IBM Software Group

WebSphere® Process Server V6.0
WebSphere® Integration Developer V6.0

Business Rules

@business on demand.

© 2005 IBM Corporation
Updated November 2, 2005

This presentation will cover Business Rules technology in WebSphere Process Server and WebSphere Integration Developer V6.0.

Business Rules – Goals

A definition of Business Rule will be provided first, followed by an explanation of how Business Rules are organized. This will help to establish the foundation of how Business Rules work. A discussion of why Business Rules exist and which employee roles use them will follow. To show the different offerings between tools and runtime, the two will be split apart to cover the details. Examples will also be provided to help you understand how Business Rules can be used. Finally, the past, present, and future direction of Business Rules will be discussed.

WPSWIDv6_BusinessRules_Overview_ds
.ppt

Business Rules - Agenda

- **What is a Business Rule**

- How are Business Rules organized

- Why there are Business Rules and the roles who use them

- Business Rules in Tools and Runtime

- Business Rule examples

- Yesterday, Today, and Tomorrow

- Summary and References

Business Rules

3

This section will provide a definition of Business Rules.

Business Rules – What is a Business Rule?

Business Rules can be thought of as an if-then business decision. For example, If the discount is 10%, the total would equal the total minus the total times the discount rate of 10%. So a total of 55 with a 10% discount would be 49.5 after the discount.

Business Rules evaluate the business rule on an input using an if-then construct, then change a state or save or return some output. In the previous example, the variables "total" and "discount" were the inputs and outputs.

A Business Rule is used to help abstract the client from implementation. So a calling client, whether it is BPEL or a Selector, does not care how a business rule performs its function, they simply send in the inputs/outputs and expect something to change.

Organization will be covered next, but you should know that Business Rules are assembled into Business Rule Groups and can be implemented in one of two ways, Rule Sets or Decision Tables, as shown in the graphic on the right.

Business Rules - Agenda

- What is a Business Rule

- **How are Business Rules organized**

- Why there are Business Rules and the roles who use them

- Business Rules in Tools and Runtime

- Business Rule examples

- Yesterday, Today, and Tomorrow

- Summary and References

Business Rules

5

© 2005 IBM Corporation

This section will cover the organization of Business Rules.
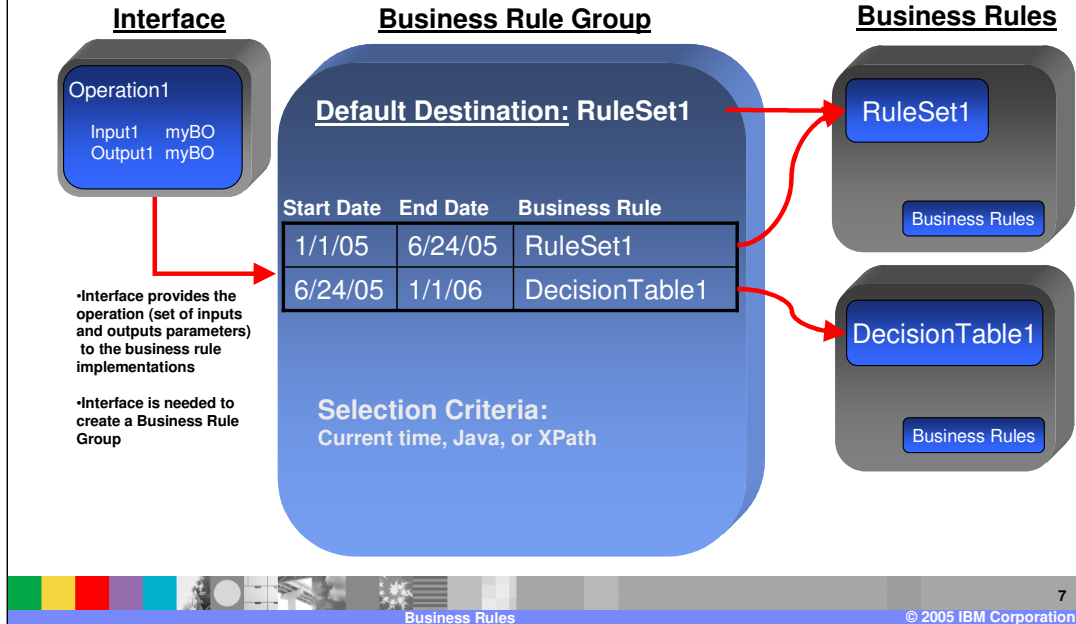
Business Rules – Business Rule Group

Simply put, a Business Rule Group is the highest level implementation component for a Business Rule. The main idea behind a Rule Group is to gather Rule Sets or Decision Tables that share a common business focus. However, it also serves as the gateway to the Business Rules since it is exposed in the runtime as an SCA service, meaning all other services invoke a Business Rule on a request sent by a client, such as BPEL or Selector through the Rule Group. A Rule Group also provides the interface for Rule Sets and Decision Tables to work off. Therefore, a rule group must be established before a Rule Set or Decision Table can work.

One of the most important functions the Rule Group does is define a date/time range for when a business rule is going to be used For example, between 1/1/05 12:00am to 1/1/06 12:00am, use DecisionTable1. If any other date, use RuleSet1. Which Business Rule to use is determined by the date/time provided during invocation. There are 3 ways to get a date/time to determine which business rule to use. It can be either the current date/time, "mined" from the input parameters using Xpath, or "mined" using a Java snippet. Mined means using code that finds a date/time parameter inside the input sent to the Business Rule or from an SCA service able to be accessed by the code. Rule implementations can be "scheduled" for a point in the past, present, or future. This provides the ability to invoke a process as it was in the past, or switch over to the next version of a business rule on a future date.

