



WebSphere Software

WebSphere Businesss Modeler & Monitor Overview

Tendances Logicielles - 06 Décembre 2006

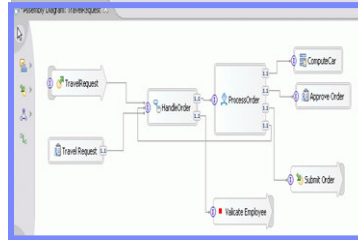
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Managing Your Business Processes with a SOA

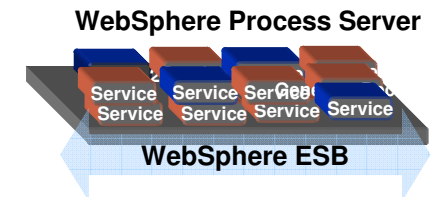
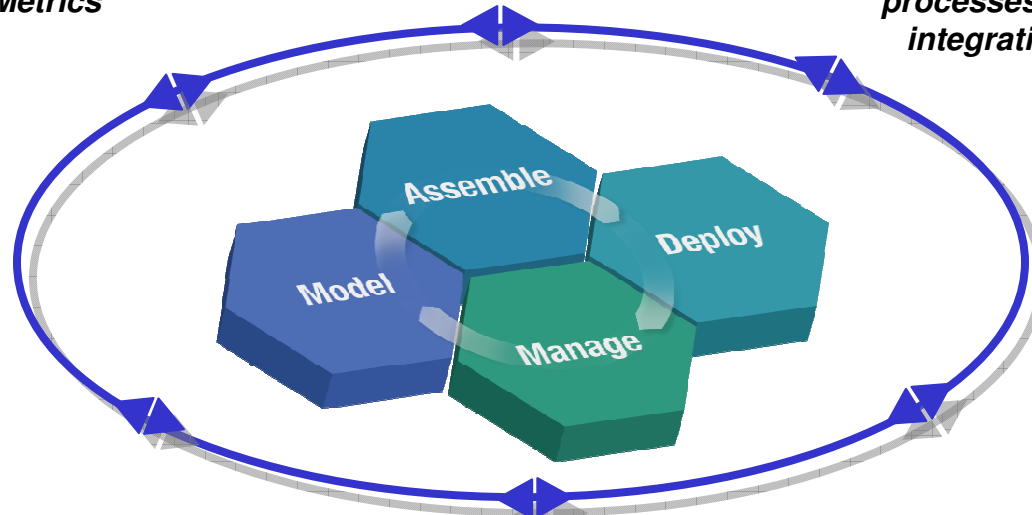
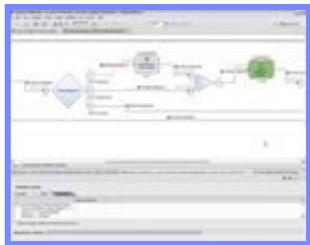
WebSphere Integration Developer



Clean hand-off from IT with Business Models, Metrics

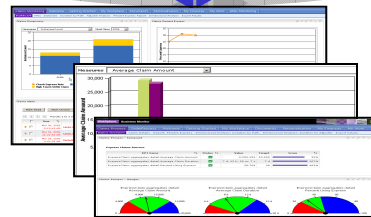
Constructs for dynamic and adaptive business processes based on an integration platform

WebSphere Business Modeler



Feedback for continuous improvement

Real time management of business processes



WebSphere Business Monitor

What is Business Activity Monitoring



- **Business Activity Monitoring** refers to the **aggregation, analysis, and presentation of real time information** about **activities** inside organizations and involving customers and partners.
- The goals of BAM are to provide **real time information** about the **status** and **results** of various **operations, processes, and transactions** so **business decisions** can be **informed, quickly** address problem areas, and **re-position** organizations to take full advantage of emerging **opportunities**.
- BAM systems are **driven by business events**, fed directly from integration software or from **Business Process Management** software

Source: www.wikipedia.org

WebSphere Business Monitor at a Glance

Monitors Process Performance

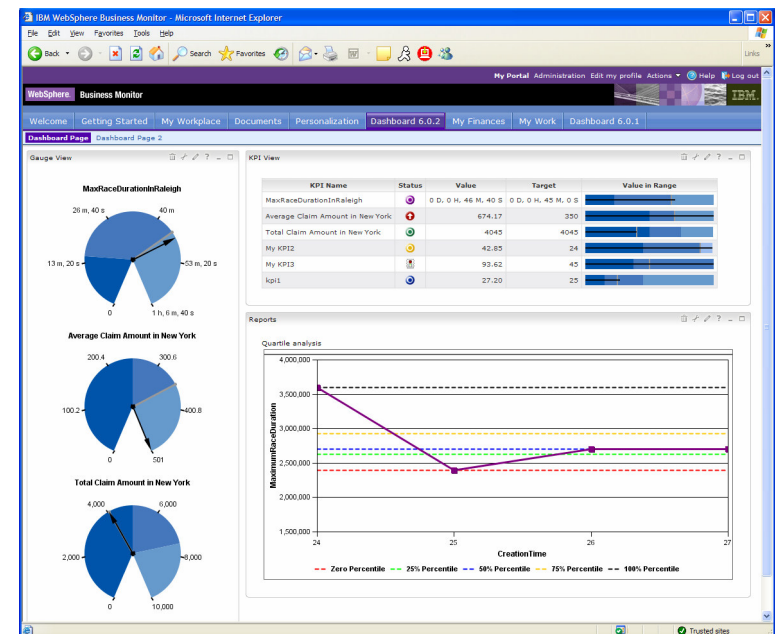
- In-progress processes can be monitored, bottlenecks can be eliminated
- Track Key Performance Indicators

Responds to Situations

- Detect anomalous situations in real-time...
 - ...out of threshold KPIs
 - ...individual process instances that need attention
- Take corrective action before problems arise

Embeds Business Intelligence

- Analyze KPIs over time and other dimensions
- Drill up and down, slice and dice business measures to identify trends



What's new in version 6.0.2?

