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It Exists...

As you look around the Internet and the world of modern technology, you see computers everywhere. Anyone old enough to remember the computer room of yesterday remembers the day when it contained one IBM computer. A scan of computer rooms today reveals one or two AS/400s in the corner, while the rest of the room bursts at the seams with PCs and networking equipment. You see rows of monitors and keyboards, stacked two or three high, to support these machines.

Those of you who chose a path to e-business using technology other than the iSeries (AS/400) have even more equipment crammed into the room. If you run Microsoft Windows NT or Windows 2000 or Linux, you most likely have a server farm, with each machine serving one particular purpose. You have the database machine, the Web server machine, the directory machine…. If you are running Java, you have the application server machine. If high availability causes you concern, you probably have at least two of each of these machines, plus machines to manage the replication of data between them. This is just your e-business side of the house. How about your internal LAN servers for file serving and printing? How many operating systems do you support?

How many people do you have supporting all these servers? How skilled are these people? Do you spend thousands of dollars on consulting to back up your own employees?

All of this, and we are just talking about system infrastructure. We haven't even begun to touch applications or application development. We haven't discussed the equipment

necessary to support your application development environment, which represents an infrastructure of even more machines.

What about people? How many people on your IT staff are developing applications for your business compared to the number of permanent and consulting personnel that support the infrastructure?

Those who consider using the Microsoft, Linux, and UNIX environments are clearly told they'll need a machine per server and per application. Software and hardware vendors emphatically warn you not to run multiple applications on the same machine.

Wouldn't it be nice if there were one machine that could run all of these servers and applications? A machine whose manufacturer shipped all of the software you needed with the machine or provided optional software at a small cost, but guaranteed the software would integrate into your single machine–based environment?

Most consultants will tell you the multiple-server environment is necessary—that there is no one machine that can run your legacy applications and provide all the infrastructure you need for your e-business environment. Well, those consultants are wrong. ***It exists!***

It is the IBM eServer iSeries 400 (formerly known as the AS/400). The focus of this book is a machine and operating system that deliver everything you need to support state-of-the-art e-business applications as well as the legacy applications that drive your day-to-day business operations. What's more, with two iSeries machines, you can deliver 24x7 nonstop operations. That's right—zero downtime! As an added bonus, you can support your application developers with a robust integrated toolset and a separate, secure development environment.

What does all of this cost? The total cost of ownership of iSeries computers is far less than a comparable server farm of Brand X hardware and software.

Most of the servers and software you will need to develop and run your business (including your e-business applications) are integrated into OS/400 and shipped with your machine at no additional cost. You can start small with a completely integrated server machine (zero interactive) for between $15,000 and $20,000. For a small business worried about growth, the iSeries is ideal. It allows you to start small, with the assurance that you can upgrade throughout the line of iSeries machines. Perhaps you start at the low end with a single-processor 270e. You can upgrade through a wide array of models all the way up to the top-of-the-line Model 840 24-processor machine, one of the largest and fastest computers in the world. You need more power than this? Buy two. Buy 10! *Buy 100*! Link them together using IBM's new High-Speed Link (HSL) optical connection technology and run a cluster

of machines, adding as many as you could ever need. Even if you do need multiple clustered machines, you can run them as one!

How many people are needed to support the iSeries? Most iSeries shops have one or two people working part-time to support the shop's entire iSeries systems.

Admittedly, this is a small investment for such a powerful machine; yet, some might consider it pricy if they've fallen into the mindset that their small shop can get by on a $1,500 PC server. This is a common myth perpetuated by consultants or PC-oriented folks. Yes, the machine costs $1,500 or less. It comes with an operating system at that price. If you are looking at Windows NT or Windows 2000, add about $750 for a five-user server license. Do you need a database? Add another $750. Do you need an application server? Add as much as $10,000. Do you need development tools? Add another $1,500. Do you need some utilities? Add another $500. Now your $1,500 machine is up to about $15,000 and can handle five users.

You let one of your developers work on this machine and develop some great applications. You want to implement these applications on the Internet, but you are concerned that the current environment where these applications were developed is not robust enough to handle a production workload. This is where the consultants come in. Get out your checkbook and put on your straw hat, as you are about to become a server farmer! Recently eBay reported it is running over 8,000 servers in its server farm. Your single $1,500 PC will grow to consume your IT budget. Numerous articles in *Information Week*, *Computer World*, *eWEEK*, and other publications document the cost of Microsoft-, UNIX-, or Linux-based environments at between $6 million and $10 million!

With an iSeries environment, it would be very difficult to spend $6 million on software and equipment. Many customers with very large iSeries systems spend a fraction of that amount.

e-Business Applications

Most people believe e-business is complex. Really, e-business application development is quite simply a logical extension of your existing applications. The fundamental difference lies in expanding your definition of *user* to include customers, vendors, distributors, and other business partners with whom you do business.