Business Rules – Business Rule Group

Interface   **Business Rule Group**   **Business Rules**

Operation1

Input1   myBO
Output1 myBO

Default Destination: RuleSet1

RuleSet1

Business Rules

Start Date	End Date	Business Rule
1/1/05	6/24/05	RuleSet1
6/24/05	1/1/06	DecisionTable1

•Interface provides the operation (set of inputs and outputs parameters) to the business rule implementations

•Interface is needed to create a Business Rule Group

Selection Criteria:
Current time, Java, or XPath

DecisionTable1

Business Rules

7

Business Rules   © 2005 IBM Corporation

This graphic illustrates how a Business Rule Group works. From left to right an Interface, which is an XML based WSDL file, provides the Rule Group with some inputs and outputs that will be used in a Business Rule. Again, the Rule Group needs an interface in order to work.

Once the Rule Group is created, a default business rule must be selected. This gives the Rule Group the ability to always call on a Business Rule no matter what dates are supplied.   Date/time selections will then be added to specify which Business Rules will be used for those certain date/times.

The parameter method simply states how the date/time will come in when being invoked. The 3 options again are to use the current system time or "mine" for the date/time using either Xpath or a Java snippet.

Business Rules – Rule Group
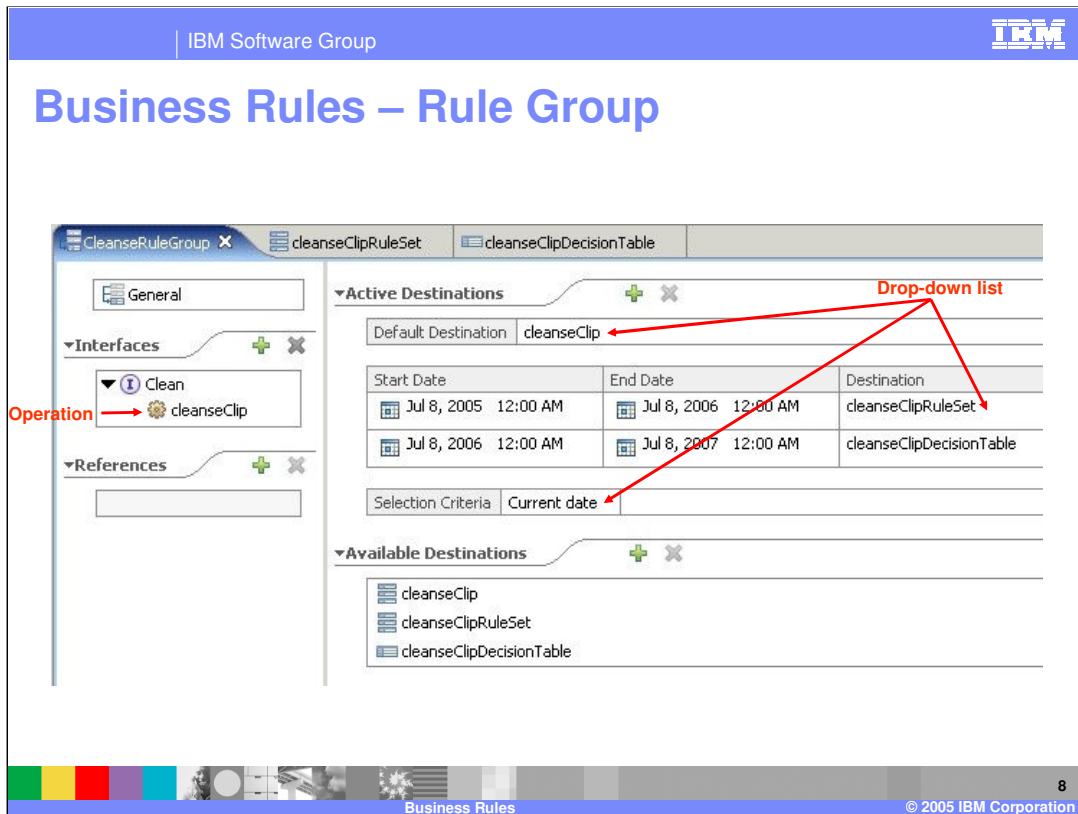
This screenshot shows a Rule Group in WebSphere Integration Developer. In this example, the "clean" interface for cleanseClip is used.   It has a default destination of cleanseClipDecisionTable and then two date/time selections splitting up 2005. The parameter method being used is Java, which means a Java snippet will be used to "mine" for a date/time used for the two selections above it.

The Possible Target Destinations lists all the Rule Sets or Decision Tables found that the Rule Group could use. The Partner Ref is really called a PartnerLink. It is used to connect a Business Rule Group with BPEL so the BPEL can call a Business Rule in the Rule Group, or possibly the other BPEL has a Business Rule that this Rule Group will use.

Business Rules – Rule Set

Business Rules can be implemented in one of two ways. The first way is using Rule Sets.

A Rule Set is a set of one or more if-then condition/action statements that are evaluated sequentially. Therefore, the first business rule listed will be the first one evaluated when called upon at runtime. The second will be evaluated second, and so on until the last one is evaluated. Rule Sets hold any number of Action/If-Then conditions. To Explain further, an Action does not have an If-Then condition, it simply initializes or sets variables, but the If-Then Condition does all the work to decide on a variable change. A Rule Set can evaluate multiple conditions and fire multiple rules. This might be needed when a rule is found true and fired, then more processing must be done to fire any other Business Rules in that Rule Set.

