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THE ERA OF COLLABORATIVE PROCESS-CENTRIC APPLICATIONS

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SERENA

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WHO SHOULD READ THIS PAPER?

Serena makes it simple to deliver collaborative process-centric web applications inexpensively so you can drive productivity and reduce costs. This paper provides a technical product overview of how we make this possible through Serena Business Mashups. With a focus on the technical contributions of Serena Business Mashups and how they further Development Process Management, Lean Business Process Management and Enterprise Service Bus (ESB) investments, this information is relevant to process professionals within IT that are tasked with coordinating work across teams and the systems they use.

INTRODUCTION

Over the past two decades, we have witnessed a number of major shifts in application development. In 1980s, we saw the rise of stove-piped applications at the enterprise. These applications were primarily stand-alone programs that did not integrate with or share data and resources with other applications. During the 1990s, the industry moved quickly towards delivering suites of applications to address business problems found in vertical segments such as Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP).

Shared repositories became a prominent fixture in enterprise architectures and provided the data and logic connection between applications in the packaged product suites. Because each of these solutions solved a single business problem, the number of information systems silos grew across the enterprise, and because of their monolithic nature, it has become more and more costly and difficult to change them in response to changing business and market conditions.

Over the past few years, we have seen IT invest in Service-Oriented Architecture (SOA) and Web services to enable information and business logic to be sharable and accessible in the enterprise. These Web services were typically implemented on top of existing APIs and interfaces and did not take into account the needs of the consuming applications. This resulted in Web services that were not business-consumable. Similarly, ESB technologies were promoted as integration plumbing for connecting applications together. Unfortunately, the complexity, cost, and footprint of these platforms meant they were only used in complex integrations such as high-volume B2B schema transformations.

Adding to the technology trends, globalization, consolidations, consumerization, regulations, a changing workforce, and a challenging economy have created more pressure on IT and the applications development teams.

Enterprises need a new breed of business application that allows them to blend their existing investments in IT information systems, legacy systems, and packaged applications to ensure that the right information is delivered to the right people at the right time. These new blended applications must be adaptable to changing business processes, interactive user experience, roles and security, services, and data.

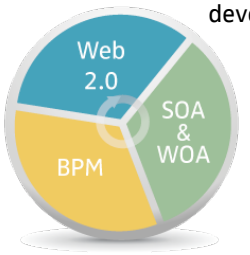
To improve business productivity, enterprises need to ensure that that information is delivered to the right people when they need it, and those people must be able to act on the information within the system to achieve their business goals. The application must:

- Enable collaboration between audiences inside and outside of the enterprise based upon prescribed and dynamic business processes
- Permit invocation of automated activities
- Provide secured access to both structured and unstructured information based on users' roles and privileges
- Provide full traceability for all transactions
- Support the persistence of information over the long time frames sometimes required to complete the activity.

For collaborative applications, Serena supports a lean approach. Lean development and lean deployment. Lean process development makes it possible to define processes easily, and get them online quickly. Business Mashups provides a platform for lean process development and makes it simple to build collaborative process-centric applications, without coding.

GENESIS OF THE BUSINESS MASHUP MODEL

Business Mashups represent the confluence of Web 2.0, Business Process Management (BPM) technologies, and Service-Oriented and Web-Oriented Architectures (SOA/WOA) combining to address the business process development challenges that enterprises face today.



Web 2.0 Application Frameworks provide a new way to create rich interactive applications for the Web. BPM represents the best way to orchestrate the services and building blocks that IT has provided. Finally, SOA and WOA provide a standard way for accessing business functionality available in backend services or front-end web applications.

WHAT IS A BUSINESS MASHUP?

A Business Mashup is a new breed of collaborative process-centric application that drives business productivity through the delivery of the right information to the right people at the right time. They coordinate activities across teams and the systems they use. Business Mashups have several key attributes that differentiate them from typical web applications. They are:

Process-based: To improve business productivity, Business Mashups allow structured and unstructured collaboration between people and systems. They provide support for definition and execution of business processes that coordinate people and system interactions.

Unified: Many stove-piped applications implement processes associated with their respective application domain. Over time, this has resulted in fragmented and disjointed process frameworks across the enterprise. Business Mashups provides a unified process bringing together all your people and systems within the enterprise and beyond.