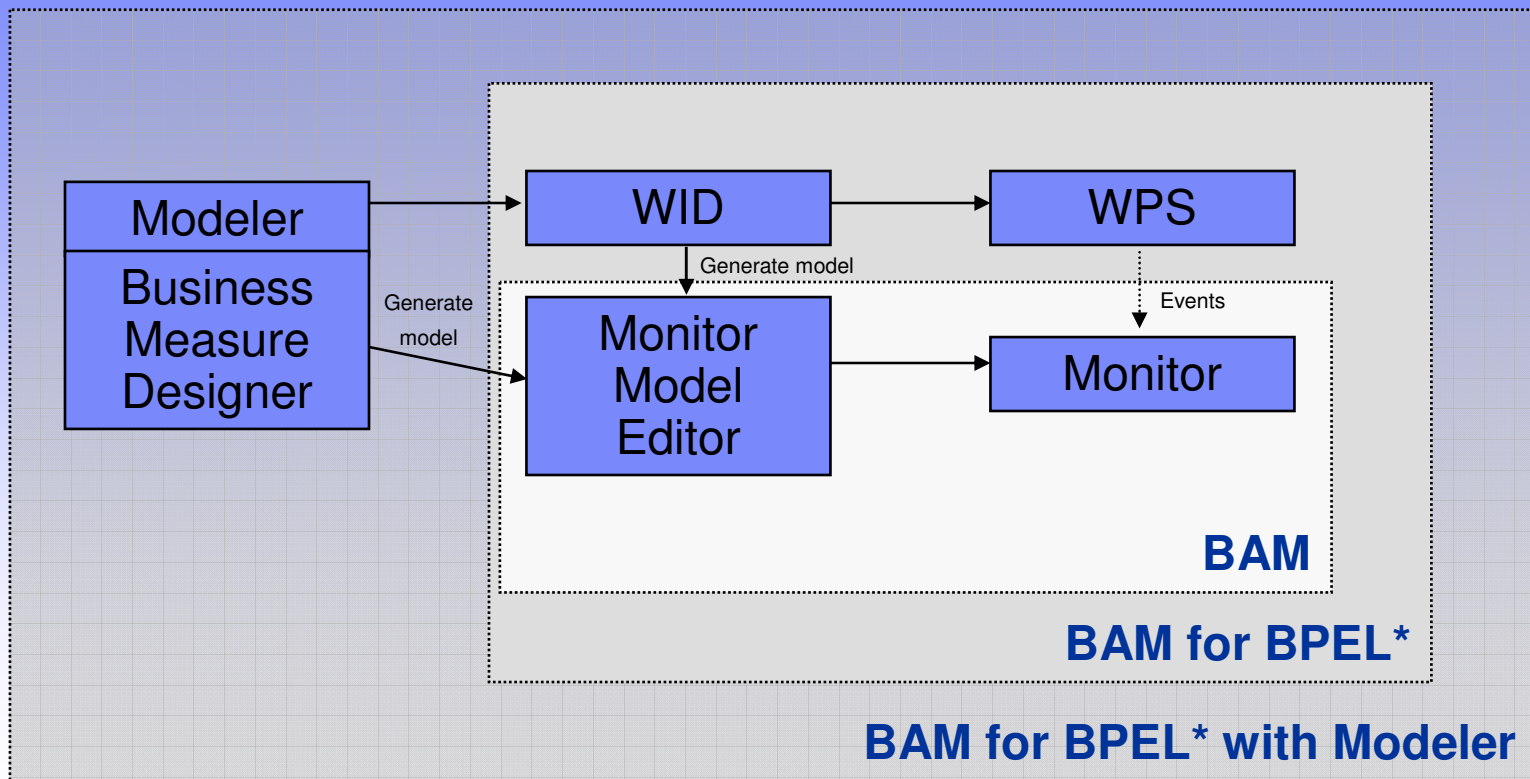
New!

- Monitor Model Lifecycle
- Monitor Programming Model
- BAM Authoring Environment
- Support for Any Event Source
- Improved KPIs
- Unit Test Environment (UTE)
- Improved Installation
- Improved Administration
- Improved Versioning Support
- Database Architecture Simplification
- Improved Scalability and Performance
- Improved Dashboards
- Dashboard Creation SDK

Monitor Model Lifecycle

Monitor model is created in a new technical editor that is loosely coupled with the modeled process.

A starting Monitor Model can be created from Modeler BMV or WID and then extended



*Includes events from BPEL processes, Human Tasks, SCA components, ESB mediation flows

Support for Any Event Source

- CBEs from any environment can be monitored
- WPS events and other events can be monitored together
- Sample event emitters with source code included
 - DB2 emitter
 - File emitter
- Best practices documentation

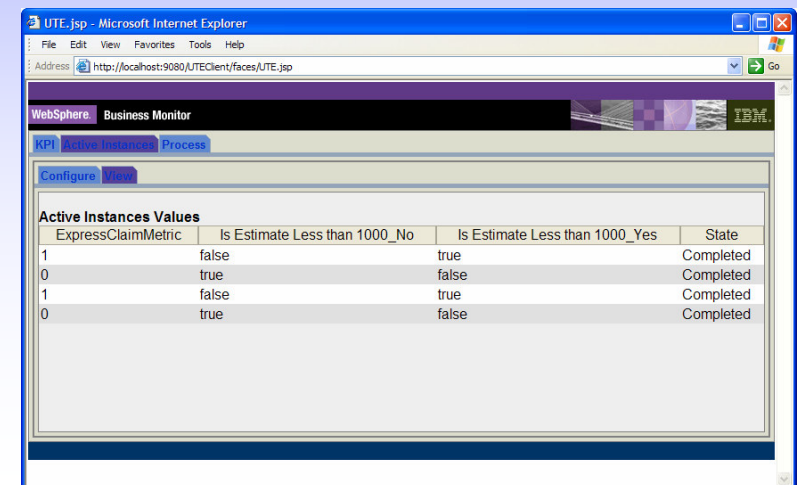
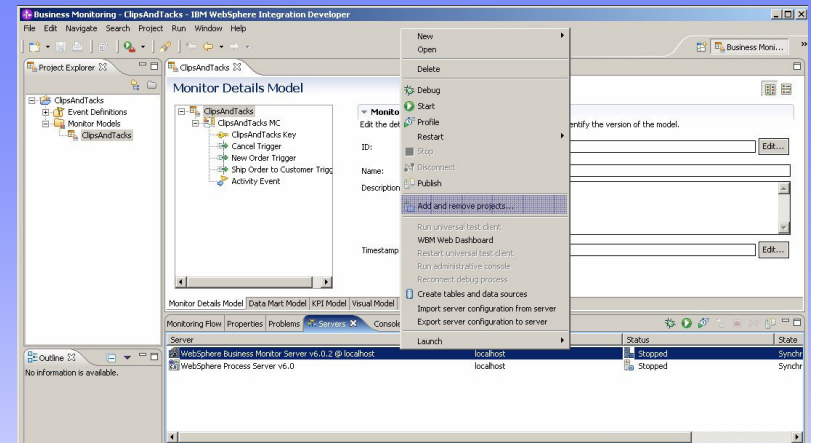
Improved KPIs