Business Rules – Rule Set

Business Rule Group

Rule Set

Ruleset1

▾Rule Set
Detailed properties for this rule set.

Ruleset1

▾Interface

	Name	Type
Input(s)	inClipBG	ClipBG
Output(s)	outClipBG	ClipBG

▾Variables

Name	Type
temporaryVar	string

▾Rules

Name	Action1
Presentation	
Action	temporaryVar = "NULL"

Name	Rule1
Presentation	
If	inClipBG.Clip.color == "red"
Then	outClipBG.Clip.color = "red#5"

Undo Delete Rule
Redo
Delete Item
Show in Properties
Add Action Rule   Ctrl+Alt+A
Add If-Then Rule   Ctrl+Alt+F
Add Template Rule   ▸
Debug   ▸
Save

Business Rule

▾Templates

10

Business Rules

© 2005 IBM Corporation

The visual representation of a Rule Set is shown in this WebSphere Integration Developer screenshot. A Rule Set is part of a Business Rule Group and operates off the Interface inputs and outputs provided by the Business Rule Group. Moving sequentially down the picture, there is a Variables section where you can create temp variables. Next is the Business Rules section of the Rule Set. This is where the business rules will be listed or created. The Ruleset offers two types of Business Rules to create, an Action and an If-Then rule. An action is simply a "do" statement, which performs an action without an if-else condition. The If-Then Rule takes a condition in order to make a decision on the output.

Notice that a template was created from this Business Rule. Templates are a very important part of Business Rules and will be discussed in the runtime section.

IBM

Business Rules – Decision Table

- Decision Table represents a multi-dimensional nested if-then structure
  - ▶ The decision table is broken down into a tree decision structure
  - ▶ A set of "if" conditions with "then" actions are defined at the intersection points of the table

- Conditions are evaluated in a nested order (tree)

- Evaluates 1 or more conditions, fires only one rule
  - ▶ Most rules will fall under a decision tree
    - Handles multiple rules efficiently (tree structure instead of sequential)
    - Most business rules are called to fire one rule

11

Business Rules

© 2005 IBM Corporation

The second way business rules can be implemented is using Decision Tables.

A Decision Table represents a multi-dimensional nested if-then structure that can be thought of as a Rule Set capable of handling more complex decisions than a simple if-then. The decision table is broken down into a tree decision structure, with a set of "if" conditions with "then" actions defined at the intersection points of the table. Conditions are evaluated in a nested order or tree view. It evaluates 1 or more conditions, but fires only one rule. Most rules will fall under a decision tree since most business rules are called to fire one rule.

Business Rules – Decision Table

Decision Tables also derive the interface inputs and outputs from the Business Rule Group. However, the Decision Table is much different from Rule Sets. In this example, the top row of the Decision Table represents the input (input1) and the output is represented on the second row (output1).   It reads like "If inClipBG.Clip.color equals "red", then outClipBP.Clip.color gets "red#5"" and so on. You can add new Conditions, Condition Cases, and Actions, and convert the Decision Table to a Template from the tools.

IBM

Business Rules – When to use Decision Tables vs. Rule sets

- Use Decision Tables when..
  - ▶ You want rules in a table format
  - ▶ When the same decision criteria are used in many rules
  - ▶ You want to fire only one rule
    - Can be multiple actions for the one rule

- Use Rule Sets when…
  - ▶ You want rules written in natural language
  - ▶ You have rules with a few clauses/variables in the conditional statements
  - ▶ You want to fire multiple rules

Business Rules

13

© 2005 IBM Corporation

Here is some criteria to help you decide when to use a Rule Set and when to use a Decision Table.

Use Decision Tables when you want rules in a table format or when the same decision criteria is used in many rules. More importantly, use a Decision Table when you want to fire only one rule. It handles multiple rules efficiently, evaluates in a tree structure instead of sequential, and allows you to enact multiple actions for the 1 rule that is fired (for example found true)

Use Rule Sets when you want rules written in natural language or you need to fire multiple rules.   Rule Sets are the easier of the two to understand since their UI shows a straight representation of an if-then construct. Evaluating sequentially can be inefficient when there are many rules.