Interactive: Leveraging a Web 2.0 technology framework, Business Mashups contain personalized user interfaces for each role participating in the Mashup. These interactive user interfaces engage the audiences that they serve by presenting them the pertinent information that they need based on their role and access levels and collect information necessary to advance the activity to its next logical stage. Mashup User interfaces can aggregate content just-in-time from a variety of sources inside the enterprise as well as information systems on the cloud.

Connected: Business Mashups provides standards-based facilities to connect to structured and unstructured information both at the business process or user presentation tiers. The technologies supported include SOAP/REST Web Services, RSS/ATOM Feeds, Gadgets, and HTML Widgets among others.

Persistent & Actionable: Unlike BPM technologies that focus on process re-engineering and automation, or Data Mashup vendors that aggregate content at the page for improved business insight, Business Mashups represent fully functional web applications with data models, business processes, roles & access rights, and connectivity to enterprise assets. Information collected in a Business Mashup can be persisted across user sessions to support long running activities that span multiple audiences. In addition, role-aware Business Mashups can act on that information in compliance with the company rules, policies, and regulations to complete the business activity.

Self Auditing: Business Mashups provides native traceability and audit trail of the activities performed by roles or automated systems participating in the Mashups. This audit trail history is maintained and can be accessed to analyze the lifecycle of business activities to improve operational efficiencies or comply with industry regulations.

Visually Assembled: Business Mashup applications are created visually and rapidly, thus reducing the time to value. Visual Assembly abstracts the technical complexity and auto-generates the necessary application plumbing such as page flows, service orchestrations, data validation and mapping, rules execution, persistence, and so on, allowing the designers to focus on defining the application content and experience.

Governable: Business Mashups is fully governable, providing IT and the business with a single point of control and visibility. The Business Mashup platform provides full version management for both the design-time assets as well as deployed Business Mashups with Path-to-Production support governing the deployment and promotion of Business Mashup applications across the development, staging, and production environments. Mashup Administrators can grant granular access control for activities pertaining to Business Mashup assembly, publication, deployment, execution, and management.

Deployable Anywhere: Leveraging a One-Touch Deployment model, Business Mashups are published and deployed to any number of on-premise or on-demand environments. This flexible deployment model accommodates a wide range of applications targeted at audiences inside and outside of the enterprise.

Reusable/Portable: Business Developers use an integrated design environment to visually define Business Mashup applications without coding. The logical design of each application is encapsulated as a XML-based vocabulary that could be persisted in the design repository or shared at the Mashup Registry for reuse and compliancy across the enterprise. Business Mashup application definitions contain only the logical entities that are later bound to their corresponding physical entities during deployment to specific environments. This separation of logical definition and their corresponding physical bindings make Business Mashup applications highly portable and reusable.

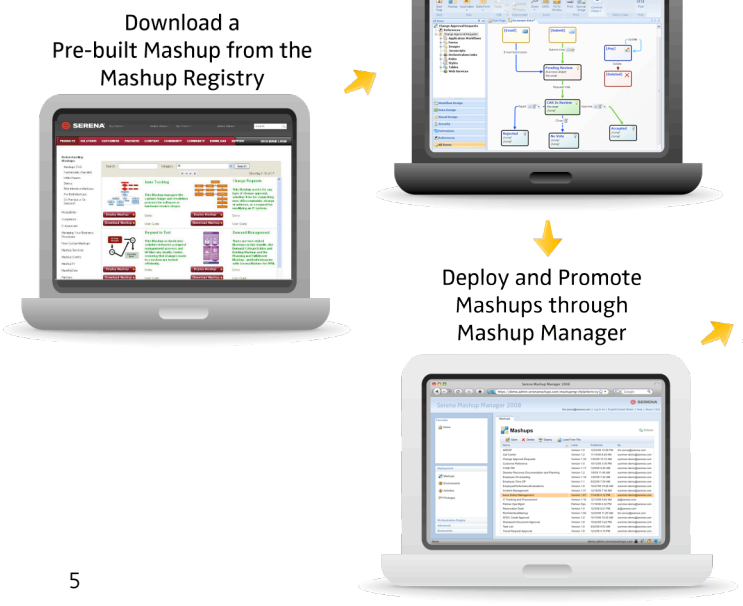
Embeddable: A Business Mashup application runs in any browser and can be hosted inside a Serena Mashups browser shell or embedded inside a portal shell, a home-grown intranet or website. This capability allows enterprises to extract more value from their portal framework investments bringing application and transactional content to what was previously only simple content aggregation.