- KPIs can be qualified based on time periods and other dimensions
- KPI values match values in dimension and report views, possible to drill-down and analyze KPIs dimensionally
- KPI targets and ranges can be updated at runtime based on changing business conditions
- KPI ranges can be personalized in dashboards based on user preferences

KPI Name	Status	Value	Target	Value in Range
MaxRaceDurationInRaleigh		0 D, 0 H, 46 M, 40 S	0 D, 0 H, 45 M, 0 S	
Average Claim Amount in New York		674.17	350	
Total Claim Amount in New York		4045	4045	
My KPI2		42.85	24	
My KPI3		93.62	45	
kpi1		27.20	25	

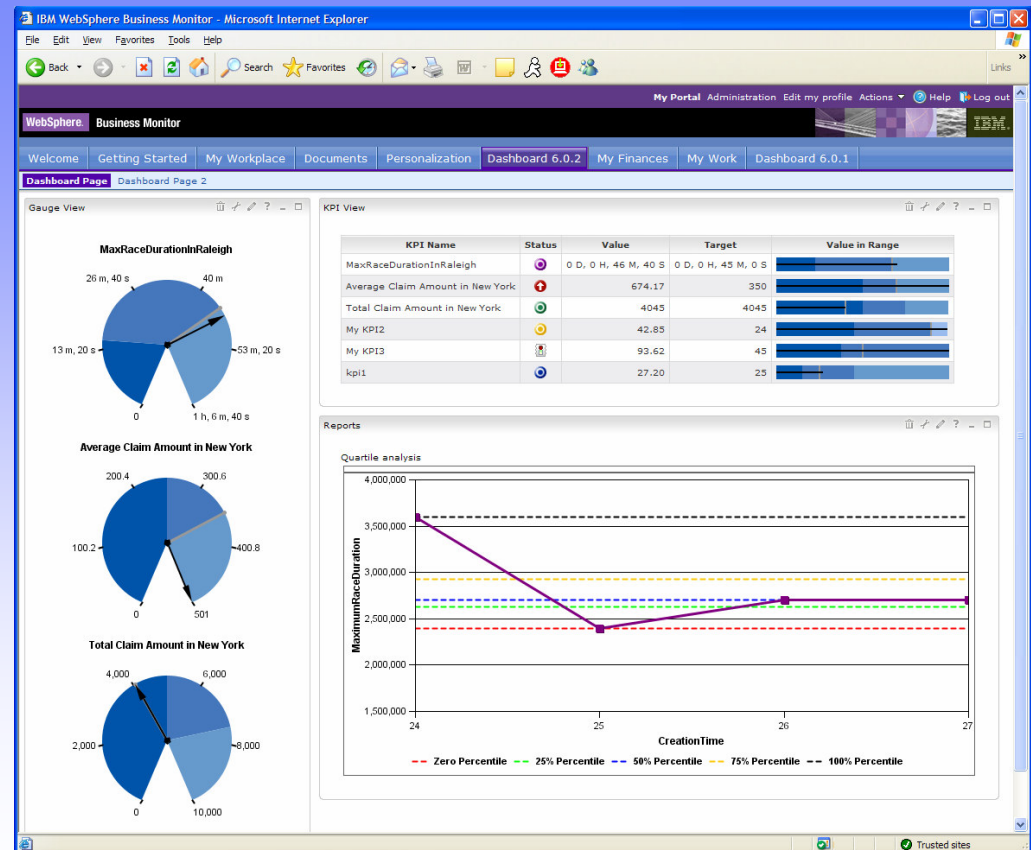
Unit Test Environment (UTE)

- Developer test environment provided in WID/MME tooling
 - Lightweight environment avoiding the dashboard prereqs such as Portal, AlphaBlox and CubeViews.
- Streamlined deployment of a Monitor Model from Monitor Model Editor
- New Servlet/JSF based view of data collected during event processing to verify event processing and metrics



Improved Dashboards

- KPI and Gauge View rewritten
- Updates for BAM support
- Annotate custom SVG diagrams with metrics and KPIs

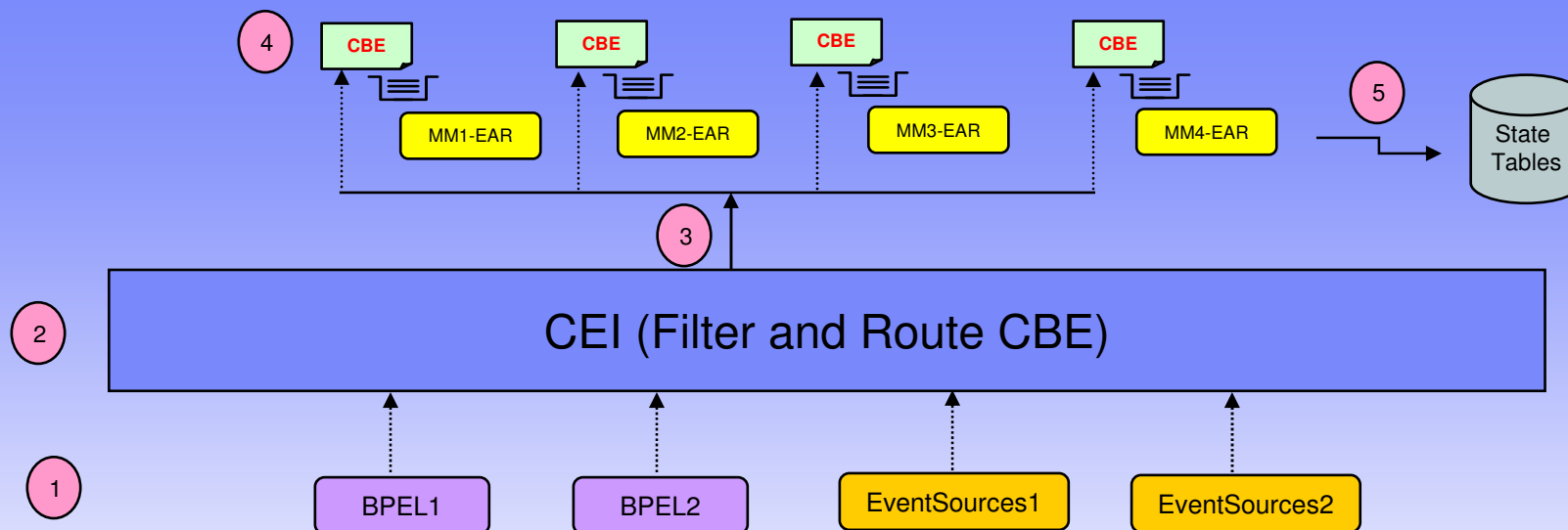


Dashboard Creation SDK

- Enables customer / business partner to develop custom dashboard portlets
- Exposes datamart via Cube Views and Alphablox APIs
- Enables integration with other reporting products
- Samples with source code

