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An IT Perspective on Mashups in the Enterprise IT Environment:

*The Impact of Enterprise Mashup Platforms on Application
Development and Evolving IT Relationships with Business
End-Users*

Part 2 of the Mashup Monograph Series

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Introduction:

In today's hyper-dynamic environment, large organizations no longer have the luxury of taking years to develop, test and deploy business applications. The heat is on for business units to analyze data faster and for developers and IT professionals to deliver solutions more quickly. As a result, IT is now often required to operate in "real time" where expectations are inordinately – and sometimes unrealistically – high.

The response within many IT departments has been a quiet revolution – the introduction of mashups – a kind of 'self-serve' option for business units itching to access, manipulate and analyze their data more directly for better business agility.

Developers increasingly are reaching the conclusion that mashups – done securely and with proper governance – might just be a life preserver for enterprises struggling to navigate the sea of change in today's environments. Enterprise Mashup Platforms, or EMPs, offer IT departments the solution to offer business units the ability to develop their own applications while maintaining the control and oversight required by most enterprises.

While there is a high level of awareness about the consumer applications of mashups, there is less of an understanding about how Enterprise Mashups affect the enterprise developer community. Enterprise Mashup Platforms have the potential to fundamentally shift how broad swaths of IT functionality are delivered to the front lines of businesses and organizations.

To get a handle on this issue, and provide some clarity on how developers can move forward effectively in harnessing mashups and EMPs to support mission critical objectives of the enterprise, the editors of BizTechReports.Com sat down with subject matter experts at JackBe (www.jackbe.com) in Chevy Chase, MD, as well as other IT executives on the cutting edge of Enterprise Mashup development.

This report is part two in our Mashup Monograph Series. Readers may also find part one, *An Executive Perspective on the Strategic Value of Enterprise Mashups: How Enterprise Mashup Platforms are Streamlining Decision-making and Enabling Agility in Hyper-Dynamic Environments* at www.biztechreports.com for the Executive's Perspective on Enterprise Mashups.

Overcoming the Fear Factor, Improving Upon ‘Developer Do It Yourself’

One of the common misconceptions held by many in the enterprise application developer community is that Enterprise Mashups are a new development. However, many enterprise users are already doing mashups of sorts, whether they know it or not.

Anyone who can retrieve data from a purchase order or CRM system and then export the data as a spreadsheet, so that it can be manually combined with information from other sources, is engaged in a Do-It-Yourself (DIY) mashup activity.

But the problems with DIY mashups are numerous.

First, it creates a sort of personal “data silo.” The only person who knows the mashup is being created is the person combining the data.

Second, DIY mashups are inherently insecure. Without proper controls, unauthorized users can easily access and use spreadsheets containing sensitive information; and no record of such access or subsequent reuse would be available to auditors.

Finally, in today’s hyper-dynamic enterprise, DIY mashups can quickly become obsolete. The moment the data is exported or cut-and-pasted from the source system, it may not represent the actual facts.

The opportunity for developers is to harness the growing desire on the part of users to mix and match information – from different internal and external sources – so that they

can engage in innovative analysis of data *without the issues of DIY mashups.*

IT departments must help end-users move beyond the DIY approach of bringing data together and provide a “mashing platform” that delivers real-time connections to data source and Web 2.0 style collaboration while staying true to enterprise security and governance policies.

Finding the EMP Fit: Leveraging Existing Data for a New Type of Need

When thinking about applications, most developers are accustomed to relating to a coherent set of use cases – for example, a purchase order application that addresses the entire life cycle of purchase orders, including creation, approval, etc.

Mashups build upon the capabilities of mainstay enterprise applications, affording business units innovative ways to leverage and squeeze more value from established enterprise applications.

But these are typically large-scale efforts at automating relatively static processes and generally cannot accommodate the evolving information needs of today’s quick-moving enterprises.

In contrast, mashups can quickly meet an enterprises’ need for new kinds of data by putting business units, rather than IT staffs, in the driver’s seat when it comes to information solutions that can adaptively give insight into more dynamic areas of the business.

From the IT resource management perspective, mashups do not replace traditionally developed enterprise applications.