Channel-aware: A Business Mashup application typically serves multiple audiences inside and outside the enterprise. Business Mashups support a wide range of interaction channels—such as Email, Web Browser, Mobile device and so forth—to accommodate the channel preferences for audiences interacting with the Mashup.

WHAT IS SERENA BUSINESS MASHUPS?

Serena Business Mashups is business productivity software for rapid definition, deployment, and management of collaborative process-based web applications.

Serena Business Mashups promotes a process-focused approach to productivity. It coordinates processes across teams and systems and provides repeatability, traceability, and auditability. Serena Business Mashups comprises several components, including:



Mashup Registry for cataloging a corporate-wide repository of Business Mashups. Mashup Registry will be extended in the 2009 R2 release of Business Mashups to contain other business artifacts including process fragments, user interfaces, web services, UI gadgets, and more.

Mashup Composer is a fully integrated visual environment targeted at business developers

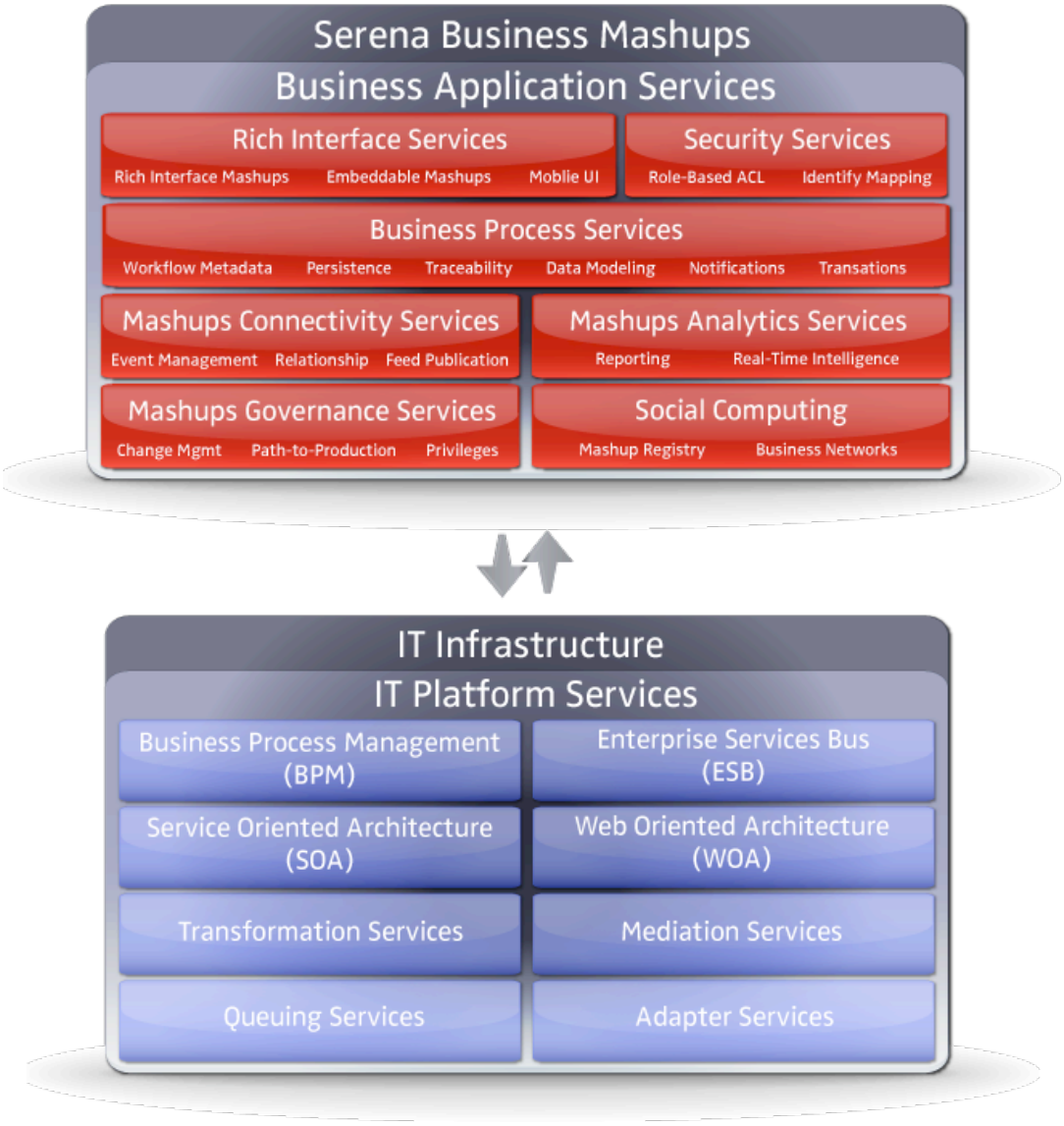
for creating and publishing collaborative process-based applications.

