Solution for e-Business



For most businesses, security has become a critical requirement across the entire enterprise, including both internal and external networks. As a result, these businesses are spending much more time and money focusing on infrastructure security issues—often at the expense of the strategic management of their business. In fact, both IDC® and Gartner Group® note that security is one of the leading concerns for businesses moving into Internet-ready environments. It is estimated that these businesses will spend more than \$8.3 billion (U.S.) on security this year alone.

To combat these rising costs and to help provide a fast and easy security solution, IBM has developed a comprehensive software solution for securing networks, systems, and applications. The new eNetwork Software security and directory integration solution gives businesses the comprehensive, cross-platform security products that will enable them to extend access to the Internet easily, quickly, and securely. Businesses can even customize this solution to meet their particular requirements as they move to conduct business safely over the World Wide Web.

This integrated security solution provides a critical element of IBM's overall eNetwork strategy, which addresses the challenges of securely enabling e-business; providing enterprise access and integration; and making access easier for mobile professionals.

AN END-TO-END SECURITY SOLUTION

A comprehensive security solution made up of both IBM and key business partner products, the IBM eNetwork Software security and directory integration solution includes the following components:

IBM's integrated security solution provides a secure infrastructure for Internet commerce

- ◆ **IBM eNetwork Firewall**—Controls network access and protects business data while enabling secure e-business activities. Available on the AIX and Windows NT platforms, the IBM eNetwork Firewall provides strong authentication of local and remote administrators who access the firewall.
- ◆ **IBM Global Sign-On**—Lets users access all network resources through a single, secure login entry. IBM Global Sign-On for Multiplatforms Version 1.5 provides support for Lotus Domino and PeopleSoft™, as well as the industry's broadest set of database and system support. IBM Global Sign-On Version 2.0 (available soon) adds full Tivoli® integration, lightweight client support, and TCP/IP application support.
- ◆ **IBM KeyWorks**—Reduces concerns about whether business data and communications have been properly protected and are recoverable. IBM KeyWorks is a full implementation of the Common Data Security Architecture standard from The Open Group, and includes full key recovery services.
- ◆ **IBM DCE for AIX**—Helps DCE users extend their proven enterprise computing infrastructure to the Internet while enabling true cross-platform application development.

IBM eNetwork Security Solution at a Glance

The IBM eNetwork Software security and directory integration solution features a variety of IBM and IBM business partner components, including:

- ◆ IBM eNetwork LDAP Directory
- ◆ IBM eNetwork Firewall
- ◆ IBM Global Sign-On
- ◆ IBM KeyWorks
- ◆ IBM Distributed Computing Environment (DCE)
- ◆ IBM eNetwork Virtual Private Networks
- ◆ Norton AntiVirus
- ◆ IBM Network Security Auditor
- ◆ Security Dynamics ACE/Server and SecurID
- ◆ Content Technologies MIMESweeper

- ◆ **IBM eNetwork LDAP Directory**—Is a new cross-platform LDAP-based directory server, which stores user, configuration, and security information while providing excellent scalability. This directory service is available on AIX and as a component of the OS/390™ Security Server on OS/390, and is planned for availability on OS/400®, Windows NT™, and Sun® Solaris®. The service centrally updates information that can later be used by multiple applications, networks, and systems across a variety of platforms—significantly reducing the time-consuming process of updating individual application side files and directories.
- ◆ **IBM eNetwork Virtual Private Networks (VPNs)**—Enable businesses to securely extend the reach of their networks to remote users, remote sites, and business partners. IBM has the widest breadth of VPN-enabled products—including clients, servers, firewalls, and routers/controllers—and services in the industry. These products are designed to handle all your multi-protocol needs—such as SNA, IP, and IPX—securely and cost-effectively.
- ◆ **IBM Security Services offerings**—Include a workshop on security issues; security assessments to check the health of customer systems; security architecture and design services; implementation services; and security management services, which include intrusion detection.

AUTHORIZATION, ACCOUNTABILITY, AND AVAILABILITY FOR SECURE e-BUSINESS

The IBM eNetwork Software security and directory integration solution includes authorization components that fully identify and authenticate clients accessing enterprise systems. Authorization components—the IBM Global Sign-On, IBM eNetwork Virtual Private Network solutions, and Security Dynamics® ACE/Server™ software and SecurID® tokens—enable users with a secure single point of entry to access multiple systems. Security Dynamics' two-factor authentication solution provides the security technology that is currently enabling the widespread deployment of e-business applications that can permit secure access to information regardless of where the information resides in the enterprise.

The IBM eNetwork Software security and directory integration solution also includes accountability components that provide administrators with information about who has performed any given action at any specified interval. These accountability components include the IBM eNetwork LDAP Directory, IBM KeyWorks, Tivoli systems management, and IBM DCE Security Server—all of which help reduce administrative workload and costs while simultaneously improving end-user access to information.

Also included in the eNetwork Software security and directory integration solution are the availability components that help systems and network applications protect

Security and Directory Integration White Paper Is Online

The IBM eNetwork Software Security and Directory Integration white paper (available online at http://www.software.ibm.com/enetwork/library/whitepapers/white_secdir.html) describes IBM's architecture, offerings and strategy for helping you secure your e-business environment. The white paper also discusses the rise of the Internet and e-business applications and provides a wide range of background information about the how's, what's, and why's of security.

More information is also available at <http://www.software.ibm.com/enetwork/securitysolution/>.

against—and recover from—security breaches. Availability components include the IBM eNetwork Firewall, IBM Network Security Auditor, and Content Technologies' (formerly known as Integralis®) MIMESweeper to manage the enterprise seamlessly and securely and to identify security weaknesses.

