



**Increasing IT responsiveness and efficiency
with WebSphere Extended Deployment**



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What businesses need from an on demand infrastructure

In October, 2002, IBM CEO Sam Palmisano first described IBM's definition and vision for "on demand business:"

An on demand business is an enterprise whose business processes— integrated end-to-end across the company and with key partners, suppliers and customers— can respond with speed to any customer demand, market opportunity or external threat.

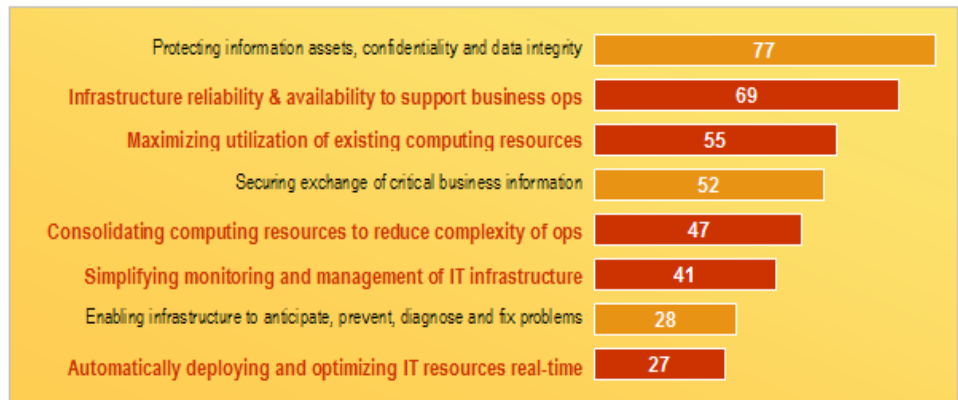
It would be a significant understatement to say that this has struck a responsive chord with our the marketplace. It's important to note that on demand is very much a business statement. At its core, it is about being fast and flexible, while giving your customers the service what they need. It applies equally well to companies trying to do their best in weak economic times as well as those trying to grow in better business environments.

When asked in early 2004, CEOs who took part in the IBM Global CEO Study rated "responsiveness" as one of their top priorities, though few rated their own organization's ability to react to changing business conditions and external forces as being very good. They nevertheless recognized the need to establish effective, real-time response capabilities and the importance of IT to their competitiveness.

We can break down what businesses need from their IT infrastructure into two main areas: flexibility to support the business goals and IT simplification. For the first, integration is the primary vehicle for achieving business flexibility by bringing together people, processes, and information both within and beyond the enterprise. To achieve IT simplification, infrastructure management that employs automation and virtualization can provide more efficient IT operations and a logical and consolidated view of enterprise resources.

The following chart illustrates company infrastructure management priorities in an on demand environment. It shows the number of respondents in another recent IBM survey that rated each of the listed infrastructure management objectives as high priority.

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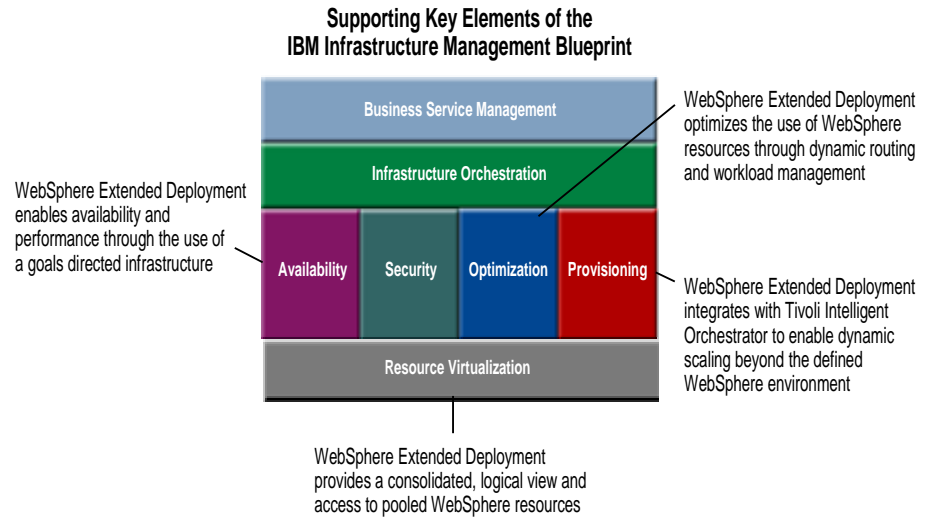
Source: IBM Corporate Market Intelligence.

