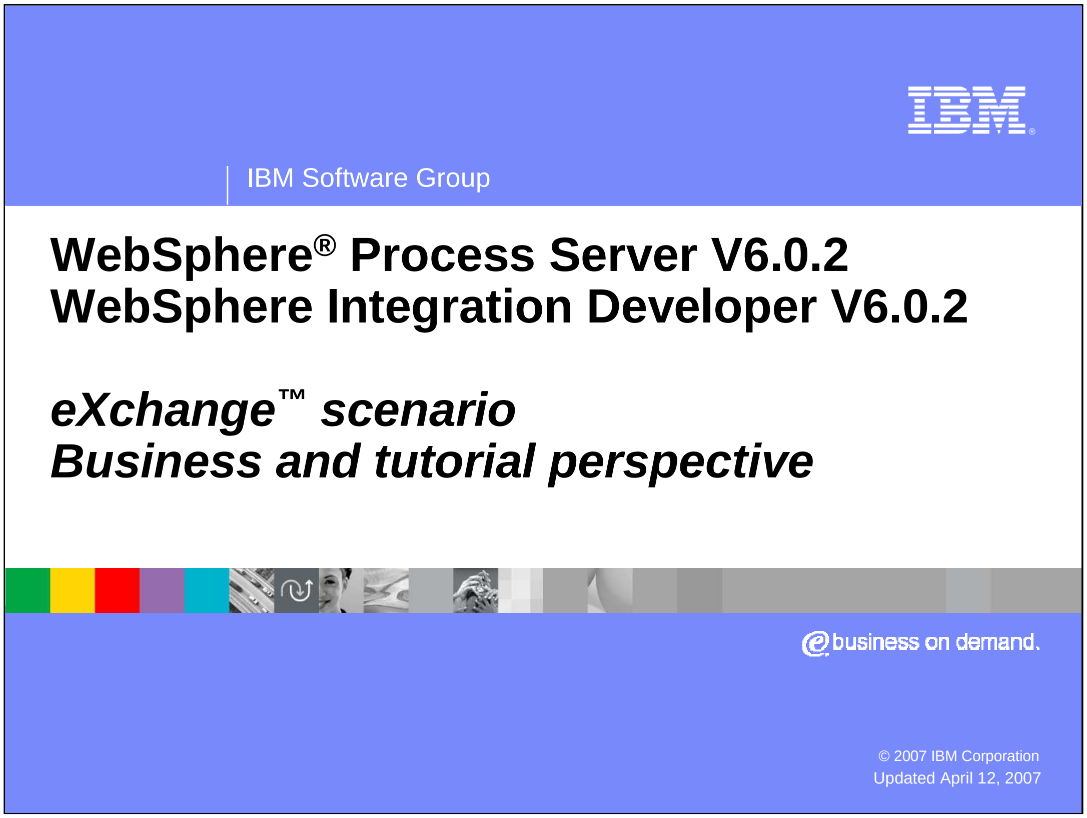

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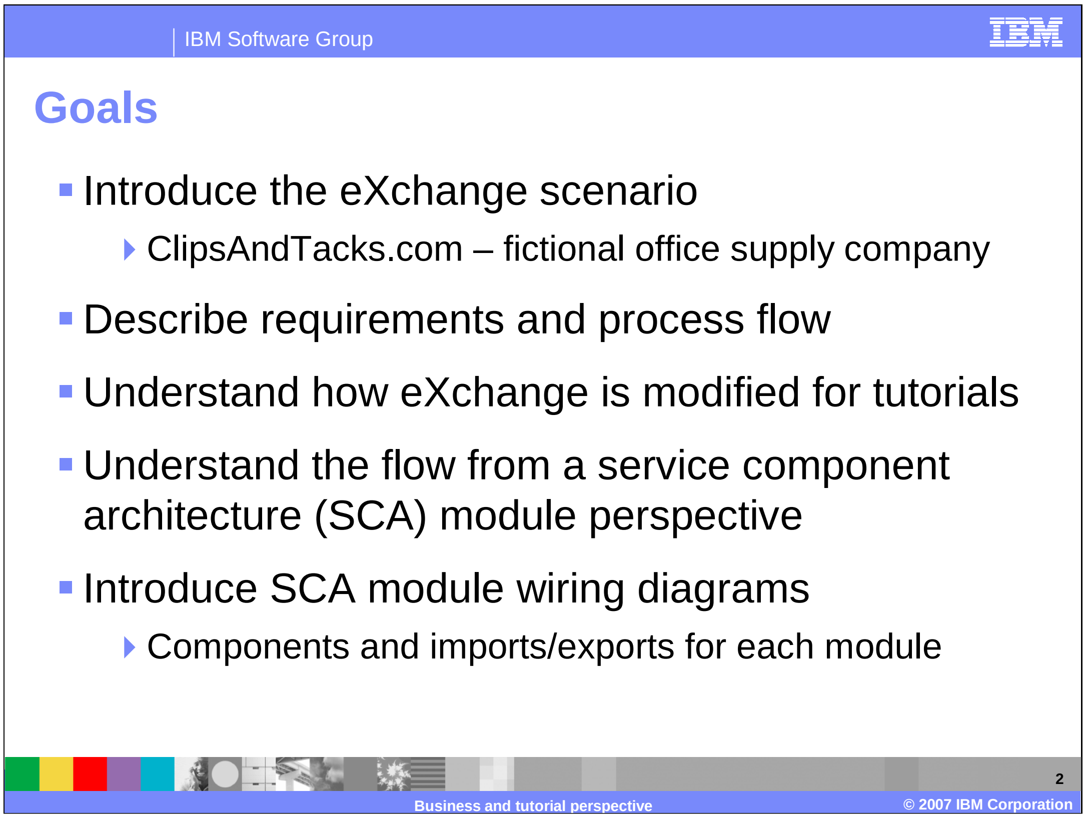
WebSphere® Process Server V6.0.2 WebSphere Integration Developer V6.0.2

eXchange™ scenario Business and tutorial perspective

Updated April 12, 2007

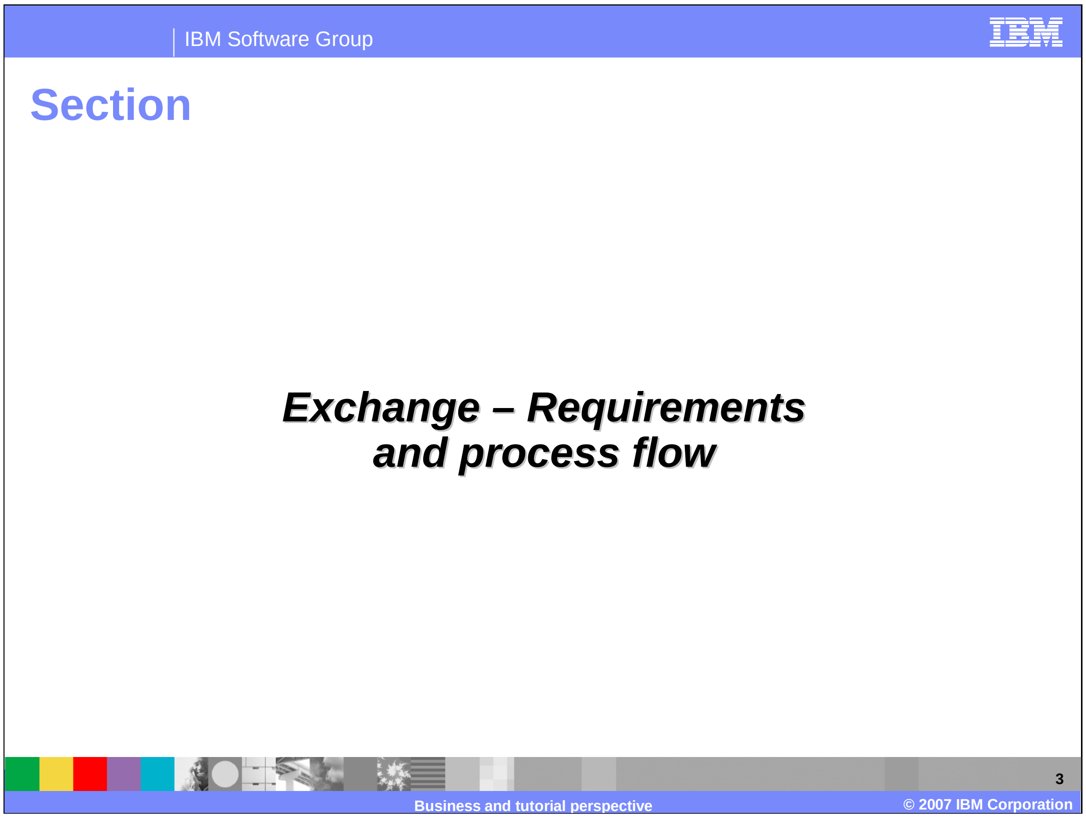
This presentation will introduce the eXchange scenario which is the basis for several of the tutorials provided with this education. It first looks at the business requirements and the environment which the tutorials are modeled after. It then describes the specifics of the tutorials.