A SINGLE FAMILY OF ANTI-VIRUS SOFTWARE PRODUCTS

As part of IBM's comprehensive security strategy, it has partnered with Symantec® Corporation to provide a single family of anti-virus products that will be marketed under the Norton AntiVirus brand name. Symantec will license IBM's immune system technology and combine it with its own technology to produce a wide range of products, including new solutions for IBM platforms. In addition, IBM has assigned its existing anti-virus customer and OEM contracts to Symantec and will recommend Norton AntiVirus to its corporate customers worldwide as the anti-virus solution of choice.

THE INDUSTRY'S MOST COMPREHENSIVE SECURITY SOLUTIONS

Even though IBM offers the most comprehensive end-to-end security solutions available today, it plans to enhance them to continue providing businesses with better invisibility, invincibility, inexpensiveness, and integration. Watch for additional security announcements in the near future as IBM develops new ways to help businesses transform themselves into e-businesses quickly and easily.

For more information

Visit <http://www.software.ibm.com/enetwork/securitysolution/>

CS OS/390 V2R5 Improves on TCP/IP V3R2

IBM recently completed some performance tests that revealed Communications Server for OS/390 (CS OS/390) V2R5's TCP/IP performance far exceeds that of previous releases. The tests compared the general-purpose TCP/IP services of CS OS/390 V2R5 to TCP/IP V3R2 at its most current maintenance level. CS OS/390 V2R5's Telnet capacity was also tested.

Key testing results included the following:

- ◆ More than a 400 percent increase in interactive performance for S/390® multiprocessor configurations
- ◆ A nearly 200 percent increase for uniprocessor configurations
- ◆ Web serving performance improvements of over 1500 percent
- ◆ Improved performance for "off-load" configurations
- ◆ Near 1:1 scalability—nearly 100 percent of available S/390 multiprocessor CPU capacity is applied to increased TCP/IP throughput
- ◆ Nearly 32,000 simultaneous Telnet sessions running without exhausting Telnet server capacity

In the figures, performance results are expressed as "throughput per unit of CPU" and then calculated to show V2R5 performance relative to V3R2. Figure 1 shows comparisons for a variety of applications. For example, CS OS/390 V2R5's throughput per CPU is over 16 times that of V3R2 for S/390 Web serving. Though not quite as lofty as the S/390 Web serving improvement, the V2R5 performance comparisons for the other application types are impressive as well.

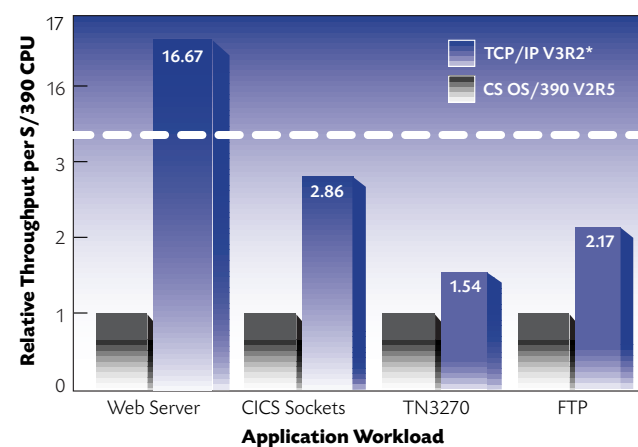


Figure 1. CS OS/390 V2R5 versus TCP/IP V3R2*

*TCP/IP V3R2 tested with performance improvement PTFs applied

New eNetwork Communications Server for OS/390 release beats the performance of TCP/IP V3R2 for a variety of applications

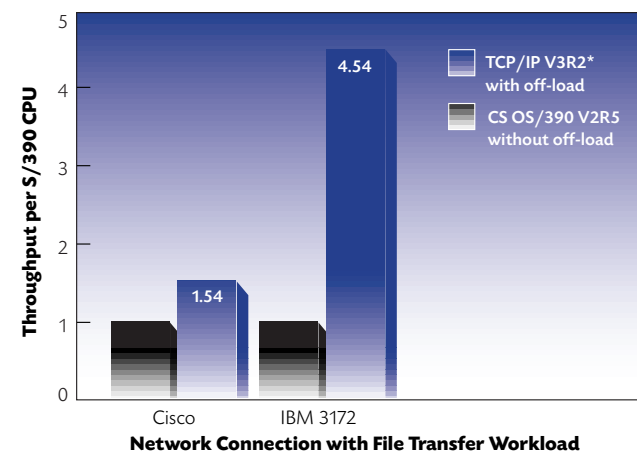


Figure 2. CS OS/390 V2R5 versus TCP/IP with Offload

For users of TCP/IP V3R2 off-load capability (whether used in conjunction with IBM 3172 or Cisco® CIP), there is even more good news. Figure 2 shows that, with a file transfer workload, V2R5's TCP/IP running *without* off-load performs better than TCP/IP V3R2 running *with* off-load.

A key design point of the TCP/IP restructure for CS OS/390 was to maximize scalability by improving efficiency when moving from single-processor to multiprocessor configurations. Tests reveal that TCP/IP scalability improved by over 50 percent in V2R5—utilizing 98 percent of available CPU capacity of a 3-way S/390 multiprocessor for productive work. The result is significantly increased TCP/IP throughput.

