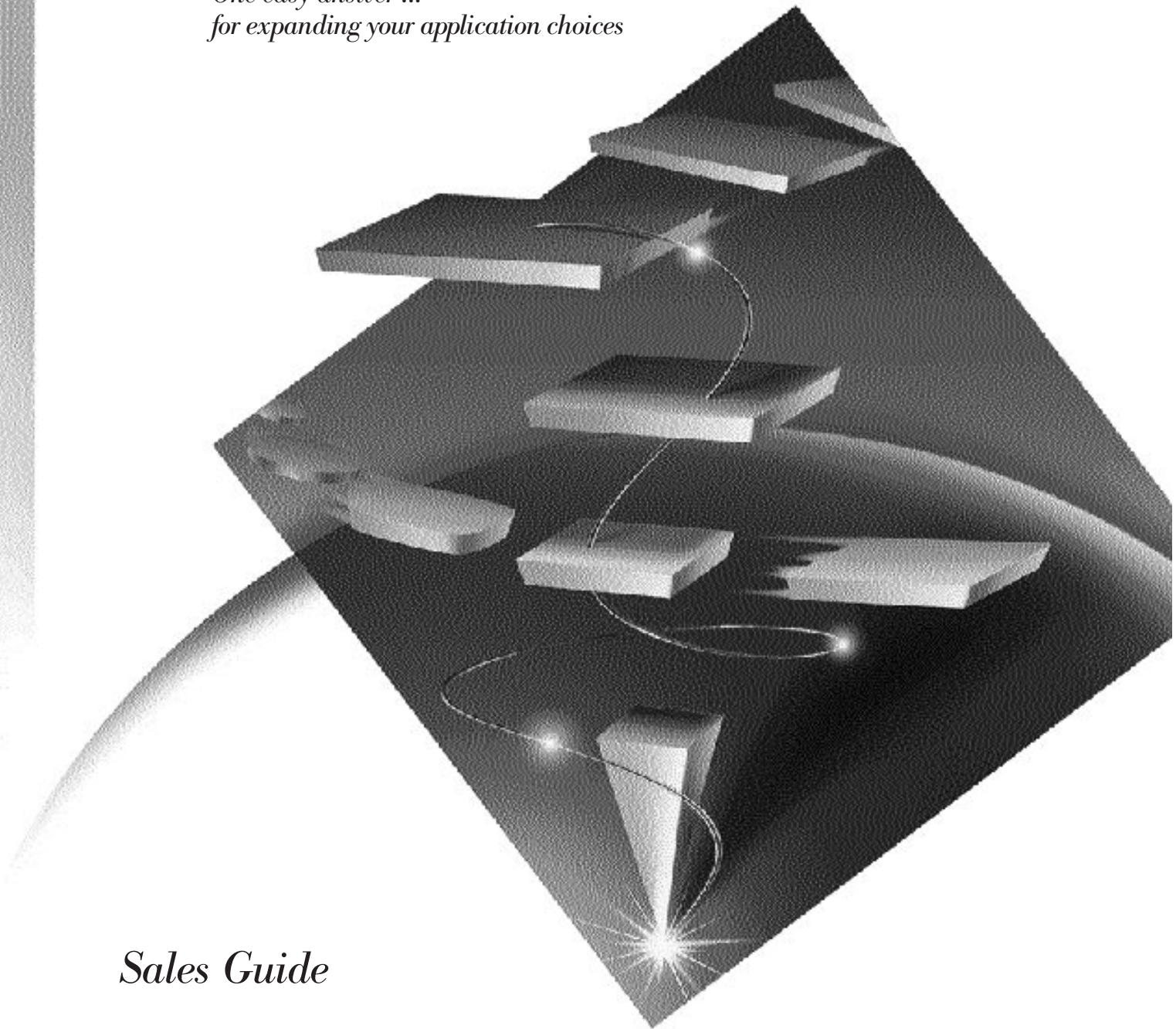IBM eNetwork™ Software

IBM

Solutions for Network Integration

One easy answer ...
for expanding your application choices

Sales Guide

Introduction

The IBM eNetwork Software product line provides comprehensive solutions for network integration that can improve the profitability of your business. Now you can:

- Deploy new applications that can improve user productivity, regardless of the application's network dependencies
- Integrate your current software and hardware investment
- Address individual departmental needs or the needs of your whole enterprise using a whole range of scalable solutions
- Simplify, extend, or consolidate networks

This guide will provide a conceptual understanding of the network integration challenges this product line was designed to address. It will help you understand the flexibility that is available to you as you deploy new applications and expand the horizons of your business. Four hypothetical scenarios are provided to help you better understand how different members of the product line can be used to address the specific needs of different business organizations.

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

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

Contents

*This guide contains sensitive information intended only for IBM sales representatives and authorized channels.* Pages 1-18 contain the information that appears in the customer edition of this guide, the *IBM eNetwork Software Solutions for Network Integration Assessment Guide.* The other pages in this guide provide additional competitive information and a cost/benefit estimate worksheet for your use.

The conceptual view

Today's corporate networks seem to defy the meaning of the word *network*. The order that once existed in those networks has been defied in the interest of providing users access to applications, data, and people — regardless of where they reside. It's the *only* way to remain competitive. But the chaos created by supporting the different network types required by those applications also seems to threaten the company's well-being. Gone is the day when the menagerie of network types was caused only by the introduction of different types of LANs. Mergers, consolidations, and changes to organizational structures have now expanded the menagerie of network types to the realm of corporate backbone networks.

By arming employees with the applications and information they need, you've also ensured that their demands for greater network availability and performance will increase. And if your company is successful in gaining the competitive edge, your growth alone can introduce a new type of challenge, network scalability. Even if you can tame the menagerie, you can't close the door to new participants — whether they're new applications, new employees, or new corporate locations!
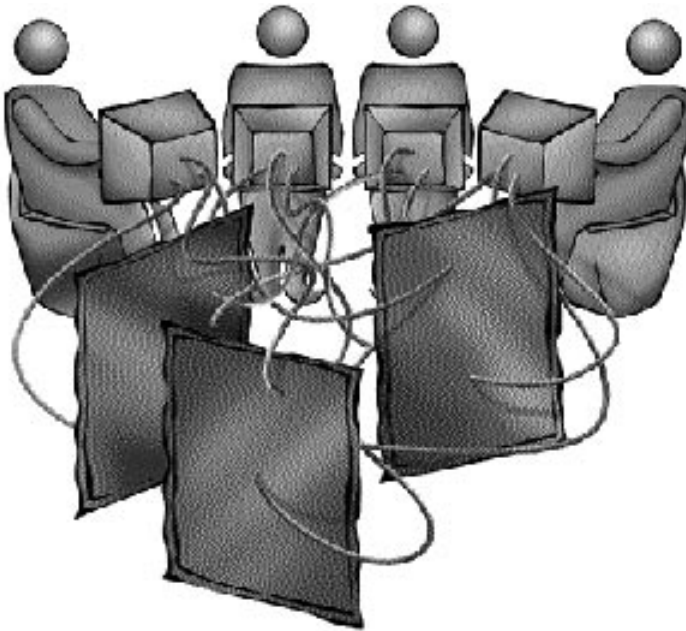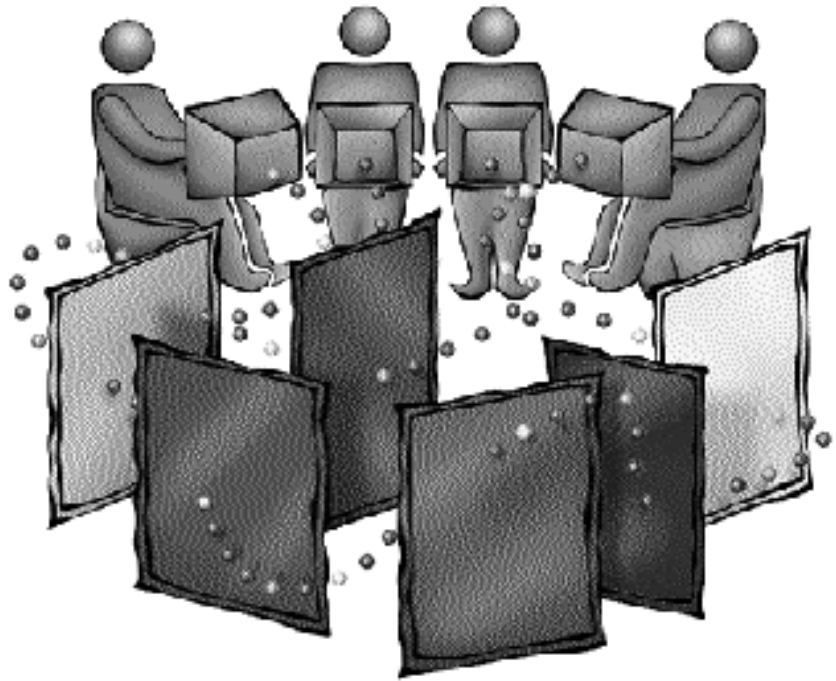
The IBM eNetwork Software solutions for network integration let you address critical business issues, without being impeded by network design or application dependencies. Solutions that match the size of your company, the physical distribution of your employees, and the specific information needs of every department are available from IBM. More importantly, these solutions were specifically designed to be nondisruptive to your current network, while giving you the capability to support the application needs of virtually every user in the enterprise. A single IBM eNetwork Communications Server can integrate a variety of LANs and WANs. This capability lets you *embrace* all the necessary network types for user-requested applications, rather than purchasing a variety of piecemeal fixes to your network, performing disruptive network overhauls, or constructing parallel networks.