Monitor Server 6.0.2 Architecture

Monitor architecture is agnostic to which runtime the events are coming from



1. Event Source (BPEL or non-BPEL) send a CBE event to CEI
2. CEI receives the CBE
3. CEI routes events to the appropriate Monitor Model (MM) EARs
4. MM process the events – e.g. business logic to calculate a metric
5. MM writes to State Tables

WebSphere Business Monitor

Clips 'n Tacks Scenario

Scenario: Order Processing






Business Scenario

- Clips n' Tacks has formulated a corporate strategy to improve customer satisfaction, with the following objectives:
 - Shorten online ordering cycle time,
 - Reduce the cost to fulfill the order by reducing call center intervention
- Tacks will use Business Monitor for visibility of KPIs related to this strategy
- Brian has already modeled the Order Handling process in Modeler

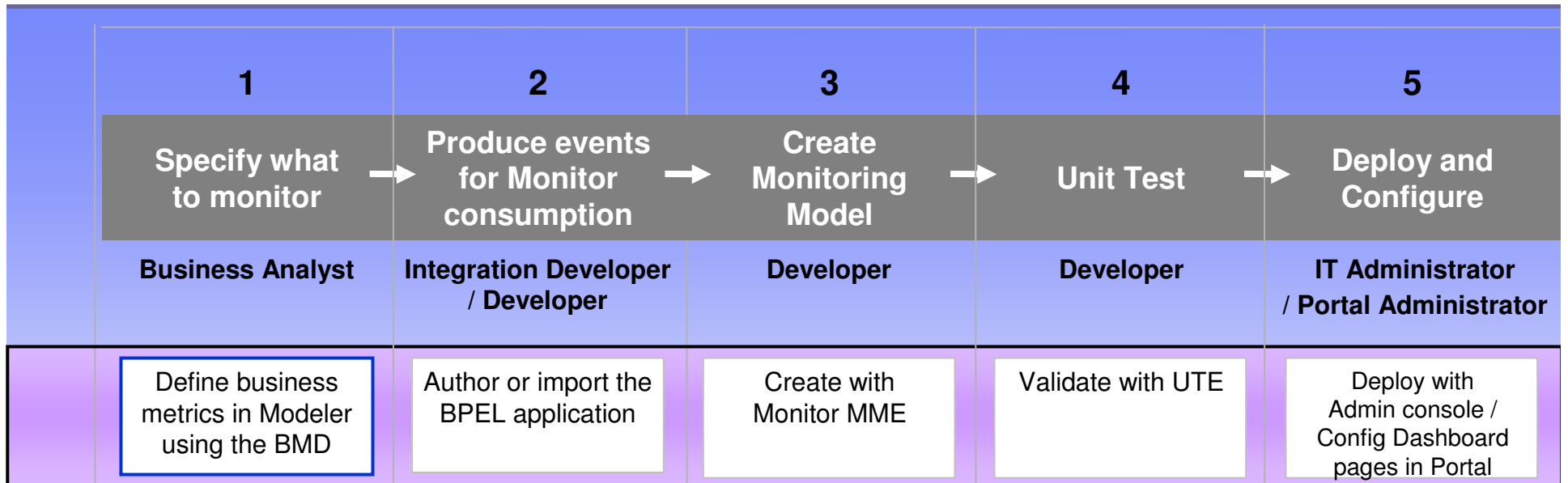
Scenario: Clips n' Tacks

Clips n' Tacks has formulated a corporate strategy to improve customer satisfaction, with the following objectives:

- (1) Shorten online ordering cycle time,
- (2) Reduce the cost to fulfill the order by reducing call center intervention

	Brian Business Analyst	Defines the business measures
	Ken Integration Developer	Builds the BI Application
	Sabrina Developer	Creates and validates the monitoring model
	Ivan IT Administrator	Manages the server infrastructure
	Patricia Portal Administrator	Configures the dashboard pages

Scenario: Mediated Exchange Application



1.1 Define process | *Make use of WSRR integration*



Brian (Business Analyst)

After attending the strategic planning session with the VP of Marketing, Brian goes ahead and specifies which measurements he'll want to collect.

With the Order Handling process open in the editor, Brian clicks on the Business Measures tab.

The Business Measures tab, which includes the Business Performance Measures and Monitored values to return tabs, comes into focus.

Business Modeling - Order Handling (Future 1) - IBM WebSphere Business Modeler Advanced Versi...

File Edit View Navigate Search Project Modeling Run Window Help

100%

Business...

Project Tree

- Order Handling
 - Business items
 - Processes
 - Order Handling (Future 1)
 - Order Handling (Future 1)
 - Resources
 - Organizations
 - Classifiers
 - Reports
 - Queries
 - Predefined resources
 - Predefined organizations
 - Predefined classifiers

Order Handling (Future 1)

Elements

Connections

Annotation

Diagram Specification Visual Attributes Page Layout

Attributes - Process 1 Simulation Control Panel Errors (Filter matched 1 of 1 items) Business Measures

Business performance indicators Monitored values to return

Business Measures Tab View

This section provides information about business measures.

Name	Target	Time Period	Description

Add Remove

Details

Name

Description

Specify additional details...

1.2 Define a measure



Brian (Business Analyst)

After attending the process improvement planning session with Derek, Brian goes ahead specifies which measurements he'll want to collect.

He selects the KPIs, Gauges, Dimensions view checkboxes and decides to leave the Reports view unselected.

He now has the option to fill out all the available attributes for defining a KPI measurement.

When he is finished he clicks OK to save and close the dialog.

