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IBM FileNet eProcess to IBM FileNet Business Process Manager
White Paper

White Paper

Business Process Management - Beyond Workflow

Business Process Management (BPM) is not simply the new name for workflow, but rather an evolution of workflow's primary function, Process Automation, to embrace other capabilities.

True process management needs to manage end-to-end processes, not just the human tasks addressed by workflow. For that reason, business process management automates not just human based activities but system tasks, action invocations and message orchestrations.

Process Integration

For this reason, a key component of BPM is process integration: the ability to seamlessly integrate applications and other software components into business processes. This does not mean that enterprise application integration (EAI) is a required component of a BPM platform, merely that BPM platforms are able to directly leverage complementary integration technologies, including EAI.

The management and automation of tasks dramatically increases the scalability requirements of the BPM platform compared to that of a workflow system. Automated activities will greatly outnumber those executed manually, potentially increasing the volume of activities managed by orders of magnitude. This requires that BPM platforms provide unheralded levels of throughput in millions of tasks per hour.

IBM FileNet Business Process Manager is designed to deliver extensive integration functionality, both embedded in the platform and through the ability to leverage complementary technologies such as EAI. This helps facilitate the seamless integration of automated tasks into business processes.

Process Optimization

When workflow systems were first implemented, process improvement or re-engineering was regarded as a one-time or infrequent activity. As the speed of change accelerated in the marketplace, this resulted in the transformation of process improvement into a continuous, mission-critical business function.

The ability to continually improve and optimize business processes is now a prerequisite for organizations to drive down costs, increase productivity and maintain competitiveness.

IBM FileNet Business Process Manager has pioneered "round trip" process optimization by providing a unified, integrated platform to include the following core functions:

- → Process Design
- → Process Deployment
- → Process Analysis
- → Process Simulation

These capabilities help organizations ensure that deployed business processes are continuously in optimal alignment with current business conditions and market requirements.

eProcess and BPM Similarities

Just as BPM is an evolution of workflow, IBM FileNet Business Process Manager has evolved from the company's prior process-orientated products. Consequently, this results in a number of similarities with IBM FileNet eProcess.

Process Engine

The Process Engine at the heart of IBM FileNet BPM is an evolution of WorkFlo Services, the server software that powered FileNet eProcess.

The architecture of the Process Engine is similar to WorkFlo Services with the following common components:

- → Rosters
- → Event Logs
- → Workqueues

This dramatically reduces the effort in transitioning applications from FileNet eProcess to IBM FileNet BPM as the underlying database schema is consistent for both environments.

API

The Process Engine's Java-based API evolved from the FileNet eProcess API. This means that the same object and methods exist, though many have been deprecated and replaced with enhanced functionalities. Numerous additional new objects and methods have been added to expose entirely new capabilities. This allows for code reuse and also reduces the learning curve for development personnel.

Process Analyzer

The Process Analyzer is available as an add-on for FileNet eProcess, whereas it comes as a standard component of IBM FileNet BPM.

Process Designer

Both FileNet eProcess (see Figure 1) and IBM FileNet BPM (see Figure 2) define business processes using the Process Designer. The Process Designer included in IBM FileNet BPM provides a superset of functionality of that was offered in FileNet eProcess.

This means that process definitions created in FileNet eProcess can be opened using the IBM FileNet BPM Process Designer. Care should be taken in removing any explicit references to either users (a specifically named user NOT a workflow group) and documents stored in either Image Services or Content Services (again this refers to explicitly referenced content and NOT attachment fields).

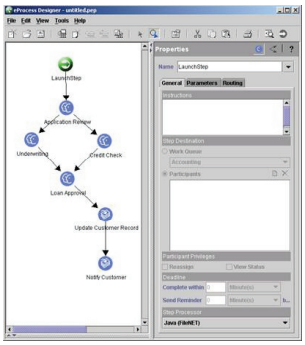

Figure 1 - eProcess Process Designer

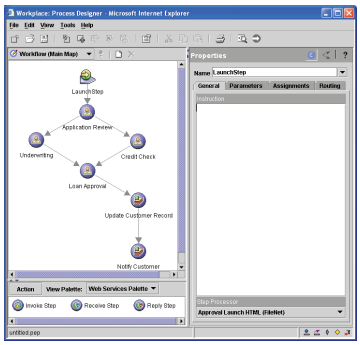

Figure 2 - FileNet BPM Process Designer

Other Applications

Four of the applets in FileNet eProcess are available in IBM FileNet BPM:

- → Process Designer
- → Configuration Console
- → Administration
- → Process Tracker

The applets that do not exist are:

- → Person Work Manager (PWM) – this functionality has been embedded into the Workplace application.
- → Linker – this functionality has been superseded by the "publish and subscribe" event-based architecture and is exposed via the Add Workflow Subscription Wizard.
- → Launcher – this functionality is expressed via HTML by the Workplace application or can be developed using eForms for IBM FileNet P8.
- → Step Processor – this functionality is expressed via HTML by the Workplace application or can be developed using eForms for IBM FileNet P8.

eProcess and BPM Differences

User Environment

The most obvious difference between FileNet eProcess and IBM FileNet BPM is the user environment. The IBM FileNet BPM environment, Workplace, provides a highly functional, interactive user experience.

Java Server Pages (JSPs) render the Workplace environment in the browser as HTML. This ensures that functionality can be accessed regardless of browser platform.

Application appearance can be personalized by creating home pages constructed from JSR 168 compliant portlets. These portlets can also be embedded into 3rd party portal applications.

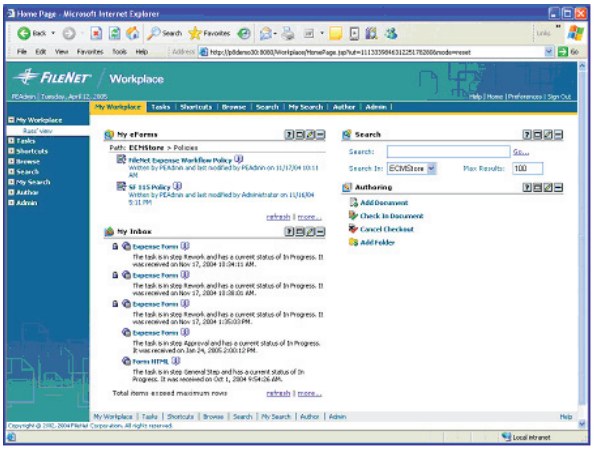

Figure 3 - FileNet BPM's Workplace User Environment

Directory Services

The management of users and groups in IBM FileNet BPM is handled differently from FileNet eProcess. In eProcess, users and groups are defined in the built-in security service.

In IBM FileNet BPM, users and groups are managed via LDAP and are synchronized automatically. This means that the creation of users, groups and group memberships are defined in the directory services and not within IBM FileNet BPM.

Content Repository

Both FileNet eProcess and IBM FileNet BPM provide an integrated content repository for managing content used as attachments and process definitions.

FileNet eProcess is integrated with Content Services and Image Services. IBM FileNet BPM is integrated with the IBM FileNet P8 Content Engine, though also allows for content to be stored in other repositories and accessed via IBM FileNet Content Federation Services (CFS).

Web Server Architecture

The architectures of FileNet eProcess and IBM FileNet BPM differ significantly with regards to the Web Server architecture. eProcess is based on a .NET Web server architecture, whereas IBM FileNet BPM is based on Java 2 Platform, Enterprise Edition (J2EE) application server technology.

Automation Enhancements

Process Inheritance

In FileNet eProcess if process components are to be reused, they must be copied from one definition to the other, thereby creating multiple identical instances of the same components. In IBM FileNet BPM, process definitions can be arranged hierarchically to inherit the associated parent properties. This maintains each definition in only one location, and thus dramatically reduces total cost of ownership (TCO) and speed of deployment.

The properties inherited include:

- → Data fields
- → Sub-maps
- → Process Milestones – these are used to track the status of the process
- → Partnerlinks – these are used to communicate via Process Orchestration using the Web Services Business Process Execution Language (WS-BPEL) standard

Step Palettes

Process Designer in IBM FileNet BPM allows for the configuration of step palettes. Step palettes contain pre-configured steps, including sub-map steps, which can be simply placed in a process definition with no additional configuration required by the user.

Step palette definitions are stored in the integrated object store and can be used by multiple users. Like process definitions, step palettes are placed under version control and can be updated though a checkin/check-out mechanism provided by the FileNet P8 Content Engine.

Integration Enhancements

Process Orchestration

The IBM FileNet BPM Suite provides support for Web Services on two levels:

Web Services API – The API exposes key BPM Suite functionality as Web Services, facilitating the development of custom applications using all development environments and platforms capable of leveraging Web Services.