To address these needs, IBM has defined a portfolio of Infrastructure Management capabilities including:

- **Availability:** ensure the health and appropriate functioning of environments
- **Security:** ensure information assets, confidentiality and data integrity are protected
- **Optimization:** ensures the most productive utilization of IT infrastructure
- **Provisioning:** makes available the right resources to the right processes and people
- **Infrastructure Orchestration:** senses, triggers and responds according to business goals
- **Business Service Management:** to visualize IT environment in business terms and manage service levels to business objectives
- **Resource virtualization:** provides a single, consolidated, logical view of and easy access to all available resources in a network (servers, storage, distributed systems/Grid)

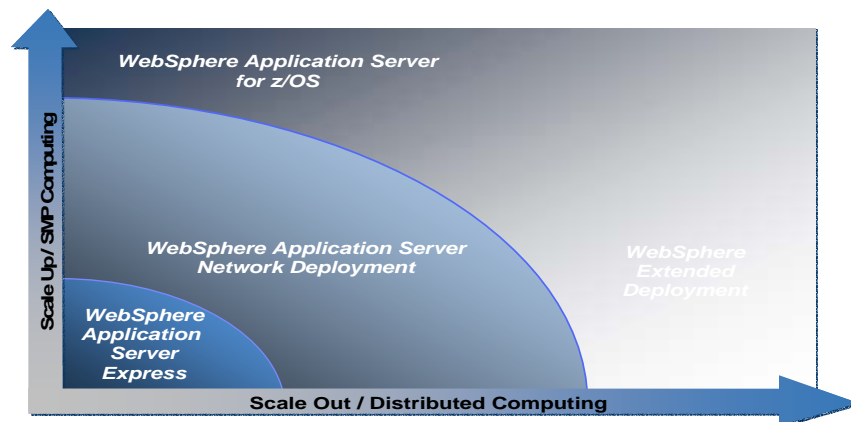
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Recent on demand automation announcements from IBM have exemplified our commitment to delivering these capabilities. This latest announcement — IBM WebSphere® Extended Deployment Version 5.1 — further demonstrates this commitment, by delivering several of the functions that help to manage IT infrastructure in an on demand world:



WebSphere Extended Deployment: What it is and what it isn't!

The WebSphere Application Server family offers increasing scale and qualities of service for customers wanting to “scale up” using large mainframe shared multi-process (SMP) servers or “scale out” using a collection of small, inexpensive and interconnected distributed computers.



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- **WebSphere Application Server – Express** offers an affordable entry point to e-business: an out-of-box solution for managing simple yet dynamic Web sites with an easy-to-use Web application server and a development environment based on WebSphere Studio.
- **WebSphere Application Server Network Deployment** delivers the market-leading Java-based application server, integrating enterprise data and transactions for the dynamic on demand business world. It includes advanced clustering capabilities and Web services features.
- **WebSphere Extended Deployment**, together with WebSphere Application Server Network Deployment, delivers a high performance, easily manageable, and dynamically scalable environment for distributed WebSphere applications that leverages the principles and concepts of proven IBM systems, such as WebSphere Application Server for z/OS.
- **WebSphere Application Server for z/OS** is specifically optimized to utilize the unique qualities of services provided by IBM eServer zSeries™ hardware and the z/OS™ operating system.

These market-leading application servers provide a solid infrastructure foundation for tens of thousands of WebSphere customers ranging from small businesses, to large enterprises, to Independent Software Vendors that rely on the WebSphere Application Server as the foundation for their products.

WebSphere Extended Deployment is not an application server, but is an optional add-on to WebSphere Application Server Network Deployment that is designed to provide on demand responsiveness, simplified administration, and high performance enhancements. It was created in response to customer requests such as:

“I want my IT resources to adjust on the fly to the demands of business critical applications”

“I want to get the most out of my infrastructure while at the same time ensuring consistent and predictable performance of business-critical applications”

“I want to have a real-time view of what’s going on in my entire application environment, but I don’t want a view of my IT operations that is too complex to be meaningful”

“I want to reduce the human intensity of monitoring and managing my IT environment, but I don’t want to give up control of my IT infrastructure all at once”

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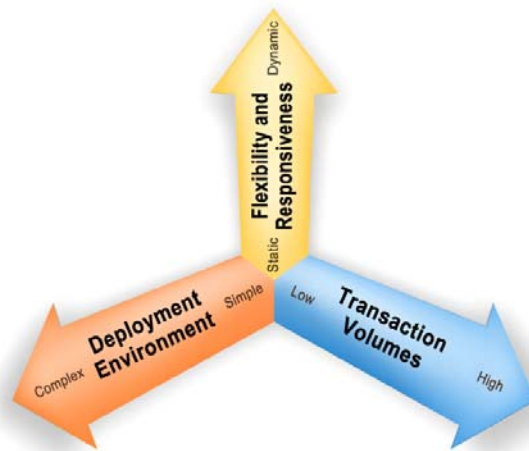
“I want to ensure high availability and reliability to meet peaks in transaction volumes”

