

Software AG, Inc.  
Bishop Ranch 3  
2613 Camino Ramon, Suite 110  
San Ramon, CA 94583-4289

When you move to

# XML

exploit your legacy advantage



Ignore it at your own risk!

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More detailed information about XML is available at our Web site: [www.softwareag.com](http://www.softwareag.com). You are also invited to view our landmark Web conference at [www.xml4e-business.com](http://www.xml4e-business.com).

*The information in this booklet has been prepared jointly by Software AG, Inc. and IBM Corp. The authors hope that it will assist in your transition to XML technology.*



**Software AG, Inc.**, based in Darmstadt, Germany, is one of the largest and most highly respected system software companies in the world and the premier provider of database management technology. With products and services in use globally, our focus is on mission-critical electronic business applications linking heterogeneous platforms, and our commitment to and support for open-standard XML technology is absolute.

Software AG is a founding member and active participant in the World Wide Web Consortium (W3C) and the Organization for the Advancement of Structured Information Standards (OASIS).

## Cross-platform compatibility

The ability to interlock the WebSphere family of products at the same release levels across IBM and OEM platforms provides the flexibility to independently elect the optimum application development environment as well as the best production platform. Only the WebSphere family offers this flexibility. The enterprise Java (JSP servlet) architecture places great demand on the application server in which the elements execute. The eSeries platforms can easily meet the demand.



## Established companies enter into the e-Business fray

The phenomenon of e-Business is maturing into its second phase: the response from existing established companies to the opportunities defined by the “dot.coms” of the first phase. As the reality of investing in the “New Economy” dawns on stock markets and investors, interest is swinging back to the more established company that has existing customer-base, physical presence and greater focus on the business return. (At the same time the skilled labor pool that was so essential to the “dot.coms” is returning to these traditional companies as the “IPO effect” becomes less easily attainable.)

One very important advantage the existing companies have is that their IT infrastructures and processes have been refined over decades.



*In order to remain competitive, improve service to customers and build new sources of revenue, companies should extend their existing applications and provide new Web-based applications now.*

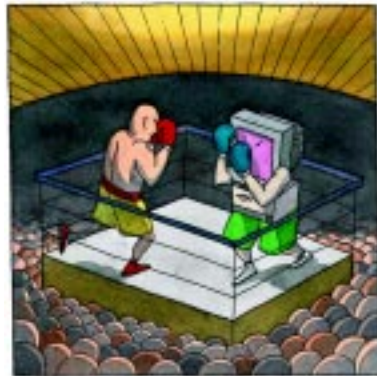
## Your IT resources are still champions

The so-called “legacy” of IT infrastructure is in fact a well-oiled working inventory of mission-critical data processing applications. This capability allows established companies to do business in a constant and efficient fashion. Existing processes — transactional applications and data, operational procedures, skilled workers and the disciplines to which they adhere (change control, availability management, testing methodologies, etc.) — are often overlooked by people seeking to reinvent the wheel of business.

The fact is many companies have invested trillions of dollars into making these fundamental business-work units reliable, almost instantaneously expandable, secure, fast, and available. That's an enormous asset.

While being new and nimble can be a great asset to starting an e-Business, established companies have the opportunity to activate longstanding host investments in a Web environment. They can take advantage of the breadth and depth of their host application portfolios and data, the same resources they have been using to successfully run their businesses for years.

But, the degree of success correlates directly with how quickly, how securely, and how flexibly an organization can accomplish this.



## World-class performance, reliability, and scalability

To help you get the most out of doing business on the Web, the IBM WebSphere Application Server provides a world-class application server capable of handling high-volume, Web-based transaction processing.

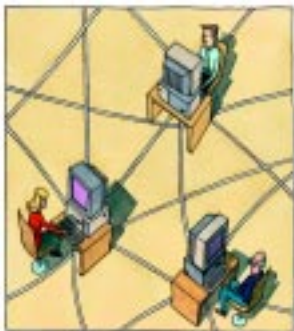
Whether you want to enhance your current Web presence, migrate your most important business processes to the Web, or position your IT infrastructure for future growth in e-Business, WebSphere Application Servers enable you to transact business in efficient, affordable, and innovative ways.

