



## TECHNOLOGY ANALYSIS

### Domino vs. WebSphere: NextGen and the future of Domino

By [Ron Herardian](#)

Last month we took a critical look at both sides in the current debate about Domino and WebSphere. I also talked about potential points of integration between the two products. At the Lotusphere 2003 conference in Orlando, Florida, IBM Lotus customers and partners learned about IBM's software strategy and "NextGen" collaboration products. Integration with Domino is planned in terms of development tools and integration with DB2 in Domino version 7, but the focus of the NextGen products is on Java technologies and WebSphere rather than Domino. In this article we'll look at the reasons why IBM is emphasizing WebSphere, as well as look at the future of Domino.

#### Groupware: the undisputed champion

Domino is a unique product, remarkable in several ways. Domino is the only successful example of an integrated IT infrastructure solution. It combines email and messaging, directory services, calendaring and workflow, wireless access, realtime collaboration, major applications like document management and intranet portals, and a true RAD (Rapid Application Development) environment. Domino's combination of replication and middleware technology (Domino Enterprise Connection Services, or DECS) is extremely powerful and unique to Domino. Domino developers maintain that no other technology platform allows them to deliver equivalent solutions faster or cheaper.

The history of Domino includes a string of landmark accomplishments. Domino was the first major IT product to incorporate a PKI (Public Key Infrastructure). It was literally the first extranet solution in the market. It was the first major email system to include Web access to email. It was the first Web-based enterprise portal solution. In 1996, it was the first proprietary IT product to fully embrace open Internet-based standards in a bold move to transform an internal IT infrastructure product into an open Internet platform for e-business. Domino was one of the first Web application servers in the market.

Nearly seven years later, countless intranet, extranet, and Internet-based applications are running on Domino, and Domino add-on products like Sametime continue to break new ground. At the same time, Lotus Notes is the most widely used collaborative client application in the world with many capabilities not found in simple email/PIM applications. The list of features and capabilities is too long to enumerate here, but examples include the ability to run agents written in multiple languages as well as Java applets subject to access controls and virtually immune to viruses.

With Domino now a mature product with a massive global installed base of nearly 100 million users, it seems incredible to contemplate building collaborative applications on a different platform. After all, Domino is the undisputed leader in the groupware category. Other companies have claimed to offer equivalent products built upon email servers or leveraging features of operating systems, but these promises have never borne fruit, presumably because the underlying technology was insufficient to rival Domino.

In a daring move reminiscent of Ray Ozzie's announcing at Lotusphere '96 that Domino would incorporate Internet-based standards and become a Web application platform, Ambuj Goyal, the new General Manager of Lotus Software, announced at Lotusphere 2003 that IBM's next generation of collaboration products would be built on WebSphere and not Domino. How can this be true?

#### Java, Java, Java

Domino broke new ground and became an important platform for intranet, extranet, and Internet-based applications, and Domino remains the undisputed groupware champion. However, the Web has not held still, and Web application servers have opened a major new market where Domino is not a significant player. The main reason for this is Domino was not built on or around Java technologies and only added support for them over time. Meanwhile, the Web embraced Java and was quickly dominated by applets, servlets, JSP (Java Server Pages), and EJB (Enterprise Java Beans). While Domino embraces Java and extends applications to the Web, it's not a Java development platform comparable to WebSphere, WebLogic, or Sun ONE Application Server.

Domino's support of Java, however, is very substantial: Domino offers back-end classes for integration of applications and data; JDBC (Java Database Connector) support; the ability to use the JavaScript language for Web applications and to integrate Java applets; the ability to run servlets; support for both client and server Agents written in Java; and support for JSP in the form of a tag library. But Domino only supports the version 2.2 servlet container, the version 1.1.8 JVM (Java Virtual Machine), and JSP version 1.1. Pure Java developers find themselves constrained by Domino while Domino developers, some of whom may have learned Java mainly to extend Domino applications to the Web, find they have adequate Java support.

Adoption of J2EE (Java 2 Enterprise Edition) is the line that Java support in Domino will not cross. Web application servers have both a servlet container and EJB container, but Domino does not have an EJB container and is not J2EE compliant. Developers and customers building Web applications in a Java development environment don't consider Domino to be either a Web application server or a Java development environment. In general, it's not possible to create a Lotus Notes or Domino application using 100% Java or strictly using Java development tools. This means that, as a practical matter, while Domino developers can access Java and the Web, Java and Web developers can't access Domino.

Domino provides support for the Java language, virtual machine (both on the server side and in the Notes client), and supports several related standards such as the servlet specification, but Domino is not a mainstream application server or Java development platform. IBM has another product in its stable that not only fits this description but also is the leading J2EE Web application server in the market today. And it has a pure Java development environment. That product is WebSphere.