“I want to scale easily to accommodate transaction volume growth, but I don’t want to forfeit the investments I’ve already made in my distributed IT infrastructure and Java skills”

WebSphere Extended Deployment draws upon IBM’s long history of providing high performance and high availability with WebSphere Application Server for the z/OS operating system, years of research and development, alliances with companies like Akamai, high volume and dynamic WebSphere deployments such as eBay, and over one hundred customer engagements on especially high performance web sites such as Victoria’s Secret, the US Open tennis tournament, Wimbledon, and the Tony awards.

An IT infrastructure that dynamically and reliably adapts to changing business demands

WebSphere Extended Deployment capabilities were developed to help customers deal with the IT scalability and performance challenges of on demand operations.



- Dynamically accommodate variable and unpredictable business demands
- Increase the manageability of a complex deployment environment
- Enhance quality of service for applications running very high transaction volumes

To help address these needs, IBM is introducing WebSphere Extended Deployment Version 5.1 — a goals directed, high performance environment for WebSphere applications. Leveraging the principles and concepts of proven IBM

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systems and several years of IBM research and customer experience, WebSphere Extended Deployment enables:

- **Dynamic Operations.** Allows your application environment to scale on demand with the virtualization of WebSphere resources and use of goals directed infrastructure, helping you increase the speed at which your company can adapt to business demands.
- **Extended Manageability.** Offers simpler and improved management of complex system operations with real-time advanced, meaningful visualization tools and gradual, controlled implementation of autonomic capabilities, helping you reduce the cost of managing IT resources.
- **High Performance Computing.** Enhances quality of service of business critical applications to support near linear scalability for high-end transaction processing, helping you improve customer service levels.

Dynamic operations capabilities help increase responsiveness and flexibility

WebSphere Extended Deployment is designed to deliver dynamic operations through two key capabilities – the virtualization of WebSphere environments and the introduction of a goals directed enablement of goals directed infrastructure. A virtualized WebSphere environment allows you to scale on demand through dynamic allocation of WebSphere Application Server resources. WebSphere Extended Deployment implements a virtualized environment by creating pools of resources that can be shared among applications, thereby optimizing utilization and simplifying the overall deployment. As resources are needed for expected (or unexpected) spikes in workload demand, WebSphere deployments and applications can be moved to where they are needed most. This enables better utilization of the computing resources you already own and may allow you to run additional applications on the machines you already have in place.

The goals-directed infrastructure capabilities of WebSphere Extended Deployment means that user requests are classified, prioritized, queued and routed to servers based on application operational policies which are tied to business goals. Application performance is optimized according to these policies that reflect service level goals and relative importance to the organization. Simply put, you can state what applications are important to you and those will get the highest priority access to your WebSphere resources at the right time. This can help you ensure, for example, that your best customers get the best quality of service when they interact with you.

Increasing IT responsiveness and efficiency with WebSphere Extended Deployment

While WebSphere Extended Deployment focuses on the WebSphere part of your infrastructure, it can optionally work with IBM's Tivoli Intelligent Orchestrator (available separately) to expand beyond the defined WebSphere environment. For example, if WebSphere Extended Deployment determines that it cannot meet the business goals that have been defined, it may ask Tivoli Intelligent Orchestrator for additional server hardware on which to deploy WebSphere applications. Tivoli Intelligent Orchestrator may then allocate additional server resources to WebSphere Extended Deployment, which will add the resources to the available pool and balance the workload across the new, larger set. If additional resources are not available, WebSphere Extended Deployment will try to make do with the resources it has available until the requirements on the system decrease.

Extended manageability helps simplify IT management while maintaining administrator control

It can be difficult to visualize and manage complex IT environments where tens of applications are deployed on hundreds of application servers. While the WebSphere Application Server administration console provides excellent built-in capabilities, the special needs of very complex deployments require an aggregated, meaningful view of the application runtime environment. WebSphere Extended Deployment extends the administration console to allow operators to see "at a glance" what is happening in the infrastructure and the relative health of the components. It also enhances the existing WebSphere console by charting application performance against business goals. In addition, alerts that notify you when intervention is required in order to deliver on business goals help decrease human-intensive monitoring and management.

For example, if a business critical application such as stock trade matching is starting to fall behind on performance, WebSphere Extended Deployment may suggest that additional servers be allocated to the application. If the operator agrees, the allocation takes place and, presumably, the business goals are met. Over time, as the operator grows more familiar with WebSphere Extended Deployment and its behavior, such decisions and corresponding actions can be allowed to happen automatically. Thus autonomic behavior in your IT infrastructure can be introduced in a controlled and gradual way.

