Network Computing Trends in Retail

October 1998

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Executive Summary

Two of the most respected names in retail computing, SCO® and IBM®, are working together to bring you powerful network computing solutions based on SCO's leading UNIX® server operating systems and IBM's network computing technology. • One objective of the IBM/SCO initiative is to provide an easy migration path from terminals and distributed PCs to the server-centric, graphical, Web-based world of e-business. • Today, e-business is transforming retail, changing relationships among employees, with suppliers, with distributors, and of course, with customers. A key to exploiting the power of e-business is network computing. • Network computing offers benefits in cost containment, reliability, scalability and accessibility that allow you to move at your own pace toward the open, multiplatform, application-rich, e-business future. • The SCO architecture for network computing, in conjunction with the IBM Network Station™, is a new paradigm for the rapid implementation of retail business solutions in stores, along the supply chain, and across the enterprise. • Network computing offers significant cost advantages over traditional client/server systems that rely on distributed networks of PCs. • SCO and IBM offer a range of network computing components — point-of-sale devices, network computers, servers, server operating systems, and application software — to help retailers make the move to the emerging store of the future.

SCO is the world's leading supplier of UNIX server operating systems. IBM is at the center of the global e-business revolution.

The IBM and SCO Initiative

IBM and The Santa Cruz Operation® (SCO), two of the most respected names in retail computing, have come together to bring you powerful network computing solutions based on SCO's leading UNIX server operating systems and IBM's network computing technology. This is the latest in a series of complementary offerings, one tailored for retail customers desiring a UNIX-based solution.

As part of the IBM/SCO initiative, which builds upon the existing relationship between SCO and IBM's Netfinity® server division, IBM is supporting its Network Station Manager, the industry-leading network computer management software, in SCO UnixWare® and SCO OpenServer™ operating systems. SCO is providing support for IBM's Network Station family of network computers (NCs). This initiative takes the next step, with IBM and SCO promoting and delivering the benefits of network computing specifically for the retail industry. Under the initiative, SCO and IBM will work with partners and solution providers to offer retailers all the components needed for migration to a network computing environment in all aspects of their operations.

SCO

SCO is the world's leading supplier of UNIX server operating systems, with a major market share in numerous retail segments. In North America, SCO is in 29 of the top 100 retail chains, including 10 of the top 14 drugstore chains and 11 of the top 25 grocery chains. SCO is also a leader in hospitality and food service segments.

Worldwide, SCO is the market leader for UNIX servers on the Intel® processor platform, and also for UNIX servers on any processor platform, accounting for over 40% of the units shipped – more than twice as many units as any competitor (source: IDC). SCO UNIX servers, which include UnixWare 7 and SCO OpenServer systems, run the critical day-to-day operations of large branch organizations in retail, finance, telecom and government, as well as corporate departments and small to medium sized businesses.

According to IDC, UnixWare was the fastest growing UNIX server system in 1997. SCO products feature best-of-breed technology from the industry's leading hardware and software technology providers.

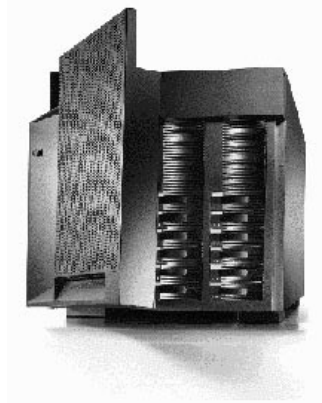
The expertise of SCO's worldwide internal product development team in sourcing, enhancing and integrating the leading third-party technologies enables SCO to provide powerful, cost-effective and truly open system software platforms for running applications developed by more than 12,000 independent software vendors (ISVs). SCO's global network of 15,000 resellers and system integrators provides many opportunities for software developers and hardware manufacturers to serve SCO's established volume market.