Business Rules - Agenda

- What is a Business Rule

- How are Business Rules organized

- **Why there are Business Rules and the roles who use them**

- Business Rules in Tools and Runtime

- Business Rule examples

- Yesterday, Today, and Tomorrow

- Summary and References

14

Business Rules   © 2005 IBM Corporation

This section will cover the purpose of using Business Rules and discuss the employee roles that use Business Rules
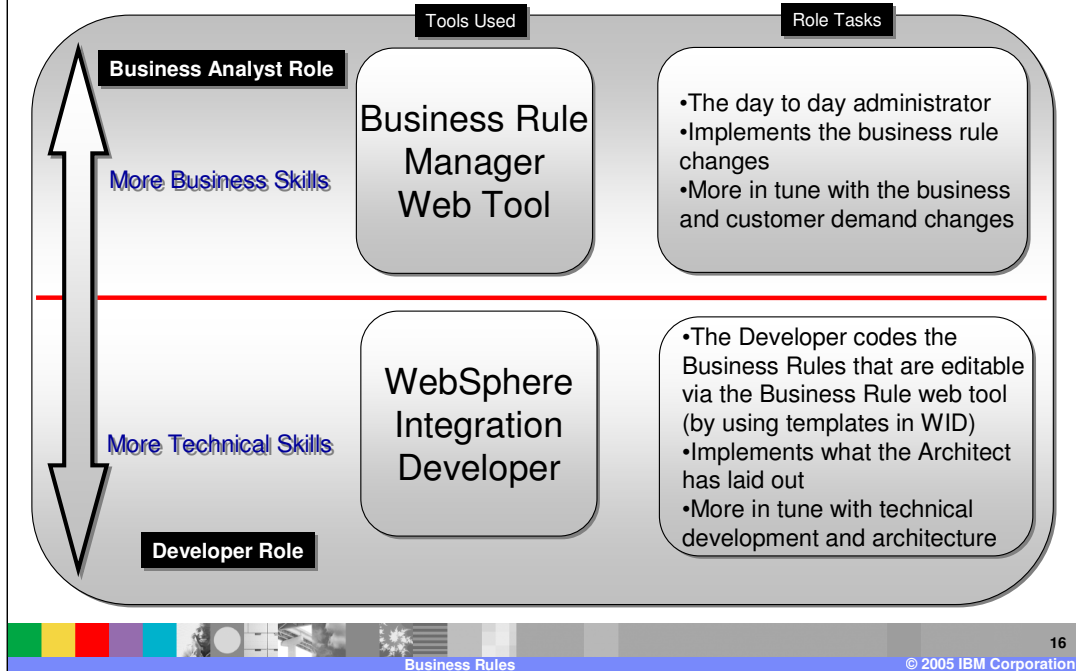
Business Rules – Why there are Business Rules

Business Rules are also important for supporting Business Process Management (BPM) because they help any size business proactively change processes for future events or speed response to changing customer demand. Big businesses with a great deal of processes can be slow-moving when responding to customer demand changes. With Business Rules, processes can be changed in minutes so the big business can be more agile.   Small businesses need the ability to scale and grow fast, to add processes as needed, and change them fast. Business Rules are very useful in this case.

All size businesses realize how important IT flexibility and efficiency is. Business Rules help keep IT flexible by freeing up development from having to do tasks that a more business experienced person could do. Meaning, a developer does not have to be bothered every time a simple rule needs to be changed. A Business Analyst person that is more in tune to business needs can make that change quickly. Business Rules also provide the ability to have multiple processes call a Business Rule at the same time. This multi-threading allows multiple processes to run at the same time.

WPSWIDv6_BusinessRules_Overview_ds
.ppt

IBM

Business Rules – Roles

| Tools Used | Role Tasks |

Business Analyst Role

More Business Skills

Business Rule Manager Web Tool

•The day to day administrator
•Implements the business rule changes
•More in tune with the business and customer demand changes

WebSphere Integration Developer

More Technical Skills

•The Developer codes the Business Rules that are editable via the Business Rule web tool (by using templates in WID)
•Implements what the Architect has laid out
•More in tune with technical development and architecture

Developer Role

16

Business Rules

© 2005 IBM Corporation

The developer and business analyst roles are displayed here in this graph to highlight the role tasks.

The Developer and Business Analyst role are separated by the red line shown in the middle of the graph.   More technical skills are required for the Developer role.   The Developer uses WebSphere Integration Developer to create or manage the technical details of the Business Rules.   The Developer role works with the Architect to implement the Business Process plan.

On the other side is the Business Analyst role. This person is more in tune with the changing business needs of the business. They use the Business Rule Manager Web tool to change the Business Rules whenever necessary. The Business Analyst also works with the Developer role to update and create new Business Rules for the company.

IBM

Business Rules - Agenda

- What is a Business Rule

- How are Business Rules organized

- Why there are Business Rules and the roles who use them

- **Business Rules in Tools and Runtime**

- Business Rule examples

- Yesterday, Today, and Tomorrow

- Summary and References

17

This section will cover the Business Rules in Tools and Runtime.

Business Rules – Tools

- Tools
  (WebSphere Integration
  Developer – WID)
  - Easy to use tools for defining, executing, and managing business rules
  - Eclipse based tools for Business Rule development
  - Focused on the more technical developer role
  - Business Integration view used mostly for Business Rule interaction
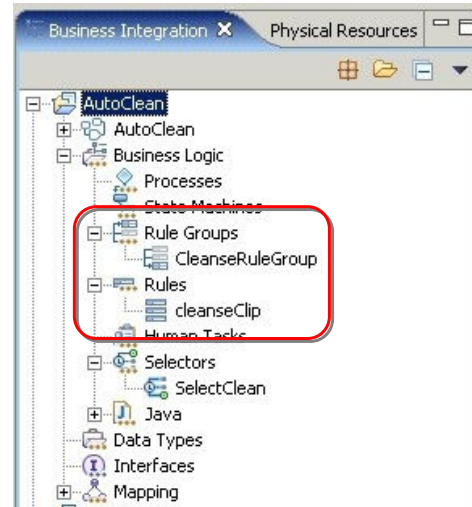
WebSphere Integration Developer makes up the tools portion for Business Rules development or creation, along with the Business Rule Manager Web tool, which is connected to the runtime. It is focused on the developer role previously mentioned in this presentation. WebSphere Integration Developer is an Eclipsed based development environment that is easy to use to create and manage Rule Groups, Rule Sets, and Decision Tables. The WebSphere Integration Developer Business Integration View provides access to most of the Business Rule editors and the Business Rule creation wizards. To view what files are actually being created, you can open a Physical Resources view.
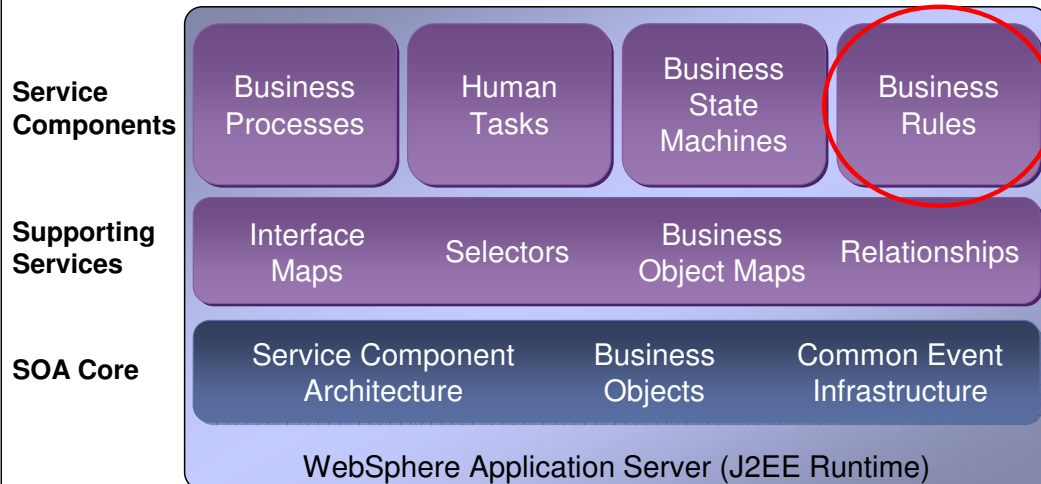
Business Rules – Tools