By enabling commerce, encouraging collaboration, and managing your content, the IBM solutions for network integration open up a whole new realm of network computing to your company. If you know what twists and turns your network will need to take in the future, these solutions are an excellent choice. If you can't predict all the twists and turns, they're your *only* choice.
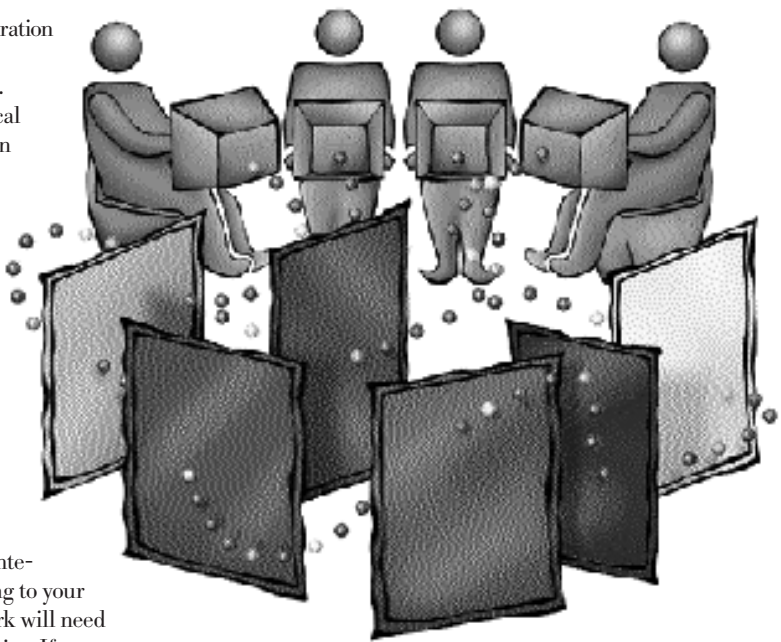
The IBM eNetwork Software solutions for network integration are an easy answer to the technology challenges you face when your company addresses its key business issues. These solutions satisfy the universal communication needs of any enterprise — large or small — using open, standards-based client and server software. The IBM eNetwork Software product line includes a diverse set of client software that supports office and mobile workers using any popular operating system, regardless of LAN and WAN constraints. This versatile client software is backed by a line of multiplatform, multioperating system servers that offers you the flexibility, security, and scalability demanded by any growing, innovative business. To satisfy your critical business needs, this powerful software can be used:

- As an *access node*, providing an individual user or workstation the ability to access applications on an existing network — even though the applications were designed to run on a different network
- As a *gateway*, letting multiple users access applications and data in a different type of network
- To enable *LAN internetworking*, helping users in LAN environments access applications and data on remote LANs — even when the LANs are connected by a different type of network

Customer scenarios

On the pages that follow, you'll find four hypothetical scenarios that will help you understand the usage and advantages of the IBM eNetwork Software solutions for network integration in moving your business forward. These particular scenarios were chosen for their broad applicability across industries. Each scenario describes the:

- Critical business issues faced by a specific department or division
- Specific networking environment and the role that the IBM eNetwork Software products played in resolving the network integration challenges associated with those business issues
- Cost/benefit estimate associated with the solution

Regardless of your business, you should be able to relate the general requirements, configurations, and cost/benefit estimate worksheets to your own situation.

… *something old, something new*

I had grown so accustomed to hearing IT people talk about the pain of using different types of networks, I just assumed I had no choice but to find the funds to rewrite our billing application…or take a big productivity hit from making our billing agents use an off-the-shelf application that doesn't match our services. But everything turned out to be very easy — we can have the applications we need, and IT still achieved its objective. With solutions like this, we're going to evaluate other off-the-shelf applications to find more ways to improve productivity and customer satisfaction. Now, we can finally evaluate applications based on what they can do for us — not the type of network they require.

– Director of Finance

The billing organization of a major communications company has its staff located in several regional offices spread over thousands of miles. A customized billing application, developed over the course of several years and continually enhanced, keeps track of individual customer charges for the broadening range of services the company offers. The billing application also has special interfaces into the other corporate accounting systems. Because this application is a custom application, the functions and user paths have been optimized to promote billing agent productivity. The Director of Finance was concerned when he heard that changes to the corporate network might affect the organization's ability to use this billing application. The director's information technology (IT) budget was adequate to cover extensions to applications driven by the addition of new services — but not adequate to handle a complete rewrite of the custom application to use a different type of network.
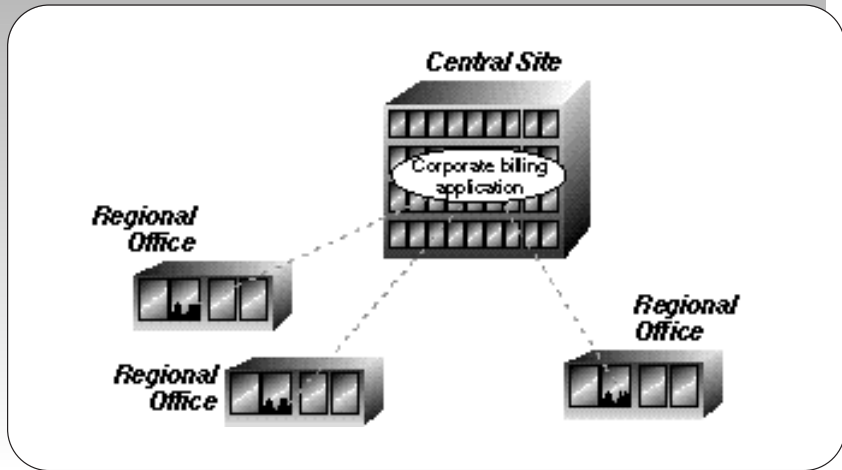
The finance director felt that pleading his case with the CEO was futile. (He heard the compelling case the IT director had presented to the CEO for consolidating to a single type of corporate backbone network. That case was based on simplified network management and lower line costs for the entire enterprise.) Looking for an alternative that wouldn't destroy his budget, the finance director mandated a search for off-the-shelf billing applications that ran on the same type of network as the new corporate network. His staff reported that none of the three leading applications could handle some of their newer service offerings without substantial loss of productivity to the billing agents. (The custom application had a special function that made what would normally be a 4-step process achievable with the touch of a single key!)

Fortunately, the IT director was not being insensitive to special needs of the different divisions. A memo from IT said that network integration solutions were possible; divisions only needed to identify the number and location of users that would need to use applications that were dependent on a different type of network.

Two months later, the corporate network consolidation was well underway. Within days an IBM network integration solution was in place for approximately 100 billing agents in the regional offices. The agents are able to use the same familiar billing application. In addition, they maintain easy access to other applications, used casually. Everyone is happy with this simple, straightforward solution.

This access node solution met all the requirements of the billing organization, and meshed nicely with the IT organization's plans to create a TCP/IP backbone network. This solution was developed using Communications Server for MVS/ESA and Personal Communications (PCOMM).

Previous environment
- The IT organization had begun to con-solidate their backbone network to use a single protocol (TCP/IP).
- Many LANs and applications used by the regional office are TCP/IP-based, but the custom billing application is APPC-based and uses S/390 resources to consolidate information for all the regions.
- Other vital operations and financial data are controlled by S/390-based SNA applications and databases.

