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Check Your Understanding

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## Check Your Understanding - Chapter 1-4

- What are the six administration tasks you should undertake before starting development for the first time?
- Name four benefits of the Software AG Designer:

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## Check Your Understanding - Chapter 1-4

- What is a workspace?
- Compare and relate a perspective and a view:

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## Check Your Understanding - Chapter 1-4

- Where do you configure Integration Server connectivity in Designer?
- What is the Server Runtime and Configuration used for?
- Which webMethods servers can be monitored in Designer's Servers view?

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## Check Your Understanding - Chapter 1-4

- The Palette in Designer's Process Development perspective provides you with BPMN icons grouped in five folders. One of them is a folder named Activities containing all Activity types. Name the other four:
- Describe the purpose of a Start Message Event:
- Why must you configure Integration Server names?

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## Check Your Understanding - Chapter 1-4

- Describe briefly what happens when the build and upload button is pressed in the Process Development perspective:
- How would you generate a documentation report from a process model?
- Briefly describe the purpose of a User Task Activity:

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## Check Your Understanding - Chapter 5-8

- What is the Process Audit Database used for?
- Is setting the process logging level in Designer a sufficient configuration to allow step resubmission?  
If not, what else is required?

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## Check Your Understanding - Chapter 5-8

- What is the meaning of the Express Pipeline setting?
- What is the meaning of the Optimize Locally setting?
- Name the four Join types:

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## Check Your Understanding - Chapter 5-8

- Compare a Subprocess, a BPMN Callable Process and a webMethods Referenced Process:

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## Check Your Understanding - Chapter 5-8

- Briefly describe the concept of correlation and how to implement correlation in webMethods BPMS:

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## Check Your Understanding - Chapter 5-8

- Explain what happens when the Process Engine transitions to a User Task Activity?
- Can a Java type be used as an input to a User Task?
- If a User Task needed to be re-factored such that the Business Data type is changed, what steps would you need to undertake while refactoring the User Task?

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## Check Your Understanding - Chapter 9-11

- What do you call the components you put on a User Task UI?
- Describe an Action within a User Task:
- Describe an Event within a User Task:

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## Check Your Understanding - Chapter 9-11

- Name the three Distribution Management options of a User Task :
- What is the meaning of a Task Control Set?
- Which console would you use to define a Business Calendar?

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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

## Check Your Understanding - Chapter 9-11

- Name the nine User Task Management buttons:
- How do you delete all the User Task instances of a User Task Type?
- How do you delete User Task Types?
- Name the three types of principals that can be used in Permissions Management?

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## Check Your Understanding - Chapter 9-11

- Which possibilities do you have to specify a process timeout?
  
  
  
  
  
  
  
  
  
  
- Briefly explain the main difference between an interrupting and a non-interrupting Boundary Timer Event.
  
  
  
  
  
  
  
  
  
  
- Name the three Exceptional Transition types:

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## Check Your Understanding - Chapter 12-15

- What is the main reason for using a Rule Task Activities instead of a Service Task Activity?
- What is the difference between a Rule Maintenance Console (RMC) and a Rule Maintenance Application (RMA)?

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## Check Your Understanding - Chapter 12-15

- How can you start a business process instance:

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## Check Your Understanding - Chapter 12-15

- An example of a built-in Validator is Credit Card.  
Name at least three others:
  
- If you wanted to auto populate a drop down or radio button group on a UI from the result of a Web Service call, what steps would you implement?

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## Check Your Understanding - Chapter 12-15

- Compare the Local and Shared Metadata:
  
  
  
  
  
  
  
  
  
  
- What are advantages of sharing metadata?
  
  
  
  
  
  
  
  
  
  
- When publishing your BPM assets from Designer, which Organization will your assets be registered?

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## Check Your Understanding - Chapter 12-15

- What are advantages of using a VCS?
- Where do you maintain the version number of a process model?

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## Check Your Understanding - Appendix A-B

- Give three examples of KPIs:
- If you have an external process, where do you send process state when coding the process "hooks"?

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## Check Your Understanding - Appendix A-B

- What perspective should you use when running process simulations?
- How would the process developer determine how traffic volume will proceed through the model.
- In what format are simulation reports generated?

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## Appendix A

### Business Activity Monitoring (BAM)



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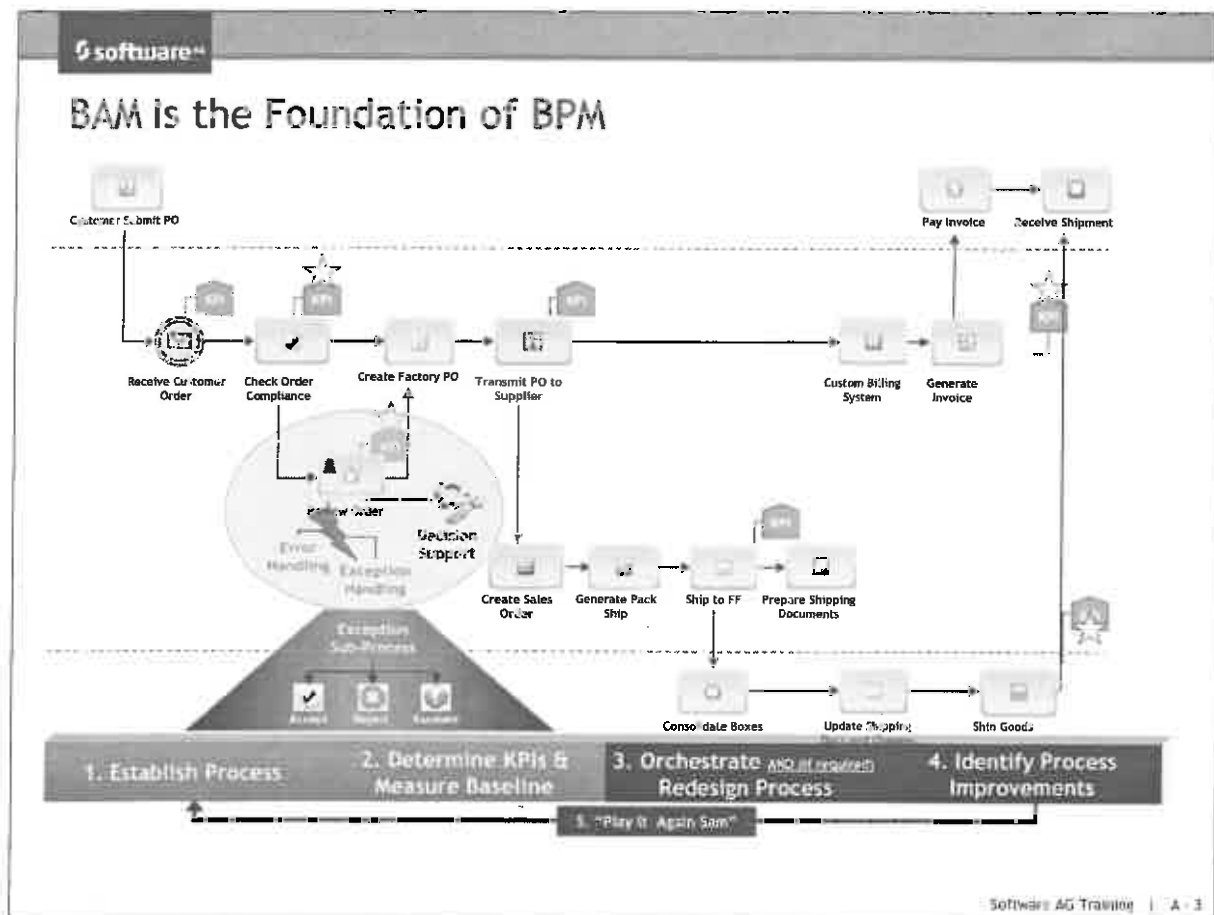
## Objectives

- At the end of this section, you will be able to
  - Describe key concepts and terminology of Business Activity Monitoring
  - Understand the architecture and components of webMethods Optimize for Process
  - Describe the role of Key Performance Indicators (KPIs) in achieving a realistic BAM solution
  - Use Optimize for Process to monitor and optimize webMethods and non-webMethods processes

Software: AG Training 11/18/2014

## Notes:





## Notes:

## What is Business Activity Monitoring?

- “Business Activity Monitoring is the means of providing real-time access to critical business performance indicators to improve the performance & effectiveness of the business” - *Gartner*
- “Business Activity Monitoring gives the business and IT the actionable insight to identify where the existing errors are occurring so they can address them immediately” - *webMethods*
  - Real-time process analytics provide insight into the most opportune areas within the overall process to improve.

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## BAM's Main Measurement Categories

- **Volumes** - how many, how much?
  - Counts of events, quantities, any numeric- based KPI
- **Velocities** - how fast, how long?
  - Cycle-times, time remaining till a deadline, any time based KPI
- **Errors** - how good?
  - Systems, sequence, duplicates, timeouts, matching, content based defects
- **Special conditions** - how "normal"?
  - Events of interest, confluences of KPIs, complex pattern recognition



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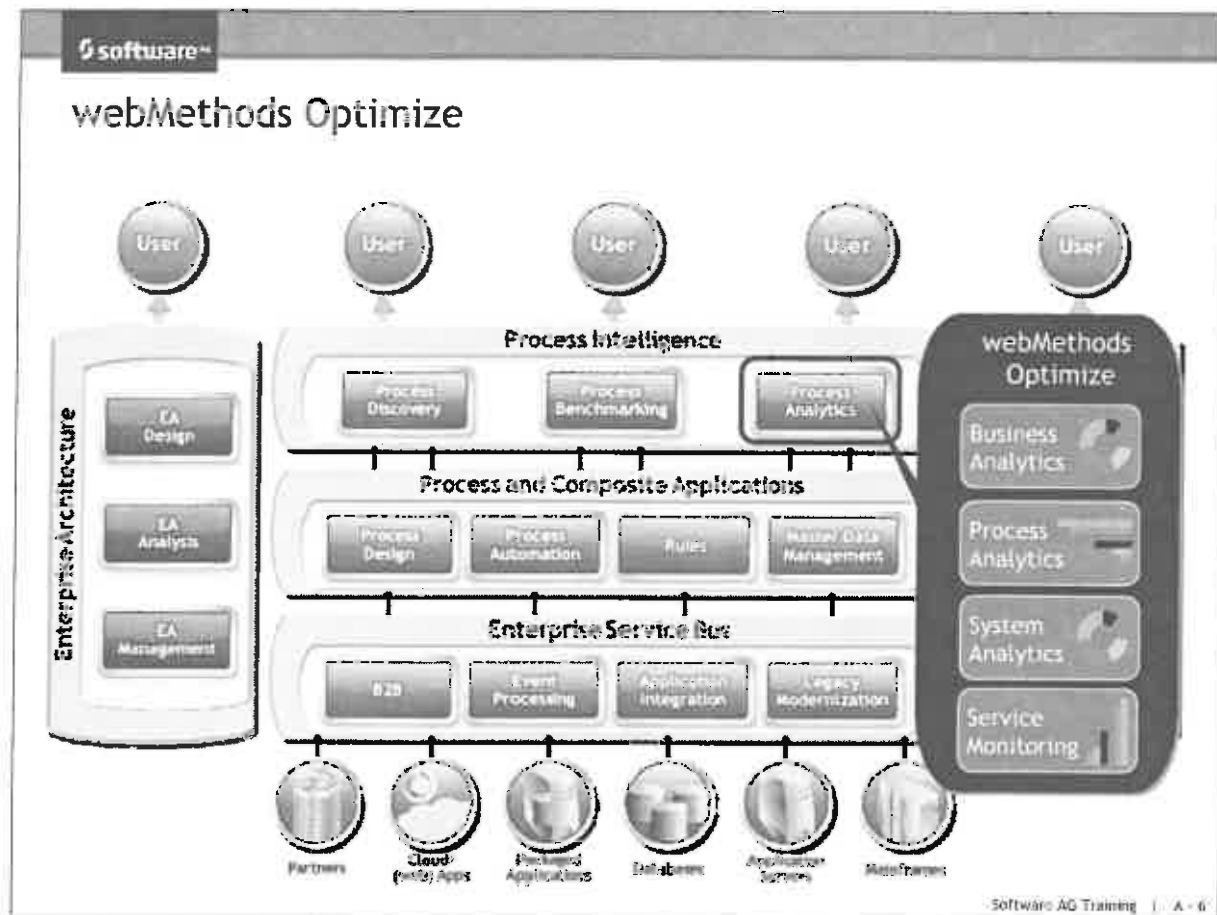
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## Notes:

## webMethods Optimize

- Core component of webMethods BPMS and webMethods suite
- Analyzes real-time information and provides actionable data and insight through
  - Key Performance Indicators to define vital information to gather
  - Analysis to learn normal behavior and correlate data
  - Rules to represent conditions, alerting, and corrective action
  - Prediction to find potential problems before they happen
- These capabilities are offered through the Optimize products:
  - Optimize for Process
  - Optimize for Infrastructure
  - Optimize for B2B
  - Optimize Mainframe Edition
  - Optimize for SAP

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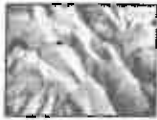
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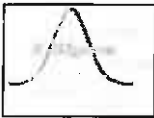
## What is so special about webMethods BAM?