Attributes - Process 1

Business performance

Business Measure

This section provides

Name

Description

Specify additional

Additional Details

Specify a Dashboards view to display the business measure data on the Dashboards:

Dashboard view	Selected
<input checked="" type="checkbox"/> KPIs	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Gauges	<input checked="" type="checkbox"/>
<input type="checkbox"/> Instances	<input type="checkbox"/>
<input checked="" type="checkbox"/> Dimensions	<input checked="" type="checkbox"/>
<input type="checkbox"/> Reports	<input type="checkbox"/>

Specify a target value and type:

Target Value: Type:

Specify a time period:

Repeating Rolling Fixed

Period type:

Base period on:

- Last full period
- Period in progress

Size of period: Last days

Base last day on:

- Previous day
- Day in progress

Start date: End date:

Specify range type:

Percentage of target value (target value = 100%)

Actual value

Specify ranges:

Range name	Start value	End value
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

Comment:

Specify alert options:

Condition	Description
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

Specify how you would like to break down the aggregate business measures in the Dimensions view.
(For example, Average Sales by country, sales representative or month.)

View
Country

When Brian selects the checkbox and clicks on the **KPI view** row, a sample preview and description appear. This will help him understand what the KPI will look like in the Dashboards.

Notice that the **Active Instances view** is now disabled. This is because it is not possible to have a KPI displayed in this view.

When the view's checkbox is selected, all possible KPI attributes are displayed dynamically; this helps him understand the context of KPIs.

Since none of these fields are mandatory, Brian has the choice whether or not to fill in these details for Sabrina.

1.3 Export model | *Select from context menu*



Brian (Business Analyst)

Brian exports the model with the measurements so that Sabrina can go ahead with her Monitoring tasks.

With a focus on the project, he selects **Export** from the context menu.

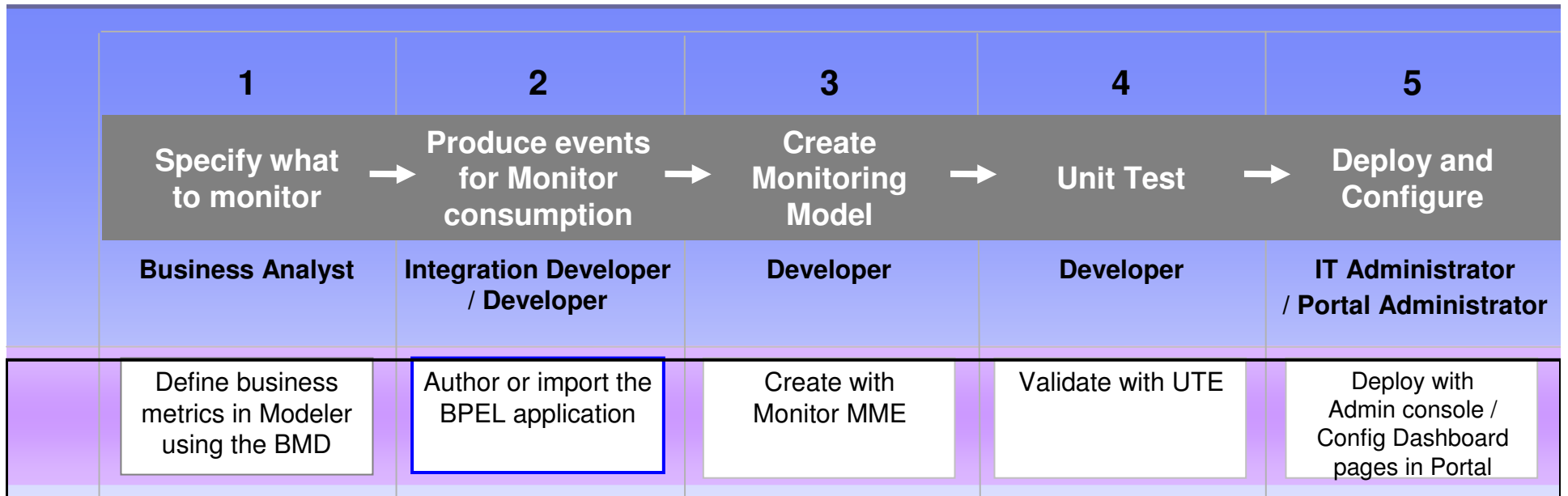
On the first page, Brian selects **WebSphere Business Monitor (.mm)** from the list of options.

On the last page, he specifies the target directory from the standard Windows browse dialog.

Brian selects the **Export specific processes...** radio button and the project tree view appears. He is able to multi-select processes to export.

He clicks Finish to close the export wizard and export the processes as individual .mm files in the specified directory.

Scenario: Mediated Exchange Application



2. Author or import the BPEL application



Ken (Integration Developer)

Following the business level definition of the order process from Brian, Ken assembles existing services, and business rules to build a process for order management.

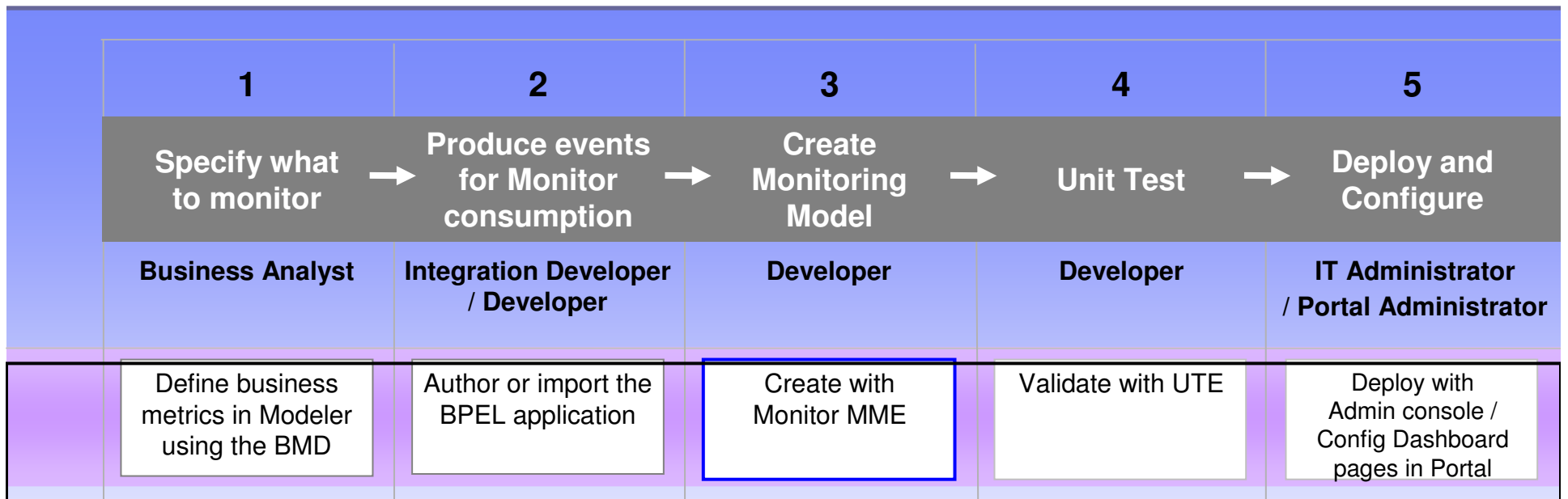
The screenshot displays the Eclipse IDE interface for Business Integration. The main workspace shows a BPEL process diagram with activities: Receive, CopyInput, CheckCredit, ScoreEvaluation, GoodCredit, Acknowledgment, CheckApproval, AutoApproval, AutoApproved, and Approved. The Event Definition Editor is open, showing two event definitions:

- CustomerComplainEvent**: Parent: CommonBaseEvent. Elements: Type, Description (string), CustomerName (string).
- ProblemResolvedEvent**: Parent: CustomerComplainEvent. Elements: CustomerName (byte), Resolution (string).

The Servers view shows a WebSphere Process Server v6.0 on localhost, which is Stopped and Synchronized.

Ken can also define custom events using the Event Definition Editor in WID 6.0.2.

Scenario: Mediated Exchange Application



3.1 Import / author the event definitions



Sabrina (Developer)

Using Brian's definitions of required measurements, Sabrina creates a monitoring model that will process events and calculate metrics, KPIs and send alerts.

Events are imported using the CEI event catalog format

Requires that event emitters publish or otherwise provide their event definitions

MME with WID 6.0.2 includes support for generating event definitions for a BPEL process.

The screenshot shows the Monitor Modeling application interface. The 'Import' dialog box is open, showing a file system view with a directory 'd:\temp\available events\'. A list of event definition files is displayed, including 'BillPaid.cbe', 'CustomerCalled.cbe', 'LatePayment.cbe', 'OrderPlaced.cbe', 'OrderProcessingInitiated.cbe', and 'SAP_OrderFulfillment_Events.cbe'. The 'Generate Monitor Model' dialog box is also open, showing a tree view of available process elements and a table of events emitted by selected activity.

Event nature	Event type
<input type="checkbox"/> SKIPPED	BPC.BFM.ACTIVITY.STATUS
<input checked="" type="checkbox"/> CREATED	BPC.BFM.ACTIVITY.STATUS
<input checked="" type="checkbox"/> EXIT	BPC.BFM.ACTIVITY.MESSAGE
<input checked="" type="checkbox"/> FAILED	BPC.BFM.ACTIVITY.FAILURE
<input checked="" type="checkbox"/> DEASSIGNED	BPC.BFM.ACTIVITY.STATUS
<input checked="" type="checkbox"/> ASSIGNED	BPC.BFM.ACTIVITY.CLAIM
<input checked="" type="checkbox"/> EXPIRED	BPC.BFM.ACTIVITY.STATUS
<input checked="" type="checkbox"/> OUTPUTSET	BPC.BFM.ACTIVITY.MESSAGE
<input checked="" type="checkbox"/> FAULTSET	BPC.BFM.ACTIVITY.MESSAGE
<input checked="" type="checkbox"/> STOPPED	BPC.BFM.ACTIVITY.STATUS
<input checked="" type="checkbox"/> FRETRIED	BPC.BFM.ACTIVITY.STATUS
<input checked="" type="checkbox"/> FCOMPLETED	BPC.BFM.ACTIVITY.STATUS
<input checked="" type="checkbox"/> TERMINATED	BPC.BFM.ACTIVITY.STATUS
<input checked="" type="checkbox"/> WIT_CREATED	BPC.BFM.ACTIVITY.WITSTATUS

3.2 Create triggers to detect business situations



Sabrina (Developer)

Sabrina defines conditions under which special processing is required.

Trigger Details

Specify the source of this trigger and condition.

Source Type	Source
Event	Order Placed

Condition

Order_Placed/Order/Amount > 10000

Trigger is repeatable.
 Terminate container.

Monitoring Flow

```
graph LR; A[Order Placed] --> B[Order Over 10000 USD Trigger]; B --> C[Order Over 10000];
```

Specify when the trigger condition is evaluated. In this case, it will be evaluated when the Order Placed event arrives.

The trigger will fire when the condition evaluates to true. Here we use the trigger to identify orders that are over \$10000.

3.3. Create metrics, counters and stopwatches



Sabrina (Developer)

Sabrina defines how metrics, counters and stopwatches get their values.

The screenshot shows the 'Modeling - Order Handling' application. The 'Monitoring Model' tree on the left lists various events and metrics. The 'Entry to Shipping Time' metric is selected. The 'Triggered Actions' table on the right shows the following data:

Trigger	Resulting Action
Order Placed	Start
Order Shipped	Stop

Below the main interface, the 'Monitoring Flow' diagram shows a flow from 'Order Placed' to a stopwatch icon labeled 'Entry to Shipping Time', and then to 'Order Shipped'.

In this case, a stopwatch is used to record the 'Entry to Shipping Time' duration. The stopwatch starts when the 'Order Placed' event arrives, and stops when the 'Order Shipped' event arrives.

3.4. Create outbound events to send business alerts



Sabrina (Developer)

Sabrina specifies that a special kind of event should be sent to indicate business action is required.

In this case, a late payment situation initiates an alert with ID of the late order, the bill payment date and the customer information.

Configuration can be performed in the dashboards to take appropriate action when this event is emitted (e.g. notify customer via email).

Trigger	name	type	Expression
<input checked="" type="checkbox"/>	Late Payment Check Trigger		
	OrderID	string	Order_ID
	BillPaymentDate	dateTime	Order_Date
	Customer	noValue	

3.5 Define KPIs for display on the dashboard



Sabrina (Developer)

Sabrina creates a KPI to monitor the percentage of cases that the call center must intervene during processing of an order.

Targets and ranges are defined to indicate expected business performance.

The screenshot shows the Eclipse Platform Modeling tool interface. The left pane displays a tree view of the 'Order Handling' model, with 'Pct Call Centre Interaction' selected. The right pane shows the configuration for this KPI, divided into two sections: 'KPI Target and Ranges' and 'KPI definition'.

KPI Target and Ranges
This section provides information about KPI target and ranges.

Target: .25
Ranges: Actual value

Range name	Start value	End value
Excellent	0	0.15
Good	0.15	0.30
Fair	0.30	0.35
Poor	0.35	1.0

KPI definition
This section provides information about KPI definition.