Customer requirements
- Support the newly-enhanced billing application without rewriting the application.
- Find a way to support the application that is not in conflict with IT's plan for controlling network management and line costs by using a TCP/IP backbone network.
- If possible, provide access to other cen-tralized applications occasionally used by billing agents in the regional offices.

Solution
- Continue implementation of TCP/IP backbone network.
- Upgrade VTAM and TCP/IP for MVS on the S/390 to Communications Server for MVS/ESA.
- Install PCOMM on 100 billing agents' workstations to provide access node capability and to provide access to other centralized (SNA) applications that the agents occasionally use.
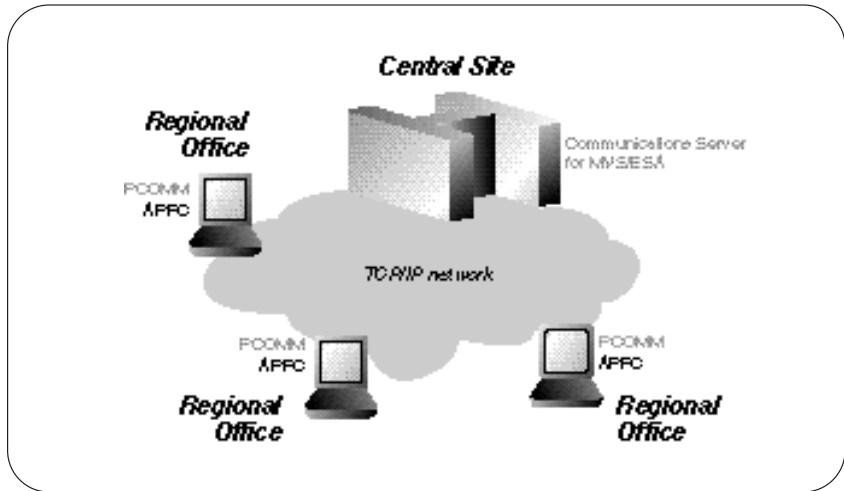
The IBM eNetwork Software product line includes communications servers for Windows NT, NetWare, AIX, OS/390, and OS/2 systems. IBM eNetwork Software clients are available for Windows NT, Windows 95, Windows 3.1, and OS/2 systems. See page 16 for more specific information.

Major advantages
- *Application is unchanged*
  The application did not have to be rewritten.
- *Simplified network management*
  IT will only maintain one backbone network.
- *Cost savings*
  See the Cost/benefit estimate on the next page!
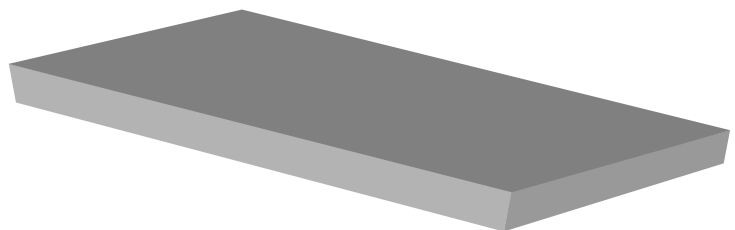
Cost/benefit estimate[1]

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

The benefits and implementation costs[2] associated with this scenario are defined below. The savings associated with the benefits were immediately realized upon installation of the solution. (An alternate way to assess the benefits would be to assess the loss in worker productivity from using an off-the-shelf application not suited to the company's needs.)

Total benefits savings	$383,000

- Application development savings 375,000
  Savings from not rewriting and testing the billing application
  5 person years x $75,000 = $375,000

- Employee training savings . . . . ._____

- Employee productivity savings 8,000
  Application training expense avoided
  (4 hours training x 100 employees x $15/hour) + $2,000 instructor fees = $8,000

- Other operational efficiencies (not employee-specific) . . . . ._____

- Vendor communication and coordination savings . . . . ._____

Total implementation costs	$27,950

- Hardware implementation costs . . . . ._____

- Software implementation costs 27,950

  Install PCOMM for OS/2 on 100 employee desktops
  $329 + ($279 x 99) = $27,950

  Upgrade S/390 to Communications Server for MVS/ESA
  no charge

- Network costs . . . . ._____

Savings (Benefits – Implementation Costs) =	$355,050

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[1] *This estimate is hypothetical and based on assumed IT and personnel costs and needs, which may be different for each customer. Each potential customer should perform an independent estimate of the costs and benefits for any particular installation. This is not a promise or guarantee of costs or savings for any particular business and should not be so construed.*

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

… *just in time gathers no costs*

We were able to make a good decision that is helping our company be more responsive to changing consumer preferences, because no big system and network changes had to take place.

– Vice President of Manufacturing

The Vice President of Manufacturing at an automotive corporation wanted to improve the *just-in-time* manufacturing processes, so that automobiles being manufactured more closely corresponded to changing consumer and regional preferences. Studies showed that the options and models that consumers preferred at the end of the year were not necessarily the same ones preferred six months later, and regional distinctions in preferences were growing. The staff had analyzed the manufacturing process and concluded that many employees at remote auto-parts manufacturing sites occasionally needed access to information that would let them coordinate more timely delivery of parts and materials to assembly sites. Applications at the central site maintained automobile order information, assembly schedules, and bill-of-materials. If remote users at the company's parts manufacturing sites and the assembly sites could access these applications, production cycle time could be reduced. Employees would know exactly what materials were needed and when they were needed. And when problems did occur, employees could obtain all the information necessary to understand and resolve those problems in minutes, rather than days.
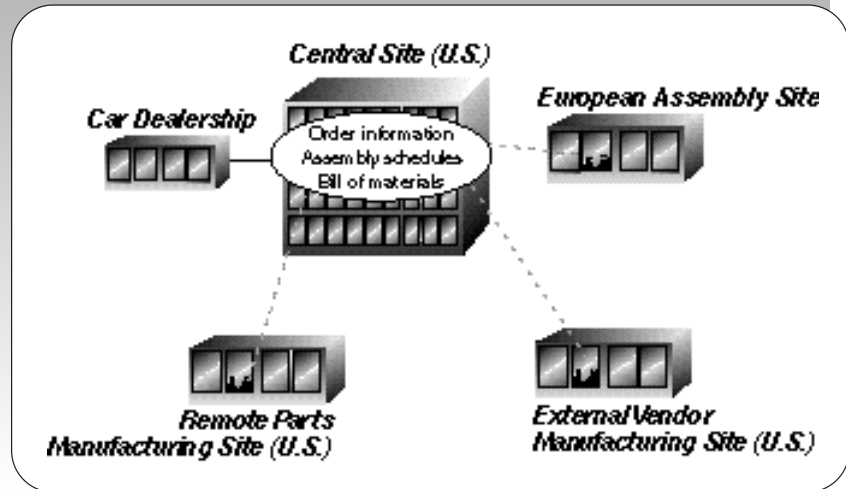
While the basic concept was sound, concerns were expressed about whether the system at the central site could handle the additional workload of 30,000 additional users, whether the corporate network infrastructure would let users access those applications, and what type of additional upgrades would be required to support the division's plan to significantly increase production (and users!) over the next few years. The initial assessment indicated that a new S/390 would be needed at the central site to handle the additional communication processing and application workload.

With this IBM solution, 30,000 users were provided access to the business-critical central applications, and no additional corporate network extensions were required. And the solution offered painless scalability by permitting incremental increases in capacity as more users throughout the corporation required access to the applications. Employees at remote parts manufacturing sites in the U.S. could easily understand what parts were required, and the assembly sites knew about changes to assembly schedules and parts delivery dates.

What's next? If manufacturing processes could become more efficient by improving communications with internal parts suppliers, is it possible to achieve the same types of results with external vendors? Yes! And an exciting and easy way to make this happen is by installing Host On-Demand on an IBM eNetwork Software server. Host On-Demand makes it easy for Internet-enabled vendors to use their Web browsers to obtain secure access to business-critical applications.

This gateway solution resulted in significant savings over the original plan of attack. The more obvious network design would have required additional S/390 capacity. This alternative solution was developed using Communications Server for AIX. As with most gateway solutions, there are additional capabilities provided by the Communications Servers that are just waiting to be tapped (for example, further enhancing manufacturing efficiency by providing secure access to key vendors).

Previous environment
- The central site in the U.S. is an SNA-based dynamic Advanced Peer-to-Peer Networking (APPN) network.
- Multiple remote U.S. and European sites are predominantly TCP/IP networks.

