Automate BPM Technical Overview

1. Product Description

Automate BPM is an enterprise integration platform that orchestrates and optimizes usage of human and IT resources in end-to-end business processes. The Automate BPM software suite consists of 2 complementary products. Automate BPM Server runs on server machines and orchestrates enterprise resources via standard data communication channels. Users can access Automate BPM Server through standard web browsers. The application works on your local area network just as well as across the Internet. The Design Studio is a graphical tool used by business process architects to design, publish, and manage workflows on an Automate BPM Server. The following sections describe these products in more details.

Automate BPM Server

Automate BPM Server comprises of a User Portal and an Admin Portal. Once a user logs in to the User Portal, he is shown a home page with a list of tasks requiring his attention. Doing work in Automate BPM is as simple as opening up a task folder and filling out the appropriate forms. Automate BPM then executes the appropriate business rules to update the task status and send out notifications accordingly.

Also on the home page are convenient links to quick reports and a list of workflows that the user can initiate. Most end users can do all their work from the User Portal home page alone. Other pages of the User Portal allow a power user to manage resource pools, workflows, and tasks. You can monitor the running status of each task and view all task audit logs. You can also design, execute, and manage powerful ad-hoc queries.

Automate BPM has built-in support for team collaboration. You can share documents and web links among workflow participants. There are also task-specific message boards for online discussions.

The Admin Portal allows system administrators to manage an Automate BPM Server remotely via a web browser. System administrators can configure the server settings, manage user accounts, create Automate BPM domains, assign user privileges, and monitor system usage and license compliance. User accounts can be stored within Automate BPM or they can come from a directory service such as LDAP.

Automate BPM Server supports server clustering for high availability and scalability. As your user base increases, you can simply add more server machines to the cluster.

Automate BPM Server is certified for the following platforms:

- Web Browsers: Internet Explorer 6.x, Netscape 7.x, and Mozilla 1.4.
- Operating Systems: Windows 2000, Windows XP, Linux, Solaris, HP-UX, AIX
- Databases: MS SQL Server, Oracle, MySQL

Design Studio

The Design Studio provides an intuitive, easy to use graphical user interface for designing and publishing Automate BPM workflows. Using point-and-click, a business process architect can work with all aspects of a workflow ranging from designing forms to writing business rules. You can test business rule syntax and validate the workflow model before publishing it to the Automate BPM server.

Designing forms in Design Studio is as simple as specifying the data fields that go on a form and how they are grouped together. You can optionally protect individual data fields to limit a user's ability to view and edit them. Automate BPM provides form renderers that generate HTML code to display these forms in a web browser.

The workflow design process can be accomplished entirely off-line. The Design Studio produces an XML document representing the workflow, which can then be uploaded to the Automate BPM Server. The Design Studio can also be used to handle bulk transfer of workflow documents between Automate BPM Servers.

The Design Studio runs on any operating system supporting the Java Virtual Machine version 1.4.2 or higher.

2. Technology

Automate BPM is built around our patent-pending Contextual Workflow Modeling (CWM) technology. Based on a true computation model, CWM can capture even the most complex business processes without customization.

Figure 1 shows the conceptual view of CWM. At the heart of CWM is a finite state machine embedded in a data environment called the context of the workflow. Data in the context can be bound to user forms, external applications, databases, and web services. They can also be computed from other data in the context. Workflow business rules are driven by data in the workflow context. The only way to change the workflow status is through manipulation of the context data.

Forms provide the main mechanism for end users to interact with workflows. User roles determine who can view and edit data fields on a form. By default, the data fields on a form are bound to the built-in repository. However, you can also bind the data fields to external applications, databases, and web services, much like data in the workflow context. Form data fields can also be bound to the workflow context; an example is displaying computed data in a form.

CWM supports a comprehensive event trigger model. Triggers are invoked upon entry into a state, exit from a state, or when a business rule executes successfully. An event trigger can be an email message, a remote method invocation, a database query, or a web service invocation.