In addition to the Business Rule editors, the Assembly Editor will be used to connect Business Rules into a process. The Rule Group can be easily dragged and dropped from the Business Integration View on to the Assembly Editor. Rule Sets and Decision Tables cannot be dropped onto the Assembly editor and an error will be thrown if you try because they are not exposed as SCA components. Any cal to an SCA component must go through the Rule Group in order to access the Business Rule, which is why a Rule Group can only be placed on the Assembly Editor. Once the Rule Group is dropped onto the Assembly Editor, it can be wired to calling components in the same module, or an export can be wired to connect it to the import of another module. This allows an SCA module in a different component to call the Business Rule

WPSWIDv6_BusinessRules_Overview_ds
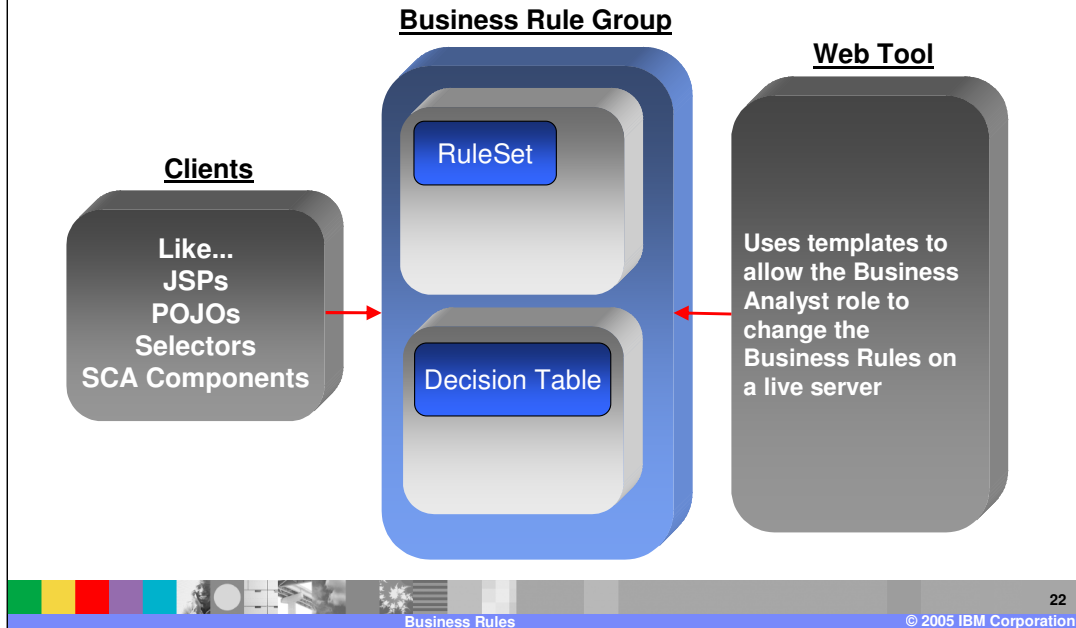.ppt

Business Rules – Runtime

Business Rules

WebSphere Process Server V6.0 provides the runtime environment. Once a Business Rule is deployed to the Process Server, the Business Rule Group exposes the Business Rule as an SCA service. The WebSphere Process Server handles 80% of typical integration rules, but does not handle the other 20% of complex rules, like inferencing. IBM research indicates that almost all the Business Rules used today fit within that 80% supported by the WebSphere Process Server. Complex rules, like inferencing, are left to third party rule engines. The application server follows the standard J2EE deployment model, transforming .ear files for modules. The runtime also adds the ability to edit and update business rules in real-time using a straightforward Web Tool that is included with WebSphere Process Server V6.0. This is discussed in more detail later in this presentation.

Business Rules – Where do Business Rules fit

Business Rules sit along side the stack of service components included in WebSphere Process Server. These SCA Components are exposed on the runtime so they can utilize each others services.

Business Rules – on Runtime

Business Rule Group

Web Tool

Clients

RuleSet

**Like...
JSPs
POJOs
Selectors
SCA Components**

Decision Table

**Uses templates to
allow the Business
Analyst role to
change the
Business Rules on
a live server**

22

When a Business Rule is part of a running business process application, clients access a
business rule group to find which implementation to use and to fire one to many Business
Rules. These clients could be non-SCA components, called Stand-alone References in
WID, such as JSP or other SCA components like POJOs, Selectors, BPEL, or other
Business Rules. While the business process is running, there is a Web Tool that comes
with the server that provides the capability to edit business rules created as templates.
Templates and the Web Tool will be discussed later in this presentation.