IBM

IBM is at the center of the global e-business revolution. It is the leader in point-of-sale (POS) devices for retail with more than 1.4 million POS systems worldwide. IBM is the biggest seller of "thin client" network computers — more than 3,000 enterprise customers purchased tens of thousands of IBM Network Stations in 1997. Today, IBM has nearly 2,500 Java™ professionals, more than any other company. With Enterprise JavaBeans™, IBM is taking Java applications into the world of high-volume transaction processing and into the heart of retail business processes.

e-business

IBM is the largest information technology company in the world. Our reach is global, our people are wherever you are. We cover the entire continuum, from retail account specialists and consultants who work with you on solutions, to hardware and software innovators, implementation teams, and service, maintenance and training specialists.



IBM Netfinity Server

In 1997, for the fifth straight year, IBM was issued the most new US patents — 1,724. Our customers benefit from this intellectual property because fully one-third of last year's patented technologies already have been incorporated into IBM products. Our client and research teams have developed more than 250 industry-specific solutions — many of them in retail — working directly with customers.

Our services organization — IBM Global Services — has thousands of specialists that help our retail customers undertake change and adopt technologies that make them more competitive. Today, we are the market leader in services with $42 billion in bookings. We have the highest customer satisfaction rating in the industry.

IBM Network Stations

The retailer who knows his or her customer best is better able to forecast, order, promote, replenish, maximize operating margins and capture more sales.

THE INITIATIVE

Working with us, you have the advantage of our technological leadership. Here's what you can expect from the IBM/SCO initiative: an easy migration path from character-based terminals and distributed PCs to the server-centric, graphical, Web-based world of e-business. We'll help you get to UNIX-based network computing today without sacrificing your current information technology (IT) investment.

Retail and the e-Business Revolution

From a global perspective, you belong to an extraordinary industry. More than six billion people participate in over three trillion dollars worth of retail transactions each year. Around the world, the retail industry is characterized by diversity, complexity and a stunning spectrum of businesses ranging from huge international enterprises to single stores in emerging economies.

But there is a commonality you share with all other retailers. Regardless of size, geography or segment, the goal of retailers is to have the right product in the right place at the right time, and at the right price.

As the velocity of change in retail markets increases, that time-honored homily is becoming more difficult to achieve. To keep ahead of competition, today's most successful retailers generally identify three simple, yet powerful, strategies:

- Market to consumers on a one-to-one basis
- Focus on increasing sales and lowering costs
- Exploit technology

The retailer who knows his or her customer best is better able to forecast, order, promote, replenish, maximize operating margins and capture more sales. The retailer who streamlines inventory handling and lowers costs with the adept management of information has a distinct advantage over the competition. The retailer who exploits technology to accomplish the first two strategies is in a stronger position for success in the turbulent time ahead.

Building now is a truly historic change that transcends all previous technology advances in its ability to help you realize your core business strategies. In 1997, IBM coined the phrase “e-business” to talk about the value customers derive from network computing, to describe how they are reinventing their business models around networked transactions of every kind.

Today, e-business is transforming retail, changing relationships among employees, with suppliers, with distributors, and of course, with customers. Suddenly, with Internet technology, a growing company can compete on an equal footing with its largest competitors. Countless businesses are using e-business solutions to link everyday work processes, to integrate their supply chain more effectively, to get the right product to the right consumer at the right time.

A key to exploiting the power of e-business is network computing. The growth of network computing doesn’t follow the familiar pattern of greater power in smaller packages. It introduces a new element into the equation — communications. The network is no longer merely a link between servers and desktops. It has become a resource for services, content and connection, a processor of data and applications. Moving to network computing offers benefits in cost containment, reliability, scalability and accessibility that can help protect your current IT assets. It allows you to move at your own pace toward the open, multiplatform, application-rich, e-business future.

The Network Computing Model

To stay competitive and successful as the retail world changes, with its new channels to consumers, new global competitive forces and rapid technological advances, our retail customers want to accommodate change, integrate a variety of systems and improve access to information. Many have found what they are looking for in the network computing model, which offers benefits in cost containment, reliability, scalability and accessibility. The new environment supports centralized or distributed systems, or any variation in between.

As retailers have discovered, network computing is both challenging and fascinating. Advances in network computing require a shift in how organizations think about and deliver new generations of Web-based and networked applications. Network computing offers IT departments a cost-effective way to control, manage and operate desktop computing platforms in server-centric application environments. It represents both an overall architectural evolution and a software architecture that encompasses network computing devices, PCs, terminals and a variety of other networked systems.

