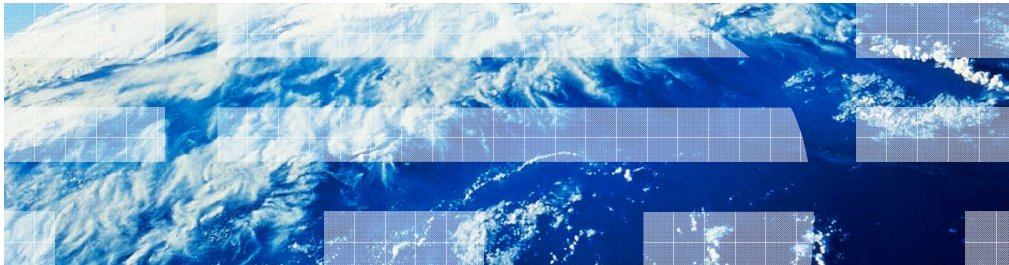


Business Process Management

IBM Business Process Manager V7.5

Key concepts of BPM Advanced



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This presentation provides information about concepts that are fundamental to the IBM Business Process Manager V7.5.

The concepts discussed here shape the way process applications are developed.

Key concepts

- BPM Advanced
 - Service Component Architecture (SCA)
 - Advanced Integration Services (AIS)
 - Process Designer and Integration Designer collaboration
 - Separation of roles and tools
 - Single runtime (JVM)

- BPM Standard
 - Process Application
 - Toolkit
 - Snapshot (version management)
 - Tracks (version branches)
 - Participant and Security Groups
 - Javascript
 - Advanced editor
 - Model (flow) and implementation layers
 - Smart folders and tags



Key concepts of BPM Standard

Key concepts are the things that you need to understand before going too far, because they shape the way you think about and approach your development effort.

Shown here is a list of the key concepts for both the Standard and the Advanced configurations.

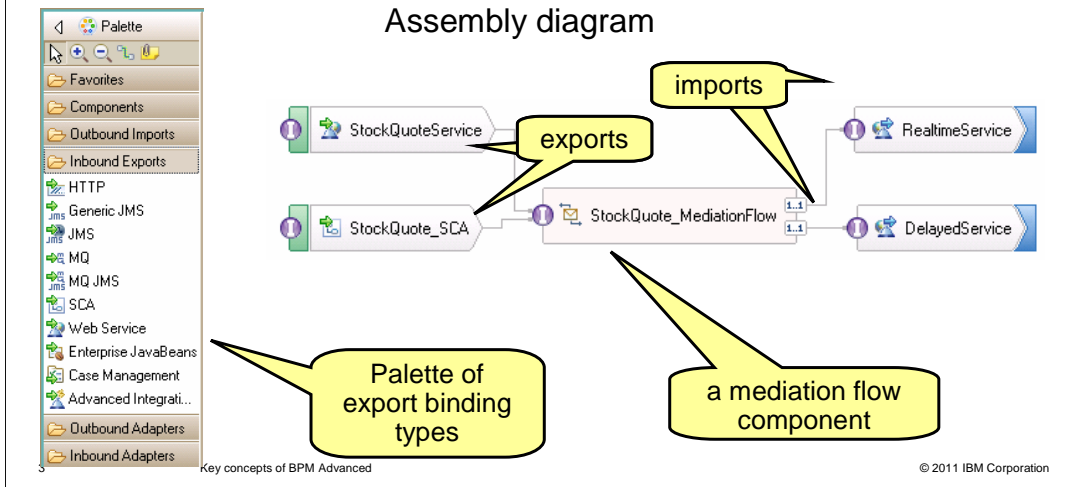
BPM Advanced is an extension of BPM Standard.

Therefore all of the concepts that are a part of BPM Standard are also part of BPM Advanced.

This presentation will only discuss key concepts that are introduced with BPM Advanced. To learn more about the concepts introduced with BPM Standard, see the presentation, “Key concepts of BPM Standard”.