## The right e-Business platform infrastructure

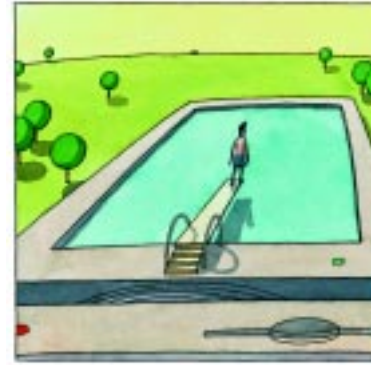
IBM's strength is in providing a suite of different architectures and servers that, when implemented individually or in combination, can be integrated to meet your requirements. IBM is proud to offer the Quick Mix Web-Enablement Platform™ solution.

The following four options can help you enable, deploy and extend your existing IT infrastructure to the Web in the most cost-effective way.

1. Using an IBM zSeries 900 LPAR, running z/OS or OS/390 (or an S/390 LPAR running OS/390 or z/OS) as the back-end database/transaction processor; with a Web-enabling LPAR on the same zSeries 900 (or S/390) server running WebSphere™ Application Server on z/OS or OS/390
2. Using an IBM zSeries 900 LPAR, running z/OS or OS/390 (or an S/390 LPAR running OS/390 or z/OS) as the back-end database/transaction processor; with a Web-enabling LPAR on the same zSeries 900 (or S/390) server running WebSphere Application Server on Linux™ for S/390
3. Using an IBM pSeries system (or RS/6000) as the Web application server and an IBM zSeries 900 LPAR server (or S/390 LPAR) as the back-end database/transaction processor
4. Using an IBM xSeries system (or Netfinity™) as a Web application server and the IBM zSeries 900 LPAR (or an S/390 LPAR) as the back-end database/transaction processor



Each option can be packaged with the essential software and hardware products necessary to provide the minimum platform configuration to Web-enable your existing IT infrastructure. Using a comprehensive list of IBM's e-Business fulfills this solution products and allows you to choose the hardware, software, installation, customization, and education services components necessary to customize a state-of-the-art e-Business environment.



### Ignore the legacy advantage at your peril!

As in most paradigm shifts, there are original, interesting, and visionary ideas — and many new companies seeking to replace established ones — but it is also important to learn from the past.

Those that ignore their established IT disciplines and infrastructure risk encountering its many pitfalls, such as extended system unavailability, inability to keep up with demand, and compromising of secure data. Add to this the pressing reality that “the competition is only a mouse-click away” and it becomes mandatory to heed the lessons learned from this legacy advantage.

## Urgency + lessons learned = evolution

Companies that have learned from the past have interesting prospects when they consider the evolutionary approach. Fortunately for IBM® eSeries customers, there are easy solutions that can be employed quickly and safely by Web-enabling, existing applications and data, while maintaining the necessary qualities of service.



## There is a continuum to this evolution

Today, organizations are looking for quick and efficient ways to extend and integrate existing host processes to meet the unique, and often diverse, needs of all their Web users.

Typically the various user-needs call for a combination of technologies. In some instances where the required information is available through existing host applications, only a delivery method is needed. On the other hand, if the existing host data needs additional business logic, new application logic must be developed. And typically, once a host application is Web-enabled, the need to enhance and add more functionality quickly follows.

## Why Web-enablement is important

Business opportunity is the primary driver behind IT investment in Web-enabling existing applications. Web-enablement solutions move IT out of the back room and into the front office, out to business partners and customers. In addition, utilizing existing applications and extending the reach of those applications provides an extremely high return on IT investment. Enterprises get the advantage of a new application portfolio without the high investment needed to design, develop, test, and rollout new applications. Web-enablement solutions can also be implemented much faster than new applications can be developed. As long as the information required by an end-user is available in a back-end system, usually a Web-enablement solution will be the quickest and least expensive solution available. Once implemented, enhancements are often desirable, and IBM provides the robust set of tools that enable Web application evolution.



The rapid spread of e-Business is transforming the way enterprises around the world reach existing and new customers, buy and sell products, and manage internal supply chain operations.

