WHITE PAPER

Cogility Software offers Cogility Studio, which is a development environment for composite applications, complex event processing, and workflow applications. The unique offering based on industry standards provides radical reduction in development and maintenance time, while offering strong integration tools and workflow task management features. This white paper introduces these aspects of Cogility Studio.

Composite Applications

Composite applications are composed (made up of) other applications with unique logic added to form the new application. The need for custom logic to embody the new application is a critical difference from orchestration systems that just control the sequence of interactions between applications. In some cases the custom logic for the composite application is as large as any of the existing applications being integrated. This calls for a full Integrated Development Environment (IDE) for composite applications.

Where most programming IDEs focus on files, subroutines or methods, and programming classes, an IDE for composite applications needs to deal with database schemas, web service interfaces, data transformations, and the unique challenges of legacy or existing production systems. Composite applications also are more aligned with IT requirements for infrastructure, deployment issues, up time, and scalability.

Complex Event Processing

The arena of complex event processing requires correlating events, performing processing and filtering on the events, and combining the events with existing databases and records to complete a task or mission. One thing that differentiates complex event processing (CEP) from event stream processing (ESP) is the use of custom logic in the correlation process and in the

introduction of recorded state information in the form of external and purpose built databases.

The events being processed can represent business events (orders taken, products shipped, services rendered), or technical events (review task complete, document scanned and ready for review, etc). The ability to specify the processing and routing of events and the attachment of additional supporting or relevant data to the events, and the generation of synthetic events makes up the development tasks for an application using complex event processing.

Workflow

Workflow systems provide a structure for incorporating human decision-making and physical activities into a computer application. The management of human resources to complete tasks, review documents, and make decisions is what constitutes the workflow part of an application. Workflow systems include means to allocate tasks to users, track work performed by uses, and allow work to move from one user to another. In most such systems users are authorized to perform work assigned to one of several roles. Role based assignments, and tracking provides such systems the flexibility to deal with shift changes, absences, and work reassignments.

Cogility Studio

Cogility Studio is a unique integration of all three of these feature sets while using industry standards for the representation and execution of each. Cogility Studio uses the OMG UML modeling language for representing database schemas and workflow processes; OMG Action Semantics for business logic, and OMG CWMM for data transformations.

Cogility Studio is unique in combining these standards and providing a fully executable integrated modeling environment, yielding productivity and operational

cost and time reductions of 80-85% over traditional programming and orchestration based systems. By providing an integrated modeling environment Cogility Studio can verify all aspects of the application, and ensure that all aspects are complete and consistent. Once a model is created the integrated configuration management allows integration of changes and deployment of those changes in a seamless and non-disruptive manner reducing down time to 0% for changes that do not affect the external interfaces of the system. This further supports agile development styles with reduced risk from requirements changes.

Integrated Workflow and Complex Event Processing

The integrated Cogility Studio model allows modeling event processing as a first class element. The path of events through the system can be viewed and documented for all stakeholders to review, then deployed for direct execution with no need for IT translations. The Cogility Studio can combine automated steps with manual workflow steps in the same complex event process, and further allow the same task to be shared by humans and automation. This allows automation to complete simple tasks or simple aspects of a task while falling back to the human for the more difficult or challenging aspects. This cooperative style of workflow allows great flexibility in migrating manual processes to automation over time with minimal disruption.

Composite Application Integration

Cogility Studio includes world-class system integration facilities to allow integration using web services, JMS, REST, custom java libraries, and direct access to existing or legacy databases. Data transformations can be modeled between systems, embedded in processes to control sequencing and distribution of changes, and use object oriented reusable libraries of transformations.

ROI and Rapid Deployment

Cogility Studio is based on the OMG MDA architecture, and takes this one step further than other systems in this space to Dyamic MDA™. The high level of abstraction afforded by the action semantics, UML based modeling, and CWM based transformations are combined in a dynamic unified model that is used from early development and requirements through to execution. Unlike other MDA tools that transform the initial model into lower level artifacts (java code in most cases), Cogility Studio retains the original model semantics all the way to execution. Because the model is directly executed and used throughout the lifecycle of the project the benefits of the model-based approach

are multiplied. Direct execution of the model also prevents loss of intent, which is a common problem with many code generation based approaches where the model and the code do not quite agree on what the logic means. In some approaches there are several stages of transformation (BPMN, to BPEL, to execution) where each transformation involves changes to the logic. These approaches often result from acquisitions. Cogility Studio was built from the ground up to meet these challenges and to solve these problems. The integrated approach yields more power and efficiency than is present in competing products.

In addition to a consistent level of abstraction, Cogility Studio includes integrated configuration management allowing project management, stakeholders, developers, and operational personnel to ensure the version of all application objects being used in execution. This greatly reduces debugging and problem resolution times, reduces communications issues within development teams, and increases confidence in the executing system.

This integrated model-based approach further allows very agile and adaptable development styles. Changes can be released to production in minutes because only logic changes are deployed rather than whole systems. The ability to share a database with multiple versions of the same application further supports operations by allowing staged deployments to a cluster further reducing down time and increasing productivity as deployments do not need to be grouped together to accommodate scheduled maintenance windows. This rapid deployment allows better ROI in that investments are smaller to introduce new features and value can be realized sooner on that investment. In addition the ability to rapidly deploy changes has the effect of reducing the fear of incomplete solutions and allows a more streamlined near term focus in the development process. This reduces over-engineering and further shortens development times. Furthermore this Rapid Iterative development and deployment provides early visibility of the desired solution, which mitigates