Principles of dynamic e-business:

Highly integrated application development

WebSphere Application Server Version 5

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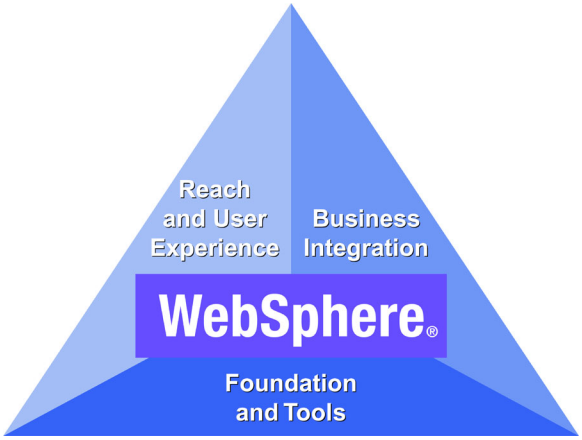


Highly integrated application development

Having a productive and adaptable development and deployment environment is key for addressing some of the challenges businesses are seeing today including:

- The requirement to bring Web applications to market quickly and enable access to enterprise systems and information rapidly and easily.
- The need to generating applications quickly—through wizards and business rules—that can be customized and expanded upon later.
- The need for development teams and application managers to port applications quickly and without pain to other servers and operating system platforms—something that a single code base and common programming could allow.
- The need for a clean application migration scenario when trade-ups are called for to a more sophisticated and sometimes more complex operating environment.
- The ability to maximize the value of development and generated applications and functions.

By utilizing an open software platform for developing new applications and for modeling updated infrastructures, IBM *WebSphere® Application Server, Version 5* offers an open approach to transforming application assets into a set of modular services within an integrated environment. In combination with IBM WebSphere Studio software, it delivers drastic productivity improvements through an integrated development experience and a tightly integrated environment—allowing applications to be developed, tested and deployed for easy access and error minimization.

The open and expandable development environment offered by the combined products provides an easier way to test and deploy new Web applications across operating system platforms. Adding tools for generating Web services applications to the mix, along with better ways to build advanced application adapters, and the simplified and integrated development environment pays off in productivity and flexibility.