In one test, 31,945 simultaneous Telnet sessions were successfully completed without exhausting V2R5's Telnet server capacity. By design, IBM's TCP/IP should accommodate over 60,000 simultaneous Telnet sessions. Future tests are planned with an enhanced test bed to validate the higher capacity.

For more information

Visit <http://www.software.ibm.com/enetwork/commserver/>

Catch Up on the Latest Networking Solutions at NSTC 1998

NSTC 1998 can help you increase your productivity and hone your competitive edge



Register today to attend the premier e-business and networking event of the year—IBM's e-Business and Networking Systems Technical Conference (NSTC) 1998. While at the conference, you will be able to examine every aspect of e-business—from Internet, intranet, and extranet technologies to the infrastructure, products, and enablers that will help you take advantage of the e-business revolution. You can also learn from the industry's foremost experts about the latest issues and trends while gaining insight into IBM's networking strategies.

A WIDE SPECTRUM OF NETWORKING TOPICS

You can increase your knowledge in a specific area by attending multiple sessions in one of three tracks or gain a broad understanding of issues and topics by attending sessions across all tracks. At these sessions, you can get the latest advice, tips, tactics, product knowledge, and analysis from a variety of industry leaders, including IBM customers and business partners, industry analysts, and product specialists from Lotus and Tivoli.

The three different tracks (each of which includes entry, intermediate, and advanced topics) are:

- ◆ **e-Business and Internet Technologies**—Learn the ins and outs of the powerful e-business phenomenon while learning how to create a secure e-business environment.
- ◆ **Java and Application Enablers**—Learn to use Java, application enablers, and other breakthrough Internet tools to extend your market reach through the Web and reap the financial and competitive rewards of e-business.
- ◆ **Infrastructure: Networking Software and Networking Hardware**—Learn how to maximize your networking environment to improve performance and productivity across your enterprise. Get the technical details about the software and hardware topics you need to create your "infrastructure for success."

You can also visit the Product EXPO to get a first-hand view and see demonstrations of these networking and e-business solutions that are setting the pace for the future. Look for exhibits in such areas as Net.Commerce, solutions testing and certification, Lotus Notes® Domino, and video-conferencing and distance learning.

What: NSTC 1998

When: September 21-25, 1998

Where: Caesar's Palace in Las Vegas, Nevada

While attending NSTC 1998, you can expect to:

- ◆ **Comprehensively examine e-business and networking solutions** through over 100 technical sessions, interaction with product developers, hands-on labs, onsite certification testing, and the Product EXPO
- ◆ **Explore every aspect of e-business**—from Internet, intranet, and extranet technologies to the infrastructure, products, and enablers that will help you take advantage of the e-business revolution
- ◆ **Increase your knowledge and understanding** with detailed technical information, insights into e-business and networking strategic directions, and informative discussions of real-life solutions
- ◆ **Learn the technical details and implementation specifics** to facilitate the development of Java applets and servlets for Internet and intranet applications
- ◆ **Explore advanced networking software and hardware issues**, plus "hot" products and solutions that can boost your performance, including: networking and the Sysplex, network security, network performance and tuning, APPN/HPR and VPN, access products, switching, Fast Ethernet, Nways™, TCP/IP, and more
- ◆ **Get a close-up view of e-business and networking solutions** at the informative Product EXPO, where you can view product demonstrations and get your specific questions answered
- ◆ **Network with colleagues** to share experiences and challenges and gain a fresh perspective into mutually beneficial solutions

For more information

Visit www.training.ibm.com/ibmedu/conf/nstc
Send e-mail to teachnet@us.ibm.com
Call 800-IBM-TEACH (426-8322), and ask for "conferences"

Web-to-Host Computing

Today, many organizations face the challenge of integrating their large, heterogeneous networks so that any machine can securely access applications and data on any host or server—regardless of any differing computing architectures. In response to this challenge, IBM has developed a comprehensive solution for integrating host machines to provide fast and easy data access. The IBM eNetwork Software Host Integration Solution provides all the software needed to access data and applications across the entire enterprise, eliminating the need to rewrite applications or manage software packages from multiple vendors.

IBM has recently announced several new products and enhancements in conjunction with the eNetwork Software Host Integration Solution, including:

- ◆ IBM eNetwork Communications Server for Windows NT, Version 6.0
- ◆ IBM eNetwork Communications Server for UnixWare® 7
- ◆ IBM eNetwork Host On-Demand Version 3.0 (beta)

Together, these products can enable secure access—from anywhere—to critical business information and applications for employees, customers, and partners. This approach simplifies the way in which organizations can extend their sales channels, provide new services, and make product information available in real time on the Web.

"We've had good success integrating Host On-Demand as a terminal emulation platform for connectivity into mainframe and AS/400-based systems, and we're excited about the future of Host On-Demand as a growing alternative for mobile and remote users."

—Bill LaBriola, Shared Medical Systems Network Services

THE IBM ENETWORK HOST INTEGRATION SOLUTION

The IBM eNetwork Host Integration Solution is a comprehensive software package that gives users secure access to mission-critical business systems—regardless of platform or network environment. For one standard price per user, you can select the client and server software that meets your needs: IBM eNetwork Communications Server (for Windows NT, OS/2®, or AIX), IBM eNetwork Personal Communications (for OS/2, DOS, and Windows™ 3.1/Windows 95/Windows NT), and IBM eNetwork Host On-Demand. Some complimentary consulting services are also available, depending on the number of clients installed.