Customer requirements
- Support 30,000 users who need to access central site applications and data that pertain to manufacturing, without overburdening the central system.
- Provide a scalable solution that will support the goal of future growth (150,000 users).
- Ensure that European and U.S. users have equal availability to the critical applications and data.
- Provide the IT group a way to monitor response time from any user workstation to the primary server at the central site.
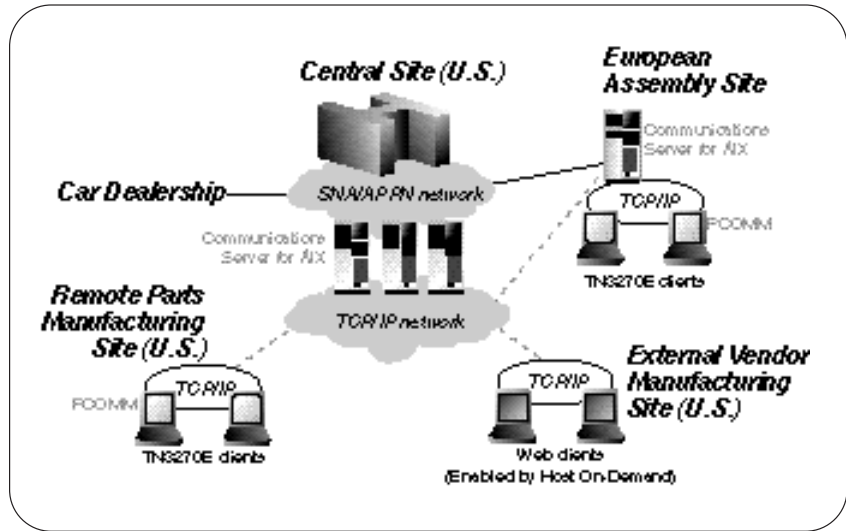
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Solution
- Install Communications Server for AIX with SNA Client Access on four new RS/6000s located in the U.S. central site (3) and a European site (1), rather than providing additional S/390 capacity to handle the additional access and application load.
- Use the four Communications Servers for AIX to act as a gateway where communications processing (TN3270E) is performed on behalf of the S/390. Balance the workload across all four servers using the load balancing capabilities of the server.
- Install PCOMM on all user workstations to provide market-leading terminal emulation.
- *What's next?* Take advantage of the Host On-Demand function available at no charge with Communications Server for AIX to let external vendors use Web browsers to access time-critical information at the central site.

Major advantages
- *Maximum application performance*
  More of the central site's server capacity can be used for application and data processing, rather than communication processing.
- *Scalability*
  As more users are added, the capacity can be incrementally increased by adding new servers.
- *Cost savings*
  See the Cost/benefit estimate on the next page!

Cost/benefit estimate[1]

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

The implementation cost savings[2] associated with this scenario are defined below. The corporation expected to receive an additional 50 million dollars (U.S.) in profits during the first year of the program, based on elimination of overruns that sold at lower prices, and the ability to charge more for vehicles with customized options. To achieve that goal, changes to manufacturing systems had been mandated. For this reason, it is more interesting to understand how choosing the proper integration solution for your network can save you even more money. The calculations below provide estimated implementation costs over a two-year period and compare two possible methods of implementation[3]:

- Method 1, a plan to place the communication access function on the near-capacity application server at the central site
- Method 2, a plan for performing the communication access function on four new RS/6000 gateway machines

Method 1	$7,531,528

- Hardware implementation costs (method 1) 2,400,000
  Central site S/390 additional MIPs
  $20,000/MIP[4] x 120 MIPS = $2,400,000

- Software implementation costs (method 1) 5,131,528
  S/390 software (MVS, VTAM, and TCP/IP)
  $11,000 MLC x 24 months x 2 processors = $528,000
  PCOMM on 30,000 workstations
  [$329 + (29,999 x $279)] x 0.55[5] = $4,603,528

Method 2	$6,102,716

- Hardware implementation costs (method 2) 520,000
  Four RS/6000 servers (7014-R40)
  4 x $130,000 = $520,000

- Software implementation costs (method 2) 5,582,716
  Four Communications Servers for AIX (including SNA Client Access, 30,000 TN3270 sessions, channel connectivity, and load leveler)
  ($849 CS base x 4 servers) + ($395 Client Access base x 4 servers) + ($964,992 for 30,000 TN3270 sessions[6])
  + ($7,500 for channel connectivity) + ($1,720 for load leveler) = $979,188
  PCOMM on 30,000 workstations
  [$329 + (29,999 x $279)] x 0.55[5] = $4,603,528

Savings (Method 1 – Method 2) =	$1,428,812

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[1] *This estimate is hypothetical and based on assumed IT and personnel costs and needs, which may be different for each customer. Each potential customer should perform an independent estimate of the costs and benefits for any particular installation. This is not a promise or guarantee of costs or savings for any particular business and should not be so construed.*

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

[3] See *IBM Communications Server for AIX with SNA Client Access Assessment Guide* (G325-5228) for more information on similar solutions.

[4] MIP cost is specific to the customer's environment. Contact your sales representative or reseller to determine MIPS savings.

[5] A Software Advantage discount of 45% was applied to this purchase.

[6] Pricing algorithms include base fees and per-session fees, and vary according to breakpoints. Contact your sales representative or reseller for more information.

… *there's no topping smart shopping*

We've expedited our purchasing process, ensuring that all the proper approvals occur and that orders for similar goods are rolled up at the corporate level to take advantage of volume discounts. Most people thought that getting all the proper approvals would cause delays in receiving the goods. In addition to reduced costs of goods for all the stores, store managers are finding that they can reduce their inventories, because goods are arriving faster than ever before. That's a difference that affects our bottom line!

– Director, Corporate Finance

After conducting a two-month study of purchasing practices used in this retailer's 600 stores, the corporate finance director saw that significant savings could be realized if they could take advantage of volume discounts. Because the stores were located in six different countries, the task of consolidating the purchase requests seemed insurmountable; attempts to manually consolidate orders on a few items had resulted in delayed shipments and unhappy store managers. For some types of goods, orders would need to be consolidated at a country level; in other cases, this task could be done at the corporate level. Clearly, it would be too complicated for the stores to keep track of which items they ordered themselves, which item orders were consolidated at the country level, and which item orders were consolidated at the corporate level. Nevertheless, the finance director was convinced that a streamlined and orderly process could yield significant savings on many of the goods sold in the stores if they could consolidate the store orders.
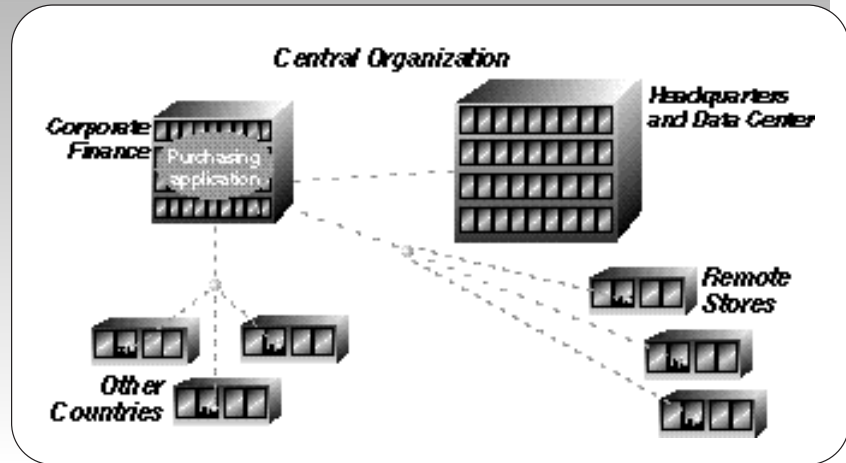
Consultation with the company's application development team indicated that the best approach to implementing the new purchasing process would be to use SAP R/3, third-party software that can automate business workflow. But they also raised concerns about the existing network connectivity to the 600 stores, and whether it could support the R/3 application. Clearly, LAN internetworking (between the individual store LANs and the LAN where the R/3 application would reside) was a necessity. Unfortunately, the corporate network and the LANs were different types of networks. Would the savings realized by consolidating purchases be offset by the costs of installing a parallel corporate network? Or, would a complete overhaul of the corporate network be a better approach? With IBM's solutions for network integration, neither of these options needed to be considered! Communications Servers were used to create *double gateways* that would let users in any store access the purchasing system; connectivity among the sites was possible using the existing corporate network. The purchasing system was smart enough to determine how, when, and where order consolidation should occur.

Three months after the system was implemented, the finance director smiled. The savings from order consolidation was already becoming apparent. And the store managers were happy, too, because orders were being efficiently processed. The next step was a natural one. The stores saw that they could further improve their financial position by reducing inventory now that they had a reliable purchasing system that helped them manage their costs.