“All of the things that have been done from a traditional development standpoint are extremely valuable and developers do not have to change them,” says John Crupi, Chief Technology Officer at JackBe.

“Instead, mashups offer a dynamic layer on top of the development investment that provides users with the flexibility to create and use what they want out of the data and the infrastructure to solve different problems quickly.”

For instance, instead of handling the whole “cradle-to-grave” purchase order life cycle that is run as part of a supply chain application process, this new ‘mashup layer’ may enable a product manager to find and process a very specific subset of data associated with purchase orders.

The manager may simply want to correlate purchase orders with customer service level agreements, and then run an analysis against the location of corporate distribution centers to make changes to shipping plans in advance of a forecasted winter storm.

How Mashups Work: A New Style of Application

In the traditional approach to software development, an entire application might be altered in order to enable access to that narrow set of purchase order data. Mashups provide a way for developers to

better approach these needs with a more agile solution.

Stated differently, mashups offer a toolset for application challenges that exist on a different – much smaller, more discrete and certainly more dynamic – scale than traditional application development tools are designed to handle. Narrow-use widgets are focused on specific data sets and data analysis needs – a development trend that has been made popular by things like iPhone Apps and iGoogle Web widgets.

“This [is] the rise of the ‘Home Depot’ model of enterprise IT. We are enabling end-users to come into our shop, pick and choose the elements they need for their next project...and then let these ‘do-it-yourselfers’ put it together themselves...The IT organization just has to make sure that the raw materials that we are making available are of high quality, and that the pieces fit together the way they are supposed to.”

Such tailored, task-specific “mashup widgets” are important because they offer functionality that would be of great value to specific business units at the precise moment they need it, but which may not immediately deliver value to other departments.

“Mashup widgets can be the perfect combination of situation-specific data and a lightweight, web-friendly interface. They are quickly built...and, just as importantly, easily

shared,” said John Crupi.

These widgets are portable and can land in JSR-168 Portal, Sharepoint, iPhone, iPad and even iGoogle environments.

EMPs also provide a way to aggregate a library of mashups that can be re-used and re-purposed by other end-users to solve problems and create new innovative analytical solutions.

Operating within a Secure Framework

But if the users are doing all the collecting and analyzing, where does IT come in? IT establishes the safe and secure platform from which the users create the mashups. As one IT manager stated; “With mashups, we become the folks who build a very safe highway, and then we let the business users drive on it.”

What EMP solutions offer is a way for the IT departments to control, monitor and manage mashup activities throughout the organization. IT ensures that the new capability that is given to end-users does not lead the enterprise to violate important security and governance policies.

One of the key characteristics of EMPs is the ability to leverage the power of the web, standards and collaborative tools, so that users can share data with each other in a manner that is consistent with corporate security and governance policies. In short, an EMP will let business users focus on mashing up – creating and analyzing data – while keeping them from running afoul of government regulations or enterprise rules.

Indeed, EMPs offer enterprise IT departments an opportunity to close governance and compliance loopholes that have likely been opened as a result of the DIY mashups described earlier in this

report. For example, there’s little to stop a user with access to CRM information from exporting sensitive data to a spreadsheet or other document and then sending it to someone who is not authorized to access or review the data. Under an EMP, if a user does not have permission to use the data from a particular application, it enforces policies that makes certain they will not have access to the data in the mashup creation process.

Mashups operating under an EMP structure provide a way for IT leadership to bake in data governance and security rules that protect data in their native environments and extend it to a space in which information from many different sources can be

compared, contrasted and analyzed in a secure, well managed manner.

Powering the Business Developer, Shrinking the IT Backlog

Clearly, the Enterprise Mashup phenomenon requires the IT organization in general, and the application development teams in particular, to re-assess their roles in how they support and enable their user communities.