IBM introduces several new solutions for connecting host machines to the Internet

IBM COMMUNICATIONS SERVER FOR WINDOWS NT, VERSION 6.0

The latest version of Communications Server for Windows NT features Host Publisher, which provides a Web-to-host solution specifically designed to address the unique characteristics of the Internet. World-class security features and scalability make Host Publisher a premier tool for integrating existing applications with the Web. Going beyond traditional terminal emulation and screen scraping, Host Publisher provides access to a broad range of existing systems using Java, ActiveX™, and ODBC interfaces. Additional enhancements to Communications Server for Windows NT include:

- ◆ TN5250 server
- ◆ LDAP support
- ◆ Tivoli TME™ 10 support
- ◆ Enterprise extender
- ◆ Load balancing
- ◆ Hot standby
- ◆ Branch extender

IBM ENETWORK COMMUNICATIONS SERVER FOR UNIXWARE 7

This new product extends powerful Communications Server capabilities—such as SNA gateway, integrated TN3270E server, high-performance routing and APPN support—to the UnixWare 7 enterprise environment. A graphical user interface simplifies configuration and management, increasing the productivity of administrators and technical staff. In addition, high-performance routing automatically redirects traffic around network congestion without disrupting a user's session.

IBM ENETWORK HOST ON-DEMAND VERSION 3.0

Version 3.0 is the latest incarnation of the first 100% Pure™ Java emulator and the industry's leading Web-to-host client. Now available for beta testing at <http://www.software.ibm.com/enetwork/betas/hostondemand/>, Host On-Demand includes:

- ◆ Beans for Java
- ◆ TN3270E functions
- ◆ An automated graphical user interface
- ◆ Improved security, performance, and usability features

For more information

Visit <http://www.software.ibm.com/enetwork>

e-Business Network Solutions for Netfinity Servers

IBM simplifies network configurations for Web hosting and multi-site connectivity

To help simplify the development and deployment of e-business applications, IBM has recently developed two new network solutions for its Netfinity® servers. The IBM Networking Web Hosting solution for Netfinity servers and the IBM Netfinity Multi-Site Connectivity solution for Netfinity servers feature IBM's award-winning Netfinity servers, world-class 2210 Nways Multiprotocol routers, and market-leading Lotus Domino Web software. These products are a key part of the IBM solution that provided instantaneous data access throughout the recent Nagano Olympics.

These new solutions are ideally suited for medium-sized and large enterprises that need to integrate e-business applications into their IS initiatives quickly and cost-effectively while also interconnecting branch offices to critical corporate data. In turn, these solutions can provide a wide variety of benefits ranging from scalable, high-performance Internet access to Web hosting servers and secure, high-speed connectivity across LAN boundaries.

COST-EFFECTIVE WEB HOSTING

For organizations that need to manage all of their Web hosting activities internally, IBM's Networking Web Hosting solution for Netfinity Servers helps support increased workloads and alleviate electronic bottlenecks. Included in the solution are IBM's Netfinity servers, Lotus Domino Web software, and 2210 Nways Multiprotocol routers with EtherJet 10/100 PCI or 16 Mb Token-Ring adapters—providing Ethernet and Token-Ring customers with a ready-to-deploy e-business solution. This solution enables organizations to seamlessly extend their business reach electronically to the global community while allowing for economical, scalable growth.

HIGH-PERFORMANCE MULTI-SITE CONNECTIVITY

IBM's Multi-Site Connectivity solution for Netfinity servers is ideal for linking branch offices and remote workers securely and reliably—without jeopardizing existing network investments. This solution is designed to handle increased network traffic, connect multiple locations, provide access to remote workers, and enable Internet access. By combining Netfinity servers, 2210 Nways Multiprotocol routers, and EtherJet 10/100 PCI or 16 Mb Token-Ring adapters, the IBM Netfinity Multi-Site Connectivity package provides scalable, high-performance interconnectivity and reduces networking costs.

In addition, the 2210 routers enable Virtual Private Networks (VPNs) to provide secure access to protected data—such as e-mail or other critical information—among multiple offices and remote users.



INDUSTRY-LEADING COMPONENTS

Netfinity servers provide the industry's most reliable foundation for networked businesses by delivering outstanding power, scalability, control, and service. Based on industry-standard, Intel® processor-based technology, the IBM Netfinity family of products enables small, medium, and large enterprises to manage their networked business systems—from file and print capabilities to the most advanced PC applications—virtually at any time from anywhere.

2210 routers provide a low-cost entry node with the power and versatility of a full-function, multiprotocol bridge/router—offering an extensive range of connectivity, protocols, and prices to cost-effectively implement network computing. The 2210 is the industry's first router to support the Layer 2 Tunneling Protocol (L2TP), helping to ensure one of the highest levels of security available for multiprotocol traffic across the Internet, intranets, or extranets. Featuring routing and remote LAN access in the same low-cost package, the 2210s use common software functions—IBM Nways Multiprotocol Routing Services (MRS)—that provide the benefits of switching, distributed routing, bridging, and virtual LANs.

Lotus Domino is an applications and messaging server with integrated services that enable organizations to create secure, interactive business solutions for the Internet and corporate intranets. Domino delivers fast access to applications and data from any Web browser or Notes client—helping organizations deploy secure e-business solutions that integrate legacy data and applications in just days.

For more information

Visit <http://www.pc.ibm.com/us/netfinity/>

Web-Enable Your Legacy Applications

An IBM eNetwork Partner in Development, Advanced Transition Technologies (AT²) develops software to help businesses extend the reach of their enterprise networks. AT²'s ResQ!Net for Host On-Demand, a thin Java applet, brings the power of legacy host applications to the desktop user through an easy-to-use graphical interface.