This LAN internetworking solution meshed the best qualities of TCP/IP and SNA networks. Throughput exceeded the company's requirements. This solution was developed using Communications Server for AIX and Communications Server for OS/2 Warp.

The IBM eNetwork Software product line includes communications servers for Windows NT, NetWare, AIX, OS/390, and OS/2 systems. IBM eNetwork Software clients are available for Windows NT, Windows 95, Windows 3.1, and OS/2 systems. See page 16 for more specific information.

Previous environment
- The computer service center relies on an SNA network provided by IBM Global Network (IGN).
- Overhaul of the corporate purchasing system is highly desirable, with SAP R/3 being the chosen method of implementing the new purchasing process.
- Remote store locations (600 stores) are TCP/IP-based LAN environments.
- Speed of some remote location connections (9600 baud) is inadequate to support the purchasing application, but higher-speed lines are cost-prohibitive.

Customer requirements
- Remove the barrier to overhauling the purchasing system.
- Improve performance of remote LAN connectivity without massive price increases.
- Eliminate the need to supplement the current backbone network with a costly, parallel TCP/IP network.

Solution
- Use the existing SNA network provided by IGN to serve as the backbone communication network.
- Install Communications Server for AIX on the same RS/6000 being used as the SAP R/3 server. This Communications Server acts as a gateway to the backbone network.
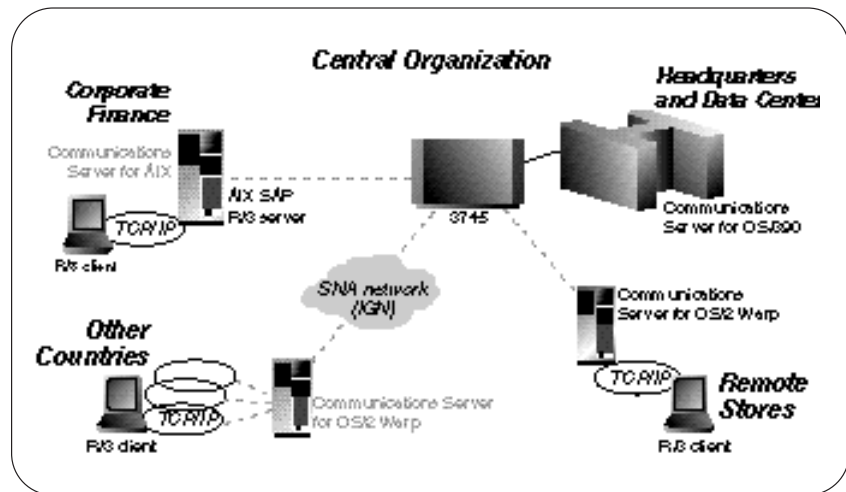
- Use the existing Communications Server for OS/2 Warp at the central site as a gateway for the TCP/IP LANs that exist in the stores in the home country location.
- Install a Communications Server for OS/2 Warp in each of the five other countries. This server acts as a concentrator for all the LANs in stores in that country and as a gateway to the backbone network.
- These *double gateways* between the LANs in the stores and the R/3 LAN facilitate the LAN-to-LAN internetworking required to support the new purchasing application.

Major advantages
- Application of choice
  This solution provided a more cost-effective way to implement the R/3 purchasing application.
- Parallel TCP/IP network avoidance
  The company can use a single backbone network.
- Excellent throughput and response time
  Special class-of-service capabilities, unavailable in a parallel TCP/IP network, helped deliver the desired performance.
- Cost savings
  See the Cost/benefit estimate on the next page!

Cost/benefit estimate[1]

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The benefits and implementation costs[2] associated with this scenario are defined below. The savings associated with the benefits were calculated for a two-year period, although the benefits and this implementation will endure far beyond that period of time.

Total benefits savings	$1,410,000

- Application development savings . . . . _____

- Employee training savings . . . . _____

- Employee productivity savings 150,000
  Network and systems management personnel savings from not having to install and maintain parallel network
  2 person years x $75,000 = $150,000

- Other operational efficiencies (not employee-specific) 1,260,000
  Savings from being able to implement the solution 3 months earlier
  600 stores x $700/month volume discount savings x 3 months = $1,260,000

- Vendor communication and coordination savings . . . . _____

Total implementation savings	$141,186

- Hardware implementation costs 90,000
  Five OS/2 Warp servers (country concentrators)
  5 x $10,000 = $50,000
  One node of RS/6000 SP being used for SAP R/3
  Incremental costs roughly equivalent to one 7012-C20 = $40,000

- Software implementation costs 10,814
  Five Communications Servers for OS/2 Warp
  $699 + (4 x $669) = $3,375
  Communications Server for AIX (unlimited sessions per server)
  ($849 CS base) + ($6,590 for unlimited sessions) = $7,439

- Network savings . . . .(242,000)
  Parallel network avoidance costs (five routers)
  5 x $10,000 = $50,000
  Line cost savings (estimated savings from not using IP router solution)
  $8,000/month x 24 months = $192,000

Savings (Benefits + Implementation Savings) =	$1,551,186

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

… new and unusual is business as usual

With the broad range of network integration solutions available from IBM, my organization can find a new way to look like a hero nearly every week. And we don't have to spend months redesigning the network anymore.

– Director, Information Technology

The information technology division of this large bank is changing its image with the internal departments using IBM solutions for network integration. With increasing competition for customers, the bank must continue to offer new services and watch its own bottom line on expenses. The CFO recently demanded that a new corporate purchasing application be put in place to control expenses while the bank added 50 additional branches over the next two years. Of course, this SAP R/3 purchasing application controls all purchases made by all locations, ensures that all the proper approvals occur, and consolidates orders to obtain better pricing from vendors.

Once the IT organization implemented an IBM network integration solution for the purchasing system, many other solutions became apparent as they explored the full range of scalable Communications Server alternatives.

To quickly expand its services, the bank had recently merged with an investment firm — a firm that had a different type of backbone network. Just communicating the bank's corporate policy and employee benefits seemed a challenge. But the same type of double-gateway solution that worked for the purchasing application could be used to provide the other company access to the Lotus notes server
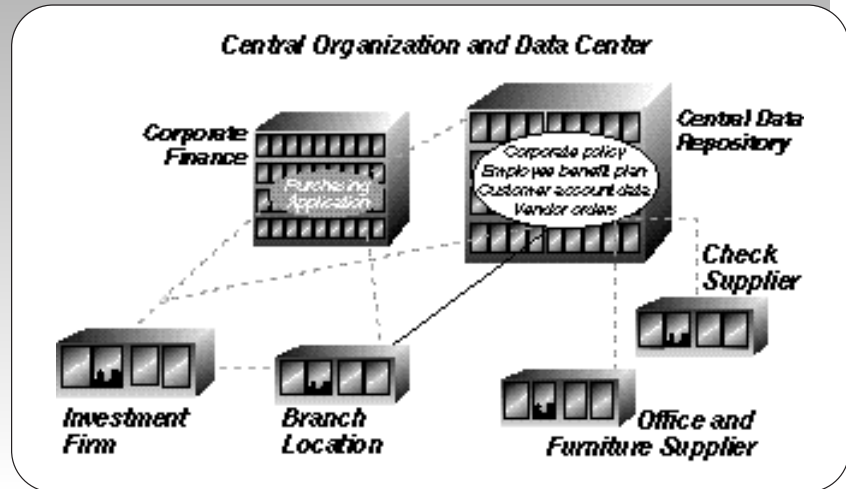
where policy and benefit information resided. Because communicating policy and benefits was only the start of the interaction between the organizations, using an upwardly scalable server as the gateway was a necessity. (After all, the point of the merger was to offer the customers an integrated set of services from all the bank's branch locations, and the investment firm would need access to the bank's customer database.)

Similarly, the internal corporate part of any purchasing system is only a portion of the information that needs to be shared; external vendors needed much of the same information that was being accumulated using the purchasing systems. Providing a gateway that offered secure access to the order information was a logical extension, even though major vendors used other types of networks. Connectivity from the vendors could be as simple as using a Java-enabled Web browser and the Internet. This implementation offered significant savings in communication with the company who produced checks for all branches of the bank and for the company who was providing furniture for the new branches and office supplies for all the branches.

The versatility of the servers is letting them reach far down into the list of requirements. Anyone in the IT division can attest to the fact that banks run on information — not money.