The key to successful e-business application development is leveraging your data and your existing applications. Any retailer or distribution company already has systems in place to process orders and ship merchandise to customers. You should be able to leverage those systems by merely adding a new user interface. You should not have to rebuild your systems from scratch.

These days, armies of consultants convince companies large and small that the development of e-business applications is a complex process requiring special skills and knowledge. Many organizations choose to outsource their e-business application development to third-party Web-hosting companies. What's wrong with this? The simple answer is *data*.

Where does your e-business vendor obtain the data necessary to support your e-business systems? How much code must the vendor write to manage data that already exists in your legacy systems? How does that e-commerce provider send you orders from the online store? How do you process those orders? Can your outsourced e-commerce system check for the availability of a product, or does it simply take orders in hopes that you can fill them? Did you know that many third-party e-commerce systems today simply e-mail the orders to someone at the client company, who must re-enter those orders into the company's existing order processing systems?

Maybe you're more sophisticated than that and you agree to write interface programs to exchange data with your service provider. Now your IT organization that lacked the resources to build your e-business applications faces the challenge of writing complex interface programs to exchange data with your e-business vendor. All of a sudden, the IT organization is faced with the cost of supporting these interfaces.

This book shows you how you can develop and manage your e-business systems on the iSeries using the skills of your existing staff. It explains how to leverage your most valuable resource: your data. Your current staff can develop sophisticated e-business applications with some help from IBM iSeries software.

Business-to-Business Commerce

Business-to-business (B2B) commerce is the next generation of Internet-based computing. The old California adage of "have your machine call my machine" is becoming a reality. This new technology, based on Extensible Markup Language (XML), is rapidly becoming the technology of the future. In the past, a company would use electronic data interchange (EDI) standards to exchange orders and other transaction-based data with its business partners. Today, that same company can develop intelligent, interactive conversations between its computers and those of its partners.

In the insurance industry, independent agencies have begun submitting electronic applications for insurance to one or many insurance carriers. The insurance carrier's system determines if the application meets the carrier's underwriting criteria; evaluates the application for missing information; and then can request additional information, decline the application, or generate a price quote for the application. The agency's system can respond to the carrier, and a dialog is carried out until the application is accepted or declined by one or

both parties. Much of this processing occurs without human intervention. When human intervention is required, people interact with their own computer systems.

Other applications that are materializing are e-marketplaces operated by third parties. Large organizations create e-marketplaces in which suppliers participate. Customers place orders with or request price quotations from the e-marketplace, which then handles selection of the vendor. If your organization publishes its product catalog and pricing information to the e-marketplace, your shop receives orders when the marketplace application selects your prices as the best.

Under another emerging business model based on supplier networks, you register with your customer as a supplier of products that you sell. When the customer needs to order products, its machine queries the network of suppliers (of which you are a part), providing the product specifications and required delivery date for the product. Your machine responds with a price/availability quotation. The customer's buyers or, in some cases, computer system selects the vendor and places an order.

B2B is driven by the "800-pound gorilla" theory. The big organization can demand that its partners either conform to system requirements or cease to be a partner. The interesting aspect of the 800-pound gorilla theory in the e-business realm is that in some cases you can be the gorilla and in other cases your partner is the gorilla.

The important factor here is that machine-to-machine communication means reduced costs, improvements in just-in-time–based operations, and overall improvements in operating efficiency.

Any organization involved in the automobile, healthcare, electronics, or insurance industries might already be trying to comply with the B2B mandates of its partners. If you operate in some other industry, or have not yet been forced into this business model, you will be; it is only a matter of time. B2B is coming. Will you be ready?

Once again, IBM's iSeries gives you the answer. Chapter 16 lays out a clear plan for embracing the B2B model with iSeries Connect, an optional connectivity product from IBM.

What Is This Book All About?

This book aims to give readers an understanding of the e-business features and software provided with or available (at extra cost) for the IBM eServer iSeries 400 machine. This is not a how-to book in the sense that it does not give you step-by-step instructions in configuring or using these products. Wherever possible, it provides references to more detailed information on how to configure or use a product or facility. My goal in writing this book is to show you what exists and help you understand where and how you might use it.

The iSeries is IBM's best-kept secret. For some mysterious reason, IBM seems slow to tout the e-business capabilities of the iSeries. But many existing iSeries customers have stumbled across the iSeries' power and versatility and now exploit its e-business capabilities as an integral part of their business operations. These business executives, IT directors, and developers cannot imagine the horrors and cost of dealing with Brand X e-business solutions. You'll find the bulk of these folks at a small outpost on the Internet called IGNITe/400 (*http://www.ignite400.org*), an iSeries e-business user group that burgeoned from users helping users. IGNITe/400 is over 5,000 members strong and still growing.