Cube: My Cube
Measure: Pct Call Centre Interaction
Time dimension: Order Date

Specify time period: Repeating Rolling Fixed
Period type: Monthly
Base period on: Last full period Period in progress

Two callouts with orange arrows point to the 'End value' of the 'Poor' range (1.0) and the 'Measure' field ('Pct Call Centre Interaction').

Specify a target and ranges to affect display options in the dashboard.

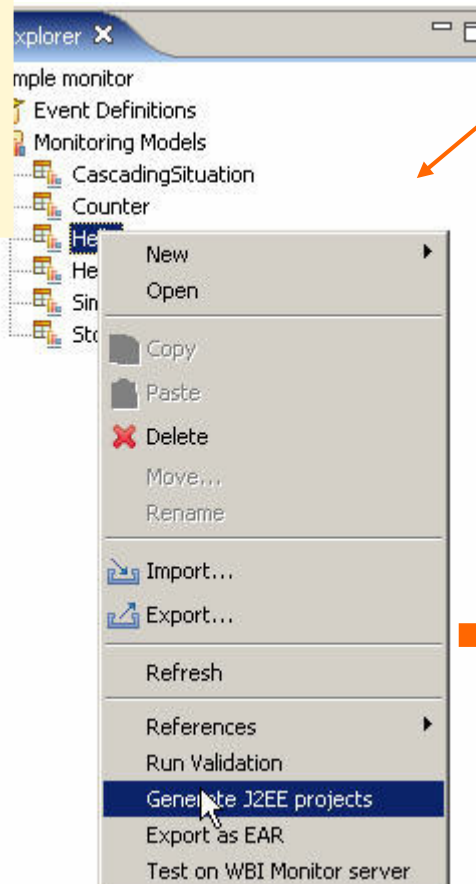
Actual values for the KPIs are extracted from the cube according to the settings specified here.

3.6 Generate J2EE projects



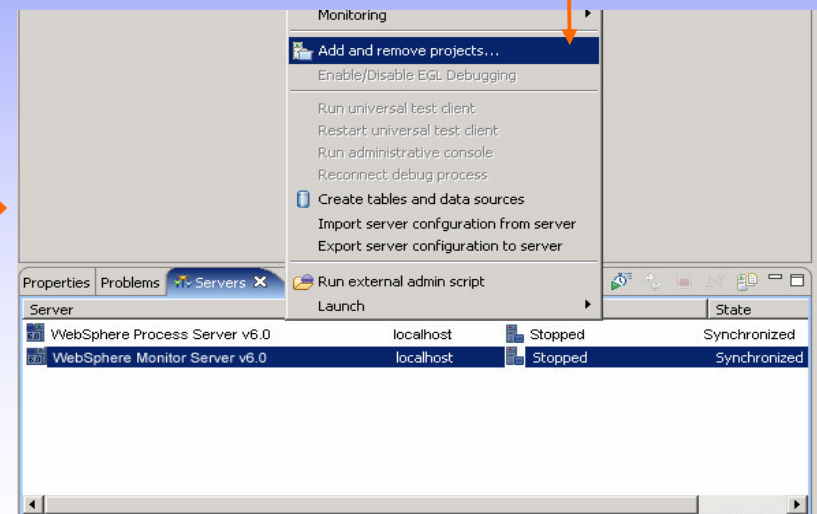
Sabrina (Developer)

Having defined the monitoring model, Sabrina generates the J2EE project required by the Monitor Server and adds the project to a Monitor unit test environment (UTE) server.

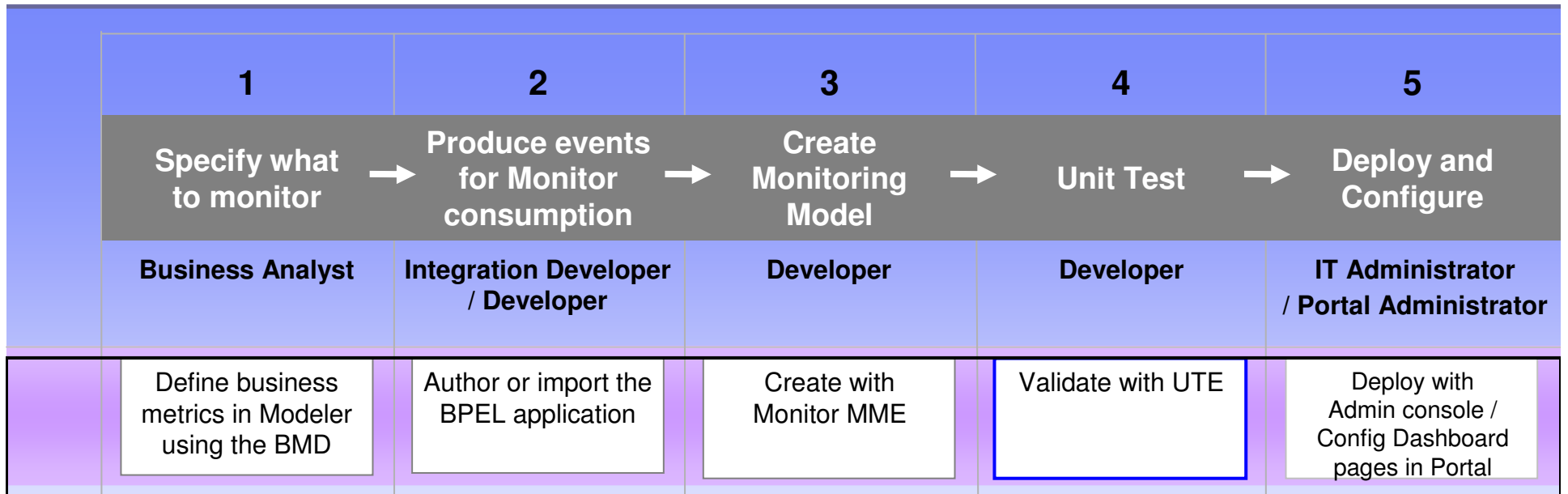


After completion of the definitions in the MME, generate J2EE projects to deploy in the Monitor Unit Test Environment.

Deploy the generated EAR to Monitor Server, using the same Add and Remove Projects wizard in WID, but now adding it to the Monitor Server instance.



Scenario: Mediated Exchange Application



4. Unit Test: Activate event generation & validate



Sabrina (Developer)

Sabrina uses the Monitor unit test environment (UTE) to validate the monitoring model is processing events as expected.