This solution uses a variety of gateways (single and double) to enable essential access to many different organizations and companies. Versatile client software that will also enable additional functions in the future has also been deployed.

Previous environment

- The central site provides an SNA backbone network which uses High-Performance Routing (HPR). Communications Server for OS/390 provides accessibility to CICS-based customer account data and transactions.
- Branch offices (200, plus 50 to be added) operate on TCP/IP LANs, and a Communications Server for OS/2 Warp is present in each bank to provide accessibility to the central customer transaction system. Customer service representatives in the bank's branches sometimes have to call the central site to obtain information needed to resolve customer disputes.
- The investment firm relied on a TCP/IP backbone network which supported 20 branch offices.
- Implementation of a purchasing system using SAP R/3 had been mandated.

Customer requirements

- Provide all employees access to the new purchasing application.
- Initially, provide all 100 employees of the merged investment firm with access to employee benefit and corporate policy information available on Lotus Notes. Access to the bank's customer database also will be needed in the near future.
- Provide a way for key vendors to connect to order information that is stored at the bank's central location.
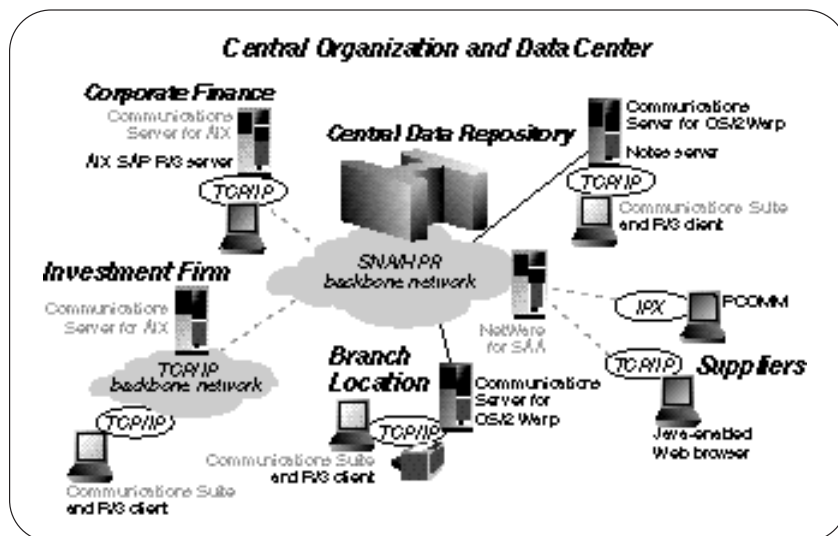
The IBM eNetwork Software product line includes communications servers for Windows NT, NetWare, AIX, OS/390, and OS/2 systems. IBM eNetwork Software clients are available for Windows NT, Windows 95, Windows 3.1, and OS/2 systems. See page 16 for more specific information.

- Provide branch office users access to applications on the S/390 server, with the capability to print results on their local printers. (Having access to these applications assists in the resolution of customer disputes.)

Solution

- Use the existing Communications Servers for OS/2 Warp in the branch offices as gateways to access the financial data.
- Communications Server for AIX can be installed on the same RS/6000 on which the R/3 server resides.
- Upgrade the workstation software in the branch offices to Communications Suite, providing industry-standard TN3270E support, including local printing support.
- Install Communications Suite on the workstations used by the investment firm's employees, enabling access to Lotus Notes server through a new Communications Server for AIX gateway, and future access to the bank's customer database.
- Install a NetWare for SAA gateway to provide key vendors (on IPX and TCP/IP networks) accessibility to centralized order information.

Major advantages

- Application of choice without a parallel TCP/IP network
  The R/3 purchasing application could be deployed without creating a separate TCP/IP network.
- Nondisruptive merging of networks
  The network becomes an aid to efficient communication, rather than another barrier to overcome in the merger.
- Depth of protocol support
  External vendors and internal organizations are unrestricted in their ability to share vital information quickly in electronic form.
- Cost savings
  See the Cost/benefit estimate on the next page!

Cost/benefit estimate[1]

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

The benefits and implementation costs[2] associated with this scenario are defined below. The savings associated with the benefits identified below were projected for a two-year period, although the benefits and this implementation will endure far beyond that period of time. Also note that without additional costs, a variety of additional benefits will be reaped as the merger fully progresses and more vendors come online.

Total benefits savings	**$2,051,250**

- Application development savings . . . . ._____

- Employee training savings . . . . ._____

- Employee productivity savings 371,250
  Savings of 2 minutes per transaction in resolving customer disputes using access to central applications
  0.033 hours x $15/hour x 6 disputes/day x 250 branches x 250 days/year x 2 years = $371,250

- Other operational efficiencies (not employee-specific) 1,200,000
  Savings from being able to implement investment services 3 months earlier
  $20,000 additional profit/month x 20 branches x 3 months = $1,200,000

- Vendor communication and coordination savings 480,000
  Postal and administrative support savings because vendors access order information online
  ($5/month postage x 250 branches x 24 months) + (5 hours/month x $15/hour x 250 branches x 24 months) = $480,000

Total implementation costs	**$1,093,215**

- Hardware implementation costs 70,000
  One RS/6000 server (IBM 43P-140) for investment firm
  1 x $20,000 = $20,000
  One node of RS/6000 SP being used for SAP R/3
  Incremental costs roughly equivalent to one 7012-C20 = $40,000
  One Novell server
  1 x $10,000 = $10,000

- Software implementation costs 1,023,215
  Communications Server for AIX for investment firm (with unlimited sessions and SNA Client Access with 64 sessions)
  $849 CS base + $6,590 for unlimited sessions + [$395 + (64 X $59) for SNA Client Access sessions)]= $11,610
  Communications Server for AIX (with unlimited sessions and SNA Client Access with 64 sessions)
  $849 CS base + $6,590 for unlimited sessions + [$395 + (64 X $59) for SNA Client Access sessions)]= $11,610
  NetWare for SAA
  $2,495
  Communications Suite software for 2,500 workstations
  $399 x 2,500 = $997,500

- Network costs . . . . ._____
  The increase in line costs for connectivity to the investment firm was assumed to offset the savings of having to implement a parallel network in the bank to support the purchasing application.

Savings (Benefits – Implementation Costs) =	**$958,035**

Summary

Growing demand for network integration

Today's proliferation of multiple network types was fueled by many factors and is perhaps most apparent in the current need for Internet access and the development of new corporate intranets. TCP/IP penetration is projected to extend to nearly 80 percent of LAN environments. In the corporate environment, workstations reside in groups that are often part of a larger enterprise that already uses SNA for backbone networking and for core business applications and data stores. Regardless of the LAN type or your backbone network type, groups of users will have specific needs, prefer a familiar interface, and have growing information needs. Providing employees access to new applications can increase their productivity, but adding new network types, building and managing parallel networks, or overhauling LANs and backbone networks, can result in net productivity losses for the enterprise.

Satisfying application and data needs the easy way

The market is saturated with products that attempt to address a small portion of the enterprise problem — all with varying results. Many of these solutions are not capable of scaling to support the enterprise, or their performance and reliability leave much to be desired. The IBM eNetwork Software product line covers the whole gamut of platforms — from the PC to the S/390 — and helps you avoid major network overhauls, new hardware investments, or network disruptions.

The capabilities provided by the IBM solutions for network integration are based on open architectures and popular industry standards, providing you the assurance of a sound investment. This software uses protocol translation technology, as opposed to protocol encapsula-tion, to provide a competitive edge in the performance arena. Whether you're trying to connect a user to applications over a nonnative network type (access node solution), trying to connect users to applications in a different network, (gateway solution), or trying to connect remote LANs across a nonnative network (LAN internetworking solution), the IBM eNetwork Software product line can address your needs with a right-sized solution — for today and tomorrow!

Depending on your specific network con-figuration, this product line can work in tandem with or as a cost-effective alternative to some router-based solutions. Because the software is not imbedded in a specific piece of hardware, you can expect the network integration capabilities to continue to expand with the natural evolution of the networking industry. (For example, Host On-Demand function recently has been added to the servers to provide access to 3270 applications from Java-enabled Web browsers.) This is part of IBM's continuing commitment to offer you complete freedom in making application decisions that are consistent with your *business* needs — not gaited by corporate network design!