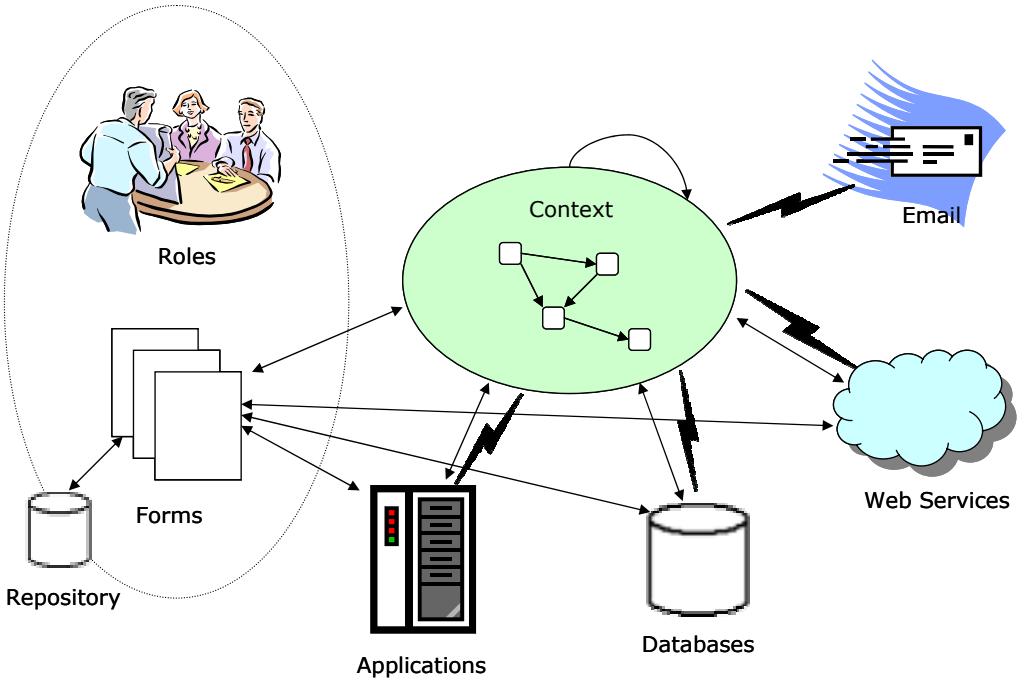

Figure 1. CWM Conceptual View

Figure 2 shows the Automate BPM software architecture. Automate BPM is built on a microkernel consisting of four modules that provide the product's core functionality: *Security Manager*, *Workflow Engine*, *Rule Engine*, and *Repository*. All other product features are implemented as plug-in modules, enabling customization of almost any aspect of the product.

The *Security Manager* module provides two different security mechanisms: an Access Control List (ACL) mechanism used to protect forms and their data fields, and a hierarchical security mechanism used to protect domains and their workflow assets. Both security mechanisms are highly optimized for performance. Having the *Security Manager* in the microkernel ensures that security is an integral part of Automate BPM and cannot be bypassed either inadvertently or maliciously.

The *Workflow Engine* and *Rule Engine* modules work together to provide the core workflow modeling capability in Automate BPM. The *Rule Engine* is used to evaluate both business rules and data binding rules. The *Workflow Engine* leverages the *Rule Engine* in implementing CWM.

The *Repository* provides the default data storage mechanism in Automate BPM. When a form is created, the data fields are automatically bound to the *Repository* unless you specify custom rules to bind them to a different data source. The *Repository* can store both scalar-valued and array-valued data. It also performs automatic type conversion.

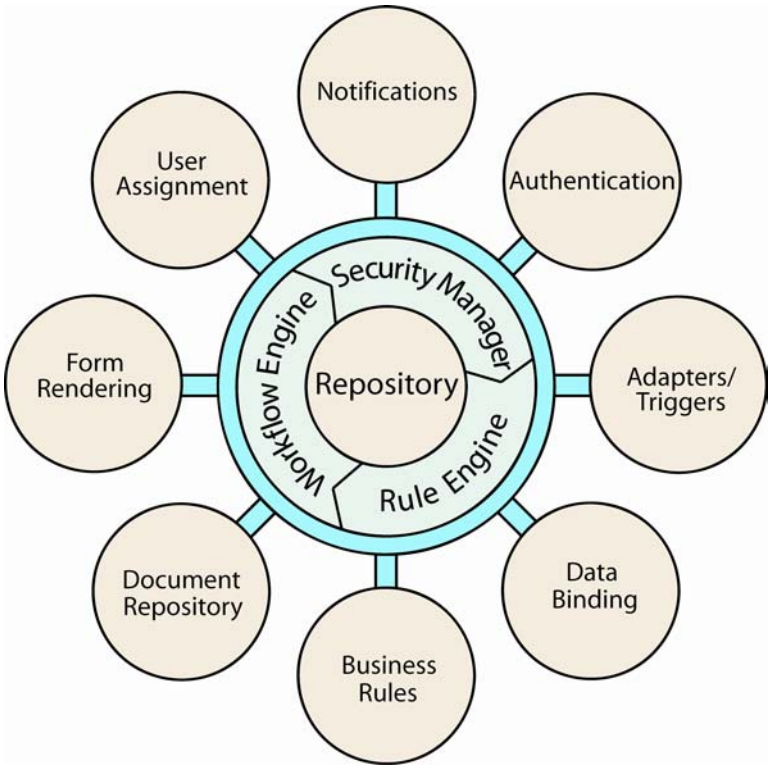

Figure 2. Automate BPM Software Architecture

Automate BPM is built on top of a J2EE technology infrastructure to provide hardware independence, compatibility with multiple databases, and support for distributed transactions. Certified operating systems include Windows 2000, Windows XP, Linux, Solaris, HP-UX, and AIX. Certified databases include MySQL 4.x, MS SQL 2000, and Oracle 9i. Automate BPM can be installed on clustered servers for scalability and high availability.

3. Standards Compliance

Automate BPM complies with open industry standards including Java, Javascript, SQL, LDAP, SMTP, JMS, XML, SSL, SOAP, and Web Services, making it easy to integrate Automate BPM with your existing IT infrastructure. By the same token, you can easily leverage existing skill sets in your IT organization in implementing and managing Automate BPM.

About Macronetics, Inc.

Macronetics, Inc. is a privately-held, minority-owned technology company with headquarters in Vienna, VA and an R&D center in Houston, TX. We provide Business Process Management (BPM) solutions, workflow software products, and professional services. For further information, call 703-848-9290 or visit our website www.macronetics.com.