Process Orchestration – This facilitates the interaction with other SOA components via Web Services. Process Orchestration requires that processes are able to both consume, and be consumed as, Web Services. This capability is provided by a collection of Web Services System Steps. This allows for steps to be defined in process definitions that are implemented as Web Services. The execution of specific process steps can be delegated to externally developed Web Services regardless of development environment or platform.

The use of the Web Services System Steps also facilitates the publishing of process definitions as a Web Service. This enables an instance of a process definition to be invoked from, or communicated with, externally developed applications regardless of development environment or platform.

Process Orchestration describes the ability for processes to consume and be consumed as Web Services. This necessitates the ability to handle both inbound and outbound interactions via Web Services.

Consumption of a Web Service

Calling an application component exposed as a Web Service from within a process definition is achieved via the use of the (Web Service) Invoke system function.

Figure 4 - Web Services Invoke System Step

There are two types of system invocations:

Synchronous – An invocation of Web Service in which the response (if one is required) is synchronous and so the complete invoke is implemented in the WS Adapter.

Asynchronous – An invocation of a Web Service in which the response comes back later as another message, and follows the inbound message paradigm for the response.

To invoke a Web Service, one first requires the description of the service using Web Service Definition Language (WSDL) standard. This contains the name of the service, its expected parameters, and the location where the service can be executed. This information is also available via Universal Description, Discovery and Integration (UDDI) Registries, WebSphere Service Registry and Repository (WSRR – available in BPM 4.0.2 release), from business partners, or from other IBM FileNet processes designed to provide a Web Service.

To provide a list of Web Services that workflow authors can search to locate appropriate services, an administrator familiar with Web Services may use the Configuration Console to specify the UDDI registries that will be used in an isolated region.

This optional step provides a conveniently filtered list of registries that workflow authors can search to locate Web Services to use in workflow definitions. Workflow authors are able to query a selected UDDI registry for the various Web Services it contains.

Alternatively, workflow authors can type in the complete WSDL URL in Process Designer to identify particular Web Services that will be used in a specific process definition. This capability is enabled by Systems Administrators via the Configuration Console.

Consumption as a Web Service

(Web Service) Receive/Reply system functions (see Figure 5) handle inbound requests from external application components.

Figure 5 - Web Service Receive and Reply System Steps

The Receive system functions represent entry points to the process definition. Each system step containing a Receive system function will represent a method contained within the WSDL associated with the Process Definition.

As the invocation of a Web Service can be either synchronous or asynchronous, the process definition must be able to pass information back in such a manner. The Reply system function provides the ability to return information back to the application which the made the original request (via the system step containing the Receive system function).

Consequently, each Receive system function may have a number of Reply system functions associated with it, representing each of the possible responses to a request. This may also include the return of fault information.

There is a special configuration where a Receive system function launches an instance of a process definition. A Receive system function placed immediately following a Launch Step creates an entry point used to create an instance of the process via invocation of the WSDL associated with the process definition.

Figure 6 - Web Service Receive System Step following a Launch Step

Message Queue Support

Both FileNet eProcess and IBM FileNet BPM leverage a Component Integrator as one mechanism for integrating applications. IBM FileNet BPM provides support for Message Queue components, (i.e. have a process step post a message on to a message queue), in addition to the support of Java components.

Component Steps define a step where the execution of the task is carried out by a software component rather than a user. These software components are controlled via the Process Engine's Component Manager and are configured in the Process Configuration Console.

Message Queue (not available in eProcess) – the Component Manager engine leverages Java Message Services (JMS) running on the application server platform to insert a message on a configure message queue. The message queue attributes are defined manually in the Process Configuration Console.

Java Component – the Component Manager invokes a specified interface contained within a Java component. The interface definitions are imported by referencing the *.Jar file in the Process Configuration Console and selecting the interfaces to be made available in the Process Designer.

Enterprise Application Integration (EAI) Support

Steps on a process map may not involve a user, but could result in the execution of an automated task. Such tasks can be executed via the various technology interfaces previously described in the Component Integrator.

However, one can define a work queue to be accessed by third-party application(s). The definition of the queue includes predefined queue operation, including the required parameters, that corresponds to functions within the application. The application can be either a custom developed application or a specially developed EAI Adapter.

Reusable EAI Transactions and Application Functions

The EAI Adapter makes it possible to expose previously defined EAI transactions in the Process Definition environment, allowing them to simply be dragged and dropped into the appropriate location in process definitions without additional coding. All that is required is mapping functional parameters to the appropriate work item data fields. Functions defined this way can then be reused across multiple processes without additional coding.