CURRENT INFORMATION, WHERE AND WHEN YOU NEED IT

For many of our customers, network computing provides an answer to two key business concerns:

- Maintaining current information and
- Providing access to the same information from anywhere in the retail chain.

These are things that network computing does well by providing centralized control for efficient management and ready access to applications and data that can be changed and fine-tuned as needed.

OPEN STANDARDS, WEB READY

Like the Internet, network computing architecture is based on standards and protocols that assure open communications for business-critical functions. This open environment encourages third-party application and middleware development. It is a muli-platform world that can integrate all of your systems — NCs, PCs, POS terminals, local servers, enterprise servers and legacy systems.

With network computing, you'll be ready to take advantage of the Internet, from Web-based EDI to online shopping through your Web site. It's an opportunity you can't afford to miss. In 1997, 19.7 million Americans visited retail Web sites, according to Medimetrix, a Web rating service. They spent $2.6 billion in online transactions, according to Jupiter Communications, a research company, an increase of over 260% from 1996, and are projected to spend $5.8 billion in 1998. A LJR Redbook Research report said that figure would skyrocket to between $34 billion and $37.5 billion by 2002.

While network computing and e-business are revolutionary concepts, network computing is evolutionary in implementation and

open by design. That's important, because you don't know exactly what system you will need five years from now. But a network computing environment can grow and adapt to change, while helping to extend and enhance the life of your legacy systems.

JAVA

Network computing makes broad use of Java, a powerful programming language, for quickly developing and deploying applications across a network. Java is an exciting development in information technology. It holds the promise of writing software once that can be reused many times and deployed on any combination of hardware and operating system that is Java-enabled. Java makes it possible to deliver not just information but also software programs over the network, as they are needed. And network computers, like IBM's Network Stations, come with support for 100% pure Java applets and applications that can be selected by users or by the system administrator.

Large Java applications can be broken into small pieces and stored on a central server. As a result, network devices take only that portion of a program needed to perform a specific task. Benefits include faster performance, lower network traffic, reduced maintenance costs and fewer software and hardware compatibility problems.

NETWORK COMPUTING IN RETAIL

The SCO architecture for network computing, in conjunction with the IBM Network Station, offers a new paradigm for the rapid implementation of retail business solutions. It specifies a corporate intranet as the network across the retail organization and the global Internet as the connection to suppliers, customers and other third parties. Both legacy retail applications and those developed or enhanced with Java can be rapidly deployed across the network to a variety of platforms, including new, Web-enabled thin clients — such as network computers — that draw processing, storage and administrative functions from a remote server.

In addition to NCs, just about any computer — UNIX, OS/2®, and Macintosh® workstations, Windows NT® clients and servers, X-terminals, radio frequency devices, and UNIX servers — can be incorporated into a solution. The good news is you can extend the life of your existing hardware and keep your current assets while migrating to network computing over time.

For many of our customers, network computing provides an answer to two key business concerns: maintaining current information and providing access to the same information from anywhere in the retail chain.

Most retail organizations rely on a variety of servers, from high-end enterprise systems to back-office UNIX and Windows NT machines. These are accessed from network devices in stores, service centers, distribution centers, headquarters and along the supply chain. With so many different computing devices in so many locations, retailers need a scalable server technology that supports and shares information with the diversity of platforms inside and outside the organization.

A network computing model accommodates system heterogeneity because it uses standard, open interfaces. It helps increase your employees' productivity using such things as a familiar browser interface. Because network computing is "server centric," it provides IT manageability, low incremental growth costs and an evolutionary migration path to the e-business future.

A network computing model grows easily by joining networks together, much like the Internet has grown to straddle the world. The intranet in the store and the intranet in the distribution center can be connected to the intranet at headquarters. In addition, these can be connected via extranets to banks, shippers and suppliers/ wholesalers, and even via the global Internet directly to consumers.

A network computing model helps make it is much easier to add new retail applications or enhance existing ones. From a central point, your systems manager can access all devices in each store and perform application changes by uploading an application to store servers. Application changes are automatically picked up by networked devices when they reload or access applications.