In this article, Todres Yampel, AT² President and Chief Technical Officer, makes the case for "Web-enabling" your legacy applications as part of an overall e-business strategy, and provides an example of how IBM and its business partners can help you extend the reach of your network.

The unprecedented explosion of Internet use in the last few years has created an insatiable demand for data and Web browser-based access to that data. With more than 80 percent of data used in business applications residing on mainframes and large midrange servers, this demand is currently pressuring MIS departments to "Web-enable" access to their organizations' legacy system applications. This challenge has been indirectly compounded by the fact that a large and growing number of MIS programmers with intimate knowledge of those legacy applications are currently involved in Year 2000 issues and cannot be diverted to such strategic Web-enabling projects. Fortunately, IBM and

IBM and Advanced Transition Technologies, Inc. can help you modernize the look and use of your legacy applications

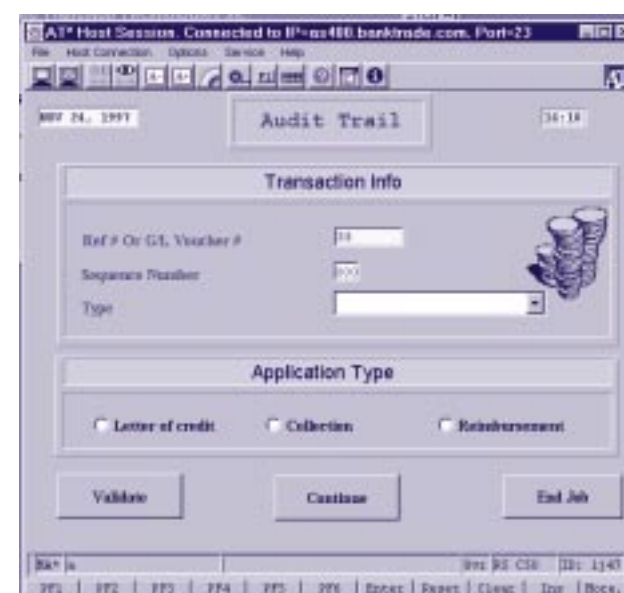
by Todres Yampel

its Development Partners have developed new solutions that give MIS departments more options to address this difficult challenge.

PAVING THE WAY FOR WEB BROWSER ACCESS

So what exactly does it mean to "Web-enable" a legacy application? While there are many issues in Web-enabling legacy applications, they can be divided into two main categories: providing Web browser-based access and establishing a modern graphical, browser-like look-and-feel.

IBM recognized the importance of the Internet very early and developed its software platforms such as OS/390, OS/400, AIX, OS/2 to be Internet-ready. This means that they support all Internet protocols, contain both Web and Telnet servers (including TN3270e and TN5250), and run Java applications. For example, IBM has recently released a new version (2.5) of the Communications Server for OS/390 that contains a TN3270E server capable of supporting over 60,000 concurrent users on a single server.



A sample terminal emulation screen before and after a customized ResQ!Net interface was added

For the client side of host access, IBM has developed eNetwork Host On-Demand Version 2 to provide 100% Pure Java access to S/390, AS/400, and UNIX hosts. There are many advantages of releasing client software in the form of a Java applet. For starters, Java-based software is usable on a wide range of hardware and software platforms, including network computers. Java applets also help eliminate the need to install software products on every client machine. Software is installed on the Web server and delivered to clients "on the fly" (hence the On-Demand moniker) when users click on the appropriate icon on the Web page.

What makes this solution ideal for today is that nearly all users who require Web browsing software either have it already or can easily acquire it via free download from the Internet. Having software delivered "on demand" to Web browser users eliminates many administrative training and support issues while significantly reducing the cost of supporting multiple clients. This streamlined delivery process also makes it practical to deliver host access to new categories of occasional users, such as suppliers and vendors. These types of users were previously excluded from access to legacy applications, mostly because of the associated costs in providing such access, training issues, and security concerns.

IMPROVING GRAPHIC PRESENTATION WITH RESQ!NET

By providing a robust and secure Java-based connectivity package with Host On-Demand, IBM solved half of the problem associated with Web-enabling legacy applications. The remaining part of the problem was how to present host data in the graphical format to which Web users are accustomed. Fortunately, IBM had the foresight to include with Host On-Demand a set of powerful and easy-to-use APIs—called Host Access Class Library—that were designed for ISVs that wanted to write add-on applets for enhanced functionality.

The first such applet—ResQ!Net for Host On-Demand—was developed by Advanced Transition Technologies, Inc. to enhance the look-and-feel of legacy screens. ResQ!Net is unique in that it is targeted to end users rather than programmers. It does not use any programming or scripting, nor does it generate any Java code or scripts. In short, it is not a tool kit. ResQ!Net simply converts the legacy application "green screens" to GUI representations of those screens.

All input fields gain the "boxy" look of a text control, transforming busy screens into a much more presentable format. In addition, ResQ!Net recognizes menu situations and converts columns of menu options into clickable buttons. Similarly, strings such as F3=EXIT are detected and made into clickable "hot spot" buttons. The resulting "on-the-fly" GUI screen enables users to further change the screen's look-and-feel. Users maintain full control over the presented color scheme, fonts and font sizes, and the style and appearance on the buttons.

"Screen Scrapers" and GUI Terminal Emulators

Screen scraping refers to the utilization of APIs provided by terminal emulation connectivity software to gather ("scrape off") certain information from predefined screens in a manner that is invisible to the user. This information is then included in a graphical application. In most cases, only a limited subset of all available APIs is utilized and often, the status of the terminal session is not even displayed to the user.