Business Rules – Templates

Templates are the key between WebSphere Integration Developer and the Business Rules Manager Web Tool. Templates allow Business Analysts to change Business Rules, including Rule Sets and Decision Tables, without having to restart the project or application server using the runtime Business Rule Manager Web tool. Templates change the XML in the tools to parameterized Java on the runtime. The presentation section, seen in the screenshot to the right, allows Business Analysts to read text instead of code from the Business Rule Manager Web tool.

WPSWIDv6_BusinessRules_Overview_ds
.ppt

Business Rules – Web Based Tools

- Built specifically for the Business Analyst
- Manageable subset of full authoring functionality found in WebSphere Integration Developer
- Templates built by the developer role allow the business rule analyst role a very easy way to edit business rules at runtime
  - ▸ Browser is all that is required to use
- It is part of the WBI runtime as an optional install (installBRManager.jacl)
- The Business Rule Manager web tool is a JSP/Servlet based enterprise application that pulls and pushes Business Rules
- No need to restart application or application server when changing Business Rules
- Users are authenticated using standard WebSphere authentication/security

The Business Rule Manager Web Tool is built specifically for the Business Analyst. It has a manageable subset of full authoring functionality found in WebSphere Integration Developer. The only way a Business Analyst can see rules in the Web tool is if templates are built by the developer. This gives the Business Analyst a very easy way to edit business rules at runtime using a browser. The Business Rule Manager Web Tool is part of the WBI runtime as an optional install by running the installBRManager.jacl. The BRManager.war is in the installableApps directory of the WebSphere Process Server install path. The Business Rule Manager Web tool is a JSP/Servlet based enterprise application that pulls and pushes Business Rules. There is no need to restart the application or the application server the business rules are running on when changing Business Rules. Users are authenticated using standard WebSphere authentication and security.

Business Rules – Web Based Tools
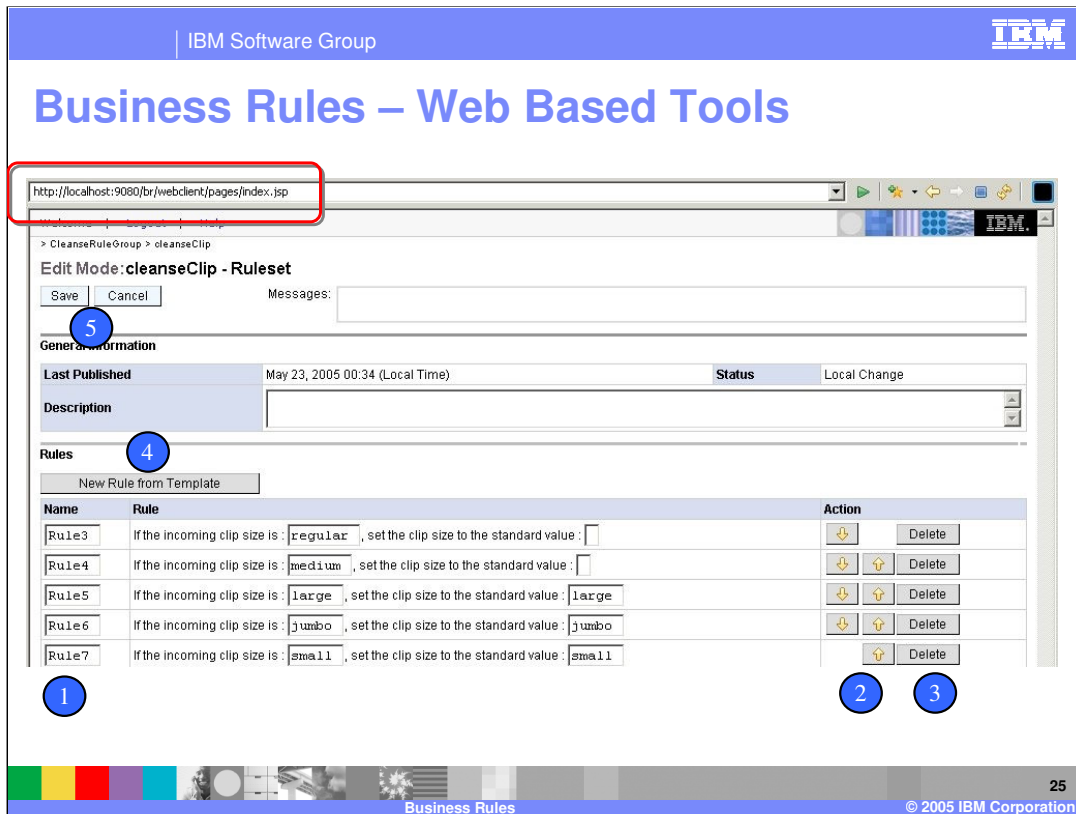
The Business Rule Manager Web Tool can be accessed by opening a browser and entering the URL shown above circled in red. You can view all Business Rules exposed using the Rule Groups running on the application server. As an example, the screenshot shows what would be seen if a Rule Set was opened to be edited.   Starting with #1 on the numbered dots:

1. This is where the templatized Rule Set or Decision Table will be located. The boxed variables can be changed.

2. Here is where the order of Business Rules can be changed, this is only for Rule Sets since they are the Business Rule implementation that is evaluated sequentially from the top-down.

3. The delete button allows you to delete unwanted rules. The developer will need the updated business rules if any large changes must be made to the application.