- **Linked to the “Business Topography”**  
Follows the landscape of your business process, more than just a point to point measurement, includes key “in-between” steps to help establish visibility



- **Allows Intelligent Self-learning**  
Monitors KPIs and builds a knowledge base of performance statistics based on time-centric criteria (e.g. time-of-day / time-of-week ) which generate statistical boundaries based on historical patterns



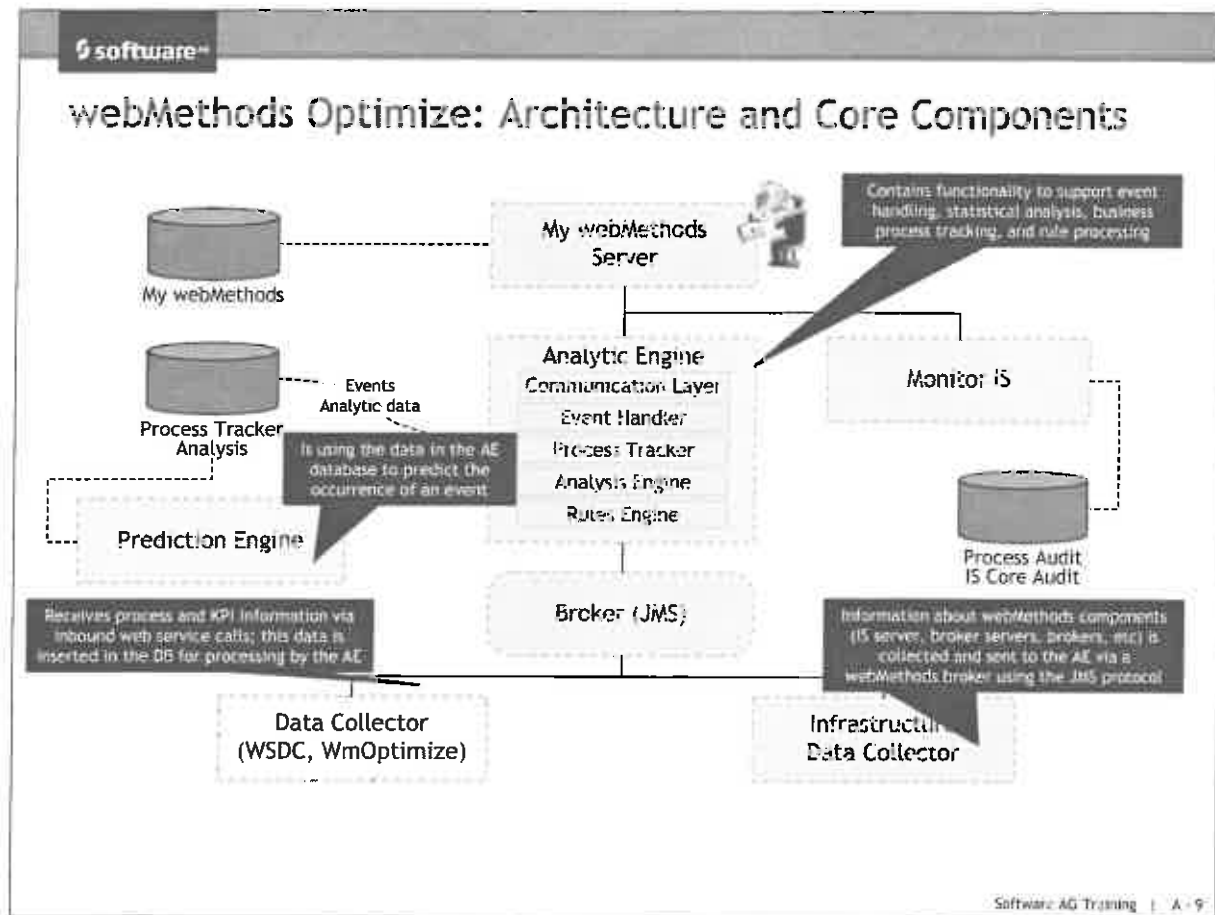
- **Supports Six Sigma Analysis**  
Tracks automatically problems and exceptions to enable Six Sigma analysis and Pareto (80/20) charts. Intelligent prioritization drives faster process improvements with fewer resources



- **Provides Fingerprinting and Predictive alerting**  
Compares current and historical activity to anticipate exceptions.  
Proactively notifies BAM users of exceptions (alert via email, web services or SNMP traps).  
Enterprise can react before situation becomes critical.

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**Notes:**

# Analytic Engine

Name	Description	Status	Source Type	Log On As
Software AG Open Enterprise Data Collector	Software AG webMethods ...	Manual	Local System	

- **Event handler**
  - Processes all business data oriented events, such as system data or business process data
- **Process tracker**
  - Takes measurements of executing business processes, such as wait time or completion time
- **Analysis engine**
  - Runs algorithms against collected data to diagnose trends and deviations
- **Rules engine**
  - Handles implementation of rules based on KPIs, events, and statistics
- **Communications layer**
  - Web services interaction with My webMethods Server for presentation
  - Router for interacting with JMS Broker message queues

**Analytic Engine**  
 Communication Layer  
 Event Handler  
 Process Tracker  
 Analysis Engine  
 Rules Engine

Software AG Training | A - 10

**Notes:**



## Key Concepts and Terminology

- **Key Performance Indicator (KPI)** is the measurement of a specific activity important to business success
- **Dimension** is a way of slicing a fact into categories
- **Dimension Hierarchy** allow data to be aggregated into more specific sub divisions
- **Error** is a problem related to a business process, including process, step, and custom
- **Rule** is a condition under which a business process requires attention and allow the “automation” of monitoring KPIs
- **Event** is the container of Optimize data
- **Event Map** contains/describes how Optimize is using the event data

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## Event Map

- **Fact** - data that is to be measured (e.g. quantity, dollar amount, megabyte used, temperature, etc.)
- **Dimension** - Data that can be used to divide a fact into slices or categories (e.g. region, customer, time)
- **Transaction** - information that is neither measurable nor can be used to categorize; transactional data is carried along for informational purposes but cannot be aggregated or measured (e.g. order number, invoice date, etc.)

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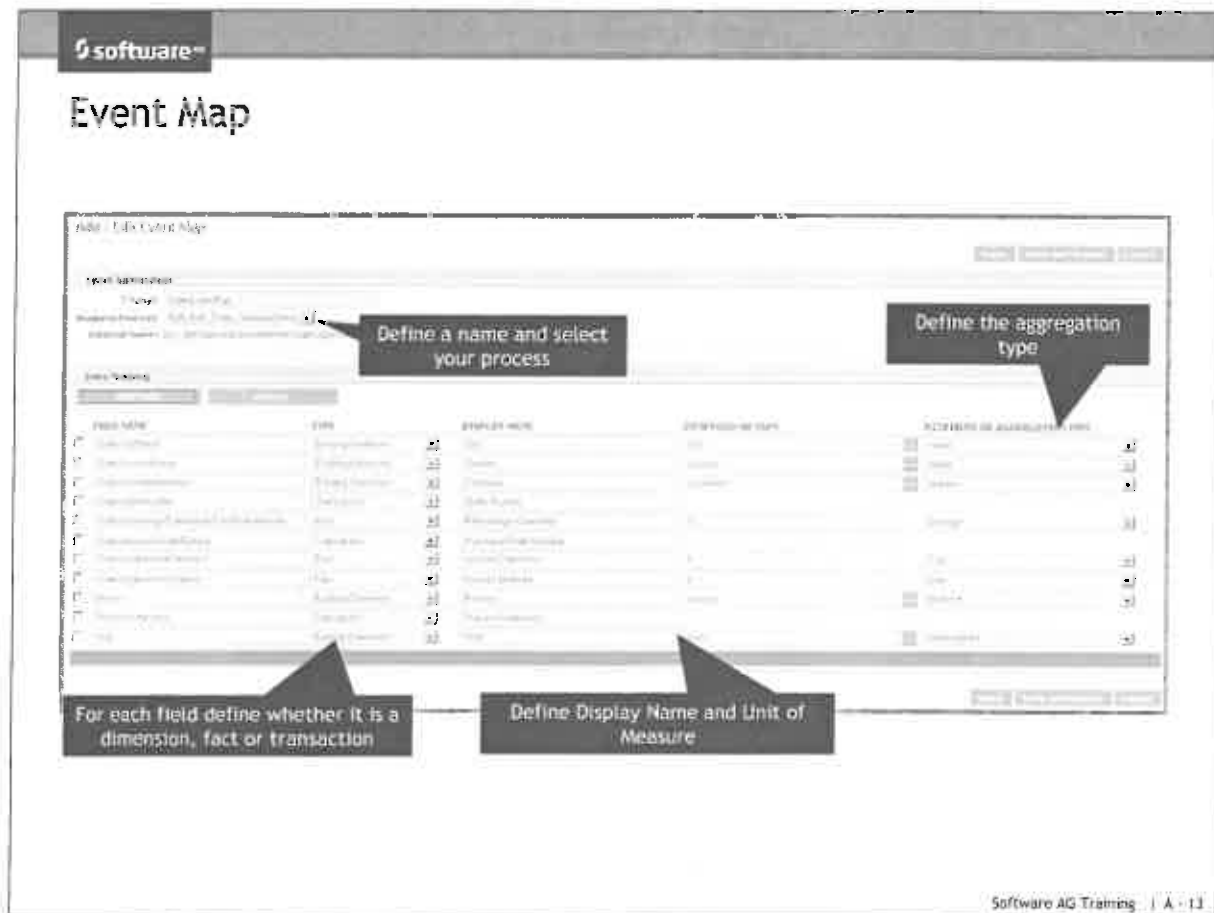
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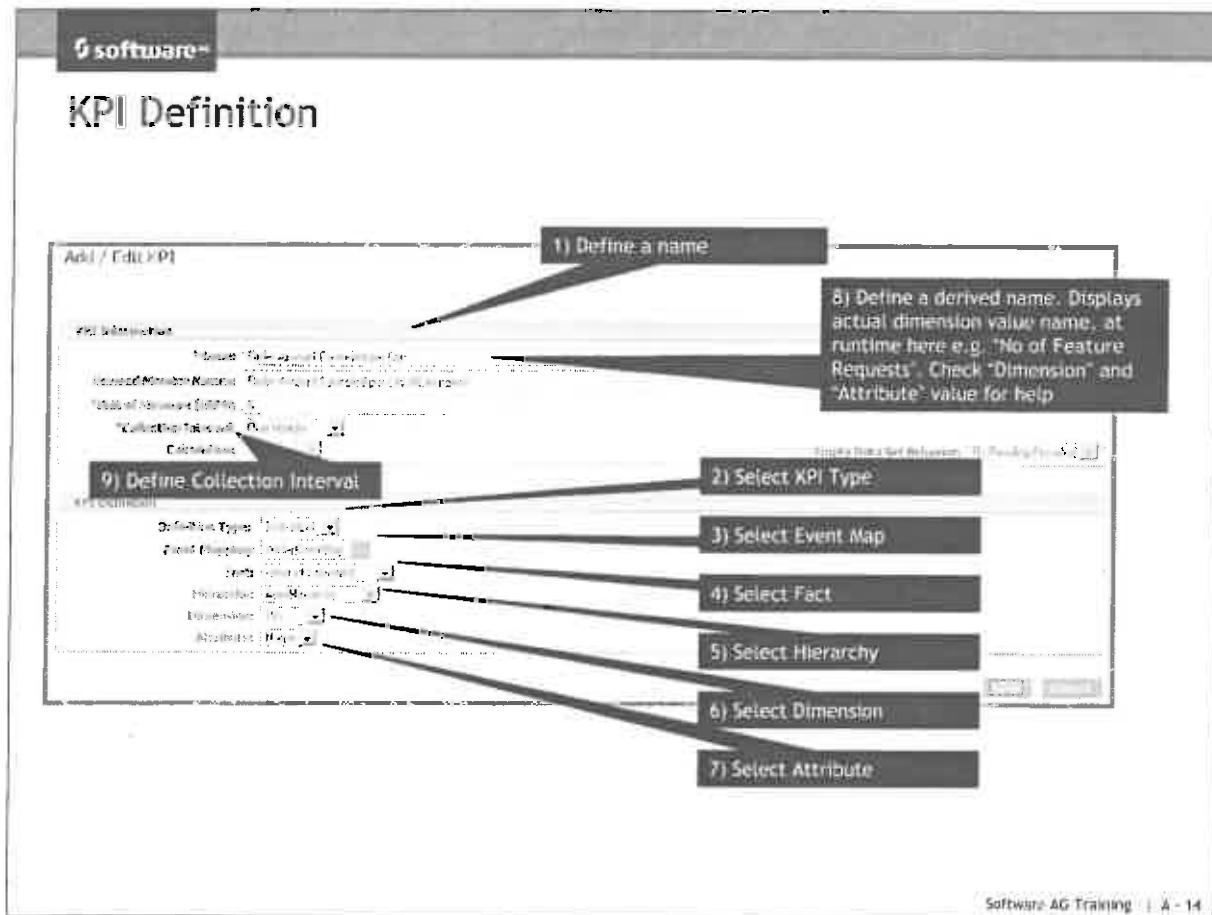
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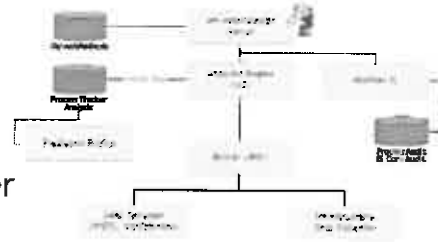
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## Optimize Data Flow

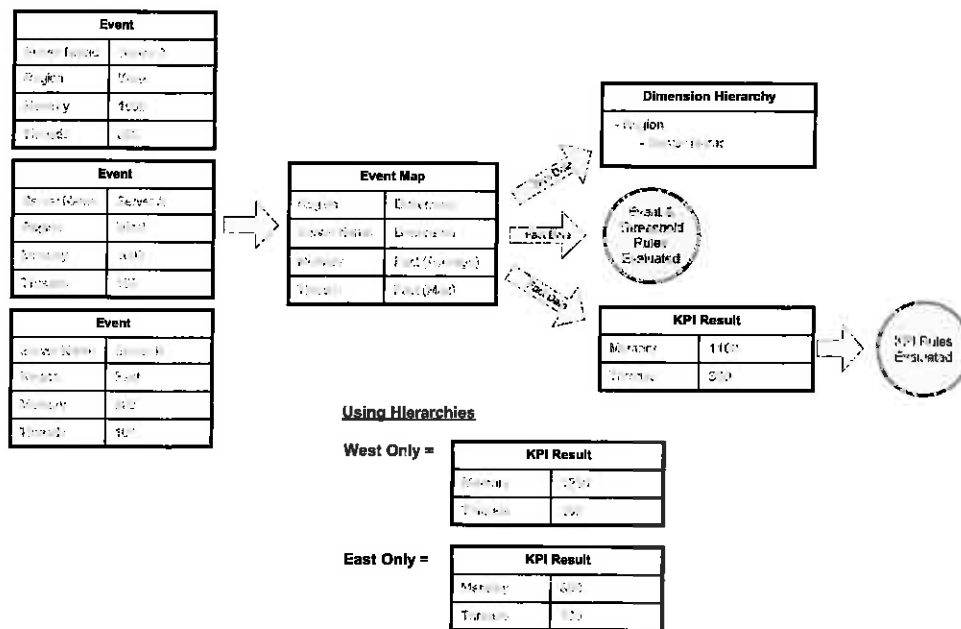
- Business processes/applications/systems send data via data collection components
- Data collectors send the data to the Broker
- Analytic engine pulls events from the Broker
- Events are associated to and treated according to the event map
- On an interval (configured in the KPI), the data from the recently persisted events are aggregated (summed, averaged, etc.)
- The result from this aggregation is persisted and used for two functions
  - displayed in MWS in the System Overview, or Business Overview page
  - passed to the rule engine for analysis