Developing store, office, kiosk or customer service applications becomes faster and easier because they can be assembled from reusable Java applets or modules, like IBM's Enterprise JavaBeans, and tested using powerful Web publishing tools. Development and deployment time often can be reduced from months to days.

For example, you can start with your existing server platforms and migrate over time to a UNIX-based system to take advantage of retail solutions from IBM, SCO, our Business Partners and third-party vendors. In addition to the ease of development and deployment, network computing can help insulate your operations from the high cost of technology change. You won't have to continually upgrade large numbers of client systems to support the ever

increasing size and complexity of applications. It can help you retain your competitive edge, at lower cost, while quickly taking advantage of new applications.

STOREFLOW

Retail application software will draw on the best-of-breed solutions for each retail segment. One such solution is StoreFlow, a robust, open application suite capable of supporting one-to-thousands of stores. Recently, IBM and Informatica El Corte Ingles (IECI), the IT subsidiary of Spain's largest retailer, announced an alliance to offer this leading-edge software solution worldwide. This alliance forms the foundation for IBM's future store solutions globally.

StoreFlow is a fully integrated, total solution for managing in-store operations, such as checkout, day-to-day sales functions, item inventory, promotions tracking, financial reporting, terminal configuration and employee training. Currently, StoreFlow is installed at 12 different retail chains supporting over 10,000 POS terminals. StoreFlow runs in multiple operating system environments. With SCO servers, StoreFlow is installed in about 400 grocery and specialty stores with over 2,000 POS terminals in Europe, and is also found in more than 25 specialty stores with over 150 POS terminals in Latin America.

The IBM/StoreFlow alliance can provide a foundation for retailers who want to exploit technologies such as Java and network computing. It helps protect retailers' current investments in IT while bringing new functionality and choice. For multinational retailers, StoreFlow provides the benefits of a common platform worldwide. StoreFlow will begin to be marketed in North America and Asia Pacific in 1999.

Value Proposition for Network Computing

Network computing offers significant cost advantages over traditional client/server systems that rely on distributed networks of PCs. These fat clients not only usually cost more than NCs to purchase, they are difficult, costly and time consuming to maintain. Software changes are a real IT headache when hundreds or thousands of PCs are involved.

The cost of administering PCs across a large retail chain can be staggering – upwards of $10,000 per PC, per year, according to a 1998 study by the Gartner Group.

LOWER TOTAL COST OF OWNERSHIP

The total cost of owning PCs and PC Cash Drawers can be a concern for retailers. Acquisition cost is often just a fraction of the total cost involved in owning PCs – maintenance and support can eat up a sizable chunk of a retailer's IT budget. While there is debate on the exact numbers, there is little debate on the need for an alternate solution.

The cost of administering PCs across a large retail chain can be staggering – upwards of $10,000 per PC, per year, according to a 1998 study by the Gartner Group. Much of that comes from maintenance. But since NC upgrades occur at the server level, you can add or upgrade applications for thousands of users in minutes. The savings in cost can be huge, as much as 45% according to IDC. What's more, even though PC prices have come down, an IBM Network Station can still be half the price.

FASTER APPLICATION DEPLOYMENT

Network computing's thin components (clients and servers) are designed to provide only the functionality needed to accomplish their tasks. They are updated automatically whenever you install an application on your server – dramatically reducing application deployment time to all users. It gives your users unlimited access to virtually any application on any server.

EXISTING IT ASSETS PRESERVED

Best of all, network computing readily ties into your legacy data assets and provides an architecture that lets you continue to use your existing IT infrastructure while you adopt new systems at your own pace.

IMPROVED SECURITY

Security is easier with network computing. Instead of thousands of unsecured PCs scattered across your organization, vulnerable to break-ins and digital vandalism, your data is on servers in a central location and far easier to manage, protect and back up.

FAULT TOLERANCE

In a client/server model, if a PC fails, the time it takes to recover from a PC failure includes rebuilding the replacement PC to have all the software and configuration files like the original. In a network computing environment, if a thin client fails, you unplug it,

replace it and continue. All of the data and applications are still available from the network.