Service Component Architecture (SCA)

- The Service Component Architecture is an integral part of the WebSphere® Process Server
- Builds on open standards.
- Provides Service Oriented Architecture (SOA) based componentization
 - Separates the implementation from the invocation protocol



The Service Component Architecture (SCA) is a set of specifications which describe a model for building applications and systems using a Service-Oriented Architecture. SCA extends and complements prior approaches to implementing services, and SCA builds on open standards such as web services.

SCA provides SOA based service componentization that is implementation and protocol independent.

With SCA in the Integration Designer, it all comes together in the assembly diagram. This is where the components get wired together to create the application invocation structure. In this picture there are three kinds of elements. The mediation flow component which is in the center, the StockQuoteService export on the left, and the two imports on the right.

Starting with the component in the middle. This is the implementation, where the work is being done for this module.

The exports on the left are the interface and protocol bindings that are being exposed for others to call the mediation.

There are many different kinds of exports available as shown by list of inbound exports, in the screen capture on the left.

As shown here, a given component can have more than one export. Multiple exports provide alternate ways to invoke the component.

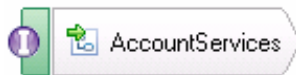
The export on the top is a web service export and the one on the bottom is an SCA export. With this assembly, the StockQuote_MediationFlow component can be invoked using a web service or the SCA application programming interfaces.

The imports on the far right are invocations of services outside the scope of this module. In this case they are both using the web service bindings. It can very easily be one of the many other import types. The services being called can be in another SCA module or web service available on the internet.

The important thing to remember is that the component can have many possible export bindings. This is because of the loose coupling between the way a service is invoked and the implementation of the service.

Advanced Integration Services

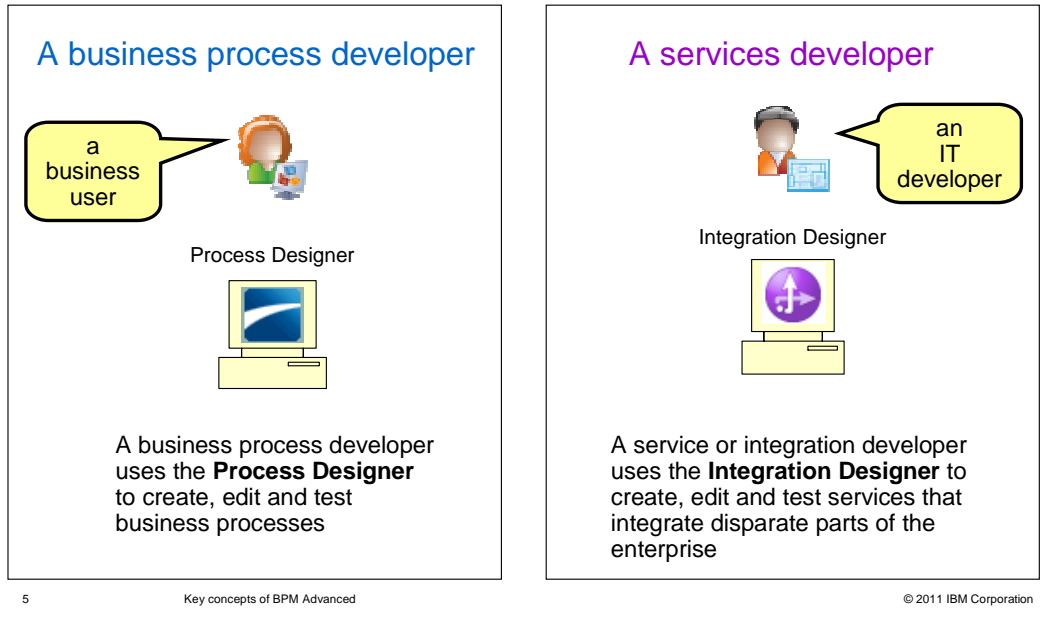
- A service created using the Integration Designer
 - Complex automated processes and services
 - BPEL
 - Mediation
 - State machine
 - Java™
 - Interact with other systems using JMS / MQ and adapters
- SCA export
 - Service Component Architecture



With a large enterprise, especially one that needs to integrate many different systems or has already adopted a Service Oriented Architecture, there is a need for the Integration Designer. With the Integration Designer you can develop complex services that use mediations to manage routing and data manipulations that occur at runtime. You can use the Business Process Execution Language (BPEL) to choreograph automated processes that require error handling, compensation, transactional integrity, security and data mapping. You can implement your service as a state machine or using Java. And you interact with other enterprise information systems using MQ and adapters.