Software AG Training | A-15

## Notes:

### KPI Data Flow - Example



Software AG Training | A - 16

Notes:

## Optimize Rules

### Rule Types:

- **KPI Rules** evaluate a KPI at the KPI's collection interval
- **Event Rules** evaluate data points as they are collected rather than waiting for a KPI collection interval
- **Threshold Rules** evaluate a single collected data point when it is collected; Optimize does not maintain state for threshold rules - it will fire any actions or alerts every time an event is received that violates the rule

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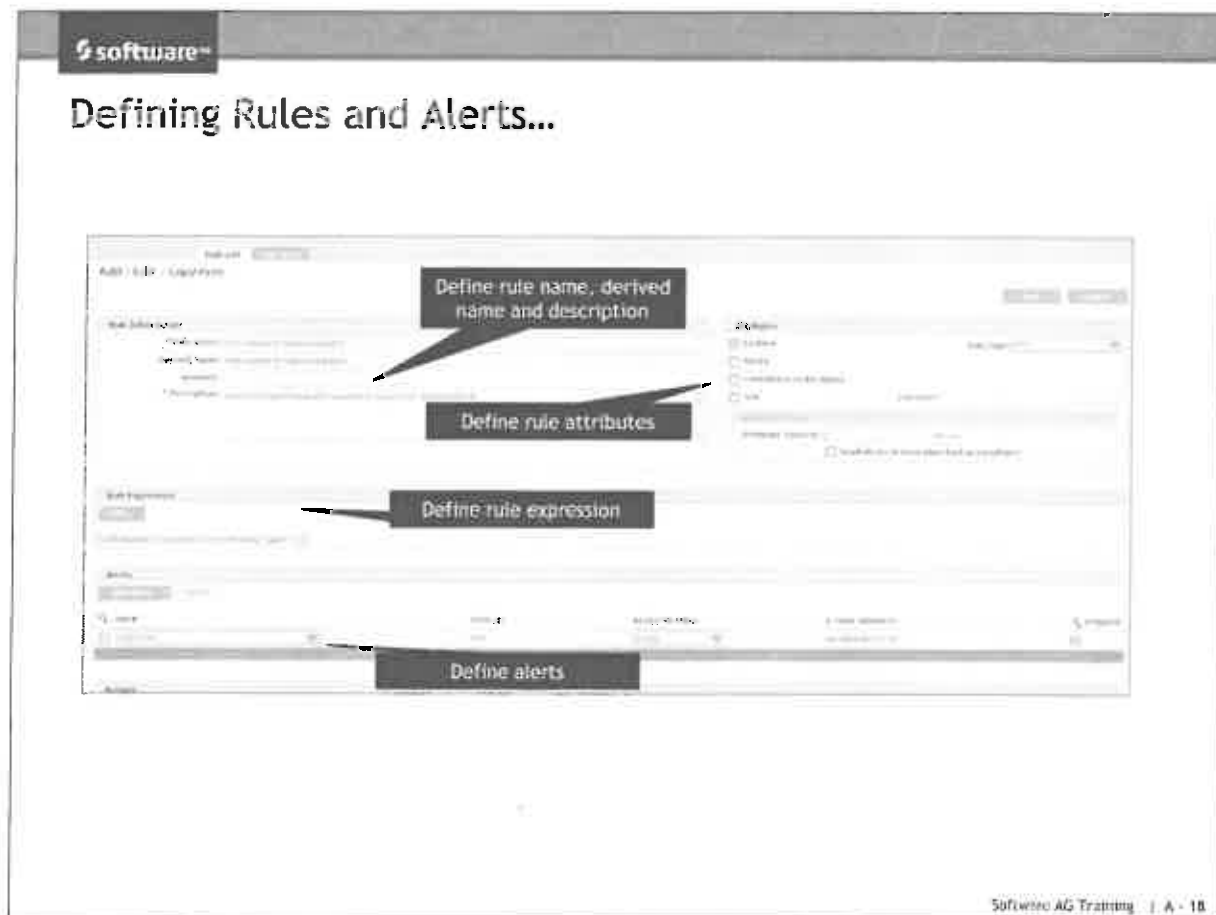
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## Notes:

## KPI Rules

- Evaluate a KPI at the KPI's collection interval
- Maintain state so that you can track data over multiple intervals
- Will remain in violation until their expression condition returns to normal or only by a manual resolution if required (sticky)
- Can take dimensions into account
- Can operate on more than one KPI
- Example:
  - a KPI calculates Profit by subtracting Expenses from Revenue
  - an associated KPI rule would attach to the Profit KPI to monitor and alert you if Profit fell below a given amount

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## Event Rules

- Evaluate data points as they are collected rather than waiting for a collection interval
- Maintain state so that you can track data over multiple intervals
- Will remain in violation until their expression condition returns to normal or only by a manual resolution if required (sticky)
- Can take dimensions into account
- Can operate on more than one KPI
- Are usually attached to events that need absolute real time intervention
- Example:
  - a rule that alerts when a Broker is down for three intervals

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## Threshold Rules

- Threshold rules are like stateless event rules
- Like event rules, they
  - monitor data associated with real time events
- Unlike event rules, they do not
  - maintain state between firings
  - allow for aggregation of data points
  - operate on more than one KPI
  - take dimensions into account
- Example:
  - queue size greater than 1000
  - order amount less than \$500

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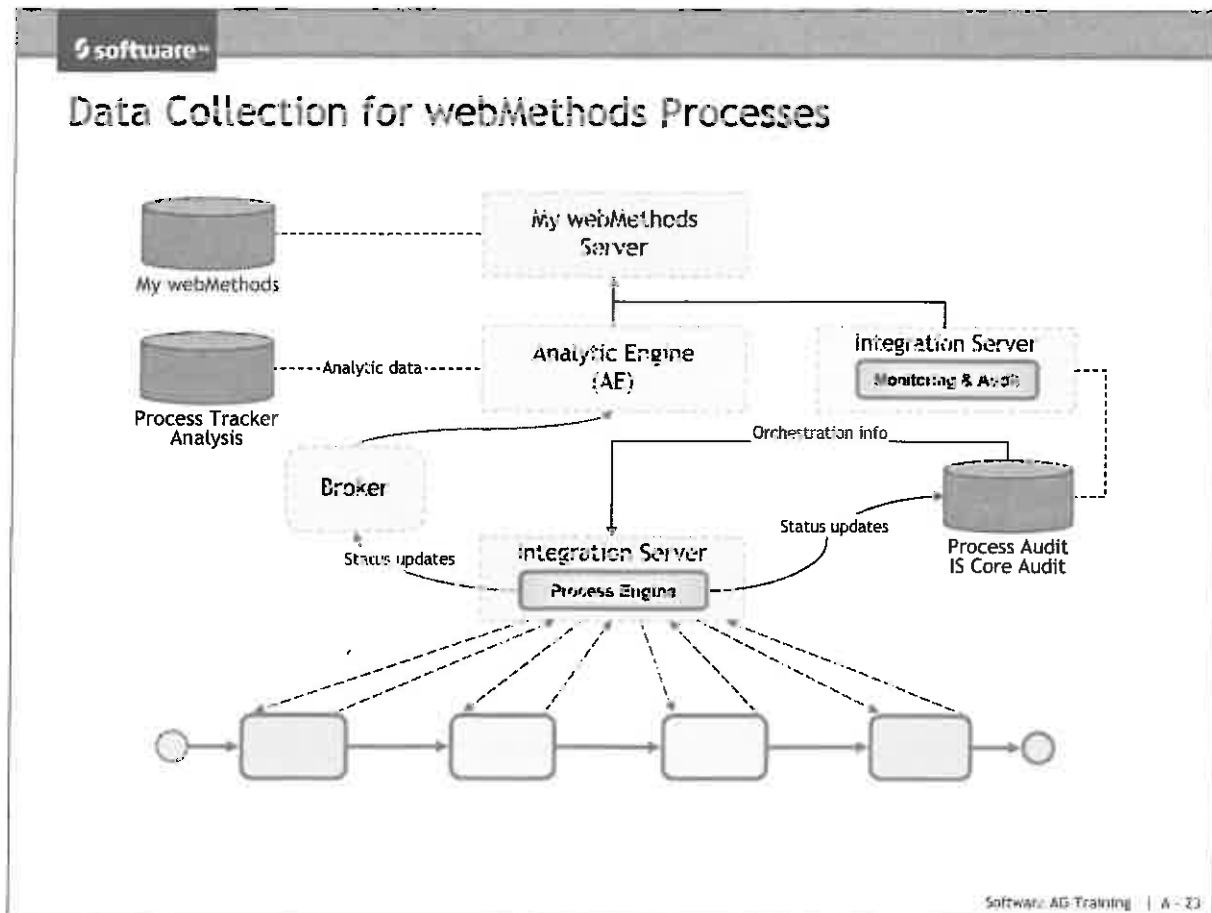
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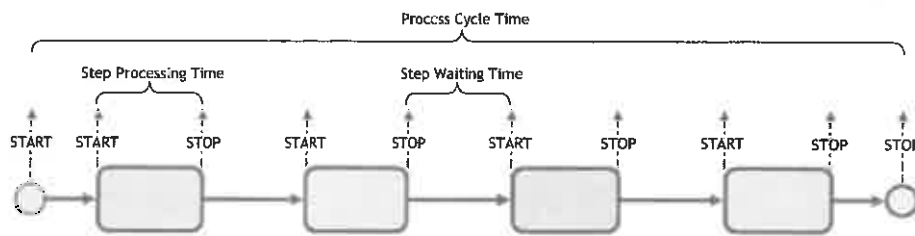
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webMethods Process: "Analysis Enabled"...



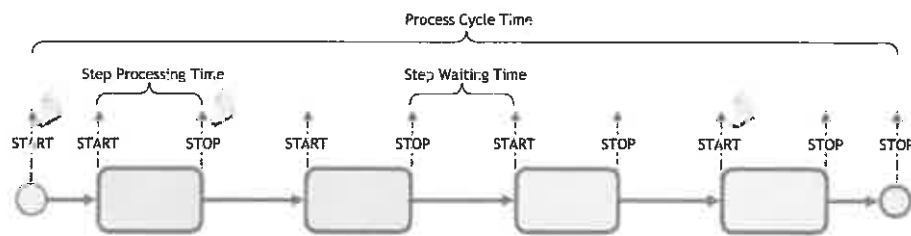
- One-click” activation (“Analysis Enabled” process property)
  - Process Engine is sending time events for every single step
- Out-of-the box “Intrinsic metrics” available automatically
  - Cycle Time (by Process)
  - Error Count (by Process/Step)
  - Instances (by Process/Step)
  - Successes (by Process)
  - Processing Time (by Step)
  - Wait Time (by Step)

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Notes: \_\_\_\_\_

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## ...webMethods Process: "Analysis Enabled" + Business KPIs



- "Logged fields" used to populate business data to the AE
  - Process Engine is logging data from the process document(s)
- Custom KPIs and dimensions can be defined
  - "More" business relevant & process specific metrics can be provided
  - Process Designer defines when (input and/or output) and which set of data (document and/or single fields) to be passed to the AE
  - Event Map gets generated automatically and needs to be configured (via MWS GUI)
- Intrinsic metrics are available