In summary, network computing offers significant advantages for many transaction-based, mission-critical retail operations:

- Helps protect your current IT assets
- Helps lower incremental growth costs
- Can provide continuous availability, high resilience
- Is scalable
- Provides complete e-business capabilities
- Has customer-driven application set

Network computing helps you become more competitive:

- Increases customer intimacy
- Integrates electronic retailing
- Facilitates Web-based EDI
- Provides access to the hottest new applications

Network Computing Components from IBM and SCO

POINT-OF-SALE DEVICES

Point-of-sale devices include high- and low-end terminals that may involve a variety of input/output devices such as card readers, scanners, printers, keyboards and cash drawers. IBM is worldwide leader in POS devices.

POS devices from IBM, including IBM 4694 POS Terminals and IBM 4695 Touch Terminals, are available to run on virtually any operating systems, from IBM's 4690 POS OS, to Windows NT, to SCO's UNIX systems.

Through IBM Business Partners, retailers also can choose network computer POS solutions, including these recently announced:

- Cornerstone Retail Solutions of Austin, Texas, offers the Cornerstone Retail Foundation (CRF), Release 2.0. Designed for network-based retailing, CRF is a Java-based, POS and gift/customer registry

application solution built on a robust, network-centric, multi-tiered architecture. CRF leverages Java and an object-oriented application framework to deliver application functionality to registers, kiosks, hand-held devices and browser-based software solutions. The applications are modular, contain reusable components and can be used as-is or modified to address the operational and technical requirements of most retail environments. CRF can extend the retail enterprise through the store by providing interfaces to back-end applications and database environments, and can co-exist with many legacy store system environments to allow retailers to migrate to this new technology over time. In short, CRF is designed to deliver on the value proposition of network computing.

- DataFit of Burlington, Massachusetts, a specialist developer of in-store retail systems, is working with IBM to deliver a suite of Java applications called BeanStore. The programs provide a complete store automation solution with exceptional levels of functionality, reuse and platform independence, as well as associated development tools for customization. BeanStore was also designed to support all European and Far East languages. This makes it well suited for the IBM Network Station, which supports more than 30 languages. It enables users around the world to use keyboards and instruction manuals in their native languages.

NETWORK COMPUTERS

The IBM Network Station is the most popular network computer — thousands of customers are using them. Like a PC, the IBM Network Station can access thousands of desktop business applications. And it can drastically reduce the exploding cost of maintaining a network of PCs.

Network computers offer you a seamless transition from the limited capabilities of terminals, or from the cost of supporting a network of PCs, or both. Like any new solution, network computing is right for some situations and not right for others. But for any retailer with more than a handful of PCs or terminals, network computers are an alternative worth exploring.

The IBM Network Station takes advantage of applications now running on any or all of IBM's servers. Because these applications reside on the server (or another server in the network), they only need to be installed once — not hundreds or thousands of times on

PCs throughout the enterprise. This helps dramatically reduce the ongoing cost of software installation, maintenance and system management. Central storage at the server makes security less of an issue, too.

The IBM Network Station connects to a variety of servers. Not only is it Java-enabled, it also is able to access host applications, Internet Service Providers, minicomputers and Windows® software. Your employees can connect to all their own business applications, e-mail, calendar, browser, etc., from any IBM Network Station anywhere on the network by simply typing in their ID. It connects all your people to all the information they need, no matter where in the organization they are, through your corporate intranet.

Here are some of the things you can do with network computers:

- Deploy enterprise applications quickly
- Lower your total cost of computing
- Replace limited-function terminals
- Reduce maintenance and support costs
- Simplify management
- Expand users' connectivity
- Prepare for the future