The key is, that whatever the implementation is on the Integration Designer side, if it has an SCA export, it can be associated with a Process Application in the Process Center.

Separation of roles and tools



When creating business processes that will become applications that run and enable business users to do their work more reliably and efficiently, there are two distinct areas of development.

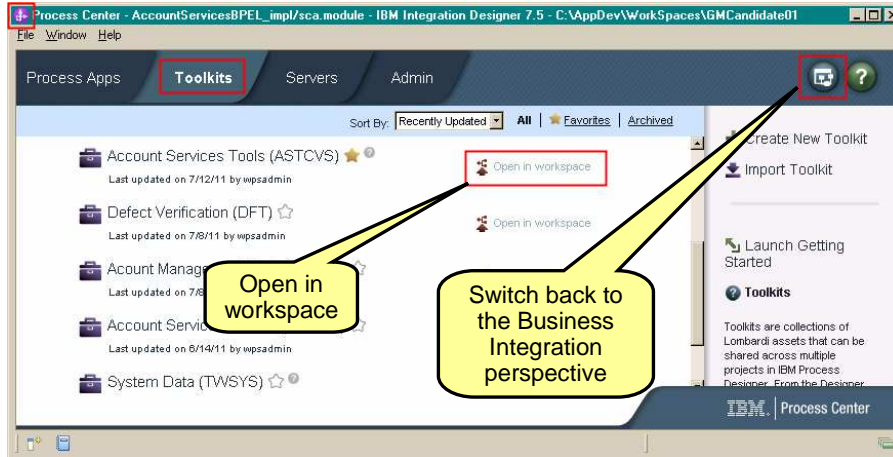
One area is the definition of the business process. The business process definition is where the process developer, someone with knowledge of the business, defines what activities are done, in what order and by whom. It is a description of the process.

The other area is the development of the software implementations needed to support the activities defined in the business process definition. With the Business Process Manager architecture the implementations are developed as services that are easily associated with an activity and called from the business process at runtime.

Shown here are the two tools used to support the activities in both of these areas. The Process Designer for developing the process definitions and the Integration Designer for developing the service implementations.

Process Designer and Integration Designer collaboration

- The Process Center perspective in the Integration Designer is used to
 - Create and import
 - Process Applications
 - Toolkits
 - To bring the Process Application or Toolkit into the Integration Designer work space



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Key concepts of BPM Advanced

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When working with the Advanced Integration Services the first thing you'll need to do is bring the Process Application or Toolkit into the Integration Designer workspace. To do this, a new perspective has been added to the Integration Designer. It is the Process Center perspective. This new perspective is a subset of the Process Center, which gives you tools to create, import and bring the Process Applications and Toolkits into your workspace.

Once the Process Application or Toolkit is in your workspace, as the integration developer, you complete the implementation and publish the results back to the Process Center. The two basic scenarios are described on the next slide.

Basic scenarios



- Top down
 - Create the interface and business objects in the Process Designer
 - as an Advanced Integration Service in a Process Application or Toolkit
 - Open the Process Application or Toolkit in Integration Designer workspace
 - Create the implementation using the interface and business objects
 - Publish the Process Application or Toolkit back to the Process Center
- Bottom up
 - Create the interface and business objects in the Integration Designer
 - Create the implementation in the Integration Designer
 - Associate the implementation module and library with the Process Application or Toolkit
 - Publish the Process Application or Toolkit back to the Process Center
 - The new services will show up as Advanced Integration Services
 - The business objects are there too