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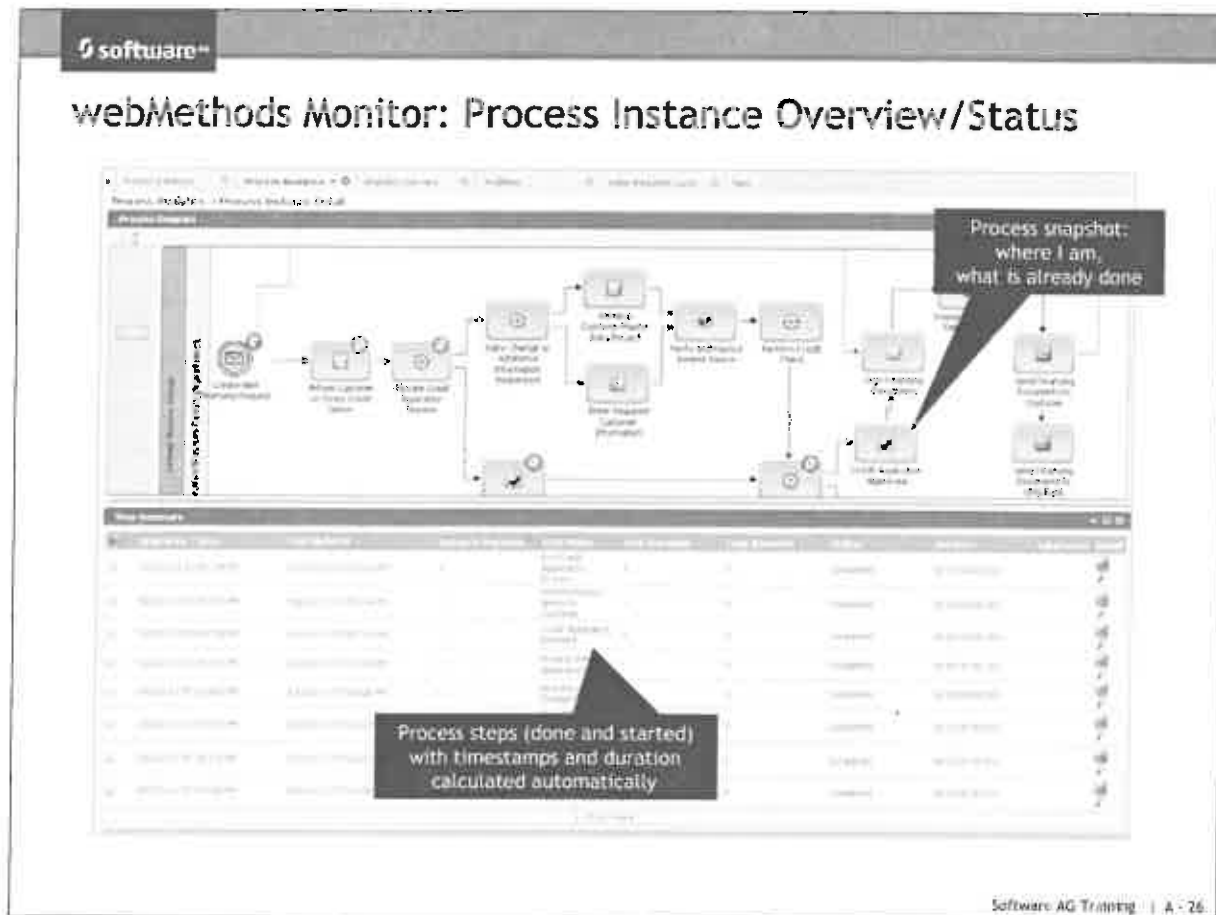
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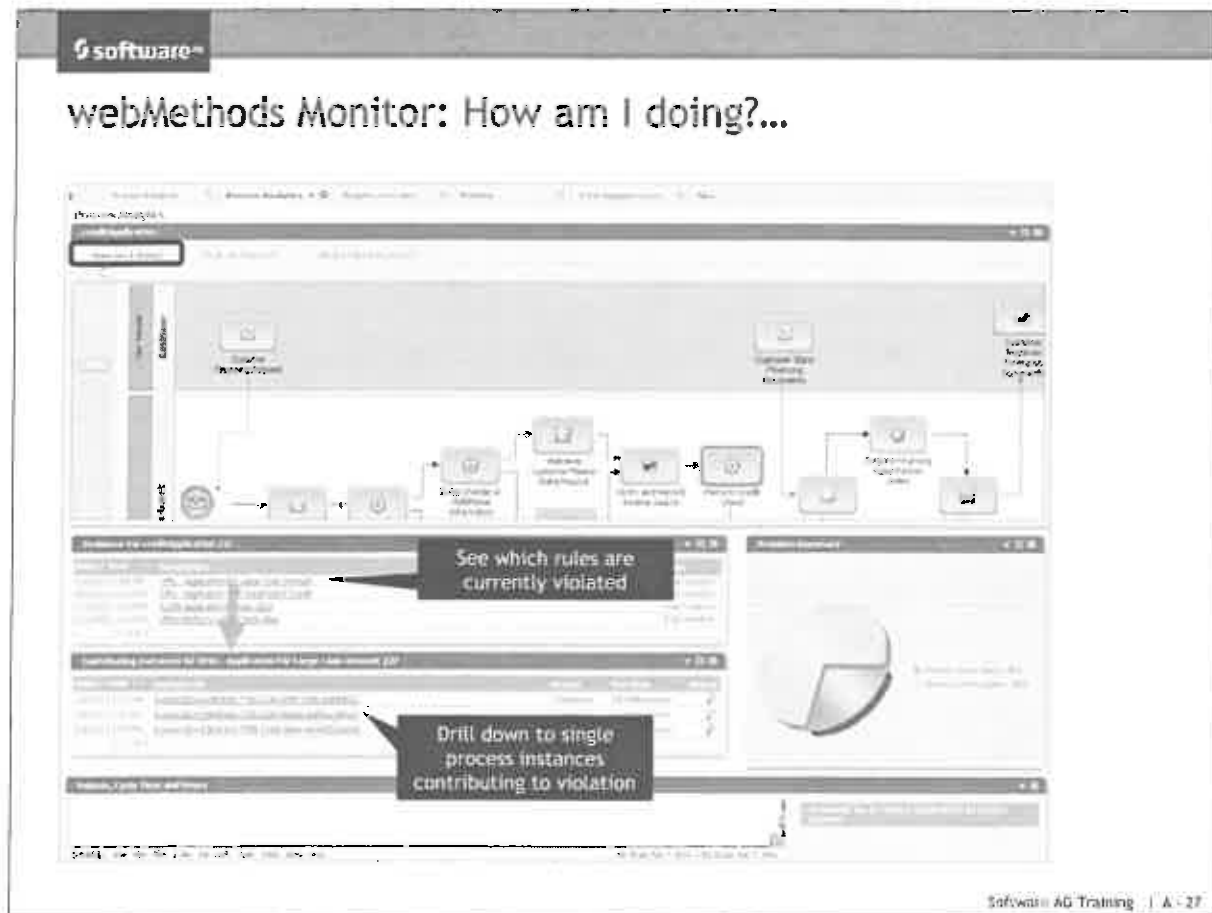
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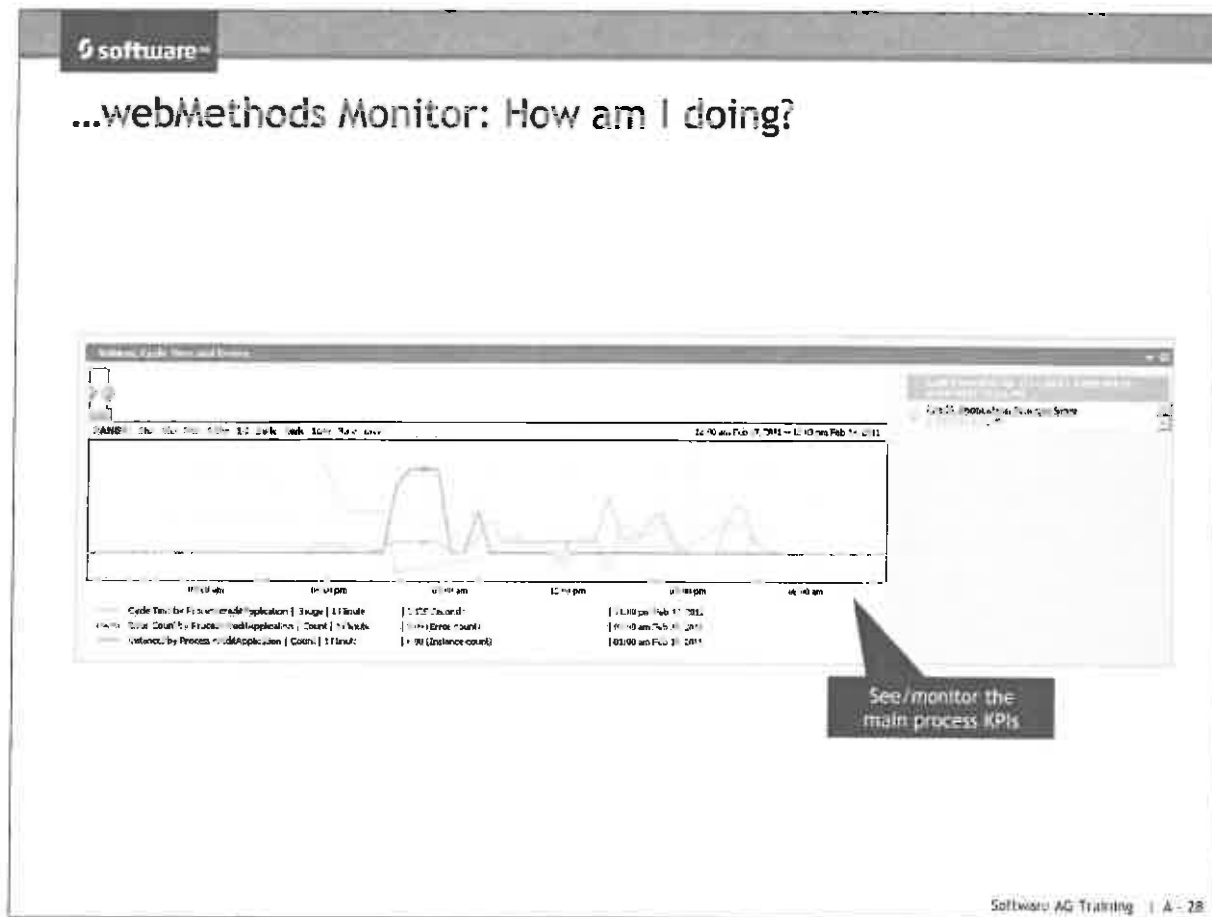
## Notes:





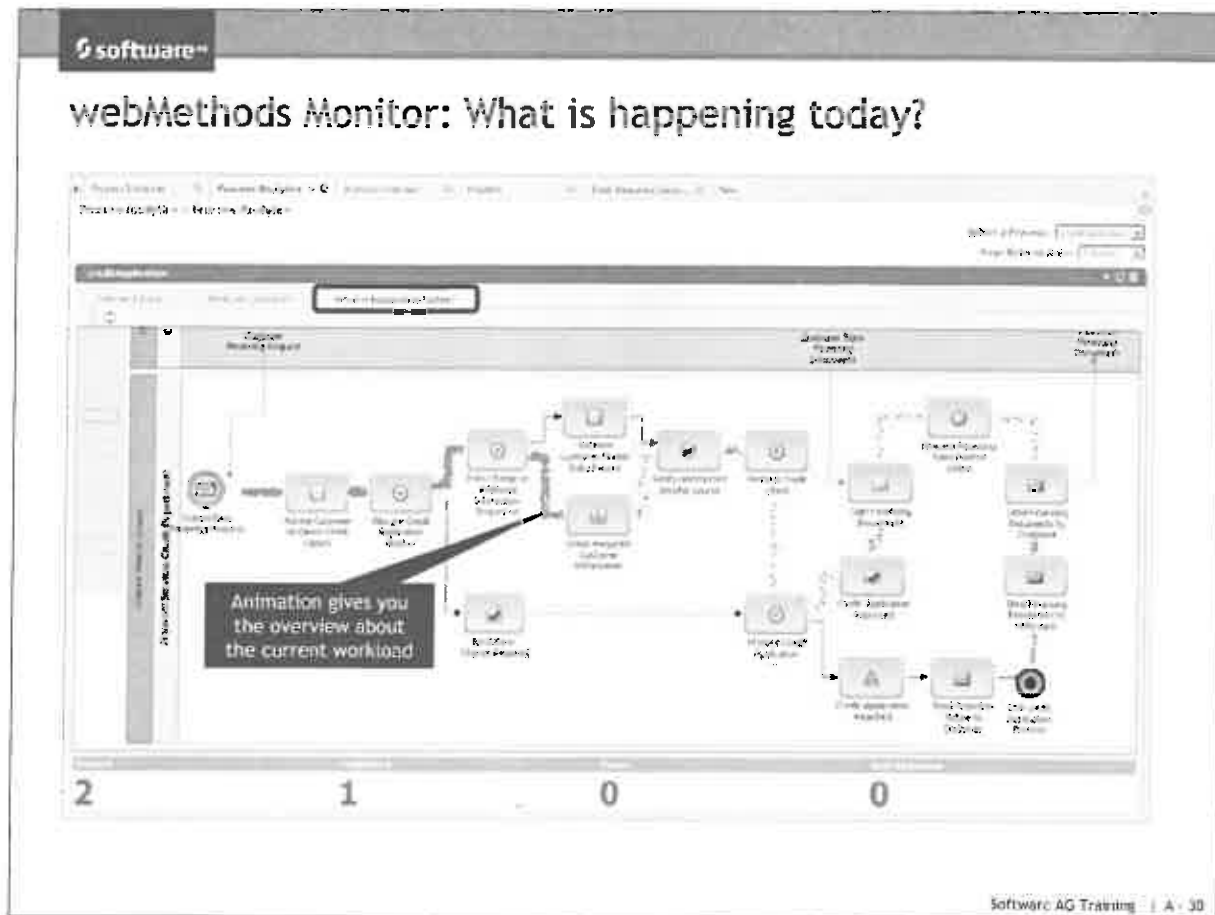
Notes: \_\_\_\_\_

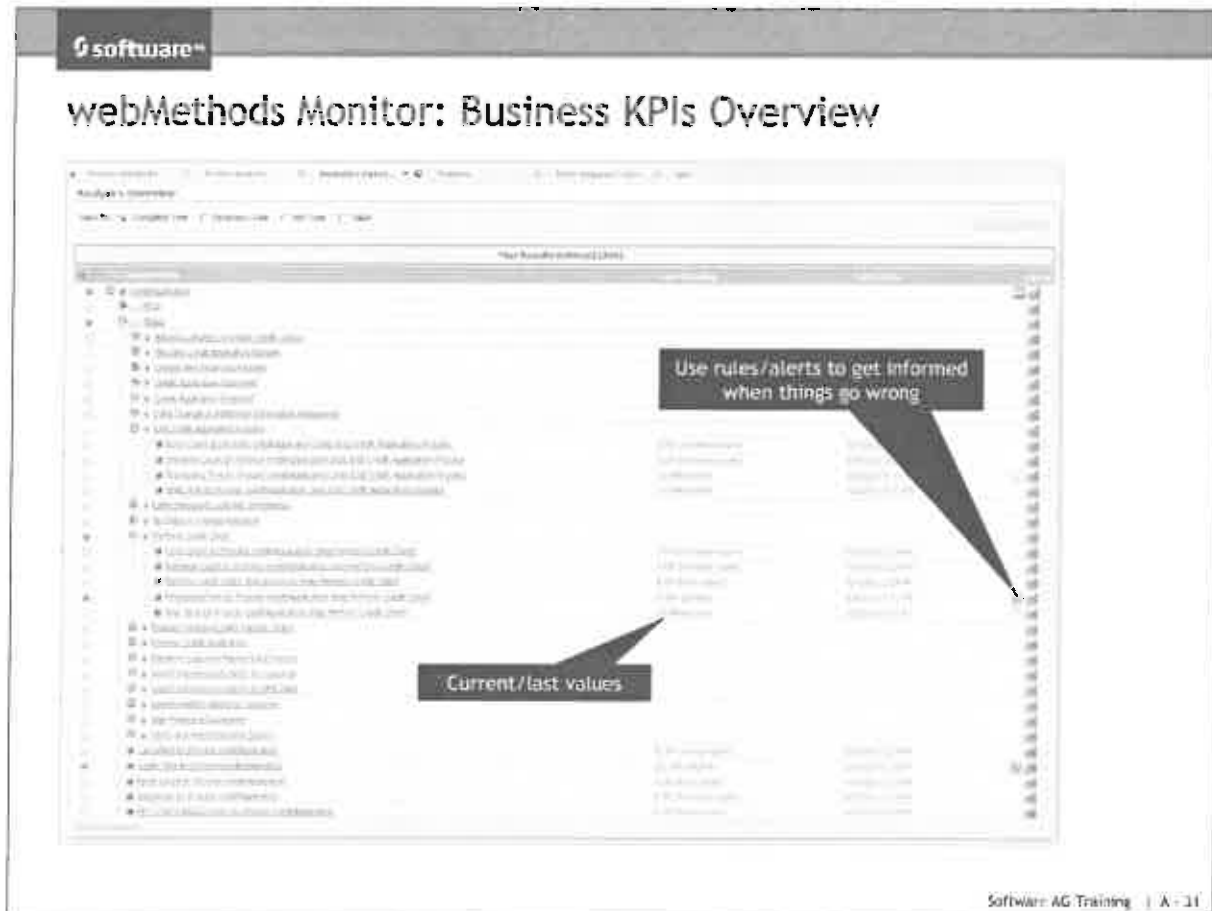
[illegible]

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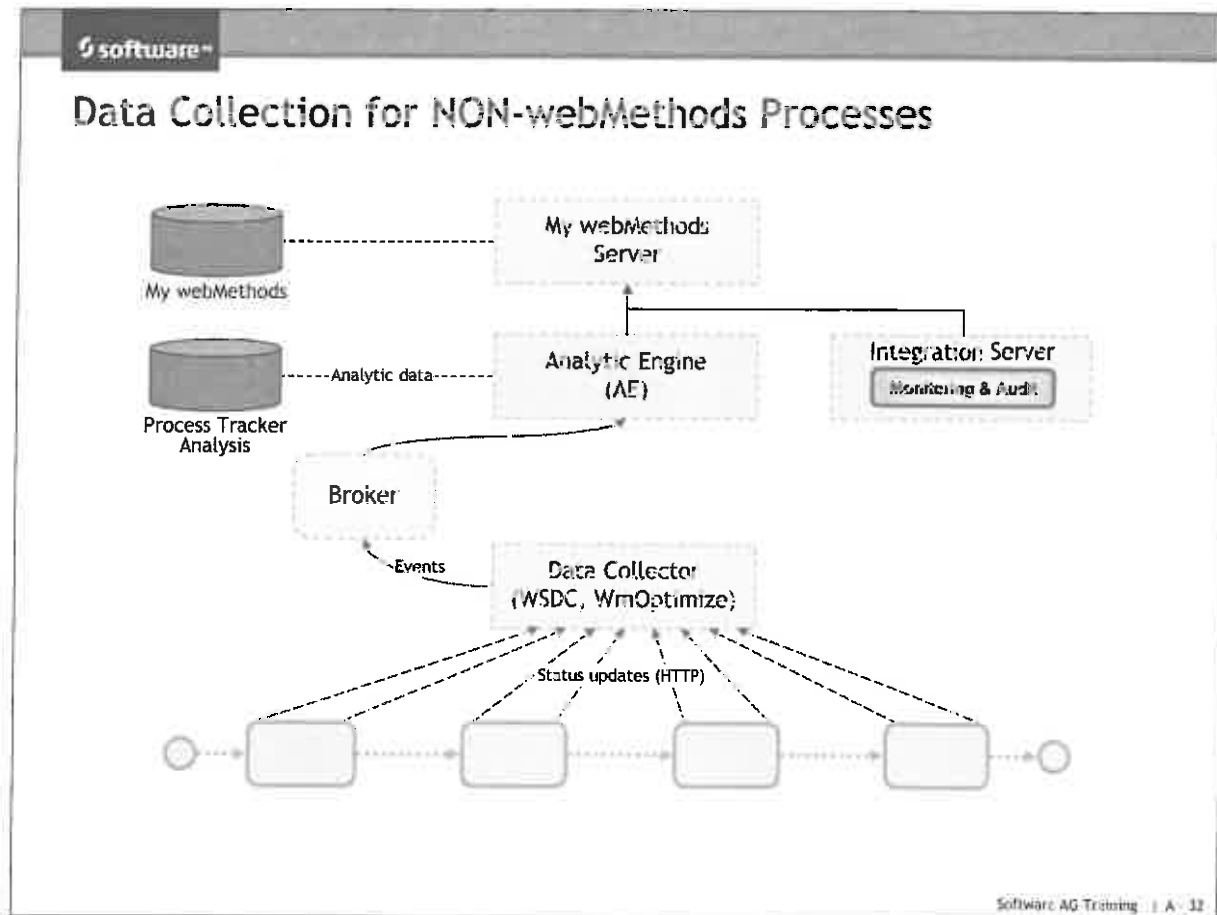
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**Notes:**

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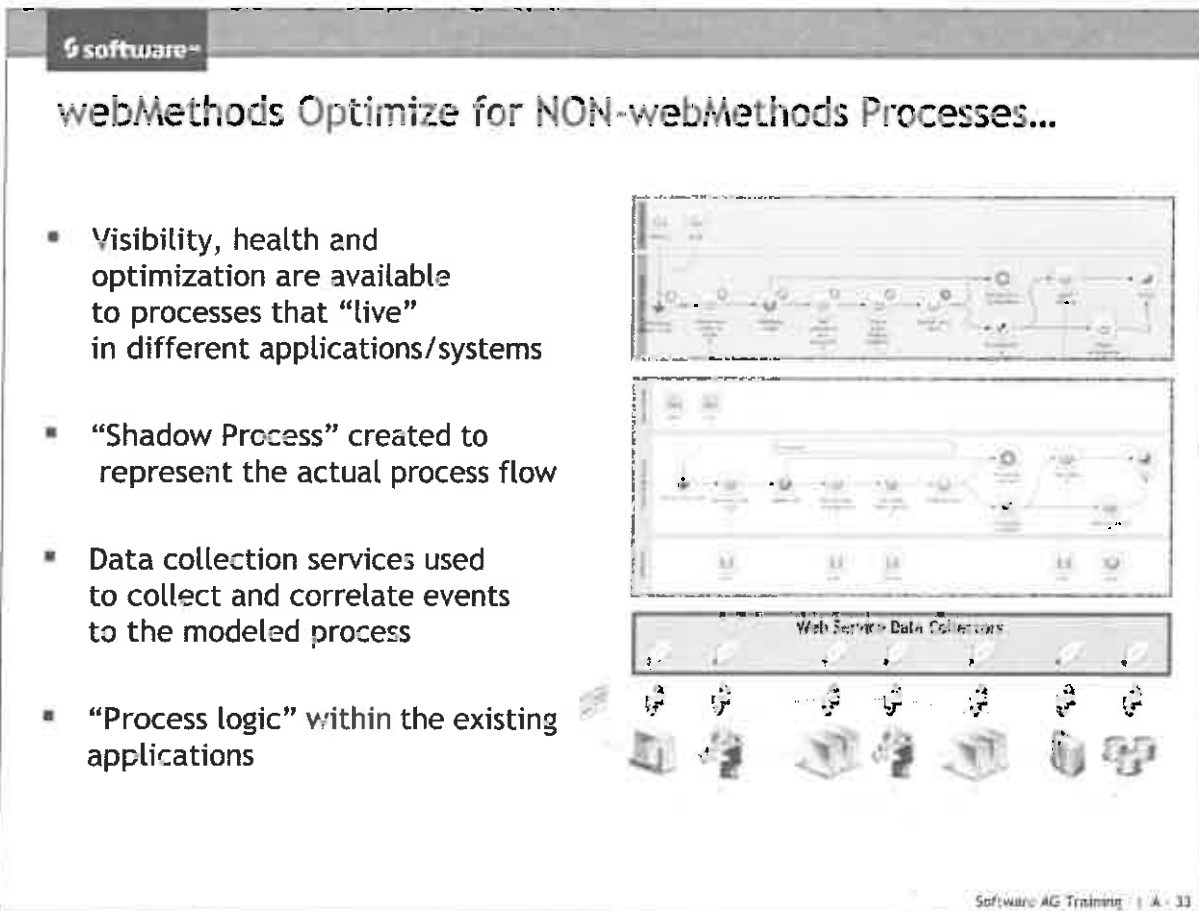


**Notes:**



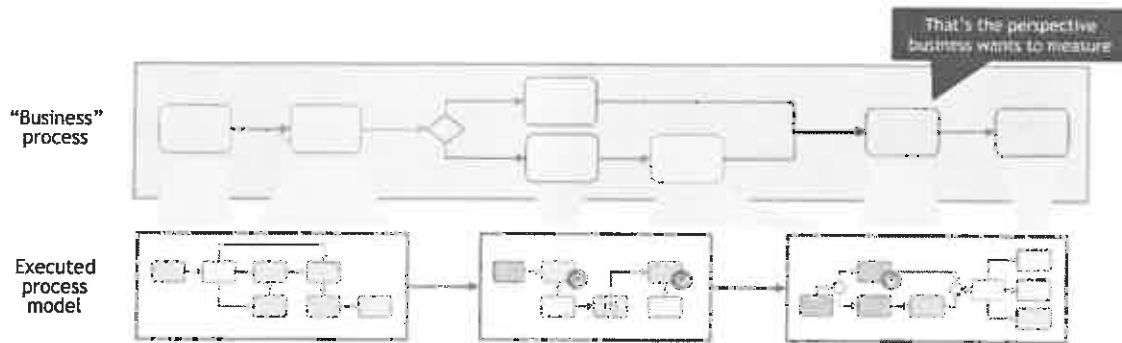
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## Notes:

## ...webMethods Optimize for NON-webMethods Processes...

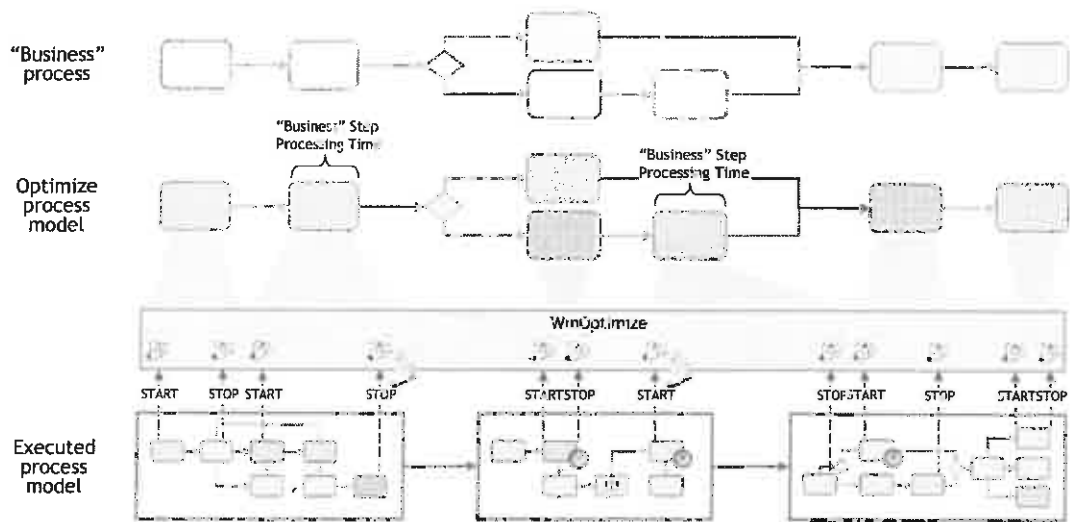


- The executed process model often doesn't reflect the "business perspective" of the process
  - implementation driven by IT needs
  - different granularity/complexity due to "technical" steps to be executed (e.g. data mapping steps)
  - implementation (probably) wouldn't address "business" requirements regarding end-to-end visibility and monitoring

**Notes:**



## ...webMethods Optimize for NON-webMethods Processes



- Combine Optimize capabilities to deliver the “business” view

[illegible]

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Notes: \_\_\_\_\_

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## Process Simulation



Notes: \_\_\_\_\_

[illegible]

## Objectives

- At the end of this section you will be able to
  - Create or import a process simulation model
  - Assign resources to steps in your simulation
  - Run a process simulation
  - Generate reports on the process simulation
  - Optimize inputs to be used by the simulation
  - Use historical data in your simulation

Notes: \_\_\_\_\_

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## Process Simulation...