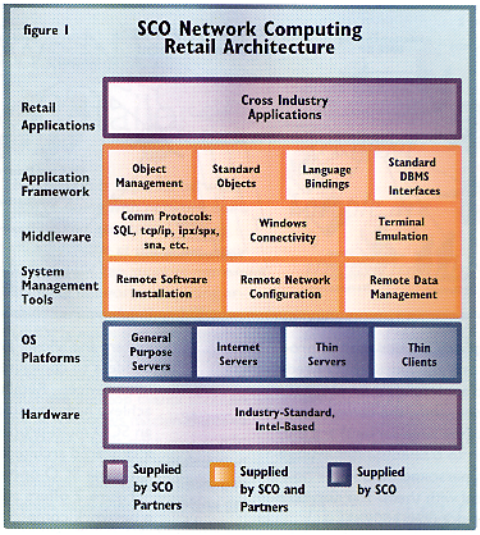
SERVER SOFTWARE

SCO is the world's leading supplier of UNIX server operating systems. UnixWare 7 and SCO OpenServer run the critical, day-to-day operations of large, multi-store chains and small to medium retail operations. SCO was founded on a single, powerful concept: to combine the power and capabilities of the UNIX system with the volume economics of the Intel platform. Today, a new generation of enterprise class, Intel processor-based servers have emerged with new levels of power, value and versatility.

SCO delivers on three key requirements of the network computing model:

- High performance, reliable and scalable servers that provide a powerful platform for the server-centric demands of network computing.
- Incorporation of open internet standards that enable evolutionary migration of legacy systems and easy integration of new technologies.
- Support for diverse clients, from handhelds, to network computers,

Network computers offer you a seamless transition from the limited capabilities of terminals, or from the cost of supporting a network of PCs, or both.



to workstations that enable user access to critical corporate information no matter what device or interface is employed.

Designed to support network computing, UnixWare 7, today's most advanced operating system on Intel processors, delivers operating system configurations designed for home office databases, application servers, intranet servers, mail and messaging servers and environments specifically tailored to run telecommunications and other embedded environments. It integrates a comprehensive set of system services, including advanced Internet and intranet technologies, multi-protocol network support, distributed systems management, advanced security, any-client support through Tarantella software and enterprise levels of reliability, availability and clustering.

SCO OpenServer is the most popular UNIX server platform for retail store operations and replicated sites. Today, it runs the day-to-day operations of many of the world's largest retail operations.

With SCO's advanced Universal Development Kit, applications can be built so that a common binary will run on both SCO Unixware 7 and SCO OpenServer, allowing retailers to retain their current software investment and take advantage of powerful new features in Unixware 7 without the need to rewrite or recompile.

SERVER HARDWARE

In an industry transformed by rapid advances, IBM has responded with a new set of initiatives to help you realize more value from your network environment and be better prepared for the challenges of constant change. This fundamental shift has taken the requirement for performance and availability to new levels. In response, IBM has harnessed decades of expertise and experience that helped build our enterprise systems, and applied that knowledge toward building its new generation of IBM Netfinity servers.

IBM Netfinity servers offer the tools and solutions to let your organization realize greater competitive value from its IT investments, while it lets you control your business computing environment more precisely, with less effort than ever before. This reflects IBM's commitment to what we call "the new enterprise"

businesses that must be lean and nimble, at work around the clock, and whose systems must respond in kind — keeping you one step ahead on the technology curve.

IBM Netfinity systems extend today's industry-standard platform beyond the server to include advances in technologies you need to implement business-critical core business, e-business and deep computing applications. Through advances in migration and integration technologies, reliability, scalability, availability, manageability, security and serviceability, IBM Netfinity X-architecture helps you realize extreme performance, maintain your existing system investments, and provide an expanded definition of the IT platform of the future.

In making IBM Netfinity X-architecture the most relevant for your business needs, we designed it to:

- Leverage IBM's vast technology portfolio and server expertise into industry-standard computing
- Bring down the cost of enterprise-class technologies
- Set the standard for enterprise quality through unmatched testing, systems integration and compatibility

Key elements of the Netfinity X-architecture include powerful processors, reliable and available memory systems, scalable I/O, world-class silicon and module technology and advanced caching software. Also included are clustered systems featuring technology from IBM's industry-leading S/390© and RS/6000© SP™ product lines, as well as interoperability with existing large and midrange systems. Also, Netfinity servers come with IBM's technology-enabled support and service, including proactive maintenance through advanced warning systems and remote diagnostics.

With IBM Netfinity we promise to deliver power to run your business-critical applications, scalability to grow your business, control to proactively manage the systems on your network and technology-enabled service, whenever and wherever you need it.