By creating an environment that allows end-users to

take on some responsibilities for developing what may be considered ‘applications,’ there is a huge shift in what the enterprise IT department should do,” explains Michael

Responsibilities in the Mashup Paradigm
<p><i>Main IT Tasks</i></p> <ol style="list-style-type: none"> 1. Install, configure, setup security and governance 2. Publish 'core' data sources (such as Webservices) 3. Assign roles and permissions for functions and core sources 4. Create 'complex' mashups, widgets and mashup dashboards, when required
<p><i>Main Business Unit Tasks</i></p> <ol style="list-style-type: none"> 1. Publish 'personal' data sources (from Excel, news feeds, etc.) 2. Visually create mashups, mashup widgets and mashup dashboards 3. Share mashups, mashup widgets and mashup dashboards with others 4. Rate, use, and personalize mashups, mashup widgets and mashup dashboards from others

Ogrinz, Principal Architect for global markets at one of the world's largest financial institutions and the author of the book *Mashup Patterns* (www.mashuppatterns.com).

Instead of building every application from soup-to-nuts, the IT department now finds itself exposing and extending a set of services that can be used and manipulated by end-users.

“I call this the rise of the ‘Home Depot’ model of enterprise IT. We are enabling end-users to come into our shop, pick and choose the elements they need for their next project...and then let these ‘do-it-yourselfers’ put it together themselves,” explains Ogrinz.

“The IT organization just has to make sure that the raw materials that we are making available are of high quality and that the pieces fit together the way they are supposed to,” he adds.

This takes the ongoing trend toward technology-driven self-service models – which has transformed retail banking with ATMs and grocery stores with self-checkout – and extends it deep into the enterprise IT organization.

“In the world of software, our ‘non-technical’ business folks are getting more technical all the time. They are doing amazing things with to Excel macros and Facebook collaboration. Mashups are a natural extension of this phenomenon in the enterprise,” says Crupi. “How many people read a how-to Facebook manual or take training before ‘friending?’” asks Crupi.

The key to harnessing the self service concept is to ensure that the software, the tools and the interfaces are intuitive. “I

doubt Salesforce.com would be wildly successful if it required extensive intervention from enterprise IT departments before the sales team would use it.” In this way, enterprise mashups can help an organization create an ‘App Store’ of sorts, where creators and consumers interact around mashups ‘apps.

Addressing the ‘Long-Tail’ is Good for Everyone (including IT)

There is not a single IT department that does not have an immense backlog of projects waiting to be addressed. Many will never receive the attention of application developers, because the bulk of their efforts are focused on a handful of strategic priorities driven by the mission-critical objectives of the enterprise.

It results in the now classic “Long Tail” dynamic that was first described by *Wired Magazine* editor-in-chief, Chris Anderson.



Traditional application developers focus at least 80 percent of their efforts on the top 20 percent of “head” projects that are deemed to be critical to the enterprise. These represent the high-value, high-impact projects that have long-term implications to the organization.

Largely ignored – by default – is the long tail, which represents the large array of much smaller projects that are often driven by line-of-business managers who would like to field a new capability quickly to make good decisions in a current context.

However there is a growing recognition by senior business executives that agility – the ability to recognize new and unexpected market opportunities or challenges and respond quickly – is probably tied to many of these long tail applications.

Enterprise Mashups and EMPs allow an IT department's application development team to form a new relationship with end-users to address the long-tail projects. IT leaders can provide a platform that engages highly productive business managers and users who are more than willing to utilize self service mashup tools to field new solutions and relieve the burden on scarce, oversubscribed, expensive and highly skilled, IT staff.

Enterprise Mashups and EMPs allow an organization to address the remaining 20 percent of needs in the Long Tail, by equipping the line-of-business units with intuitive tools.

With business users equipped with self serve mashup tools to meet their tactical information needs, IT staffs can contain their focus on large-scale applications, 'infrastructure' work and maintenance.

Understanding the Mashup Development Process

Enterprise Mashup platforms put a different spin on the application development process.

In conventional environments, a new application would go through a traditional development life cycle model of:

1. Creating a set of requirements;
2. Resourcing projects with IT developers who will do the work;
3. Writing applications using traditional language and platforms has been approved by the enterprise;
4. Running the development through a cycle of quality assurance (QA);
5. Running a testing cycle; and then
6. Launching the new application.

This process involves many stakeholders including the IT department, the development department, the testing department, as well as security and operations executives. All of these stakeholders must be working in sync to push one feature out the door for the business to use.