As businesses like yours move to gain a competitive advantage with Internet technologies, you will quickly find the need to tightly integrate your business processes with the Web to exploit new markets, streamline operations and achieve the best return on your IT investments. Then integrating your business processes with the Web, it's important to consider the following three elements and how they will influence your deployment strategy:

1. Current and future Web application requirements
2. Existing IT environment and resources
3. The ability of each platform to deliver on quality of service requirements as they relate to your overall e-Business strategy



- ❖ Second Generation (Java) connectors – Web-enablement of existing applications, using the power of Java and tooling to provide new business logic.

More capability comes from the integration of more processes (both across the company and within a company's supply chain) and/or the development or modification of existing applications. As this integration progresses, the classic concept of OLTP (On-Line Transaction Processing) gets extended to what is called e-tp (e-transaction processing).

- ❖ Third Generating (Enterprise Java) connectors-reengineering and use of Java technology to transform business processes through total business integration.

Enterprise Java™ will shortly be available on zSeries and S/390 run-time environments (both WebSphere™ Enterprise Edition and CICS Transaction Server) so the option to switch into using Enterprise Java is available. Companies should judge when to make the switch to Java based on criteria such as skills, hybridization approach, etc. Much of the determining factor is due to the availability of Java skills versus COBOL skills or how easy it is to convert COBOL programmers into Java programmers. Also, it is important to ensure that the right eSeries environment is available.



### Planning for success

It's possible to evolve from simple publishing of static, existing information on the Web to a full-scale e-Transaction processing application. Although Web-enablement can be done very quickly — and with the robust eSeries infrastructure already in place, the risk of failure is minimized — it is nevertheless important to stage Web-enablement along a planned route.

Take the time to lay out your Web-enablement road map carefully with precise destinations in mind.



## What is Web-enablement?

Web-enablement is the conversion of existing “traditional” applications to allow communication with Web-based browsers, such as Netscape® or Microsoft Internet Explorer™.

Prior to Web-enablement, many of these applications would communicate with so-called “green screen” devices, such as the IBM 3270, 5250 or VT100 terminals, with different and usually non-intuitive user interfaces. This made “green screen” devices difficult to use for non-trained personnel and definitely unusable by the average consumer.

The history of Web-enablement starts similarly to that of client-server. Client-server technology had a profound impact in its time and provided the following benefits:

- ❖ A much easier user interface, typically using Microsoft Windows™
- ❖ Easy and rapid application development, which allowed “Line of Business” (i.e. non-IT) departments to create useful applications through an iterative process
- ❖ Separation of presentation from business logic and data, which allowed for better and more flexible system architectures
- ❖ Integration of multiple back-end systems

However, client-server technology has some significant shortcomings:

- ❖ Required increasingly powerful PC devices, hence increasing the total cost of ownership and complexity of the architecture
- ❖ The management of the hardware and software; the client level was difficult, expensive and ultimately unpredictable
- ❖ Used proprietary software technology, thereby reducing the choice of implementation platforms and the connectivity options

Furthermore, with the introduction of the World Wide Web technology in 1994 there was a fundamental technological paradigm shift that rendered client-server obsolete. The idea of tightly-coupled cooperative processing was replaced with a looser-coupled connectionless mechanism whereby the server became increasingly the optimal platform for most business-critical computation. The above shortcomings of client-server were overcome. At the same time improved networking bandwidth allowed for a reduction in computing requirements on the client-side.

As a result of this technical shift, the focus of business application development has shifted back to existing server-base applications — and the extension of them to the Web, hence Web-enablement.

It is convenient in discussing Web-enablement techniques to classify them into “generations” — relating to the core technology being used. We currently observe three such generations.

- ❖ **First Generation (API) connectors – web-enablement of existing applications quickly using existing skills and new business logic**

The history of Web-enablement follows that of client-server, namely a first phase or generation where the main approach is to convert the input/output data stream without changing the applications themselves, which is akin to client-server “screen-scraping” technologies. This technology is typically the most mature — the easiest and quickest to implement as there is very little risk to the application.

One of the fundamental aspects of e-Business is that the traditional “governors” of the rate a company can do business — namely the people and processes between the two endpoints of business (e.g. buyer and seller) — are eliminated. This means the potential rate of doing business can increase dramatically, placing instant demands for much higher transaction rates. At the same time to ensure customer retention, security, responsiveness and availability are essential.