4. Use this button to create a new Business Rule from the templates in the current Rule Set or Decision Table.

5. Use these buttons to Save or Cancel the changes. After a Save is made, the newly changed Business Rules must be deployed back to the running application by way of a Deploy button found on a home page of the Business Rule Manager Web tool

WPSWIDv6_BusinessRules_Overview_ds
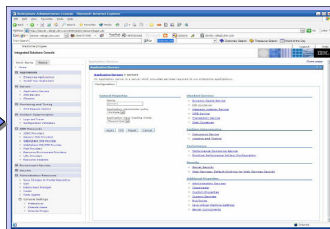.ppt
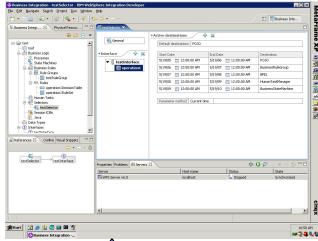
This graphic depicts how all the pieces work together in the Development Process.

1: The process starts with the Developer role either importing or creating new Business Rules in WebSphere Integration Developer. The Developer can then test the business rules using the integrated WebSphere Process Server runtime before deploying those business rules to a pre-production or production WebSphere Process Server runtime.

2: The pre-production or production WebSphere Process Server runtime runs the Business Rules along with any other business integration applications that access the Business Rules. Access to the deployed application is through the Administrative Console Enterprise Applications list, where you can stop, start, and uninstall the application. A Business Rule Manager application comes with the WebSphere Process Server (BRManager.war). However if you want to use it, you must install it by running installBRManager.jacl.

3: The Business Rule Manager Web Tool is an installed enterprise application made up of JSP and servlets that simply pull and push Business Rules to and from the WebSphere Process Server. It provides the same functionality as the tools and allows the Business Analyst the power to change Business Rules templatized variables, the order of rules, delete rules, and create new rules from the template. In addition, the Business Analyst can Save and Deploy those changes without having to restart the application or the application server the Business Rules are running on.

WPSWIDv6_BusinessRules_Overview_ds
.ppt

IBM

Business Rules - Agenda

- What is a Business Rule

- How are Business Rules organized

- Why there are Business Rules and the roles who use them

- Business Rules in Tools and Runtime

- **Business Rule examples**

- Yesterday, Today, and Tomorrow

- Summary and References

Business Rules

27

© 2005 IBM Corporation

This section will provide some examples of Business Rules.

Business Rules - Examples

- Rent-a-car corporate discounts
  - ▸ Able to change discount amounts during peak dates and times
- Insurance agency
  - ▸ Ability to invoke a process for an insurance claim that happened in the past
- Updating the company's website
  - ▸ Schedule specific dates that a web site will update to the next development version (on planned future dates) without the users knowing
- eXchange Scenario
  - ▸ Currently a POJO does the work of "auto cleaning" up data to be published for appropriate eyes to read (customer vs. employee).
  - ▸ After a certain date, a switch will be made to use the Business Rule instead of the POJO
  - ▸ The same rules being processed by the POJO can now be editable by a Business Analyst (using the Business Rule Web Tool)

28

Examples of Business Rules include:

A Rent-a-car company's ability to change corporate discount amounts during peak dates and times

An Insurance agency's capability to invoke a process for an insurance claim that happened in the past

Updating a company Web site is simplified when the company schedules business rules to change to updated versions of the Web site on planned future dates

Business Rules – eXchange Example
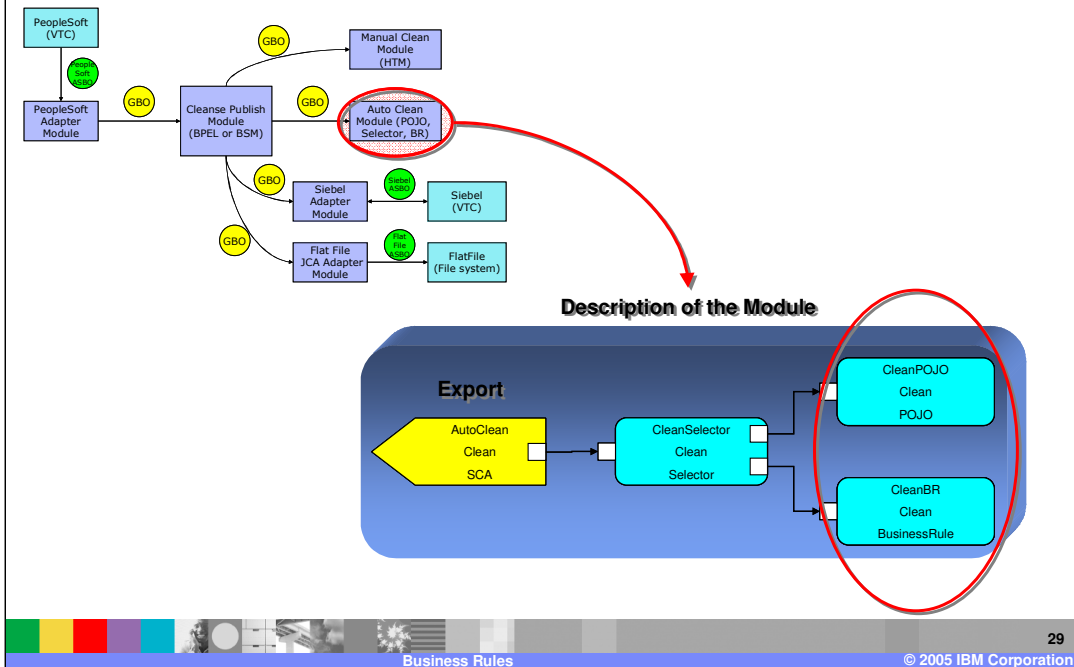
The following is a description of the eXchange Scenario that you can use in the Autoclean lab:

Currently a POJO does the work of "auto cleaning" up data to be published for appropriate eyes to read (customer or employee).

