



True Enterprise Integration With *Jumping Beans*®

The need for tighter, fine-grained integration while maintaining security is reshaping IT environments. Unfortunately, traditional computing architectures are not able to address these issues without incurring additional costs and burdens. The response to this has been to add features and tools to architectures that cannot address these issues at a fundamental level.

Secure Integration

In traditional IT environments, the term *integration* has meant data integration: build “data pipes” between dissimilar applications. Although this is sometimes called “application integration”, the applications are not truly integrated because the different applications retain their own proprietary analysis and computation techniques, and security is all too often an afterthought. This data-centric view has resulted in systems that are too cumbersome to manage and too fragile to upgrade.

*Applications
can't be islands
of proprietary
software.*

By simply redefining “integration” to include total enterprise integration, we can look at the IT issues in a different way. In particular, true *Application Integration*, *Personnel Integration*, and *Real-Time Integration* become just as important as data integration, without de-emphasizing security.

*Team integration
via Automatic
Provisioning.*

Total enterprise integration is enabled by *Jumping Beans*®, which empowers end users by providing not only data, but also the tools to respond to changing requirements in a secure and timely fashion. Its Automatic Provisioning technology means users and devices automatically get the tools required for the situation at hand, without interaction from the IT shop, and can interact with the enterprise databases and centralized applications as required by the immediate circumstances.

Application Integration

Organizations increasingly require flexibility in their overall system. Enterprise focus, personnel, customers, and regulations are constantly changing, such that end users require different software tools for different situations without compromising security.

For example when analyzing costs, applications need to access financial data from HR, accounting, manufacturing, travel, time keeping, etc. Alternatively, when updating business processes, the application would access different data from the same sources, and the results would be published to a very different audience in a very different format.

5 May, 2005

Dynamic re-requirements demand dynamic integration

The increasing need for integration in enterprise systems creates additional demands for more detailed information, a wider variety of tools to process the data, real-time access, and real-time publication of results.

As enterprise systems become more integrated the need for security is increased. A security weakness in one application can expose every other application and database with which it has been integrated.

Personnel Integration

As businesses become simultaneously geographically dispersed and more integrated, there are increasing demands for software to support teams instead of separate individuals. Increasingly, documents, processes, and analysis are team oriented, while at the same time employees are becoming both mobile and dispersed. This trend is exemplified by the growing use of laptops, PDAs, and even smart phones.

All employees, whether mobile or based in a home office or field office, must be able to interact with each other and with customers in a team-oriented fashion. This is creating demand for technology that provides all employees with tools necessary to work as a team, even when responding to unexpected events in disperse locations, such as an unexpected request at a customer site.

Mobile, dispersed teams must remain responsive and cohesive

As more employees are integrated into enterprise systems, the need for security is increased. When personnel without a thorough background check are given access to enterprise systems, even limited access, the exposure of enterprise systems is increased. As mobile field employees are given access, new security factors are introduced such as wireless connections and lost PDAs or laptops.

Real-Time Integration***Unanticipated situations must be handled like the routine***

In today's highly competitive market, there is increasing need to gather and analyze data, and publish the results to targeted but changing audiences, in real time. The real-time nature of business processes must be maintained even when responding to unexpected events, such as emergencies or customer requests. Unfortunately, as the speed of data collection, analysis, and dissemination increases, security weaknesses in enterprise systems can spread very quickly, before manual intervention by IT personnel can contain it.

Traditional computing techniques, if carefully implemented, can manage a pre-determined set of data in real-time, but there is increasing demand for real-time computing for situations not anticipated at the time of deployment. This requires that not only data, but also software tools be provided to employees in real-time, without wasting time waiting for management approval or application installation.

Application Integration, Personnel Integration, and Real-Time Integration are goals not only for IT departments, but for overall enterprise strategies. Unfortunately, traditional technologies are

too limited and cannot address all of these issues, and provide only a partial answer. However, when they are built on a solid architecture in which security is paramount, they provide a distinct strategic advantage to corporations on a daily basis.

Existing Technologies

Client-Server

Client-server applications are powerful and provide rich, easy-to-use graphical user interfaces. They are well suited to personnel integration for pre-defined situations. However, when employees find themselves in unexpected situations, they must revert to manual techniques such as E-mail and telephone. In addition, client-server architectures are inherently difficult to manage, and require considerable support from a corporation's IT department, particularly in the areas of security and deployment. Any modification to a businesses processes, database schema, or software upgrade requires significant time from both end-users and from IT personnel.