Mashup Manager is designed for IT and Mashup administrators. It is an interactive web-based governance application for managing the application versioning, deployment, promotion, and granular permissions of Mashups. Mashup Manager provides a single point of control and visibility for IT Administrators.

Mashup Server is available in two different deployment options: on-demand and on-premise. It is a collection of application services for runtime execution of Business Mashups.

LEVERAGING EXISTING IT INVESTMENTS

Serena Business Mashups provides the high-level services required for visual assembly, deployment, and management of collaborative process-based applications. Optionally, Serena Business Mashups can sit on top of existing IT stack and platforms and can interface with lower-level IT services through standardized interfaces. For example, Business Mashups might interface with integration services offered by an Enterprise Service Bus (ESB) through standards-based protocols such as SOAP Web Services, REST, RSS/ATOM Feeds, and Message Queue.



EMPOWERING BUSINESS DEVELOPERS

Serena Mashup Composer provides a visual environment for rapid definition and deployment of collaborative process-based applications without coding. Serena Mashup Composer is targeted at business developers who are technology-savvy individuals that understand the business needs but are not hard core IT programmers. The business developer profile includes process-oriented business analysts, enterprise architects, and other related roles within the enterprise that bridge the gap between business partners, customers, and IT. This business developer represents technology's capabilities and constraints to the business and is responsible for determining how to use technologies to improve business processes, information, and experiences.

POWERED BY BUSINESS MASHUPS

Serena Business Mashups power solutions for lean process development in two main areas:

Serena Development Process Management automates software development processes, increasing visibility and control while driving down development costs. Unlike entry level or single process tools, Development Process Management delivers an enterprise-wide solution with integrated, out-of-the-box applications to manage critical processes including defects, issues, incidents and change requests. Development Process Management can also be easily and quickly configured to the way you work using a simple visual design tool that requires no programming.

Development Process Management makes the development teams more productive through a coordinated process that connects different teams and disparate systems. Development Process Management applications productively manage the development process spanning distributed and mainframe products.

In addition to the core Development Process Management applications, there are numerous other application opportunities within ALM and IT that are powered by Business Mashups, including:

- Demand Categorization & Routing (Serena Mariner)
- Demand Planning & Fulfillment (Serena Mariner)
- Request-to-Test (HP TestDirector)
- Case-to-Issue (Salesforce.com Support)
- IT Asset Tracking and Procurement (SAP)
- Issue-to-Code (Serena Dimensions)
- Document Routing & Approval (SharePoint)

Serena Lean Business Process Management (BPM) helps reduce costs and improve productivity through automation of common business processes, linking the people and the systems they use. Traditional BPM tools are complex to program and expensive to deploy. Serena can be installed in minutes, business processes can be developed in days, and then be deployed almost immediately.

Lean BPM is an alternative to the costly BPM platforms for defining and deploying a class of collaborative process-based applications that fill the process gaps across the enterprise. These applications typically encompass business processes that enhance productivity, cut costs, increase revenues, and enhance competitive differentiation. The rapid visual assembly and flexible deployment capabilities of Serena Business Mashups appeals to IT professionals who want to serve the business needs quickly and collaboratively, while avoiding the cost, complexity, and lengthy implementation cycles of BPM and ESB platforms.

Here are several examples of business productivity challenges that IT is tasked with automating that are well-served by Serena Business Mashups.

Self-Service Applications

These applications are typically interactive and engage an audience—internal or external to the enterprise—through a step-by-step process aimed at fulfilling their requests. Some examples include:

- New Registration (Account Openings, Courses, etc.)
- Account Inquiries
- New Applications (Insurance, Credit Card, Health Plan, etc.)
  Case/Service Inquiries
- New Service Requests

Regulatory Applications

Because Business Mashups are process-based and self-auditing, they can be effectively leveraged to address regulatory and compliancy initiatives such as SOX, HIPPA, ITIL, CMMI, 21CFRp11.