## **Domino and WebSphere: two lanes wide**

IBM's software strategy is to componentize the rich capabilities of Notes and Domino, Tivoli, and other products and to either rebuild them in Java or repackage them with standards-based interfaces (protocols, APIs, and SDKs). IBM's plan, which already bears the stamp of Ambuj Goyal, is to leverage the technological capabilities of products across brands so that each set of products can incorporate and benefit from features today found in other products with incompatible architectures.

This plan requires a sophisticated technology roadmap that amounts to a large portfolio of modular components that can be mixed and matched to create new products. It also requires integrated solutions, seamlessly incorporating capabilities from multiple product lines. It's a bold vision and a road with many challenges but also many benefits.

IBM Lotus executives went out of their way at the Lotusphere 2003 conference to emphasize that this new strategy includes Domino, although Domino is not the centerpiece. Domino developers, for example, can continue developing applications as they do today indefinitely. At the same time, Java developers building on WebSphere will have increased access to Domino through the Domino Toolkit for WebSphere, an add-on for WSAD to be released later this year. Similarly, Domino version 7 will transparently integrate with IBM's DB2 database product from the perspective of Domino developers.

From IBM's perspective, they're leveraging the experience and capabilities of Domino to expand the market opportunity for WebSphere. This strategy could become a major competitive advantage for IBM as they prepare to battle Microsoft's .NET platform with a Java-centric standards-based suite of technologies under the WebSphere brand.

## **Customer benefit**

In addition to expanding their share of the application server market and challenging .NET, IBM's software strategy promises several benefits to the software industry and to customers. In terms of technology, IBM's new

strategy promises improvements in code reuse and interoperability. If realized, this will reduce the cost of developing software products. The focus on standards also means improved flexibility. IBM's slogan, "e-business on demand," reflects their technical plans for modular, reusable software components that can be rapidly assembled into solutions for virtually any set of business and technical requirements.

The bottom line for customers is reduced cost of development and integration as well as freedom from vendor lock-in, where a customer that invests in a technology is compelled to deal with only one vendor (that can dictate any terms it chooses) indefinitely. Of course, concepts such as a flexible solution portfolio and reusable components with standards-based interfaces, while excellent from a development perspective, are not suggestive of packaged turnkey software products. Domino fits the latter description, and it will continue to be effective indefinitely as an internal IT infrastructure solution for email and basic groupware and as an SMB (small and medium-sized business) solution for intranets, extranets, and the Internet. Web application development for large companies, however, will come under WebSphere, particularly for large-scale and transaction oriented applications.

Customers will only benefit when they have solutions better suited to their needs at a reduced overall cost, either because their costs went down or because they can now afford technology (thanks to a lower price per user) that would not have made sense financially before. IBM's next generation email product, which will ship in Q2 of this year, is an excellent example of standards-based technology that offers a favorable return on investment to customers for whom email technology did not previously make sense financially. The product, which runs on WebSphere and used a DB2 database as its message store, is a lightweight Web-based email application that targets customers for whom Domino would simply be too costly.

A harder question might be, "How does this benefit existing Domino customers?" The short answer is that it does not. However, the first lane in IBM's two-lane road remains the Domino lane, and there are many benefits in Domino version 6 and beyond that improve functionality, performance, and scalability.

## The future of Domino

From the first early announcement of IBM's next generation collaboration technology plans, tough questions have been asked about the future of Domino, and various rumors have circulated in the Domino community. After delving into the technology and market issues above and speaking with several Lotus executives, it is clear that IBM's commitment to Domino is actually unchanged. At the same time, a significant new effort, involving a \$1 billion investment, according to Ambuj Goyal, is being undertaken. This new effort is aimed at markets and based on competitive factors basically unrelated to Domino. At the same time, IBM's Java-centric, standards-based overall technology strategy aims to achieve a broad and ambitious goal much larger than any single product.

Like any bold move in business or technology, IBM's software strategy and next generation collaboration plans involve risk. Today, IBM's strategy and the NextGen collaboration products are yet to be proven. Nonetheless, IBM has unique advantages on its side, including the Lotus software organization, the Domino product, and a substantial community of Domino developers and business partners with deep expertise in collaborative technologies. If any company can create a new class of network-centric collaboration products built on Java and Internet standards and open them up to a wide array of developers, that company is IBM.

## Product availability and resources

For more information on Lotusphere 2003, visit <http://www.lotus.com/engine/jumpages.nsf/wdocs/lotusphere>.

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