***Client Server
Rich but static
applications***

Web

Web-based applications are easy to implement and maintain because end-users typically already have a web browser available, and upgrades are managed entirely from the server. However, web applications come at a price:

- They cannot provide advanced user interfaces to help employees handle complex data and interactions.
- They demand a connection to the server, making them unsuitable for many field employees and mobile workers.
- They imply a “pull” type of use: the user has to know when to extract the updated information, or repeatedly poll for the data. T
- The state of art in web security is so weak that web applications are restricted to very simple, non-sensitive applications, and prevent many employees from having the tools and data needed for maximum productivity.

***Web
Dynamic applications,
but difficult for mobile
and remote employees***

Database Synchronization

Database synchronization is popular for field employees using PDAs and laptop computers, because it allows mobile workers to continue working when they have no connection. Unfortunately, it has multiple drawbacks:

- It is limited to very narrow pre-defined tasks. Typically, it can handle only data entry, and any unexpected events cannot be addressed by this technology.
- It is difficult to maintain, because any update to the database schema requires considerable effort by the IT department.
- The mobile employee must carefully nurture the synchronization process instead of focusing on business goals.
- The security in database synchronization systems is not sufficient to protect sensitive enterprise systems.

***Database Synch
Supports mobile
employees, but
with limited, static
tools***

Jumping Beans[®]

Jumping Beans[®] is the first technology to bring the best of these positive features without the limitations:

Jumping Beans[®]
A single solution

- *Jumping Beans*[®] brings the benefits of client-server, but does not require any maintenance, and provides end users with the appropriate tools in real-time.
- *Jumping Beans*[®] brings the benefits of web applications, but does not require a constant connection, and provides end users with an environment as rich as traditional, pre-installed applications. Also, any notification required by applications is handled in a fashion that is completely natural and transparent to both the end users and to application developers.
- *Jumping Beans*[®] brings the benefits of synchronization, but does not require any nurturing, provisions end users with tools in real-time, and easily responds to changing requirements.
- *Jumping Beans*[®] has rock-solid security. With its patent-pending security technology, *Jumping Beans*[®] has the security to protect enterprise data, laptops, and handhelds, both in company offices and in the field.

Jumping Applications

Jumping Beans[®] is a new approach to computing based on *jumping applications*. A jumping application is very similar to a traditional application, except it can jump from computer to computer while it is running, without requiring pre-installation. *Jumping Beans*[®] allows an application developer to quickly and easily build jumping applications.

End users participate in the benefits of OO concepts

The executable code for an application and its run-time data are encapsulated within a single jumping application. In traditional systems, object oriented programming encapsulates data and code during development, but applications and data are separated at run-time. *Jumping Beans*[®] simply extends this encapsulation to run-time, projecting the benefits of OO techniques to end users.

End users can now fully interact in business processes, such as pre-defined tasks such as expense reports or customer orders, or *ad-hoc* tasks like coordinating customer orders with purchases from suppliers.

When an end user needs to launch a process, he or she will simply launch a jumping application. *Jumping Beans*[®] will locate the needed resources, data, and executable transparently on behalf of the end user. The jumping application will initially run on the local computer. When the end user has completed his or her task within the process, the jumping application can be quickly and transparently dispatched to the next user (or server), depending on the needs of your business process. The jumping application can visit as many persons and/or computers as needed to complete the process.

By encapsulating the executable code along with its data, the *Jumping Beans*[®] system sends to end users the software tools needed for the situation at the moment. End users no longer need approval and assistance from the IT shop, and don't have to wait for support, just to get the software they need at the moment. All of this is done in a way that is so natural and transparent that end users do not even realize it is happening, and it is accomplished without any intervention by IT personnel.

**Automatic
Provisioning**

**Advanced
security** Underlying this powerful concept is *Jumping Beans*[®], advanced security. It includes four independent forms of security, so that if an attacker were to crack one, the remaining three would still protect your enterprise systems. *Jumping Beans*[®], Inc. has 9 patents pending on the security technology built into the *Jumping Beans*[®] framework.

Benefits of *Jumping Beans*[®]

Application Integration

- Applications, servers, mobile employees, and office workers interact with each other via jumping applications. These jumping applications include not only the required data, but also the intelligence to interoperate with applications and servers, and the UI to interact with users.
- *Jumping Beans*[®] integrates all devices from mainframes to servers to desktops to laptops to PDAs. The *morphing* technology in *Jumping Beans*[®] means large applications are equally at home on a mainframe and on a PDA.
- *Jumping Beans*[®] itself, and applications built on *Jumping Beans*[®], can readily co-exist with previously deployed applications. *Jumping Beans*[®] enables new forms of applications, and can add new capabilities to existing applications. It is the perfect choice to link legacy applications with each other and with new applications.