After a certain date, a switch will be made to use the Business Rule instead of the POJO

The same rules being processed by the POJO can now be editable by a Business Analyst using the Business Rule Web Tool

This section will provide a summary of past, present, and future direction of Business Rule technology.

Business Rules – Yesterday, Today, & Tomorrow

- Yesterday (v5.1)
  - ▶ Historically Business Rule implementations had leaned toward complex implementations which required specialized skills to do simple tasks

- Today (V6.0)
  - ▶ Proprietary rule engines and rule engine languages
  - ▶ Standards not set and moving in their own directions
    - JSR 94 Java Rule Engine API
    - OMG's Request for Proposals for Business Rules, "Rule XML"

- Tomorrow
  - ▶ Standards for business rules more established, continually evolving from greater customer demand
  - ▶ Continued work to enable partner rule engines to plug in to the architecture and standards

- Not In Scope
  - ▶ Automated migration of Business Rule Beans (BRBs) to Diamond, BRBs are deprecated as of V6.0

During the version 5.1 timeframe, Business Rule implementations leaned toward complex implementations requiring specialized skills to do simple tasks.

In version 6, there is at least a proprietary rule engine and rule engine languages. Standards are not currently set and move in their own direction. The two standards being worked on are the JSR 94, Java Rule Engine API, and OMG's Request for Proposals for Business Rules, "Rule XML". IBM has been working toward helping these two standards, and will continue to work towards the best solution for a Business Rule standard.

In the future, look for standards for business rules to become more established, continually evolving in response to greater customer demand. Also look for more open source type templates created and used by business rule vendors. There will also be continued work to enable partner rule engines to plug in to the architecture and standards supported by IBM.

The 5.1 automated migration of Business Rule Beans (BRBs) is not supported in the current release, because BRBs are deprecated in V6.0.

Business Rules - Agenda

- What is a Business Rule

- How are Business Rules organized

- Why there are Business Rules and the roles who use them

- Business Rules in Tools and Runtime

- Business Rule examples

- Yesterday, Today, and Tomorrow

- **Summary and References**

32

This section will provide a summary and references.

Business Rules – Summary

- Found out what a Business Rule is and how they are organized

- Learned why there are Business Rules and who uses them

- Saw what Tools and Runtime offer for Business Rules

- Covered a few examples to better understand the functionality

- Current state and future direction of Business Rules and what is in plan

Business Rules

33

© 2005 IBM Corporation

In summary, this presentation covered:

Business Rule definition and organization

The purpose of Business Rules

Business Rules tools and runtime

Business Rule examples

Current state and future direction of Business Rules

Business Rules – References

- http://www.brcommunity.com
  - ▸ Good articles on the latest Business Rule happenings

- http://www.businessrulesgroup.org
  - ▸ Many links and references for Business Rule matters

- WebSphere Integration Developer – Help Contents
  - ▸ Find answers to tools questions with links to working samples and tutorials on Business Rules

- Questions?

34

Template Revision: 3/09/2005 9:40 AM

Trademarks, Copyrights, and Disclaimers

The following terms are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both:

IBM	CICS	IMS	MQSeries	Tivoli
IBM(logo)	Cloudscape	Informix	OS/390	WebSphere
e(logo)business	DB2	iSeries	OS/400	xSeries
AIX	DB2 Universal Database	Lotus	pSeries	zSeries

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are registered trademarks of Microsoft Corporation in the United States, other countries, or both.

Intel, ActionMedia, LANDesk, MMX, Pentium and ProShare are trademarks of Intel Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Linux is a registered trademark of Linus Torvalds.

Other company, product and service names may be trademarks or service marks of others.

Product data has been reviewed for accuracy as of the date of initial publication. Product data is subject to change without notice. This document could include technical inaccuracies or typographical errors. IBM may make improvements and/or changes in the product(s) and/or program(s) described herein at any time without notice. Any statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only. References in this document to IBM products, programs, or services does not imply that IBM intends to make such products, programs or services available in all countries in which IBM operates or does business. Any reference to an IBM Program Product in this document is not intended to state or imply that only that program product may be used. Any functionally equivalent program, that does not infringe IBM's intellectual property rights, may be used instead.

Information is provided "AS IS" without warranty of any kind. THE INFORMATION PROVIDED IN THIS DOCUMENT IS DISTRIBUTED "AS IS" WITHOUT ANY WARRANTY, EITHER EXPRESS OR IMPLIED. IBM EXPRESSLY DISCLAIMS ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT. IBM shall have no responsibility to update this information. IBM products are warranted, if at all, according to the terms and conditions of the agreements (e.g., IBM Customer Agreement, Statement of Limited Warranty, International Program License Agreement, etc.) under which they are provided. Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products in connection with this publication and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. IBM makes no representations or warranties, express or implied, regarding non-IBM products and services.

The provision of the information contained herein is not intended to, and does not, grant any right or license under any IBM patents or copyrights. Inquiries regarding patent or copyright licenses should be made, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. The actual throughput or performance that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput or performance improvements equivalent to the ratios stated here.

© Copyright International Business Machines Corporation 2005. All rights reserved.

Note to U.S. Government Users - Documentation related to restricted rights-Use, duplication or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract and IBM Corp.

35

WPSWIDv6_BusinessRules_Overview_ds
.ppt