Tomorrow, many retailer's toughest competitors could be their own suppliers as manufacturers get involved in Web-based, consumer-direct sales.

Retail Trends

The definition of the store, the place where you meet and sell goods to consumers, is becoming more elusive each day as the e-business wave sweeps across the retail landscape, changing everything. The boundaries of the store are changing. It still is bricks and mortar, in most cases, but it is increasingly also bits and bytes. It has more transaction points — in addition to cash registers and other traditional POS devices, it may have kiosks, portable shopping systems, office and home terminals, smart cards, self-checkout, Web sites and support for telephone ordering and TV shopping.

At the same time, the boundaries of retail are changing. Segments are merging so the delineation between supermarkets, drugstores, specialty, department stores and apparel are less clear. Retailers are using their strong brand names to move into other markets to achieve growth — selling banking, insurance and travel services, for example. Tomorrow, many retailer's toughest competitors could be their own suppliers as manufacturers get involved in Web-based, consumer-direct sales.

Companies with no retail experience, like Amazon.com, are exploiting markets using the Internet. Big retailers face the same sort of internal conflicts that the bookseller Barnes & Noble does in trying to counter this new competitor — how to respond to online upstarts without competing with their own bricks-and-mortar franchise.

As the future becomes the present, those retailers who can accurately predict where and how consumers prefer to shop will be more successful in capturing their patronage.

MORE AND BETTER INFORMATION

The store of the future we see emerging will have the ability to gather consumer information, interpret its meaning and use appropriate channels to deliver what consumers want. In this customer-focused world, information will drive micro-merchandising, market basket analyses and category management activities and support successful frequent shopper and loyalty programs.

The store will be linked to corporate systems, suppliers and consumers through intranets, extranets and the Internet. Current information will inform decisions across the retail enterprise, to

lower costs, minimize the inventory you carry, locate merchandise wherever it is and provide a more intimate, enjoyable shopping experience for the consumer.

In the store of the future, supply chain management isn't just about streamlining processes, it's about connecting people: suppliers, distributors and customers, all communicating with ease and speed. Many retailers are rethinking EDI — the Internet can provide a quicker, more cost-effective way to share information with suppliers.

Current and complete supply chain information can help give you the ability to position and develop products from fewer suppliers effectively and efficiently and institute true continuous replenishment and just-in-time merchandising to trim inventory and minimize waste.

Within the SCO network computing retail environment, the ISPs (in-store processors), POS controllers, POS clients and specialty servers will have a common operating system, so you'll be able to place store components wherever they are needed. Store client systems, including POS devices, information kiosks, specialty terminals, RF devices and the store manager's workstation become thin clients. IT management of store systems will be done remotely.

In the networked world, your ISP doesn't have to be a storage powerhouse. It only needs a minimal set of applications and data because the network, connected to headquarters, is there to supply whatever else may be needed. And you don't need to replicate servers in every store you have in a mall. A smaller ISP linked to the network can serve all at less cost.

EMERGING APPLICATIONS

With all store, headquarters and supply chain management systems connected, and with access to the global Internet, applications now can be deployed from anywhere to anywhere. Among the most important emerging applications are point-of-sale, credit processing, sales capture and analysis, gift registry, customer loyalty, merchandise location, labor scheduling, employee training, electronic receiving and collaborative planning/forecasting/replenishment.

IBM and others will continue to provide software products to help you develop applications and collect and analyze retail customer

and business data. For example, Lotus' e-Suite is an entirely new approach in personal productivity applications that takes advantage of network computing. It provides developers with a set of Java applications, such as word processor and spreadsheet, that can be integrated with other software. IBM's new DB2® universal database has features tailored to e-business, including Java support for database access and transactions.

The retail industry isn't just undergoing rapid change, it is entering an e-business revolution. Some retailers will seize the opportunities – new, exciting channels to consumers, ways to know customers better and become more intimately aware of their needs, new technology to slash costs and capture more profit – and become the millennial leaders. Others, unable or unwilling to embrace change, will be passed by as consumers ride the e-business wave to their chosen stores of the future.