Beyond Packaged Applications

Over the years, Enterprises have come to rely on libraries of "packaged applications" to manage critical business functions such as Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), and Human Capital Management (HCM). These packaged applications provide deep functionality out of the box but are typically monolithic and insulated from other aspects of the business. To effectively leverage existing investments in these applications, enterprises need to blend together the data, services, and processes encapsulated in these systems with other information systems inside and outside of the enterprise.

Business Mashups fill the process gaps that exist in these legacy applications to consolidate user experience, harvest underlying business intelligence for improved visibility and create new business opportunities. Some examples of CRM & HCM extensions include:

- Sales Opportunity Discount Approval
- Customer Data Management (De-duplications)
- Employee Time-Off
- Sales Opportunity Credit Approval
- Travel Request & Approval
- Customer Reference Approval & Management
- Employee On-Boarding

Beyond Portals

Existing enterprise portals help aggregate enterprise content onto Portal pages for Business Insight or improved collaboration. However, enterprises want to deliver real-time application content to these Portals to drive business productivity. Enterprises can extract more value from their Portal investments by embedding Business Mashups inside their Portals.

Mainframe Legacy Modernization:

Enterprises have invested heavily in mainframes for decades. These legacy systems represent business "systems of record" and contain information crucial to a wide range of Web Applications. Business Mashup Applications can extend the reach of the mainframe to create collaborative process-centric applications such as customer and employee self-service, consolidated customer dashboard, and application release management to name a few.

Schema Standardization:

Due to regulatory mandates, some industries have adopted standard schemas to facilitate the collection and transfer of information. ACORD is an example of such standardization in the Insurance industry. Such industry standards, because they are designed to support a broad range of use cases, can be comprehensive and complex. Business Mashups can be used to provide a simplified user interface to automatically gather and validate the necessary data in a guided and interactive experience while ensuring conformance to these standard schemas.

Lotus Notes Applications:

IBM Lotus Notes serves a class of applications that integrate information on the glass to increase business insight across the enterprise. However, to address the business productivity challenges that are top of mind for most enterprises, particularly in an economic downturn, businesses are looking beyond content aggregation and toward the automation of business processes that enhance productivity, cut costs, increase revenues, and enhance competitive differentiation. The process-centricity of Business Mashups appeals to Lotus Notes customers who are looking to go beyond integration on the glass or are moving away from Lotus Notes into other collaborative software solutions such as Microsoft Exchange/SharePoint but need a solution to replace their Lotus Note application investments.

Applications to Extend your BPM:

Some enterprises have invested in BPM technologies to automate critical processes. The majority of these enterprises have leveraged the BPM Platform to implement low-level system-to-system automation and the integration plumbing for linking multiple systems. However, BPM platforms are not

typically designed to address the needs for business applications that must be delivered on top of these platforms and frameworks. Business Mashups provides a rapid visual assembly, deployment, and management environment targeted at delivery of Process Applications that interface with your BPM Platforms. These are fully functional web applications with business processes that represent human and system interactivity, role-based access control, data modeling and persistence, and connectivity to enterprise assets. Information collected in a Business Mashup can be persisted across user sessions to support long running activities that span multiple audiences. In addition, role-aware Business Mashups can act on that information in compliance with the company rules, policies, and regulations to complete the business activity.

Reduce Time to Value for SOA-Enablement Projects:

If you have invested in SOA-enabling your enterprise, Business Mashups puts a business face on top of these initiatives by consuming these components into interactive process applications that drastically reduce time to value.

FAQ

Do I need SOA and Web Services in order to fulfill the value proposition for Business Mashups?

No. Even without the use of Web Services, Business Mashups facilitate the rapid assembly of a class of business applications that require structured process collaboration with automatic auditing such as document review and approvals, compliancy and regulatory processes, change approval processes, demand management, and more. Web Services can augment these applications by providing access to 3rd party information systems or services when the business application needs go beyond the human workflow and auditing and requires access to existing systems of record. However, Serena Business Mashups 2008 also supports protocols for information access at the client (e.g., Rest, JSON, RSS, ATOM, Gadgets, HTML Widgets, etc.) as well as legacy protocols for accessing information systems that are not SOA and web service enabled (e.g., Email Event; Message Queue Event; RSS Event; etc.).

Is Serena an Integration Platform competing with ESBs (Tibco, BEA)?