The major problem with this development approach is its inability to handle unexpected events—such as keyboard lockups and session disconnects—related to the host connection behavior. For example, a typical screen scraping implementation automates the logon process by waiting for certain keywords such as "User ID" and "Password" and replying (filling in the screen) with appropriate text. All possible deviations—the expiration of passwords, for example—from the expected replies must be handled by the GUI program. Unfortunately, many of these programs were developed by programmers with a limited knowledge of the host system's behavior.

Because of this limitation, the screen scraping approach has achieved a bad reputation associated with its instability. To overcome this limitation, the best graphical presentation programs need to behave like true terminals. They should also be able to display the status of the connected session to keep users informed when the host is busy, and alert users about disconnect situations. In addition, they should provide full terminal functionality for keyboard handling.

ResQ! provides both a fully functional graphical terminal display—including a status bar—and full terminal keyboard functionality. With the ResQ! GUI implementation, application users who are comfortable working on so-called "dumb" terminals can still perform their work without having to use a mouse. ResQ! products can also be used in situations where host data constitutes only a small portion of the application. In fact, the advanced features of ResQ! products—such as the Get-To-The-Point facility, Web Links, and Global Variables—are designed specifically for situations where developers would normally use screen scraping techniques.

CUSTOMIZING A PERMANENT LOOK-AND-FEEL

For users who need a more customized and permanent look-and-feel, an administrator's Customization Studio Applet is available with ResQ!Net. Again, it is not a tool kit in the usual sense. No coding is generated or required. Instead, the Customization Studio Applet gives users full

control over the final appearance of the resulting screen. Every field on the screen is considered an object and can be resized and moved to any available position by drag-and-drop mouse movements. In addition, users can modify other object attributes such as font, color, and caption. Protected fields on the screen turn into labels. By modifying the caption attributes of these labels, users can translate screens into other languages. Sometimes even "Computer English" with all words in capital letters needs to be translated into a more user-friendly English.

Occasionally, there might be a need to hide certain fields, especially when dealing with occasional or "external" users. ResQ!Net provides such function—even for input fields—by enabling the behind-the-scenes entry of default values for mandatory fields.

Based on proprietary patented technology for screen recognition, ResQ!Net is continually evolving. One recent example is the development of Web-link buttons and a Get-To-The-Point facility for a major automobile manufacturer. This particular company needed to retrieve part drawings and photos through a Web browser and wanted ResQ!Net to properly fill out the URL with data (part number and such) from the current screen. Another requirement was the ability to bypass some screens and navigate users through other screens by filling out the mandatory input fields from the applet parameters in the Web page.

The implementation of this enhancement resulted in a special facility—called Get-To-The-Point—that provides behind-the-scenes navigation transparent to the user. Users can be completely shielded from initial VTAM®, CICS®, and other logon sequences—making them unaware of the fact that an S/390 or AS/400 host is being used. This, in a way, is the ultimate in Web-enabling technology.

PROVIDING AN IMPRESSIVE HOST CONNECTIVITY SOLUTION

Together, the combination of IBM's Host On-Demand and Advanced Transition Technologies' ResQ!Net provides an attractive option for Web-enabling enterprise legacy applications. With the ResQ!Net applet providing a contemporary graphical look-and-feel and Host On-Demand providing host access, users can enjoy a robust and secure host connectivity solution.



For more information

Visit <http://www.software.ibm.com/enetwork/ondemand>

Visit <http://www.resqnet.com/>

Tech Talk

Maintaining Firewall Protection

Q: Can I run a Web server on my company's firewall?

A: The concept of a host firewall is that it serves as a network's outer defense perimeter. The firewall takes the brunt of the attacks from hackers and shields the critical servers—which reside behind the firewall—from such attacks.

To best repel intrusion, the firewall should run a minimal number of services. This simplified design minimizes the number of "windows" a hacker can attempt to pry open. When any additional software runs on the firewall system, it provides greater opportunity for a hacker to find security openings. Running a Web server on the firewall, therefore, could inadvertently leave a security exposure.

On the other hand, running a Web server on the firewall gives you the advantage of having fewer machines to purchase and manage. Ultimately, you must determine the appropriate trade-off between cost and security, based

on what makes sense for your company's particular needs. Whether or not you opt to combine the firewall with a Web server, IBM can easily accommodate your requirements with its eNetwork Software product offerings. Visit <http://www.software.ibm.com/enetwork/securitysolution/> for additional details.

Q: How can I talk with other users of eNetwork Software products?

A: eNetwork Software newsgroups are now available on the Web. You can join other users and developers to ask questions, find information, and share your experiences about eNetwork Software products. The newsgroups are accessible from each eNetwork Software product's support page. Visit <http://www.software.ibm.com/enetwork/products>, select the product you want, then click on the "Support" button.

Continued from page 1

IBM eNetwork Personal Communications, IBM eNetwork Firewall for AIX, and IBM Internet Connection Secure Server (now sold as Lotus Domino™ Go™ Webserver). Now, Homag's network connects IBM RS/6000® servers and AS/400 servers with more than 1,600 workstations around the world. These workstations comprise a mix of PCs, network computers, and UNIX-based workstations. Communications Server for AIX runs on many of the RS/6000 servers, and Personal Communications provides terminal emulator support on the workstations.