Once a queue operation has been defined and the associated application functionality has been implemented, it may instantly be reused over and over again with no additional development, thereby reducing the cost of ownership and implementation time of subsequent processes that require the same functionality.

Event Synchronization

The IBM FileNet P8 platform incorporates a sophisticated event-based model. This enables processes to be constructed as highly agile process segments rather than large monolithic processes. This approach results in a dramatic reduction in the total cost of ownership and increases the ability to react to change.

IBM FileNet Business Process Manager provides a "publish and subscribe" event model. As business objects are created, modified and deleted, these events can be subscribed to and have processes associated with them. Consequently, these "process segments" are launched the instant an event occurs; this ensures that processes are extremely receptive to change. Launching of process segments can also communicate with other processes that are already running.

WaitForCondition

The use of a system step containing the WaitForCondition system function causes a process to wait for one or more events to occur. Each event can have an associated sub-map that will be invoked when the event occurs. A timeout can also be specified if the event fails to occur within the defined time period.

For example, once a business object for mortgage application is created, the process for managing the application process is created and executed. The process at a given point may await the receipt of an appraisal. The creation of the appraisal generates an event, which communicates to the waiting process and instructs it to continue.

Optimization Enhancements

Process Simulation

IBM FileNet BPM provides process optimization capabilities through the addition of the Process Simulator.

The Process Simulation Designer uses an identical representation of the process as the Process Simulator. This ensures no loss in process fidelity between the simulations of processes and their subsequent real life deployment.

Performance data regarding deployed processes is to be used as the input for additional simulation scenarios, thereby maximizing their accuracy. The Process Simulation Designer outputs data directly into the Process Analyzer, so that it can be analyzed in exactly the same manner as live data. This ensures that benefits can be quantitatively assessed and refined prior to deployment.

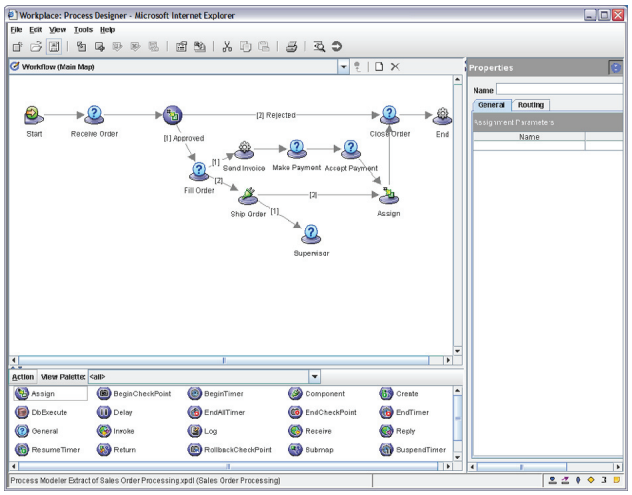

Figure 7 - The Simulation Designer

Consequently, it is possible to cycle through the whole optimization process without ever having to leave the IBM FileNet environment. This allows for improvements to be made on a continuous basis, ensuring processes are always operating at the maximum level of effectiveness.

Users are able to predict the performance of business processes prior to their deployment. IBM FileNet Business Process Manager provides a fully integrated process simulation capability. The Process Simulation Designer (see Figure 7) generates simulation scenarios directly from process definition created using the Process Designer.

This type of analysis can be done both before and after a process has been deployed.

Summary

IBM FileNet Business Process Manager represents the transition from workflow to Business Process Management. It extends the capabilities of FileNet eProcess beyond workflow automation and adds powerful integration and optimization capabilities.

IBM FileNet's BPM suite provides an enterprise-class BPM software offering that allows organizations to automate, integrate and optimize their business processes. Unlike other BPM pure-play vendors, this solution uniquely integrates process and content with deeply embedded analytics and simulation capabilities to deliver a comprehensive BPM solution that provides unparalleled return on investment and lower total cost of ownership. The IBM FileNet BPM suite provides a foundational Enterprise Content Management platform for greater value and investment protection by allowing customers to easily add IBM FileNet's Records Manager, Web Site Manager, Team Collaboration Manager, and other products to the core platform as needs dictate.

To find out how your organization can benefit from IBM FileNet P8, contact us at 877-426-3774 or visit us at http://www-306.ibm.com/software/data/filenet/business-process/

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