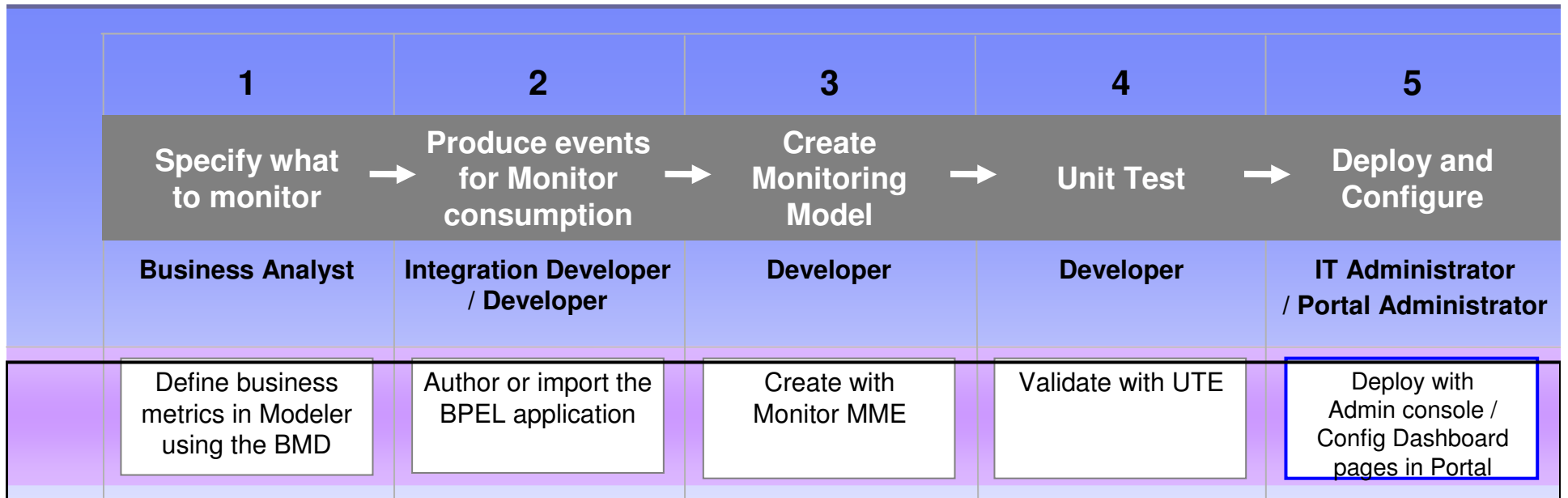
When satisfied with the event processing, Sabrina hands off the monitoring model enterprise application (.EAR) that was generated in step 6 to the IT Administrator.

DepartureTime	ArrivalTime	Order Amount
Sun Mar 05 09:54:52 EST 2000	Sat Mar 04 09:54:52 EST 2000	\$600.00
Mon Mar 05 09:54:52 EST 2001	--	--
Tue Mar 05 09:54:52 EST 2002	--	--

Use the active instance web application to verify execution and values of the metrics being defined in the Monitoring Model Editor.

Note: the 'source' application generating events in this case is the order BPEL process in WID.

Scenario: Mediated Exchange Application



5.1 Deploy into production



Ivan (IT Administrator)

Ivan is responsible for installing the monitoring model enterprise application and creating and deploying all the database and cube artifacts.

Business Monitor provides specific administrative console menu items to reflect the steps of deployment and configuration.

WebSphere Administrative Console - Microsoft Internet Explorer

Address: http://localhost:9060/ibm/console/secure/login.do

Model Management

Monitor Lifecycle Steps

CCD_MODEL1 > 2007/07/01(Sun) PM 08:00

Steps required for managing the lifecycle of a model version.

- Step 1 Run DataServices Generation
- Step 2 Run Schema Create Scripts
- Step 3 Run DMS Create Scripts
- Step 4 Import DB2 Cube Definition
- Step 5 Manage Alphablox Cube
- Step 6: CEI Distribution Configuration
- Step 7 Confirm CEI Server Reboot

CEI Distribution Configuration

The status of this step is complete. Performed by log in user ID, none, on 2006/08/02(Wed) PM 02:30.

Make changes below and select *Integrate* to proceed.

CEI Server Configuration

Event group profile list name

Location: Local Remote

Security: Disable Enabled

Host name: _____ User ID: _____

Cell: vgerNode01Cell

Node: _____

Server: _____

Distribution Mode: Current Not Configured

Apply

Previous Next Cancel

- Deployment tasks include:
- Installation of Enterprise Application (.ear) to Application Server
 - Configuration of event infrastructure
 - Creation of database tables and cube definitions.

5.2 Configure dashboard pages



Patricia (Portal Administrator)

Patricia uses the WebSphere Portal administrative features to create pages for dashboard users, layout pages with portlets, specify authorization, and define which KPIs and metrics should be provided to specific users.

Business Monitor provides specific administrative console menu items to reflect the steps of deployment and configuration.

Portlets include:

- KPI view – actuals, targets and ranges
- Visibility to process metrics and diagrams
- Analysis of performance across business dimensions

The screenshot shows the IBM WebSphere Business Monitor interface. On the left, a dashboard displays a bar chart titled 'Measures' with a legend for 'hsmetank', 'ksari', and 'wpsadmin'. Below the chart is a table with columns for 'AssignedUser' and 'DimOfNumbers'.

AssignedUser	DimOfNumbers	0	1	2	3	4	5	6	7
AssignedUser	DimOfNumbers	39	2	3	1	9	3	2	3
hsmetank	DimOfNumbers	13	1			4	2	2	1
ksari	DimOfNumbers	22	1	3		4	1		2
wpsadmin	DimOfNumbers	4				1	1		

On the right, a configuration window titled 'Personalize Modeled KPI: Average Order Amounts in New York City this month' is open. It shows 'Modeled KPI Name' and 'Monitoring Model' (Model 1). The 'Range Type' is set to 'Percentage of Target'. The 'Boundaries' section shows 'Start Value' at 0% and 'End Value' at 150%. Below this is a 'Ranges' section with a table of ranges and a 'Gauges' section with a gauge chart.

Range Name	Start Value	End Value	Color	Icon	Delete
Range 1	0%	<25%	Orange	Icon	Icon
Range 2	25%	<50%	Yellow	Icon	Icon
Range 3	50%	<75%	Green	Icon	Icon
Range 4	75%	<100%	Light Green	Icon	Icon
Range 4	100%	150%	Dark Green	Icon	Icon

New capability to update and personalize KPI thresholds as expectations and the business environment changes.