TYING TOGETHER SNA AND TCP/IP NETWORKS

Because Homag's primary network ties together a number of subsidiary networks, data must pass through many different kinds of network hardware and many different operating platforms. Most locations also have a mix of TCP/IP and SNA protocols. Homag selected IBM Communications Server and Personal Communications to handle this kind of data flow without introducing any performance or availability problems—what Wehle calls a "big advantage" for the IT staff.

Homag's corporate intranet connects users over ISDN links to a server by using Communications Server for AIX. The intranet enables workers to access several large commercial applications and several IBM DB2® databases on the server. The IBM Internet Connection Secure Server distributes data to Web browsers while the IBM Firewall for AIX helps guard against unauthorized access.

Communications Server for AIX also provides host data for customers who connect over the Internet to Homag's Web site. Homag plans to use the same kind of connection to build an extranet—giving business partners and suppliers access to product information and price lists over the Internet. This design will be a "big advantage to selling our machines," says Wehle.

Executive Summary

The Customer

Homag Maschinenbau in Schopfloch, Germany

The Opportunity

Interconnect 12 subsidiaries on three continents so that employees can access and share information quickly and easily

The Solution

IBM eNetwork Communications Server for AIX, IBM eNetwork Personal Communications, IBM eNetwork Firewall for AIX, and IBM Internet Connection Secure Server (now sold as Lotus Domino Go Webserver)

INCREASING PRODUCTIVITY AND RESPONSIVENESS

The new IBM eNetwork Software solution has provided a wide variety of benefits for users of the Homag network. For instance, engineers in Canada can easily share a CAD drawing with colleagues in Germany and Spain—even if one of them is using an AIX network and the others are using Windows NT networks. Before the eNetwork Software solution was deployed, Wehle says, engineers would have had to send faxes or mail diskettes to share this kind of information. With eNetwork Software, an engineer simply posts a TIFF file on the corporate intranet, and his colleagues can download it to their workstations. Information sharing is faster and easier than ever, and—in the case of large, complex graphic images—the quality of the information is better than ever.

In fact, Wehle estimates that productivity for all Homag employees—both professionals and clerical staff—has increased by more than 20 percent as a result of the eNetwork Software solution. That level of improvement means significant cost savings and improved efficiency throughout the enterprise.

With instant access to servers at every company location, workers at Homag can do their jobs much more efficiently than before the eNetwork Software host integration solution was deployed. Homag's IT staff, which prides itself on providing the best possible service to users of the Homag network, benefits as well. The IT staff's ongoing promise is to have a ready solution for any customer problem. Today, IBM eNetwork Software is making it easier for the IT staff to keep that promise—to Homag's customers and its employees.

eNetwork Software at a Glance

IBM eNetwork Software offers a variety of client/server networking software to support information access, collaboration, and electronic commerce applications for:

- ◆ **Host Integration**—Provides end-to-end connectivity to access applications and data anywhere in the network or on corporate intranets, extranets, and the Internet.
- ◆ **Mobile communication**—Connects your mobile workforce to the enterprise—making information available whenever and wherever users need it.
- ◆ **Secure network computing**—Provides a comprehensive security solution that addresses requirements for single sign-on, firewalls, virtual private networks, authentication, encryption, antivirus services, and management.

For more information

Visit <http://www.software.ibm.com/enetwork/commsrver>
Visit <http://www.homag.com>

Software AG Teams Up with IBM

Software AG, a leading software developer headquartered in Darmstadt, Germany, offers products and services to help its customers manage their enterprise-level information more efficiently. Founded in 1970, the company specializes in enterprise-level software in the database, middleware, and application development areas.

Recently, when one of Software AG's large corporate customers wanted to convert all 50 of its manufacturing locations from OS/2 to Windows NT, Software AG recognized a major marketing opportunity and decided to port its ENTIRE NET-WORK product to the Windows NT environment. ENTIRE NET-WORK, running with IBM eNetwork Communications Server for Windows NT, connects end users with enterprise servers to provide access to data and applications at a central processing location.



According to Peter Harris, director of Special Projects, Product Technology Group, this conversion scenario is typical for many of Software AG's customers. Harris explains that Software AG—which already marketed ENTIRE NET-WORK for the OS/2, AIX, OS/390, VSE/ESA™, and VM/ESA® platforms—began porting the product to Windows NT primarily in response to customers who were asking for the same kind of application in a Windows NT environment.

Harris notes that Software AG's customers have appreciated the flexibility of being able to choose from more than one software solution to provide connectivity in their Windows NT networks. Those who previously used IBM products on OS/2 and AIX have been especially pleased that Software AG offers a connectivity solution that runs with IBM's Communications Server for Windows NT.

Executive Summary

The Company

Software AG

The Opportunity

Provide client/server interconnectivity for businesses that deploy Windows NT networks

The Solution

IBM eNetwork Communications Server for Windows NT and Software AG ENTIRE NET-WORK

Software maker ports ENTIRE NET-WORK to Windows NT

A SMOOTH DEVELOPMENT PROCESS

Steven Heineck, senior R&D specialist in the Product Technology Group, says that it was very easy to develop the ENTIRE NET-WORK product to run with Communications Server for Windows NT. Software AG's OS/2-based SNA protocol handler ported easily to the Windows NT environment. In fact, because the Communications Server APIs for Windows NT are very similar to those for OS/2, the Software AG programmers were able to reuse much of the code from their OS/2-based product.