In the new mashup environment, however, IT is responsible for establishing an infrastructure and serving up a foundational set of existing applications. Databases and web services, for example, would still be under the operational responsibility of developers and IT administrators.

“What is really different is that in an effective EMP environment, technical resources do not necessarily have to be held responsible for putting every piece of data into a production report,” says Deepak Alur, Vice President of Engineering at JackBe.

“The end-users can take some – even significant – responsibility for building their own widgets on the fly by picking and choosing from the data sources that are available to them,” he says.

Enterprise Mashups provide a way to effectively empower business units to visualize, interact and eventually build very specific applications that help their specific business activities, without having to get buy-in from 80 percent of the company, or disrupt other enterprise-wide priorities.

“There are a number of different ways mashups can be used,” says Mark Scrimshire, Director of Work Strategy at a leading health insurer on the east coast.

“For example, rather than waiting for all of our data to be put into enterprise warehouses before users can do analysis; organizations could actually use the mashup platform to compile potential test data. Mashups allow people to go out and look at different platforms that are actually in use and maybe test certain scenarios and use-cases that you’ve got to develop against,” he explains.

“There are also a lot of scenarios when you want to take data that you’ve got inside the firewall and actually merge it with data you may find outside the firewall. The classic example is when you’ve got somebody’s name and address and you want to merge that with information from Google to plot stuff on a map. There are increasing scenarios where that can be done,” says Scrimshire.

How JackBe Fits in to the Enterprise Mashup Platform Environment

JackBe has helped many organizations embrace mashups as a core competency. For organizations that want to learn by doing, JackBe’s Mashup Developer Community (www.jackbe.com/dev) offers a single-user ‘Developer Edition’ of its EMP, Presto, along with tutorials, sample code, demos and support forums, all at no cost.

Recently, JackBe also launched the ‘Presto Cloud Community Edition’ (cloud.jackbe.com), a cloud-based instance of the same software, for use by its community members. Included in the Presto Cloud are hundreds of sample data sources. For developers that do not want to download and install Presto, this option can let a developer try out JackBe’s EMP in mere minutes.

Aside from developing its market-leading Enterprise Mashup Platform, JackBe has also played a major role in the push towards mashup standards. In Sept. 2009, the Open Mashup Alliance (www.openmashup.org) was launched with prominent tech industry players Adobe, CapGemini, Hinchcliffe & Co., HP, Intel, Kapow Technologies, Programmable Web, Synteractive and Xignite. A number of other vendors have also joined since the OMA’s launch.

The OMA is “dedicated to the successful use of Enterprise Mashup technologies and adoption of an open language that promotes Enterprise Mashup interoperability and portability.” JackBe showed its commitment to this important process by contributing its Enterprise Mashup Markup Language (EMML) to the OMA.

EMML is a language specifically designed to address the needs of creating and sharing mashups within the enterprise. To be valuable, EMML had to meet certain criteria:

- It had to be declarative, therefore XML-based;
- It had to leverage existing standards, leveraging XPath and XQuery;

- It needed to be domain-specific to enterprise mashups, so they added features for user-oriented activities;
- It had to be friendly to popular languages, so they allowed embedding of Java, JavaScript, Ruby, and Groovy scripts;
- It needed to be tooling friendly, so they made it interpretive for construction and execution on the fly as well as extensible with your own meta-data; and

- It had to be data neutral, so they made it work with all kinds of data from different sources.

As a result, the robust language specification and reference implementation developed by JackBe is open. The OMA is the steward of EMMML and will nurture and enhance EMMML beyond version 1.0 for future contribution to a standards body.

Having an open, free-to-use EMMML specification represents a quantum leap for the development, interoperability and compatibility of Enterprise Mashup products.

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About JackBe

JackBe delivers a trusted Enterprise Mashup Software Platform that empowers government and commercial organizations to create, customize and collaborate through Enterprise Mashups for faster decisions and better business results. The company's innovative Enterprise Mashup Platform, Presto, provides dynamic mashups that leverage internal and external data while meeting the toughest enterprise security and governance requirements. JackBe, Presto, Presto Wires, Presto Visual Mashup Composer, and Mashup Macros are trademarks of JackBe. For more information, visit www.jackbe.com.

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