No. Enterprise Service Bus (ESB) is a category of middleware infrastructure product. An ESB generally provides an abstraction layer on top of an enterprise messaging system. Unlike the more classical enterprise application integration (EAI) approach of a monolithic stack in a hub and spoke architecture, the foundation of an ESB consists of base functions broken up into their constituent parts. Built-in mediation capabilities allow the ESB to reconcile incompatible protocols, data formats and interaction patterns of disparate connected resources. Data represented in XML is transformed using XSLT or XQuery services and routed to particular downstream systems based on their content or other attributes. Data may be split, aggregated, and enriched en-route to a consuming service.

ESBs take a bottom-up approach by accessing data at the lowest level and transforming for consumption by the downstream service or application. ESBs are completely faceless. ESBs are typically used in complex schema transformations such as those found in B2B commerce or supply chain applications. ESBs are very complex and require skilled IT resources to implement and configure.

In contrast, Business Mashup applications are collaborative process-centric applications that take an outside-in view. They define the application from the experience delivered to the target audience and include the business processes that govern the delivery of the right information to the right people at the right time. As such, Business Mashups interact with business-granular components that are brought together through the business process or aggregated at the user interface to solve a specific business problem. Business Mashup applications can interface with underlying ESBs through standard protocols such as web services or message queues. Business-granular components produced by an ESB can be consumed by the Business Mashups. Similarly, Business Mashup applications can pass the data collected within an interactive Business Mashup to an ESB for backend processing and transformation.

In a nutshell, ESBs can help make the information more accessible and business-consumable through its faceless data access and transformational facilities, while Business Mashups focus on delivering business applications that consume these information blocks as well as other business assets to

assemble collaborative process-based applications with personalized Web 2.0 user experiences, role-based access, built-in reports, and business processes for embedded and audited human and system interactivity.

How does Business Mashups differ from Business Process Management (BPM) vendors?

Unlike the costly BPM technologies that focus on process re-engineering and complex low-level system-to-system automation, Business Mashups provide a Lean BPM alternative that makes BPM accessible to organizations by defining and deploying collaborative process-based applications.

These are fully functional web applications with business processes that represent human and system interactivity, role-based access control, data modeling and persistence, and connectivity to enterprise assets. Information collected in a Business Mashup can be persisted across user sessions to support long running activities that span multiple audiences. In addition, role-aware Business Mashups can act on that information in compliance with the company rules, policies, and regulations to complete the business activity.

Due to the inherent complexity of traditional BPM, iteration during the construction phase or post development is very restrictive and expensive to implement. In contrast, Business Mashups are designed from the ground up to enable real-time iterations on the process model, drastically improving the collaboration between business and IT.

What is the value of Business Mashups for IT Organizations?

In today's market, changes occur at a rapid pace and it is imperative for enterprises to be more agile and dynamic. IT organizations are tasked with empowering the business and enabling them to innovate. IT not only benefits from empowering business developers to collaborate with their IT counterparts on solving business problems, but also maximizes the return on investment on SOA and data integration initiatives. Business Mashups put a business face on top of the SOA initiatives that are top of mind within centralized IT organizations. Serena Business Mashups 2008 provides a very rich set of capabilities targeted at providing IT with a single point of control and visibility.

How does Business Mashups differ from Enterprise Portals?

Portal vendors took the approach of enabling aggregation of content on the "glass". That is, they make it possible to extract information from existing legacy systems or cloud applications and aggregate that data on a page or portal. While portal mashups do improve business insight by aggregating dispersed and distributed content, this is not enough. To improve business productivity, enterprises need to ensure that information is delivered to the right people when they need it, and those people must be able to act on the information within the system to achieve their business goals. Business Mashups extend Portals by delivering process-based web application content to them.

ABOUT SERENA

Serena Software, Inc. provides services to make Enterprises and the business people within them more productive. More than 15,000 organizations around the world, including 96 of the Fortune 100, rely on Serena solutions delivered either on premise or on demand, to provide visibility and efficiency to the application development process. The company provides software services such as Serena Mariner (Project & Portfolio Management), Serena Business Mashups, Serena Dimensions (Change & Requirements Management) and will be providing Agile Lifecycle Management tools in the near future. Serena is headquartered in Redwood City, California, and has offices throughout the U.S., Europe, and Asia Pacific. For more information on Serena solutions and services, visit www.serena.com.

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Learn more about the enterprise-wide power of Serena products by visiting www.serena.com or contacting one of our sales representatives in your area.

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