While installing Communications Server for Windows NT in its development lab, Software AG had no trouble establishing nodes and connections within just a few minutes. The APPN® network included connections to System/390® and AS/400 hosts and Communications Servers connecting to AIX, Windows NT, OS/2, and Novell® NetWare® clients. Product testing also went smoothly, as Software AG's staff found Communications Server for Windows NT reliable and easy to use. On the rare occasions when it was necessary to contact IBM about a problem, Harris says, "the support we got was great."

A RELATIONSHIP IN WHICH MANY BENEFIT

Harris describes IBM as "a very good company to work with." As a result of its development relationship with IBM, Software AG can now market a product that is both popular and useful—made even more so because it is built on top of IBM eNetwork Communications Server. In turn, Software AG's customers benefit from the availability of a superior solution for network connectivity—one that enables their employees to work more effectively and serve their customers better.

Software developer Heineck adds, "IBM has done a wonderful job of making my job easier. The implementation of SNA on the Windows NT platform combines the robustness and completeness of the OS/2 SNA implementation with the ease of use and the familiarity of the Windows desktop metaphor."

For more information

Visit <http://www.software.ibm.com/enetwork/commsserver>
Visit <http://www.software-ag.de>

Upcoming Events

WebIT '98

Boston, MA
AUGUST 11-13
<http://www.kingbird.com/webit98/index.html>

Joint SHARE and GUIDE Technical Conference

Washington, DC
AUGUST 16-21, 1998
<http://www.share.org>
<http://www.guide.org/j98/index.htm>

APPN Implementers' Workshop (AIW 17)

Raleigh-Durham, NC
SEPTEMBER 14-15, 1998
<http://www.networking.ibm.com/app/aiwhome.htm>

COMDEX® Miami

Miami Beach, FL
SEPTEMBER 15-17, 1998
<http://www.comdex.com>

Internet World Malaysia

Kuala Lumpur
SEPTEMBER 17-19, 1998
<http://events.internet.com/>

e-Business and Networking Systems Technical Conference

Las Vegas, NV
SEPTEMBER 21-25, 1998
<http://www.training.ibm.com/ibmedu/conf.htm/nstc/>

COMDEX Asia

Singapore
SEPTEMBER 23-25, 1998
<http://www.comdex.com>

World PC Expo

Tokyo
SEPTEMBER 30-OCTOBER 3, 1998
<http://www.worldpcexpo.com/>

COMMON

Anaheim, CA
OCTOBER 4-9, 1998
<http://www.common.org>

Fall Internet World

New York, NY
OCTOBER 5-9, 1998
<http://events.internet.com/>

NetWorld + Interop®

Atlanta, GA
OCTOBER 21-23, 1998
<http://www.interop.com>

Internet World Italy/SMAU '98

Milan
OCTOBER 22-26, 1998
<http://www.smau.it>

NetWorld + Interop Sao Paolo

Sao Paolo
NOVEMBER 3-5, 1998
<http://www.interop.com>

GUIDE SHARE Europe 3rd Technical Symposium

Cannes, France
NOVEMBER 9-10, 1998
<http://www.gse.org/confrenc.htm>

COMDEX Fall '98

Las Vegas, NV
NOVEMBER 16-20, 1998
<http://www.comdex.com>

NetWorld + Interop Sydney

Sydney
NOVEMBER 24-26, 1998
<http://www.interop.com>

COMDEX/Enterprise & Java Business Expo

New York, NY
DECEMBER 7-10, 1998
<http://javaexpo.sbfors.com/>
<http://www.comdex.com>

Internet World Canada

Toronto
FEBRUARY 2-5, 1999
<http://events.internet.com/>

COMDEX IT France '99

Paris
FEBRUARY 8-12, 1999
<http://www.comdex.com>

SHARE Technical Conference

San Francisco, CA
FEBRUARY 21-26, 1999
<http://www.share.org>

Internet World Asia

Singapore
MARCH 3-5, 1999
<http://events.internet.com/>

COMMON

San Francisco, CA
MARCH 7-12, 1999
<http://www.common.org>

CeBIT™

Hannover, Germany
MARCH 18-24, 1999
<http://www.messe.de/cb98/>

COMDEX/China '99

Beijing
MARCH 23-26, 1999
<http://www.comdex.com>

Internet World Spring

Los Angeles, CA
APRIL 12-16, 1999
<http://events.internet.com/>

GUIDE SHARE Europe 5th International Conference

Munich, Germany
MAY 17-19, 1999
<http://www.gse.org/confrenc.htm>

Internet World Berlin

Berlin, Germany
JUNE 7-10, 1999
<http://events.internet.com/>

This is a list of selected conferences and trade shows of potential interest to eNetwork Connection readers. The information listed here is subject to change, and IBM makes no claims as to the value of these events. To list an event that is not shown here, send e-mail to enetwork@us.ibm.com.

Tell Us a Story

Do you enjoy reading about the customers featured in *eNetwork Connection* and learning how they're using IBM eNetwork Software solutions to grow their businesses? If so, we would like to hear your stories, too. After all, we believe that the best way to showcase the value of IBM solutions is to let our customers do the talking.

That's why we're looking for new customer success stories to publish in *eNetwork Connection*. If you think you have a good story that could help other companies like yours, please let us know.

Even if you don't have your own story to tell, maybe you want to hear about specific problems that other companies have already solved. Just tell us the topics and issues that interest you. We'll try to find success stories that will help you better understand how other companies are overcoming these challenges.

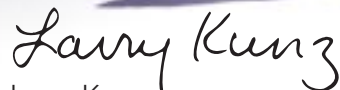
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We look forward to hearing from you!

Sincerely,



Larry Kunz

Editor, *eNetwork Connection*



eNetwork Connection

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