- Process Simulation is designed to assist Business Analysts in understanding the process requirements
- Process Simulation assists the Business Analyst to define how the model should be created to ensure optimum performance
- It achieves this by providing a design-time view of runtime:
  - bottlenecks
  - capacity planning
- Has it's own Designer perspective
- Fully integrated into the Designer development environment
  - Not required to export/import into another tool



Process Simulation

Notes: \_\_\_\_\_

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## ...Process Simulation

- Encourages **scenario management**
  - Run various simulation scenarios to determine how the process will run under differing conditions
- Provides **activity based costing**
  - Process stakeholders can know projected costs aggregated by process, step resource and swimlane before process rollout
- Provides **multi-process simulation**
  - Analysts can know how the process behaves in the context of other processes
- Offers **integrated resource optimization**
  - Resources to be assigned could be optimized or gathered from historical data
- Provides **reporting tools**
  - Detailed simulation statistics are provided for further analysis

Notes: \_\_\_\_\_

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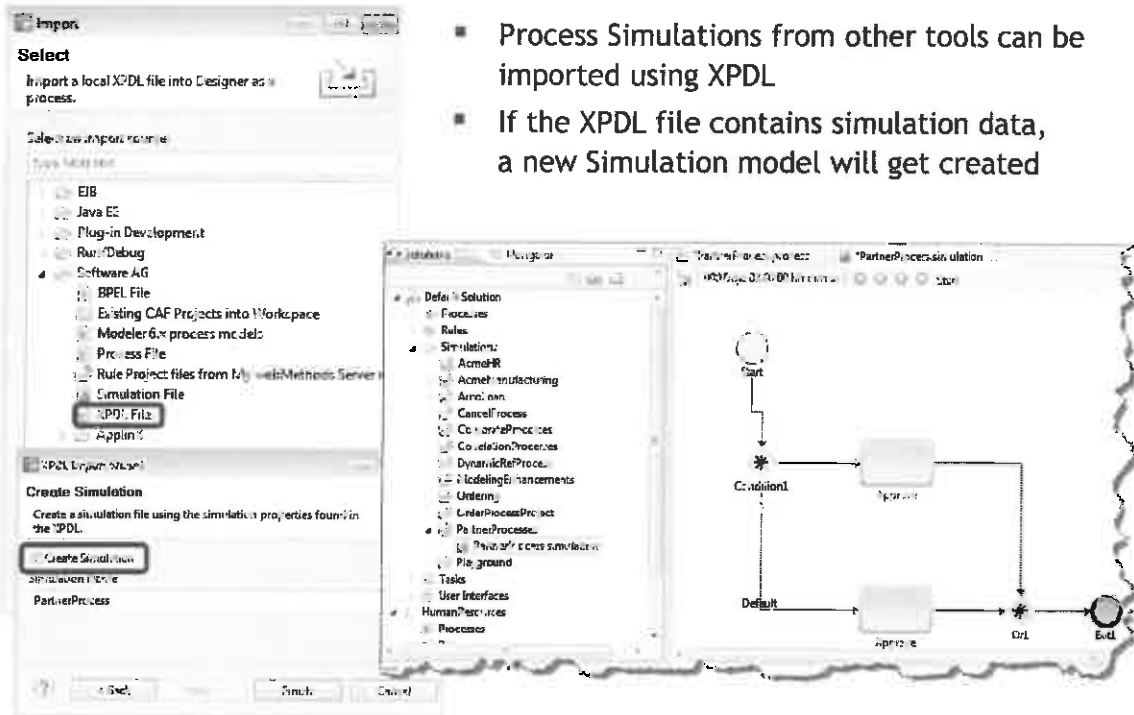
## Creating Process Simulation for an existing Process Model

1. Open the process model in Process Development perspective
2. Click the "Simulate Process" button
3. Select "Create new simulation from selected process"
4. Provide name and project

Software AG Training | 5-5

**Notes:**

### Or: Importing Process Simulation from XPDL File



Software AG Training | 8 - 6

Notes: \_\_\_\_\_

This image shows a single sheet of white paper with horizontal blue or grey ruling lines, typical of notebook paper. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. On the left side, there is a vertical margin line, creating a narrow left margin. The paper appears slightly aged or off-white.



software

## Running a Simulation - Default Scenario

You can immediately run a simulation

Completed Instances: 2154  
Queued Instances: 0  
Active Instances: 0

File New App  
Check Credit  
Determine Rate  
Review Response  
Grant Loan  
Reject

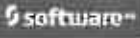
Each node shows how many instances are:

- Completed (bottom)
- Active (middle)
- Queued (top)

- By default, all outgoing transitions will be taken from each node
- Running the default scenario does NOT deliver reasonable results

Software AG Training | B-5

**Notes:**



## Adjust Simulation

- Adjust simulation to receive meaningful results
- Provide:
  - Transition distribution
  - Simulation period (Run Settings)
  - Incoming data volume and distribution at Start Event
  - Step scenario
    - Processing time
    - Assigned resources
  - Thresholds (Metrics)
- Required input can be based on:
  - historical or optimized data - best 😊
  - stakeholder input - better 😊
  - unfortunately, sometimes a best guess - bad! 😞

New Simulation created

Simulation "AutoLoan" has been created.

To run the simulation, you must first configure its Resources, Events and Run Settings.

OK

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Notes: \_\_\_\_\_

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# Setting Transition Distribution

Simulation! Not the process file!

Usually distribution will be "All transitions" (default) or "Custom"

Simulation node properties

**Review App**

Transition Distribution

Probability	Percentage	Check Credit	Reject
50		No	Yes
50		Yes	No

**Check Credit**

Transition Distribution

Probability	Percentage	Negotiate	Reject
50		No	Yes
50		Yes	No

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Notes: \_\_\_\_\_

[illegible]

91 Days 01:00:05 hh:mm:ss Start End Slow Fast

Simulation computation has finished  
Playback controls are now available

2184 messages received

Completed Instances: 2184  
Created Instances: 2184  
Active Instances: 0

Live Loan

Review App

Default

AutoLoanApplication/Amount >= 1000000

Check Credit

AutoLoanApplication/New

Reject

Grant Loan

Default

AutoLoanApplication/Year contains 20

Negotiate

Determine Rate

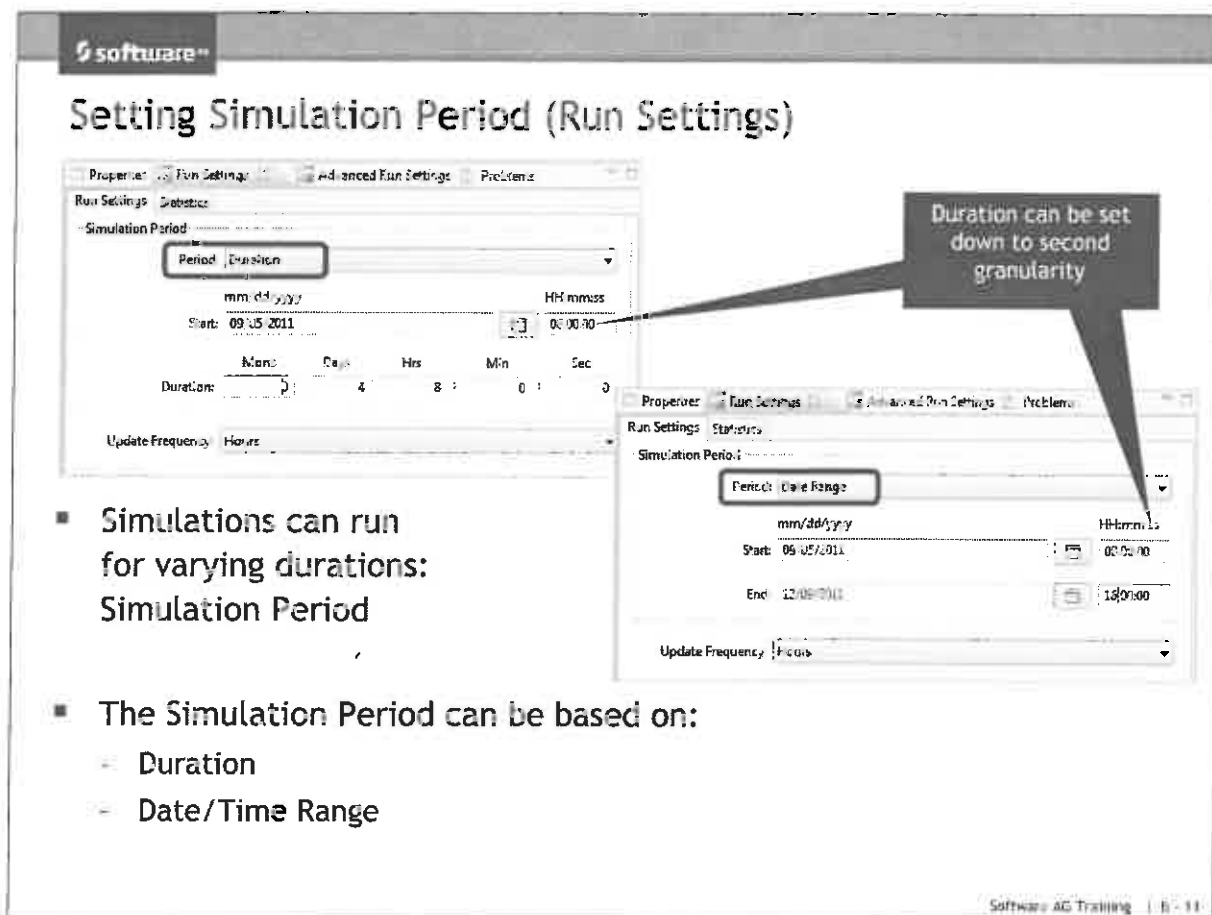
Review Response

1101 applications rejected  
(20% of 2184 +  
30% of 1742 +  
15% of 1255)

1742 applications needed to  
be checked (80% of 2184)

1255 applications to be  
negotiated (70% of 1742)

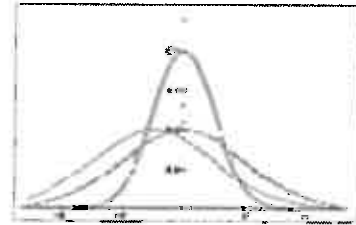
[illegible]



## Notes:

## Data Volume Statistics

- Meaningful simulation results require realistic data volume
  - Providing simulation data at a constant rate would not provide real world results
- Large, process driven organizations typically have reports and statistics on data trends
  - Some organizations have statisticians on staff who have analyzed the data
  - Some organizations have developed or purchased software for the analysis
- webMethods BPM is able to feed simulation data to the simulation based on common statistical data models
  - Set the statistical data model in the Start Message Event



Notes: \_\_\_\_\_

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The screenshot shows the 'Properties' window for the 'Receive Loan App' event. The 'Schedule' property is selected, and the 'Ellipsoid' model shape is chosen. The 'Rate' is set to 5.0, 'Time Interval' is 1, and 'Subtype' is 1. The 'Finish' button is highlighted.

**Setting the Data Volume Statistics**

1. Select the first Start Message Event
2. Select the "Schedule" property
3. Click the ellipsis button
4. Choose your statistical model
5. Configure the model shape
6. Click "Finish"

Notes:

## Simulation Resources

- Resources are used when process steps execute
  - Resources may be people associated with User Task Activities
  - Resources may be consumable items such as fuel or foodstuffs
- Resources typically have an associated cost
  - Salaried personnel can have a fixed cost
  - Hourly personnel may have variable cost
  - Foodstuffs may have a cost per ton
- By associating the cost and time with nodes in the process simulation, the Business Analyst can:
  - determine where money is being spent and can possibly be saved
  - determine how much the process will cost over a number of iterations or time duration



Notes: \_\_\_\_\_

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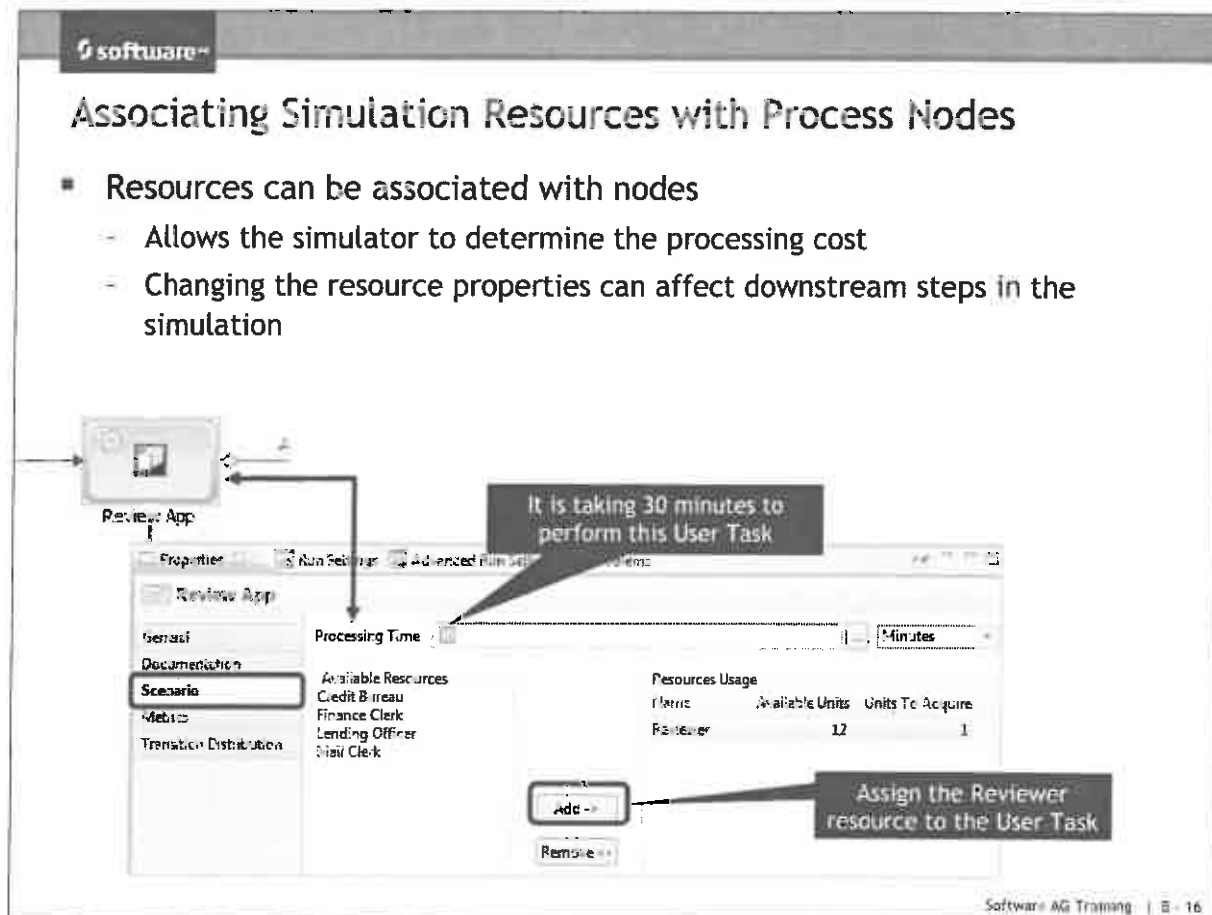
**software**