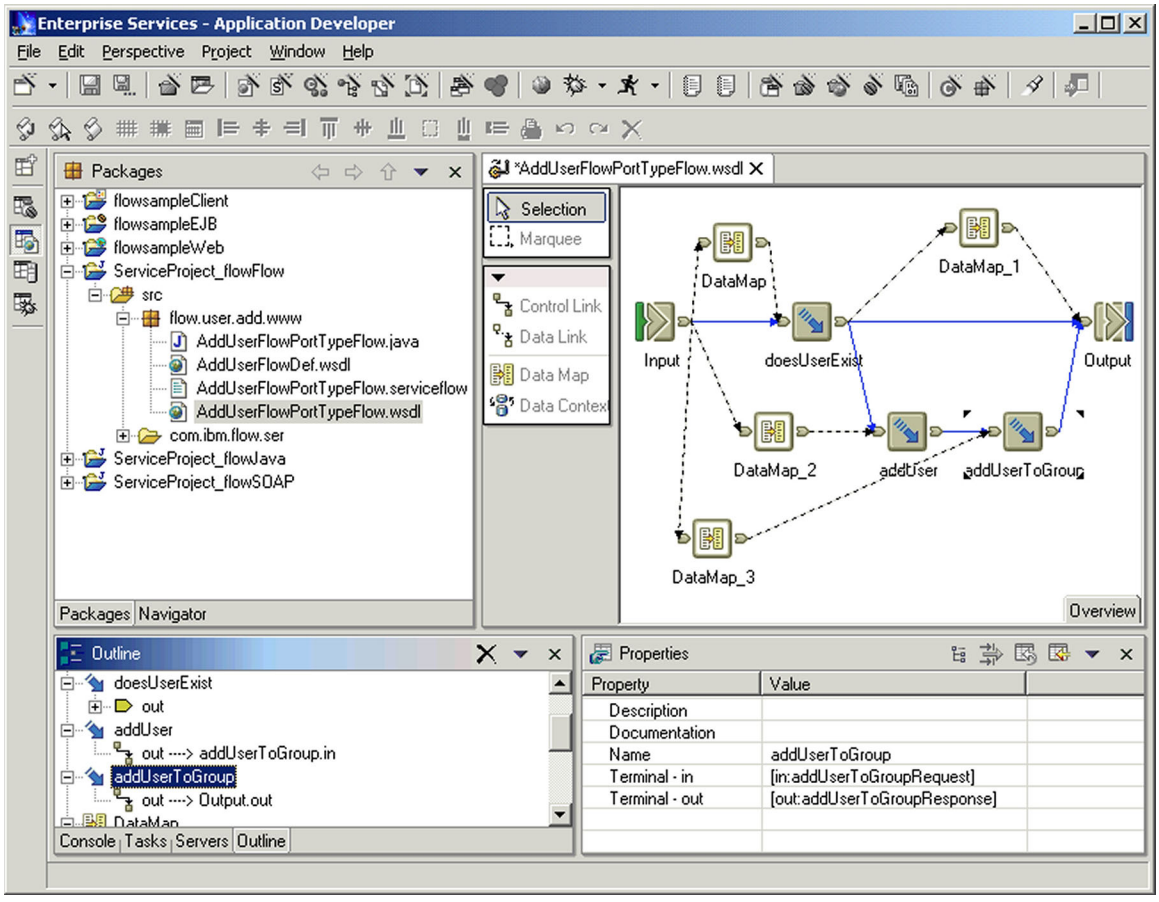
Build quickly, expand easily

The time required to roll out new applications is a key concern across industries, and improved developer productivity is clearly a way to address this. One way to vastly improve productivity would be to reduce the need for handcrafted programming. This could be accomplished through powerful frameworks that absorb much of the work involved in development, or through tools that generate code used by the runtime.

Imagine a combination of frameworks and tools that work together to provide best practice implementations, a realization of the industry's best architectures. In this kind of world,

developing and maintaining applications could be largely facilitated through something called visual programming. For example, a developer could create basic service definitions through adapter tools that visually connect Java™ applications to Enterprise Information Systems.

Through service choreography, the same or another developer could then combine these basic services into composed services that perform higher-level business activities. Wiring these interactions together in a visual fashion makes it easier for developers to create applications, and to preserve the flow structure of the application when underlying service implementations change over time. Still other productivity gains would come from the close integration of components and messaging systems. This includes the automated transformation and mappings required between message flows and components in order to satisfy diverse application needs.



Visual programming and service choreography

WebSphere Application Server, Version 5 provides a combination of flexible configuration options, a single code base and programming model helping to guide new application structures, and with WebSphere Studio, provides an advanced, integrated, open, expandable development environment. From a simple Web presence environment to a complex transactional environment, *WebSphere Application Server, Version 5* offers a configuration option to match your business environment—each with the ability to expand and scale up when you're ready.

Maximize the value of development assets and investments

Integral to information and data connectivity is building new applications that integrate multiple back-end systems requiring data transformation and transactional integrity. *WebSphere Application Server, Version 5* delivers productivity through an open approach to transforming any application asset into modular networked-accessible services, which can be easily identified and reused by other developers within an integrated development and deployment environment.

Many companies are strongly committed to J2EE and to the development of new Java-based applications. These new applications frequently need to leverage existing legacy assets in combination with the development of new business logic written in Java.

WebSphere Application Server, Version 5 provides an open and pluggable solution for leveraging Enterprise Information Systems. Resources accessible through the J2EE Connector Architecture (JCA) implemented in *WebSphere Application Server, Version 5* can be extended to provide developers with interactive access to the hosting environment, such that existing applications can be traversed dynamically in order to quickly compose a flow of interactions that produce a meaningful business result. The composed set of interactions can then be exposed as a generic and reusable service in support of a service-oriented architecture. Existing assets and investments can be leveraged in a standards-based way as part of the integrated development environment.

Develop Dynamic Applications

WebSphere Application Server, Version 5 simplifies the development of dynamic applications though an industry leading J2EE application server platform with Web services—as well as advanced extensions to legacy systems. It allows an e-business to create new business opportunities by exposing business and application services for integration by other businesses, organizations, or platforms.

To aid in developing truly dynamic and expandable Web applications and components, *WebSphere Application Server, Version 5* offers sample applications for quick startup and easy migration of applications from other development environments to WebSphere production environments.

At the more advanced enterprise level, a dynamic Enterprise JavaBean (EJB) query service is offered to expand the J2EE application server's role with more robust CORBA-like services. For worldwide transactions, the internationalization service offers dynamic translations to specific country code pages and formats.

Many businesses find it difficult to expand into international markets. Imagine the business value results from an application server runtime with the flexibility to adapt to global constituencies. Customers around the world expect to be served in their own language—with appropriate formatting rules for currency, decimal points and commas—accounting for differences that exist in various time zones. Applications that dynamically adapt to such differences will enjoy more flexibility in serving new geographical markets. This ability to

adapt applications to expanding markets is provided by *WebSphere Application Server, Version 5*. With the integrated development environment provided from the low-end to high-end, productivity is enhanced and improved no matter the skill level.

WebSphere Application Server, Version 5 allows you to optimize development resources by facilitating the reuse of development assets and automating the process of building, deploying and managing applications with a tightly-integrated environment. The combination of *WebSphere Application Server, Version 5* and WebSphere Studio gives companies the improvements in developer productivity needed to remain competitive in an ever-changing marketplace.

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