Satisfying the needs of users

The IBM eNetwork Software product line includes servers that work in tandem with its client software and with other pervasive industry clients, to minimize disruption and enhance employee productivity. The IBM eNetwork Software clients include offerings specifically tailored for cross-platform enterprise needs (PCOMM), wireless needs (ARTour), Internet and intranet users (Internet Connection Corporate Kit and ARTour Web Express), and users of traditional, Internet, and intranet systems (Communications Suite). (For more information on other types of solutions using the Enterprise Communications product line, see *IBM eNetwork Software Solutions for Any-to-Any Information Access Assessment Guide* and *IBM eNetwork Software Solutions for Internet and Intranet Infrastructures Assessment Guide*.)

The ultimate quest of business technology users today is interoperability. To be successful, users need the flexibility to move data and use critical applications across their organization without being concerned with the underlying networks. Users must have easy access to data from the office, home, or on the road — without sacrificing the familiar look and feel they know and understand.

With this line of servers and clients, interoperability is within the grasp of all technology users. These products allow users to choose applications that fit their business needs and to interconnect despite diverse platform and network configurations. Technology incompatibility is becoming obsolete with the IBM eNetwork Software products.

IBM eNetwork Software Communications Servers

With the introduction of the Communications Servers, IBM has integrated the broadest array of networking functions and connectivity available — based on industry standards and optimized for the platform of choice. Several key and open technologies have been integrated into a simplified set of products.

The Communications Server product line includes solutions for OS/390, AIX, OS/2, Windows NT, and NetWare and is fully interoperable with S/390 and AS/400 networks. Fundamental to today's client/server and network computing environments, the Communications Server builds on the leading peer-to-peer networking protocols of TCP/IP and Advanced Peer-to-Peer Networking (APPN).

Communications Server for AIX
As a powerful multiprotocol, multifunction gateway which can have extra-high capacity and performance with direct S/390 channel attachment, this product succeeds IBM SNA Server for AIX, Version 3.1. As a total enterprise networking solution, its UNIX application platform extends the communication capability of the AIX Base Operating System by acting as an enterprise server for AIX and SNA networks, as well as a connectivity platform. This server was designed specifically for AIX and RS/6000 networking environments and takes advantage of the AIX system facilities to integrate applications and protocols seamlessly.

Communications Server for OS/2 Warp
An advanced gateway providing flexible, reliable communication of networks for all sizes, this product enables OS/2, Windows, and DOS workstations to communicate with S/390 and AS/400 hosts and other workstations. A significant capability of this server is that it allows IPX, NetBios, SNA, and TCP/IP applications to run unchanged over both SNA and TCP/IP communication networks. Also, this server's rich 32-bit application programming interfaces are key to the dynamic growth of new business applications required by customers, as well as the client/server and distributed applications supported with the APPN network node and end node.

Communications Server for OS/390
A critical server for the enterprise, providing the highest availability, reliability, and security, this powerful communications server connects diverse applications and network environments, and it builds on the classic strength of S/390. It is a sensible solution to the real business need for integrating ever-increasing sets of new applications into an ever-changing network without disrupting access to your mission-critical applications. The overall benefits are unmatched performance, availability, and investment protection for your S/390 applications, whether they are running on VTAM or TCP/IP.

new Communications Server for Windows NT
An industrial-strength multiprotocol gateway providing flexible, reliable communications, this product enables OS/2, Windows, and DOS workstations to communicate with S/390 and AS/400 hosts and other workstations. Whether it's for host terminal emulation, client/server and distributed applications, or connectivity across local and wide area networks (LANs and WANs), this server offers a robust set of communication, networking, and systems management features. Its wide variety of application programming interfaces provides compatibility with new and existing client/server applications and can be run on either client or server nodes in the network.

NetWare for SAA
A secure, reliable, and scalable platform for integrating IBM S/390 and AS/400 connectivity services with NetWare and IntranetWare, this server offers multiple LAN and WAN connectivity options for branch office and department users. This software, part of an IBM/Novell alliance, lets NetWare clients access IBM host applications and data with IPX/SPX, TCP/IP, and AppleTalk, and it provides administrators with access to Novell's industry-leading performance as well as directory, security, and management services through NetWare Directory Services.

IBM eNetwork Software Clients

IBM eNetwork clients can put interoperability within the reach of all technology users. Combined with communications servers, these clients optimize existing networks and platforms, while allowing for the addition of emerging high-performance applications. This line of products provides the broadest range of LAN and WAN and remote connectivity, offering the single communication source needed for home, office, and mobile use. The product line includes the following IBM eNetwork client software:

- Communications Suite for Windows 3.11
- Communications Suite for Windows for Workgroups 3.11
- Communications Suite for Windows 95
- Communications Suite for Windows NT
- Personal Communications AS/400 for OS/2
- Personal Communications AS/400 for Windows
- Personal Communications AS/400 for Windows 95
- Personal Communications AS/400 for Windows NT
- Personal Communications AS/400 and 3270 for OS/2
- Personal Communications AS/400 and 3270 for Windows
- Personal Communications AS/400 and 3270 for Windows 95
- Personal Communications AS/400 and 3270 for Windows NT
- Personal Communications Toolkit for Visual Basic
- Internet Connection Corporate Kit for Windows 3.11
- Internet Connection Corporate Kit for Windows for Workgroups 3.11
- Internet Connection Corporate Kit for Windows 95
- Internet Connection Corporate Kit for Windows NT
- Host On-Demand for any Java-enabled Web browser

Communications Suite
The Communications Suite provides all the tools customers need to meet their enterprise communication needs. From Internet and intranet access to corporate communications and terminal emulation, the Communications Suite offers the single source for market-leading communication products.

The Communications Suite includes Netscape Navigator, Version 3.0 for Web browsing and Internet applications, PCOMM 4.1 for terminal emulation, Lotus Notes Mail 4.5 for corporate communications, and FTP Software TCP/IP protocol stacks and applications. This feature-rich, multifunction solution is easy to install, easy to configure, and easy to use. And, all the applications are fully supported by IBM. With the Communications Suite, you're only one click away from the information you need!

Personal Communications (PCOMM)
With the introduction of the Personal Communications AS/400 and 3270, Version 4.1 (PCOMM 4.1), product line, customers now have one easy answer to the problem of integrating multiple users on varying platforms from multiple locations. PCOMM 4.1's consistent interface masks the complexity of information management and distribution, regardless of the underlying data source or network.

With a common look and feel across OS/2, DOS/Windows, Windows 95, and Windows NT, PCOMM 4.1 lets users move confidently from one environment to another. This can significantly lower training and application-migration costs while raising productivity.

Another significant benefit is the high-function development platform, which allows users to link application data dynamically with either custom desktop-based analysis applications or with standard decision-support suites — such as Lotus SmartSuite or Microsoft Office. Applications can be deployed across multiple diverse platforms without change and independent of transport. To obtain a no charge Personal Communications Evaluation Kit, call 1-800-901-2205, priority code 6C7ABD032.

Internet Connection Corporate Kit for Windows (Corporate Kit)
Whether you manage the networks for a large corporation or a small branch office, your company can benefit from the network computing advances made possible through the use of Internet standard communication. The Corporate Kit provides the essential applications you need for complete access to your intranet and the Internet. With the Corporate Kit, your organization can share information within a department, with branch offices, with remote sites, and with mobile personnel.

The Corporate Kit provides the industry-standard TCP/IP network types and leading-edge Internet applications needed to access these resources. The program comes with industry-leading Netscape Navigator, Adobe Acrobat Reader, First Floor's Smart Bookmarks, and a wide variety of terminal emulators and file transfer and print capabilities — all to improve your organization's internal and external communication.

Easy to install and set up, the Corporate Kit includes procedures that allow you to select which applications to install on each user's desktop. And, it's even easier to get started. Simply point and click to get connected to the Internet. Prepared scripts are provided for many popular dial-up access providers and the launch-pad design allows users to start a group of applications as needed to complete their tasks.

Host On-Demand
Host On-Demand is an Internet-to-SNA interconnectivity solution that provides 3270 application discovery and access through the WWW. Web users needing host applications such as public catalogs, software applications, databases, or other resources, can use Host On-Demand from inside their Java-enabled Web browsers to access central computer data. For Web-oriented users with occasional

need for central computer access, Host On-Demand provides an alternative to installing a terminal emulation program on the desktop. Host On-Demand brings network computing to the Web by enabling Web browsers to seamlessly access non-Internet-based content and services.

Host On-Demand uses the Java environment and native TN3270 and Internet protocols to provide platform-independent host access from within a Web-browser window. Host On-Demand integrates existing central computer data and resources with intranet, Internet, and Web capabilities. The result is dramatically increased availability of host-based information for Web-oriented users. Host On-Demand is available for a wide range of major server platforms, including OS/2, AIX, NetWare, and Windows NT.