## Creating Simulation Resources

1. In the Resources view, click the + to add a resource
2. Set the number of units available
3. Click the "Cost" tab
4. Enter the fixed or variable cost

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[illegible]

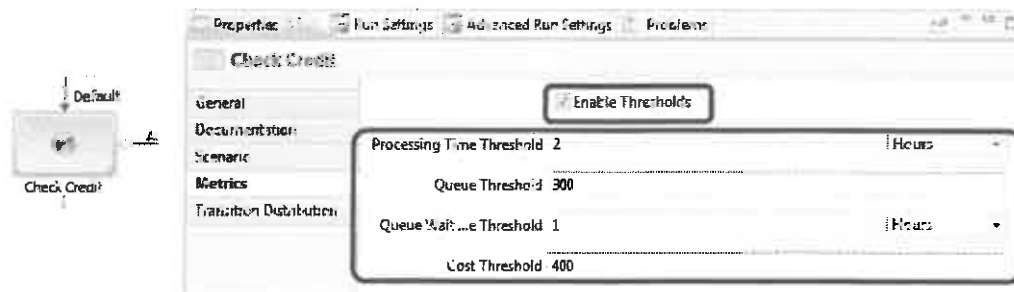


**Notes:**



## Setting Thresholds

- Define and enable thresholds on a per-step basis - if desired



- **Enable Thresholds: violation warnings**
  - *Checked:*  
Threshold values enabled in the Properties UI for editing, threshold violations will be displayed in the animation and the simulation report
  - *Unchecked:*  
Threshold values disabled in the Properties UI, violations will not appear in the animation or report



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Notes: \_\_\_\_\_

[illegible]

Simulation computation has finished  
Playback controls are now available.

Completed Instances: 164  
Created Instances: 250  
Active Instances: 66

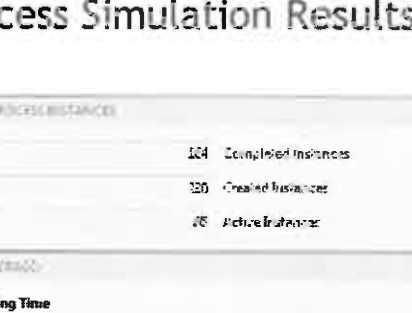
We need a lot more resources at this point in the simulation - 33% of the messages are queued - this is a bottleneck!

- Number of assigned resources has to be refined:
  - Try and Error ☹️
  - Use integrated Optimization engine 😊 (see later)

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Notes: \_\_\_\_\_

[illegible]



**TOTAL PROCESS INSTANCES**

Completed Instances	104
Created Instances	120
Active Instances	16


**TIME USAGE**

Processing Time	27700	Hours
Wait Time	270430	Hours
Process Cycle Time	273200	Hours

**COSTS INCURRED**

	11907	Euros
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- Simulator provides results during the simulation run
- Business Analyst can analyze the simulation results without deferring to another tool



Reviewer	Resource Name
608	Resource Used
4.0000	Average Usage / Instance
12.0000	Maximum Usage / Instance
0.0000	Minimum Usage / Instance
3420571	Quarterly Period Cost
3420571	Total Resource Cost

**Notes:**

The screenshot displays the 'AutoLoan process' window with the 'AutoLoan simulation' tab active. The simulation status bar shows '4 Days 08:40:00 h:mm:ss'. Playback controls include buttons for 'Start', 'End', 'Slow', and 'Fast'. A callout box points to the 'Start' button, stating 'Replay the simulation in animation mode'. Another callout box points to the 'Fast' button, stating 'Generate report'. A third callout box points to the 'Clear simulation results' button. A 'Simulation Report' dialog box is open, showing options for report format (Excel/CSV, CSV, or Generate Report as CSV), report name ('AutoLoan\_1315231(95)28'), and report location ('C:\Users\Administrator\...'). The 'Finish' and 'Cancel' buttons are at the bottom of the dialog.

- Simulation can be replayed (with different speed)
- Simulation results can be saved as simulation report in formats:
  - CSV
  - MS Excel
- Business Analyst may use the report for talking to process stakeholders

**Notes:**

## Generated MS Excel Report

Simulation Report for AutoLoan								
Actual Start Time	Sep 5, 2011 10:05:56							
Actual End Time	Sep 9, 2011 16:29:29							
Actual Duration	4:23:33							
Simulation Start Time	Sep 5, 2011 13:02:34							
Simulation End Time	Sep 5, 2011 16:02:39							
Simulation Duration	3:00:05							
Simulation Processed:	AutoLoan							
Simulation Results - Process Level								
Times, Costs, Counts								
Processes	Cycle Time	Processing Time	Wait Time					
	Avg	Avg	Avg	Avg				
AutoLoan	28.59/60s	0.75	27.8365s	46.001s				
Resource Utilization								
Resources	Consumption	Max	Min	Total				
	Avg							
AutoLoan		AutoLoan	AutoLoan	AutoLoan				

Different levels of report granularity are provided in the worksheets in the Excel Report

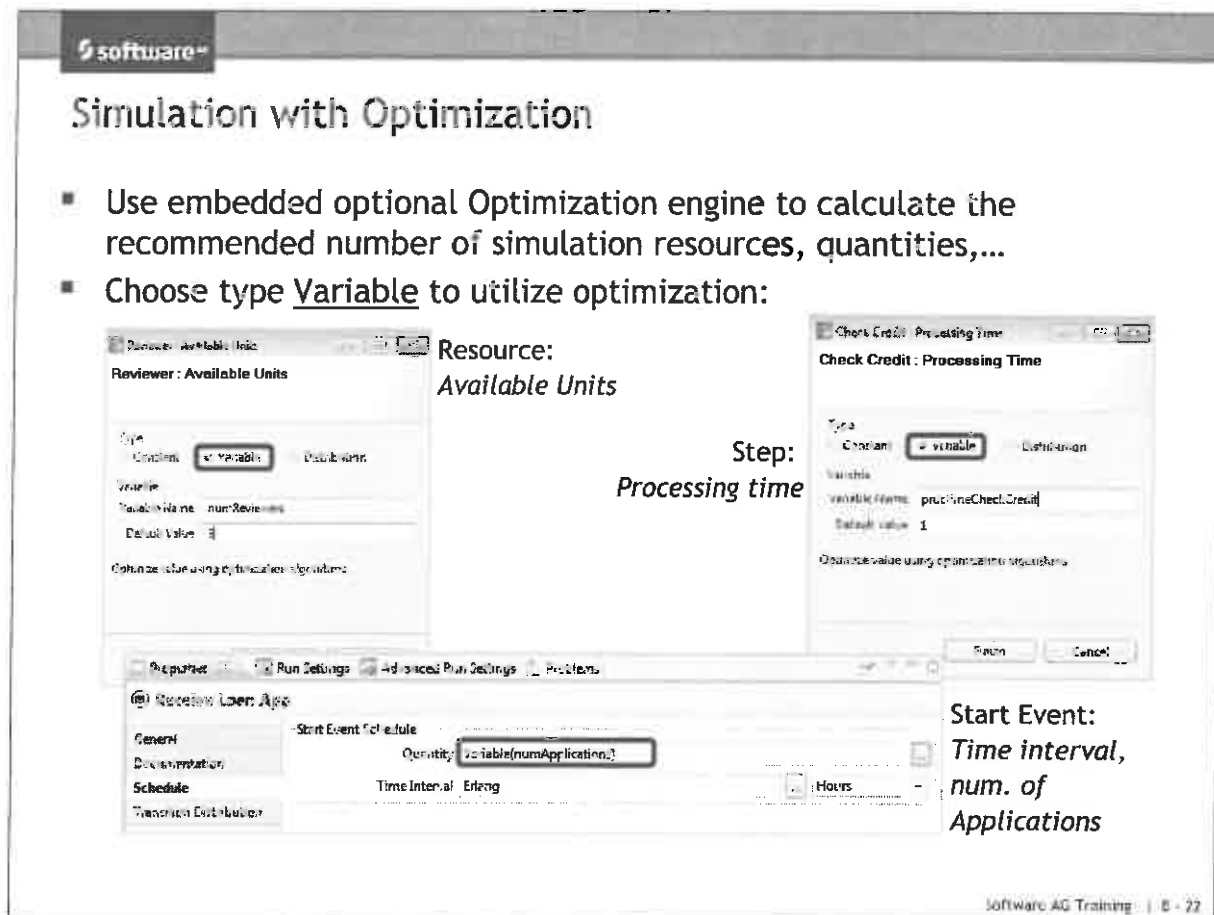
Process Level    Activity Level    Resource Level    Interval Settings    Simulation Settings    Worksheet

Different levels of report granularity are provided in the worksheets in the Excel Report

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Notes: \_\_\_\_\_

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins or other markings visible.

[illegible]



**software™**

## Configure Simulation Variables

- Optimize Engine configurations are done on the "Advanced Run Setting" view:

Advanced Run Settings

Variables Historical Data Optimization

Information

Clear Optimized Values Clear Historical Data Values Clear All Values

Variable Name	Referenced Component	Data Source	Value
procTimeCheckCredit	Check Credit processing time	Default	1
numLendingOfficers	Lending Officer available	3	3
numFinanceClerks	Finance Clerk available	10	10
numApplications	Receive Loan App quantity	Historical	10
numReviewers	Reviewer available	Default	10
		Default	12

All Variables currently available in simulation

- Three different Data Sources for Simulation Variables:


- **Default:** Fixed integer value
- **Optimized:** Value to be calculated by integrated Optimization Engine (not BAM!)
- **Historical:** see later...

Default  
Historical  
Optimized

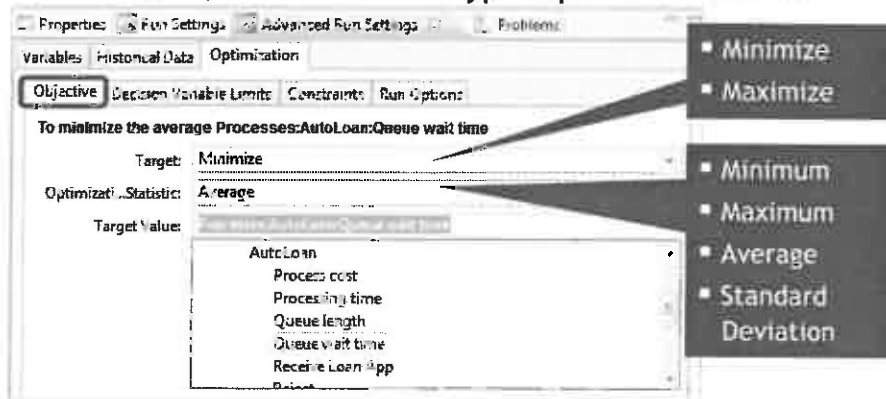
Notes: \_\_\_\_\_

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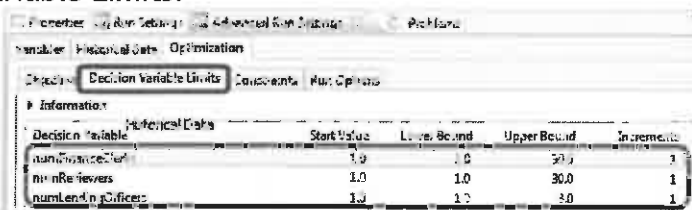
### Configure Optimized Simulation Variables...

- Optimization sub tab used, if Data Source type "optimized" chosen
- Specify:
- 

a) Objective:



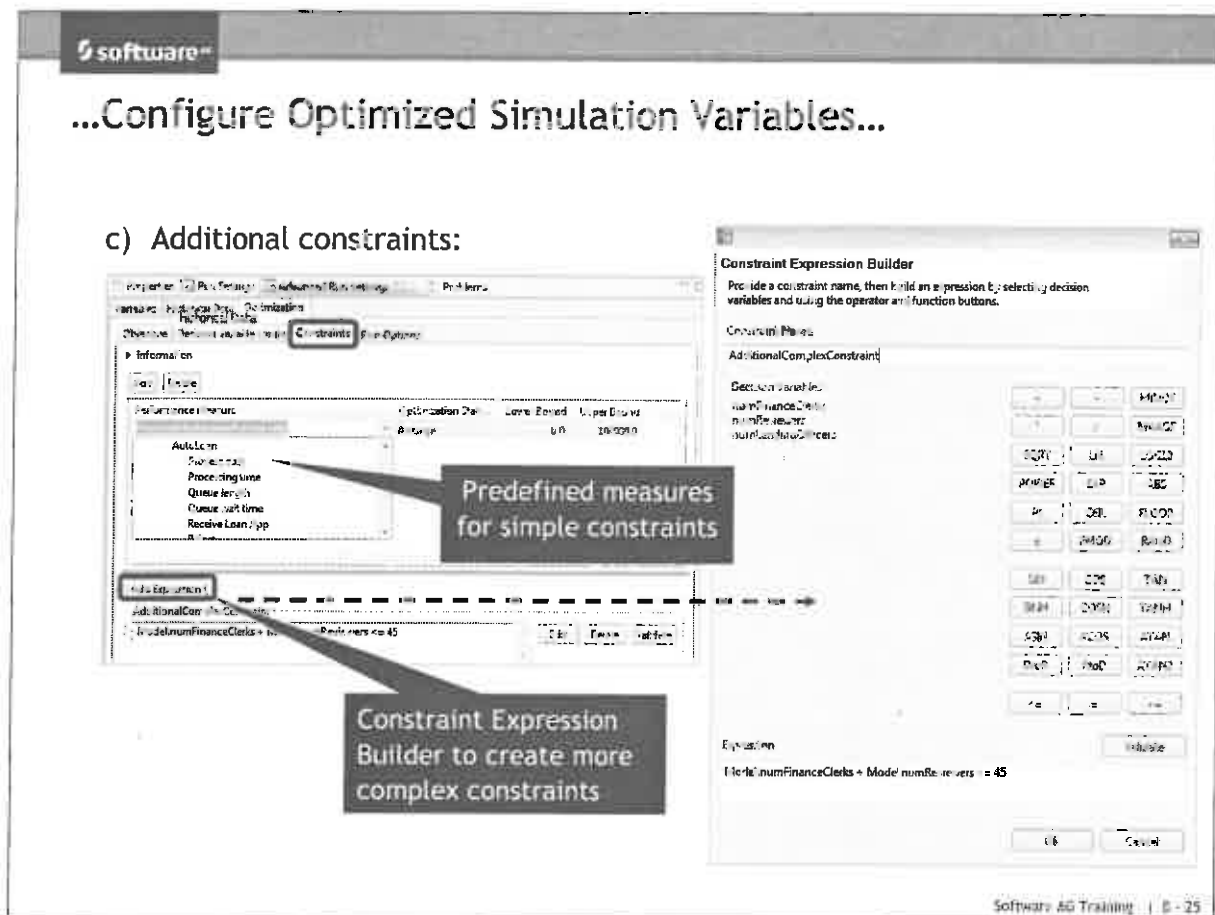
**b) Decision Variable Limits:**



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Notes: \_\_\_\_\_

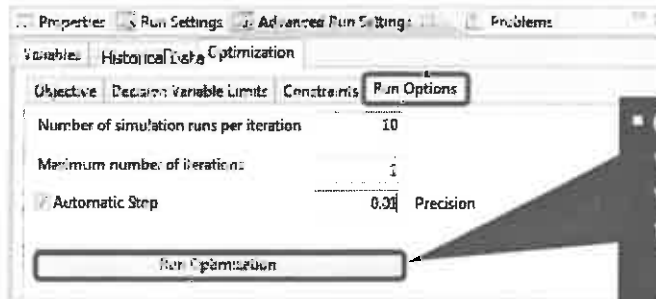
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**Notes:**

### ...Configure Optimized Simulation Variables

#### d) Optimization Run Options:



- Clicking "Run Optimization" will calculate optimized value(s) for variable(s) of type "Optimized"
- Can be done in an incremental manner or for many variables during one simulation

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Notes: \_\_\_\_\_

[illegible]



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## Historical Data used in Simulation

```

graph LR
    ED[External Data] -.-> CFA[Curve Fitting Algorithm]
    BD[(BPMS Data)] -.-> CFA
    CFA --> SP[Simulation Perspective]
            
```

- Receive frequency *Poisson*
- Processing times *Normal*
- Transition probabilities *Percentages*
- Resource availability *Erlang*
- :
- :

- Simulation can use historical runtime BPMS data
- Simulation can use historical external data sources
- Embedded Curve Fitting algorithm allows to calculate fitting distribution

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Notes: \_\_\_\_\_

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## Assigning Historical Data...

- Data Source of a Simulation variable can be "Historical":


Variable: **Checking Date** Optimization

► Information

Check On-line at Date:  Check All Values

Variable Name	Selected Component	Default Source	Value
practiceChief Check	Check On-line processing time	Default	1
practisingOfficer	Learning Officer available	Optimized	1.0
practisingOfficer	Finance Clerk available	Optimized	1.0
practisingOfficer	Re-treiver available	Optimized	1.0
practisingOfficer	Re-treiver not available	Microcal	part-666666
		Default	
		Optimized	

- Use Historical Data sub tab to define source of historical data:



- **BPMS:** Data from Optimize DB
- **File:** Data from external file

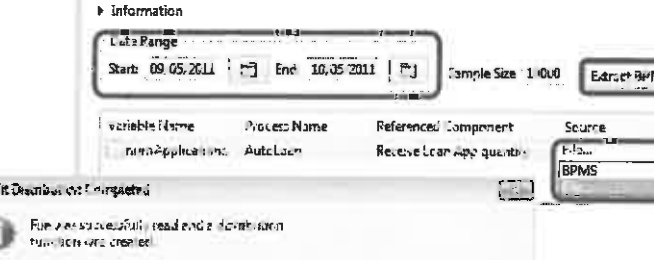
- Historical data are related to a certain process version, probably these data won't fit to the version I'd like to simulate

Notes: \_\_\_\_\_

[illegible]

### ...Assigning Historical Data

- Specify data range
- Provide/extract historical data
- Create fitting distribution from historical data
- Results are pasted into Variables view



The screenshot shows the SAS Enterprise Miner interface. The 'Fit Decision Tree' dialog box is open, displaying the following information:

- Information:**
  - Data Range:** Start: 09/05/2011, End: 10/05/2011, Sample Size: 1400. A button 'Extract BPMS Data' is visible.
  - Variable Name:** numApplications
  - Process Name:** AutoLoan
  - Referenced Component:** Revised Loan App quantity
  - Source:** F12, BPMS
- Fit Decision Tree:** Run was successfully read and a decision tree has been created. A 'Go' button is present.

Below the dialog box, the 'Variables' tab is selected, showing a table of variables and their values:

Variable Name	Referenced Component	Data Source	Value
proctimeCheckCredit	Check Credit processing time	Default	1
numLendingOfficers	Lending Officer available	Optimized	1.0
numFinanceClerks	Finance Clerk available	Optimized	1.0
numReviewers	Reviewer available	Optimized	1.0
numApplications	Revised Loan App quantity	Historical	Unoptimized, BPMS, 1.0















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Notes: \_\_\_\_\_

[illegible]



### Simulation Variables Support Matrix

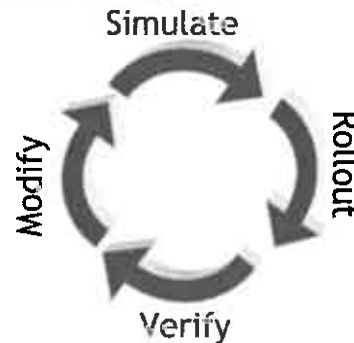
Possible Simulation Variable	Can find value using Optimization	Can be read from Simulation DB	Can be read from elsewhere, e.g. tab-delimited file
Resources			
Processing time per step			
Resource depletion			
Process instance frequency			
Process instance volume			
Transition distribution (can't be optimized)			

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**Notes:**

## Simulation - Remarks and Suggested Practices

- Accurate simulation results take time to create and require input from stakeholders
- Adding model resources and timings to \*all\* steps is required to create accurate results
- Use Optimization and historical data to optimize simulation resources
- Simulation - like your model - is a constant work in progress for continual improvement
- However, the ROI of properly configured simulations can be very significant



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Notes: \_\_\_\_\_

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## Appendix C

### BPMS Architecture



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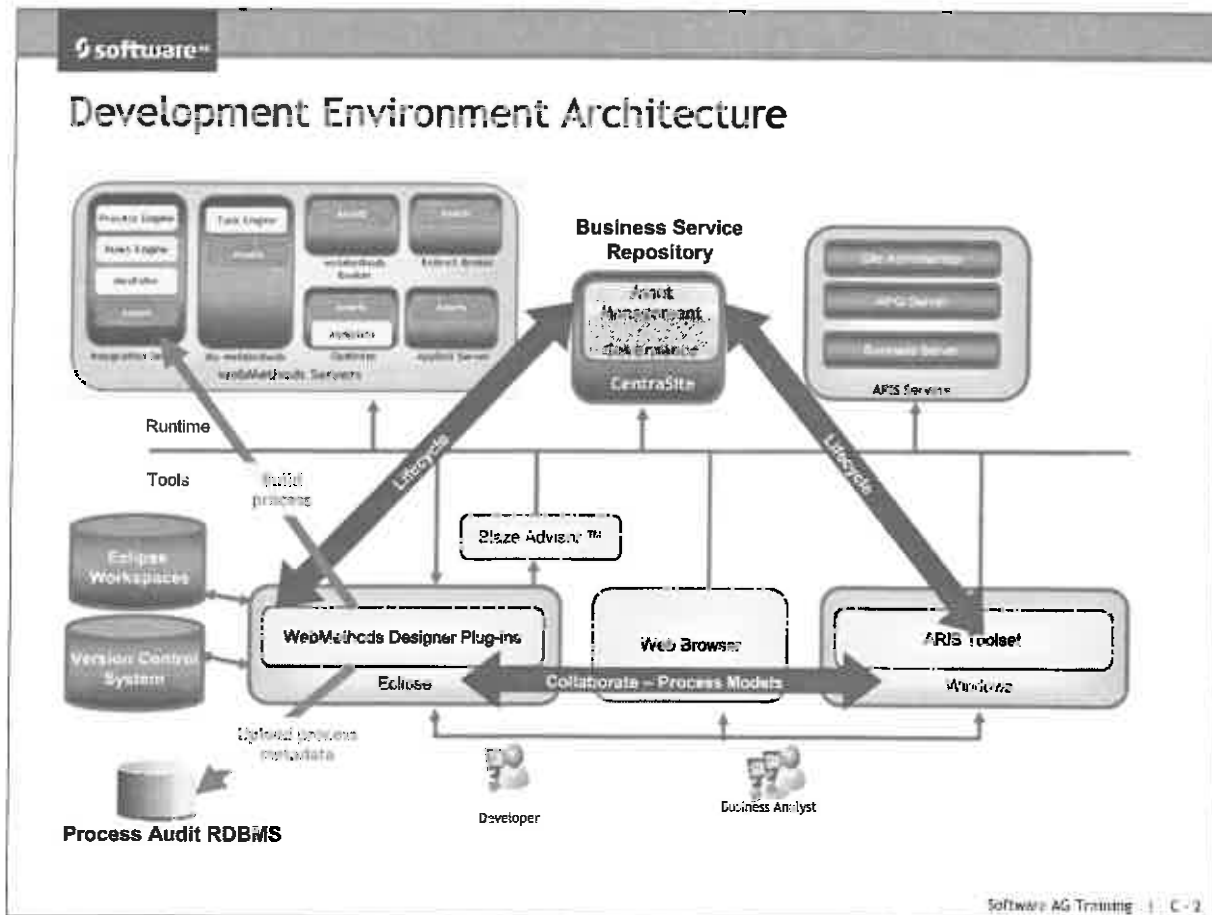
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**Notes:**

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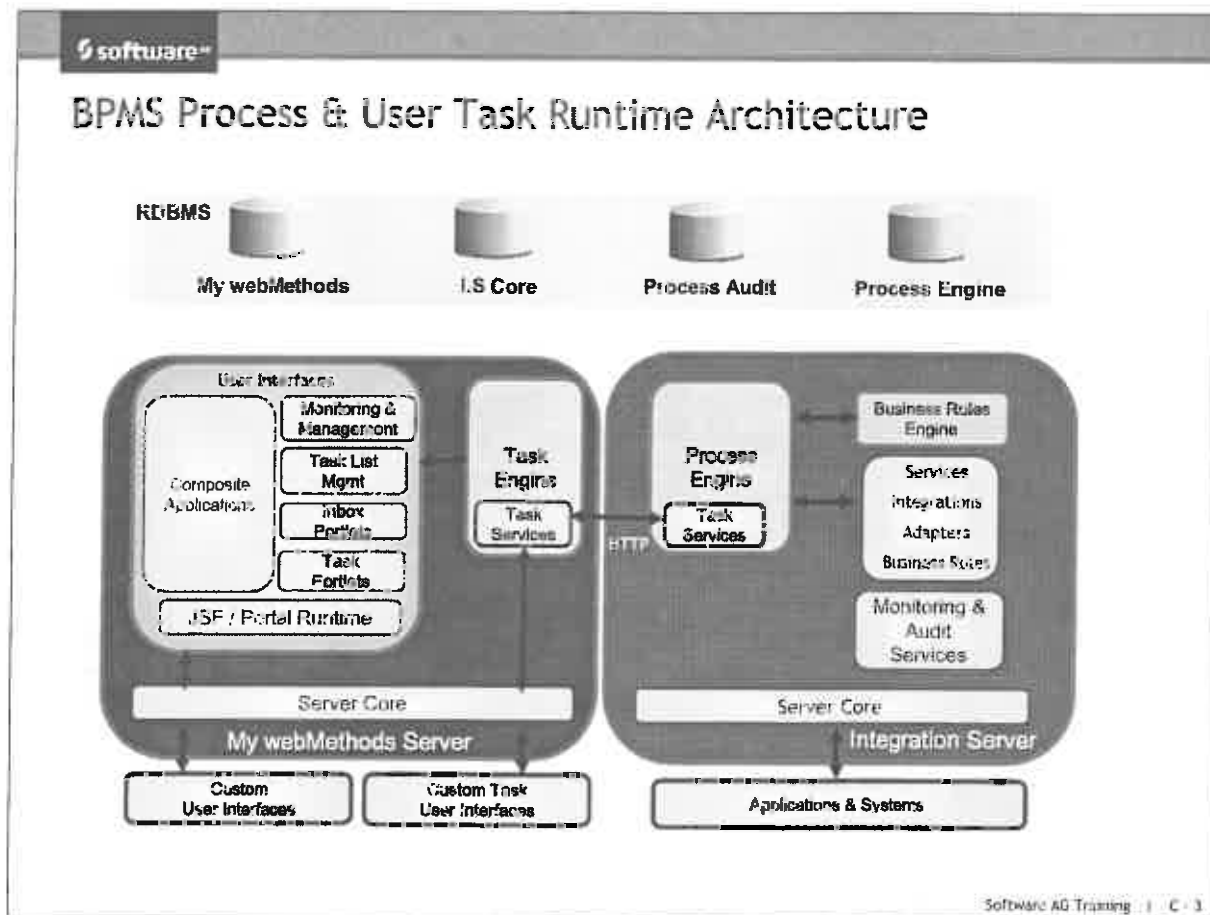
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## Notes:

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