

# enterprise integrity



By DAVID MCGOVERAN

## BPMS Concepts, Part 3

Last month, we compared the tasks and characteristics of classic workflow management and ideal Business Process Management Systems (BPMS). This month, we want to look at the components that make a BPMS functional. These fall into convenient categories:

- Technical components
- Business interfaces
- System management facilities
- Integration components.

This month, we'll start with the technical components or kernel of the BPMS, which will help us understand the remaining components to be discussed later.


The technical components include:

- **Process engine** — The process engine is clearly the central BPMS component, without which a BPMS would be, at most, a planning tool. A process engine is more than a workflow engine. Its purpose is to implement a business process, managing the real-time invocation (activation) and termination (completion) of business functions based on logical process definitions. It must not dictate the form of those processes or the nature of the business functions, but should encourage standards and good design.
- **Distributed process coordinator** — For business-to-business (B2B), business-to-consumer (B2C), global, cross-functional or multidepartment business processes, a distributed process engine is required. This component coordinates conversations among process engines based on what's sometimes called a public or global process. Each participant in the conversation (there may be many, for example, in a trading hub) may have an independent, preferred view of the process and distinct security policies, possibly seeing the external portion of the process as a sub-process. The distributed process coordinator is simultaneously a kind of supervisor and a business firewall.
- **Resource manager** — The resource manager orchestrates the resources necessary for implementation of business functions, whether implemented by mechanical, electronic, software or manual means. The associated resources must be made available when the business function is invoked and must be returned to the pool of available resources when the function completes. Tasks may be paralleled and load balanced across available resources at execution time. A task best performed by automated means may have to be performed by manual means in the event of certain errors (e.g., if computing facilities are unavailable).
- **Scheduler** — With unlimited resources and no external constraints, business functions can run as soon as any precedent business functions complete per the process engine. These conditions rarely apply. So you must consider capability and authorization to perform a required task, resource load, and control over agents.

Business processes and transactions often have externally imposed timing constraints. Thus, the scheduling of business functions is a complex technical problem. A BPMS without a scheduler won't perform efficiently.

- **Audit manager** — The ability to audit a business process is a common and often indispensable business requirement. The audit manager tracks what was done, decided, when, by whom, and with what resources. Once defined, audit conditions should be applied consistently to allow querying of audit trails and report generation.
- **Error manager** — Although many errors can be anticipated and business processes established to handle them, there'll always be unanticipated errors. You must manage these in a consistent, auditable fashion, even if the method is manual and ad hoc.
- **Security and policy manager** — This manager enables authorization and policy capture, and, at run time, determines which agents have been authorized to perform a task or activity, use a resource or use an amount of a resource. A BPMS must not violate these business policies, must enforce security, and have a security model with respect to its access, use and administration. Business processes may represent the crown jewels of an organization's intellectual property. The BPMS may support encryption, digital signatures, Public Key Infrastructure (PKI), biometrics, and the like, with single sign-on, non-repudiation, and so on.
- **Repository** — A BPMS requires a sophisticated Database Management System (DBMS) and meta-schema or repository. The repository must store many data objects, including:

- Business process definitions
- Integrity rules
- Instance histories
- Messages and data flows
- Business metric definitions and data
- Business analytic and report definitions
- Saved data
- Transaction definitions and data
- Security and policy definitions
- Access histories
- Simulation data
- Error events and resolutions.

These technical components, if not properly integrated, would be a daunting collection to use and manage. But if bound together internally with a common architecture and set of programming interfaces, they form a cohesive, collaborative unit that can enhance the integrity of an enterprise. 

*David McGovern is president of Alternative Technologies, Inc. He has more than 20 years' experience with mission-critical applications and has authored numerous technical articles on application integration. e-Mail: mcgovern@alternativetech.com.*