Real-Time Integration

- The Automatic Provisioning technology in *Jumping Beans*[®] provides end users with the tools they need, according to the needs of the moment. This is done in a fashion that is so natural that the end user does not even realize that it has occurred, and without any intervention from the IT shop.
- End users have a virtually unlimited cache of tools, even on a PDA. The Automatic Provisioning in *Jumping Beans*[®] lets users exploit the storage capacities of the Management and Security Console.
- Jumping applications can be launched automatically when a condition is detected, and be sent to the appropriate personnel and servers to handle the situation.

Personnel Integration

- *Jumping Beans*[®] empowers end users. The Automatic Provisioning technology in *Jumping Beans*[®] provides end users with the tools required for the situation at hand. This is done in a fashion that is so natural that the end user does not even realize that it has occurred.

- Applications based on *Jumping Beans*[®] are very powerful for mobile workers because a connection to the home office is not required to remain productive.
- *Jumping Beans*[®] makes all users, even PDA-based mobile users, first-class citizens in the enterprise. The morphing technology in *Jumping Beans*[®] means large mainframe applications are available to all users, including mobile PDAs users.
- Transfer of jumping applications is a robust background process. End users no longer worry about finding a connection and nursing the data transfer. Instead, *Jumping Beans*[®] does all the work for them; it searches for a connection, and when one is found the transfer takes place automatically.

***Jumping Beans*[®] simplifies the job of the IT shop**

- Applications are very easy to deploy and maintain. Any changes, including changes to code, schema, business process, personnel, etc. can be put into production at any time with very little effort by the IT department, without the end-users even knowing that it is happening.
- *Jumping Beans*[®] is totally secure. *Jumping Beans*[®], Inc. has 9 patents pending on the security technology in the product. This is critical for linking sensitive data repositories and different applications in multiple departments, while providing access through firewalls from outside the company intranet.

***Jumping Beans*[®] greatly reduces application development time**

- *Jumping Beans*[®] is accessed through a very simple, straight-forward API. Applications can exploit all of the features of *Jumping Beans*[®] through just a handful of classes.
- By using *Jumping Beans*[®], there is no longer any need to worry with distributed communication systems. The application developer does not incur the overhead of CORBA, RMI, HTML, TCP-IP, or any other communication techniques. Programmers simply use natural, local programming techniques, and *Jumping Beans*[®] manages the remote processing in a very natural and transparent way.
- End users transmit software tools to each other, and applications begin execution on arrival, so the distributed application, the communication, and event notification are *all the same thing*. This means developers do not learn separate tools for different parts of the application.
- Application developers automatically inherit the security built into *Jumping Beans*[®]. Without even understanding the security in *Jumping Beans*[®] (or any other security), an application developer will produce applications that fully exploit all of the security in *Jumping Beans*[®]. Application developers do not have to worry about certificates, encryption, authentication, audit logging, nonrepudiation, or any other form of security.
- Because the “plumbing” is hidden from the application developer, the chances for error are greatly reduced. There is no longer any need to worry about data transfer, remote method techniques, or other distributed technologies.

Finally, Jumping Beans[®] reduces training

- End users require less training. Because applications based on *Jumping Beans[®]* provide the richness of traditional client-server applications, their UI can be natural and intuitive, thereby requiring less training.
- End-users do not need to be trained to nurture any processes. *Jumping Beans[®]* handles all of its housekeeping as robust background processes, and does not need any interaction from end users or from IT personnel.
- Inexperienced programmers can begin producing distributed applications in only a few days. With only a basic understanding of Java, a programmer can begin developing applications that automatically inherit all of the benefits described above. Programmers can exploit most of the capabilities in *Jumping Beans[®]* by learning only a handful of classes.

All these features combine to produce big ROI: *Jumping Beans[®]* is easy to integrate, easy to use, fast, and secure. It increases the productivity of your developers, dramatically reduces development time, reduces end-user training, and eliminates deployment and management issues.

Jumping Beans[®] is available now. The SDK includes the development API, run-time libraries, tools, and documentation and tutorials for both developers and system administrators.

For more information, to request a demonstration, or to order a time-limited trial version of the SDK, please contact our channel partner:

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