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High performance computing is designed to reliably support high volume transaction requirements

In order to reliably support ultra-high-end transaction processing requirements within a unified WebSphere environment, WebSphere Extended Deployment provides dynamic application partitioning and re-partitioning, high end caching, workload management, and autonomic high availability management.

As an example, assume we have a WebSphere Application Server application running on several servers and these all read and write information to a database, for example, stock quote information. As the load increases, the access to the database can become a bottleneck as all the servers attempt to read or update the information.

WebSphere Extended Deployment allows you to design applications that divide logic and data into partitions which can be mapped to available servers. For example, if you wanted to base this partitioning on stock symbols, you might create hundreds or thousands of partitions. (for example, based on stock symbols), which can be mapped to partitions in servers and in databases. So we might create 8000 partitions and then map them to the available servers. Every time information about the "IBM" stock needs to be read or written, it will go to the same server. This allows you to cache information much more efficiently than if the request had gone to a random server. The partitions can be adjusted to provide better performance or to account for a server that becomes unavailable. Together with sophisticated algorithms to manage the workload, these techniques using WebSphere Extended Deployment may allow you to achieve near-linear scalability as the transaction load increases and very fast recovery time in the event that a server should go down.

The complete solution

IBM currently plans to release WebSphere Extended Deployment Version 5.1 along with the education and services our customers can use to optimize need to get the most from their complex computing environments. When the product is released for general availability (now planned for late 2004), we plan to provide architectural and best practices whitepapers, guidance for making the most of WebSphere

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Extended Deployment in a staged manner, online education, and direct technical briefings.

Two service offerings are planned to help ensure successful customer and partner deployment of WebSphere Extended Deployment solutions: a two week session including a requirements and planning workshop as well as mentoring on solution deployment and best practices, and a high end computing services offering that will be customized to the exact needs of the customer and its or her business goals and IT requirements.

IBM plans to provide the initial release of WebSphere Extended Deployment on the Linux® and Intel®, IBM AIX®, Sun Solaris, and Microsoft® Windows® platforms. Additional platforms will be supported over time to meet customer demand.

"Perficient has been working with large-scale WebSphere customers for several years. The enhanced capabilities provided in WebSphere Extended Deployment, such as increasing quality of service, increasing on demand capacity, and significantly easing the management of complex implementations, are significant strides towards providing a solid enterprise solution for IBM customers. Perficient looks forward to helping customers move to this state-of-the-art platform."

John Jenkins, General Manager, ATS Division, Perficient

Why WebSphere Extended Deployment and IBM

IBM is the market-leading application server vendor, providing a comprehensive platform that meets the needs of a wide range of the customer with requirements from small business all the way up to large enterprises with the most complex deployments. IBM's proven experience, standards leadership, innovation, and available resources help you to:

- **Leverage open standards.** WebSphere Extended Deployment is built upon the J2EE-based WebSphere Application Server platform, helping companies take advantage of IBM's continued commitment to the support of open standards.
- **Mitigate risk and take advantage of best practices.** Over 100 customers have been assisted by the IBM High-Volume Web Site Team to enable their systems to meet the unpredictable workloads common to an on demand business and optimize their resource use.

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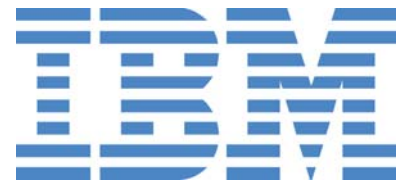
- **Improve your time to value to best serve your customers.** IBM has defined readily available service offerings to help customers get up and running quickly.
- **Gain competitive advantage and achieve operational efficiencies.** The innovative technologies in WebSphere Extended Deployment are based upon several years of IBM research and customer experience, including 8 specific proof-of-concepts with customers in the past 6-to-12 months results in more than 20 pending patents.
- **Protect and carry forward your IT investments.** WebSphere is the industry leading, standards based software platform, giving you peace of mind and the flexibility of choice.

Let IBM's expertise help you become the on demand business you need to be, to best serve your customers and achieve your business goals. Get started today!

- Contact your IBM representative for an in-depth briefing of WebSphere Extended Deployment
- Consider an engagement with IBM Services to explore how WebSphere Extended Deployment would work in your environment.
- Migrate to WebSphere Application Server Network Deployment Version 5.1 and/or leverage IBM and Business Partner services to ready your IT environment to take advantage of WebSphere Extended Deployment capabilities.

[For more information](#)

Learn about IBM WebSphere Extended Deployment visit: ibm.com/software



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