Process Designer



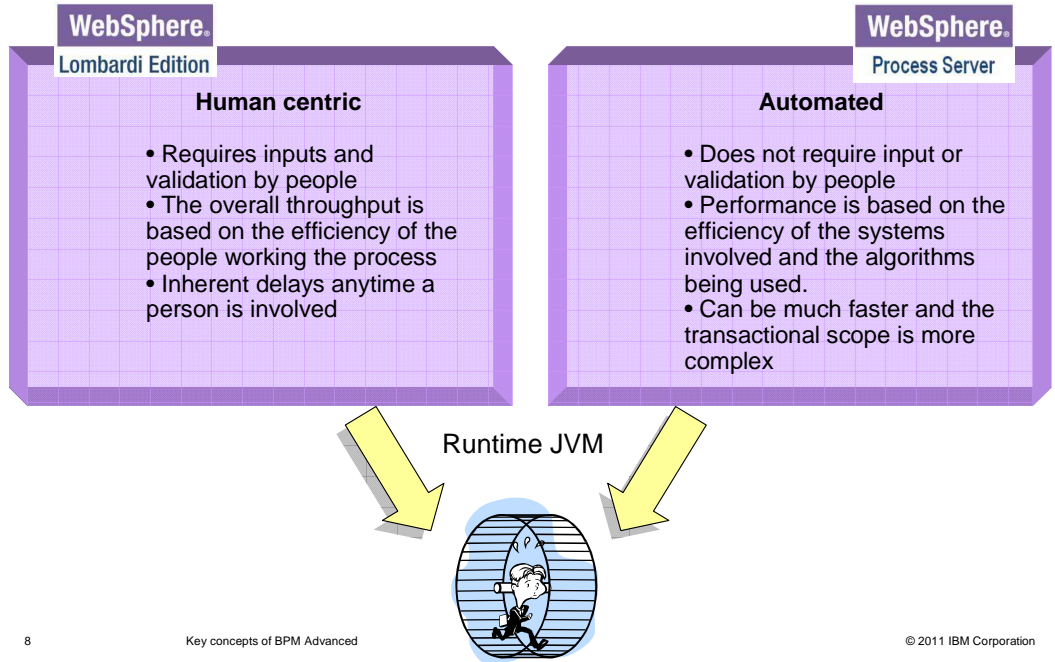
Integration Designer

It is all about where the interface is defined

When developing a business process that uses services to integrate functionality from other systems there are several different approaches that can be taken. With one approach, the process developer defines the interface for the service to be called and the integration developer will then create the implementation based on the interface provided. This *top down* approach works well when the service does not already exist.

Another approach is for the integration developer to create the service interface and the service implementation and then make them available to the process developer in a Toolkit. This *bottom up* approach works well when there is already a mature Service Oriented Architecture with reusable services.

Single runtime



The Business Process Manager brings together two different platforms. Each platform has its strengths. The WebSphere Lombardi® Edition is good for human centric business processes while the WebSphere Process Server is good for high performing automated processes and services.

The runtime characteristics of these platforms is different and one might expect to find two different JVMs being used. This is not the case. When the two platforms were brought together, the runtime component was completely integrated into a single JVM. This provides for a overall smaller footprint and better integration between the components.

Summary

- BPM Advanced
 - Advanced Integration Services (AIS)
 - Service Component Architecture (SCA)
 - High throughput
 - Automated
 - Integrative
 - Process Designer and Integration Designer collaboration
 - Process Designer for creating, editing and testing business process flow
 - Integration Designer for creating, editing and testing the service implementations
 - Single runtime (JVM)
 - Smaller footprint overall
 - Tighter integration



Process Designer



Integration Designer



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Key concepts of BPM Advanced

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Keep in mind that all of the concepts related to BPM Standard still apply for BPM Advanced.

By bringing the two platforms together, WebSphere Lombardi Edition and WebSphere Process Server,

we now have access to the WebSphere Process Server capabilities from the Process Designer, in the form of Advanced Integration Services running as SCA components.

In bringing the platforms together the development roles and the tools have been clearly defined. The business user, developing the business process flow uses the Process Designer and the IT developer creating the service implementations, uses the Integration Designer.

The Process Application life cycle is managed using the Process Center and the IT developer, using the Integration Designer, can publish their contributions directly to the Process Center.

Another benefit of bringing the platforms together is the smaller overall footprint and tighter integration that comes with a single JVM.

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