IBM eNetwork Software Wireless Products

Extending the reach of new and existing business applications to the wireless environment, the Advanced Radio Communications on Tour (ARTour) product line offers a competitive business advantage. ARTour gateways and servers work in tandem with ARTour clients to minimize data traffic, reduce network costs, enhance performance, and provide affordable and effective mobile solutions.

ARTour Gateway and Servers
The ARTour Gateway for AIX extends IP connectivity across the leading international wireless packet data, cellular, and wireline networks, integrating them under a single (TCP/IP sockets) interface enabling immediate and optimized use of existing IP applications. ARTour Web Express Server for Windows NT[1], ARTour Web Express Server for AIX, and ARTour Web Express Server for OS/2 enable wireless access to intranet and Internet applications using the Web browser of your choice — without requiring any application changes. ARTour Emulator Express

Server for Windows NT, ARTour Emulator Express Server for AIX[1] and ARTour Emulator Express Server for OS/2[1] enable wireless access to SNA 3270/5250 applications, with no application modifications, thereby enabling enterprises to extend and leverage their legacy applications into the wireless environment.

ARTour Clients
The ARTour product line includes the following client software:
- ARTour Mobile Client for OS/2
- ARTour Mobile Client for Windows 3.1
- ARTour Mobile Client for Windows 95
- ARTour Mobile Client for Windows NT[1]
- ARTour Web Express Client for OS/2
- ARTour Web Express Client for Windows 3.1
- ARTour Web Express Client for Windows 95
- ARTour Web Express Client for Windows NT[1]
- ARTour Emulator Express Client for Windows 95
- ARTour Emulator Express Client for Windows NT[1]
- ARTour Emulator Express Client for OS/2[1]

ARTour Mobile Clients offer a competitive business advantage, ensuing that *all* workers can have information when they need it, where they need it! The ARTour Mobile Clients work with the ARTour Gateway for AIX to minimize data traffic, reduce network costs, and enhance performance — providing an affordable and effective mobile solution.

ARTour Web Express clients provide wireless access to intranet and Internet applications using the Web browser of your choice. Working with an ARTour Web Express server, these clients dramatically reduce the amount of data transmissions and performs various optimizations, including file caching, forms differencing, and header reduction, to enable the creation of innovative wireless solutions in the network computing environment. In addition, mobile clients can perform asynchronous and disconnected operations to optimize productivity.

Similarly, the ARTour Emulator Express clients work with an ARTour Emulator Express server to provide mobile users access to SNA 3270/5250 applications. ARTour Emulator Express filters out unnecessary data transmissions to provide an efficient and optimized mobile solution.

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[1] Available 4Q'97

Cost/benefit estimate worksheet

This worksheet is provided to help you analyze potential savings for a customer who could benefit from network integration using the IBM eNetwork Software product line. Before you begin, choose a time frame over which you believe the customer will expect to receive full return-on-investment. Savings and costs will need to be calculated across a specified period of time. Since product prices are subject to change, you should obtain and use current prices when calculating implementation costs for a customer.

Benefits savings

- Application development savings . . . .   _____
  Include cost avoidance for rewriting applications to use a specific network type. Also consider the
  savings from the ability to use off-the-shelf applications that rely on a nonnative network type.

- Employee training savings . . . .   +_____
  Include costs for teaching new employees how to navigate through network complexities that this solution
  may alleviate. Also remember savings associated with all existing employees not having to be retrained on
  a new (rewritten or off-the-shelf) application where ability to use an existing application is important.

- Employee productivity savings . . . .   +_____
  Savings can be calculated based on the number of transactions that are performed and the time
  savings associated with each. Another approach would be to project additional revenue based on improved
  productivity. Also consider potential savings of network and systems management support personnel.

- Other operational efficiencies (not employee-specific) . . . .   +_____
  Consider the benefits from a shorter time to implement the solution. (What are the savings associated
  with achieving the business objective sooner?) Also consider pricing or other discounts that can be achieved
  because of the ability to more readily consolidate information into corporate-wide decisions or purchases.
  Postal costs or other non-electronic forms that are being eliminated by online availability of applications or
  data should be considered.

- Vendor communication and coordination savings . . . .   +_____
  Consider costs saved by providing external vendors access to information that normally requires additional
  manual labor. (Exercise caution in including other electronic forms (for example, fax) that may only
  be incurring equivalent line costs.)

  Total benefits savings . . . .   =_____   (A)

Implementation costs/savings

- Hardware implementation costs . . . .   _____
  Include new server and operating system costs. Investigate whether an existing server can't be used.
  Include costs for new hardware required for client support.

- Software implementation costs . . . .   +_____
  Include costs for Communications Servers and any separately priced features. Include costs for new
  client software, but check to see what upgrades or discounts might be available.

- Network costs (or savings) . . . .   +_____
  Line costs can be difficult to assess before the fact. Consider basing the estimate on what might be expected
  to significantly change, rather than trying to project total costs. Remember that savings associated with
  additional personnel costs required to implement some other solutions can offset additional expenses here.
  Include savings realized for parallel network avoidance to offset other expense.

  Total implementation costs/savings . . . .   =_____   (B)

Savings (A – B = C) . . . .   [   ]   (C)

Vendor summary information[1]

	IBM	Microsoft	OpenConnect[2]	Cisco Systems, Inc.[2]
Marketing channels	Worldwide direct sales force and growing base of business partners, resellers, and others	Dealers, ISPs, and OEMs; direct sales on enterprise accounts	Direct sales force; partnerships with IBM (VSE), HP, Microsoft, Sun.	Large U.S. sales force; small Europe and Pacific sales force
Target	Fortune 1000 customers with multiprotocol environments	Displacing Novell NetWare for SAA and AS/400 accounts	Fortune 50 and mobile accounts	Fortune 1000 customers with multiprotocol environments and IBM customers
Network simplification approach	Minimum network components with maximum existing equipment, applications, and skills	Additional network components and multiple vendors required for complete solution	Additional network components and multiple vendors required for complete solution	Converge all network traffic onto TCP/IP through encapsulation; Intranetwork management by IOS
Network performance enhancers	Maximize use of bandwidth with compression and implementation of advanced protocol (High Performance Routing) technologies	Focus is on server performance compared with network operations	Focus on server and host performance via offloading TCP/IP from the host	Well tuned for TCP/IP networks
Flexibility of solutions	Network design, network protocol, and platform choices	Limited to TCP/IP as network protocol, NT as platform	Limited to SNA (low-end networking) as network protocol; multiple server platforms supported	Distributed deployment of DLSw+
Scalability and performance	Cross-platform support enabling solutions to be customized to fit small-to-large network needs	Improved throughput with Version 3, scalability is based on deployment of multiple servers to meet network traffic demands	Multiple servers deployed to meet higher network demands	Scalable router platforms available
Depth of protocol support	Support for industry prevalent protocols on LAN and WAN enable wider selection of application choice for customer	Application choice limited to SNA or TCP/IP applications; SNA Open Gateway Architecture (SOGA) strategy allows for other protocols	SNA or TCP/IP applications	Wide variety of protocols
Encapsulation compared to translation	Translation; minimizes bandwidth needs and provides for reliable end-user response times	Encapsulation; wastes bandwidth and does not compensate for an applications' response/delivery requirements	Protocol conversion	Encapsulation; wastes bandwidth and does not compensate for the applications response and delivery requirements
Leading SNA capabilities	Support for APPN and HPR provides for most efficient handling of network traffic	Lacks complete APPN and HPR capabilities	Lacks APPN and HPR capabilities	Supports APPN, with statement of direction to support HPR
Price	Price competitive; will discount	Aggressive with Back Office bundling to push NT	Price competitive; will drop price dramatically if faced with a competitive situation	Price competitive
Positioning and strategy	Single vendor, full-function multiprotocol solution; awareness campaigns to generate demand	Multivendor solution to meet customer needs	Integration of Internet and enterprise SNA networks	Positioning as full-service network provider
Market presence	Strong presence in IBM accounts	Relative newcomer	Growing presence	Strong presence in the router and switch market

[1] In some geographies, comparative advertising is prohibited or limited. This information should not be disclosed to persons outside IBM without first getting clearance from your marketing or geography counsel.

[2] Cisco and OpenConnect have announced joint development and marketing arrangements to pursue Internet and intranet solutions involving the S/390.

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The next step …

- **For additional information,** call
or e-mail your local BESTeam office

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BESTeam Member Services:
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Internet:
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