Goals

- Introduce the eXchange scenario
  - ClipsAndTacks.com – fictional office supply company
- Describe requirements and process flow
- Understand how eXchange is modified for tutorials
- Understand the flow from a service component architecture (SCA) module perspective
- Introduce SCA module wiring diagrams
  - Components and imports/exports for each module

There are two main goals of this presentation. The first is the introduction of the eXchange scenario from a business perspective and the second is describing the set of tutorials which are based on a modified version of this scenario. To introduce the business perspective you will take a look at a fictional office supply company called ClipsAndTacks.com. The company’s requirements and the process flow needed to address those requirements are described. Using that as a base, modifications to the process flow are described. These modifications are needed to make the scenario practical for use with the tutorials. You will then dig in a little deeper and look at the overall flow in terms of Service Component Architecture (SCA) modules and their relationship to each other. Finally, you will look inside each of the SCA modules to see the wiring diagrams, including the SCA components, Imports and Exports.



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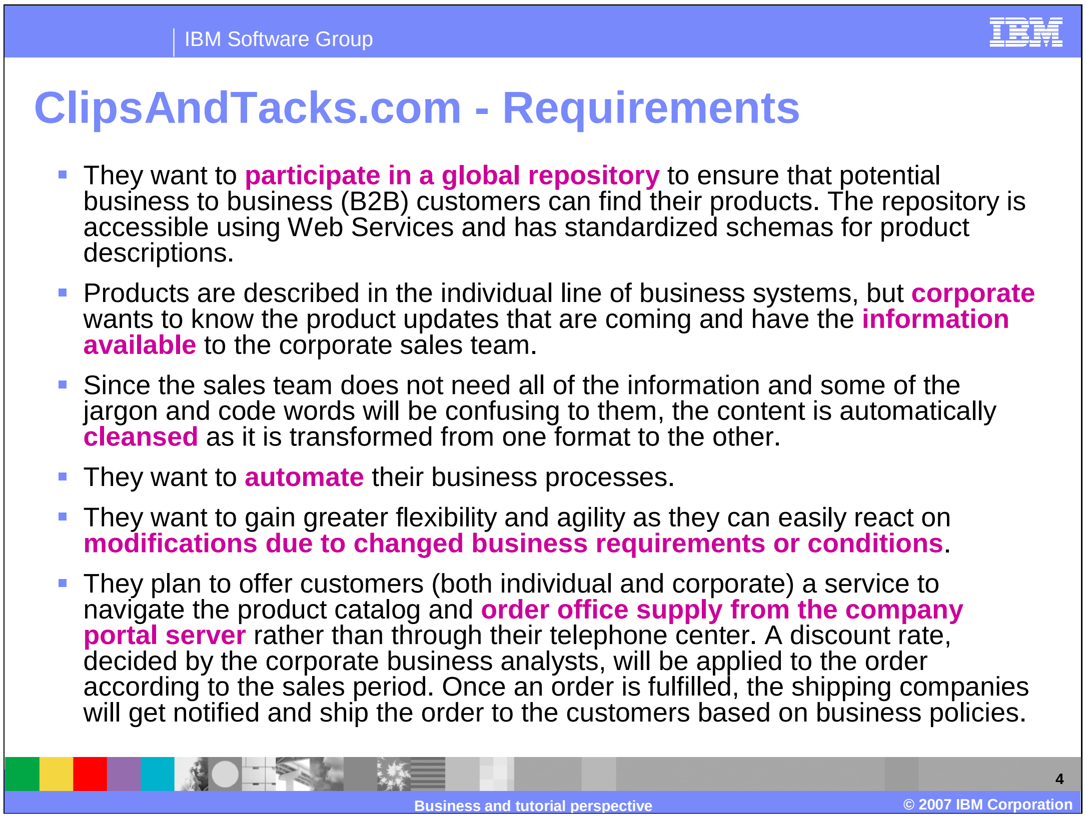
Section

Exchange – Requirements and process flow

3

Business and tutorial perspective

This section looks at the eXchange scenario requirements and process flow from the business perspective of ClipsAndTacks.com.



ClipsAndTacks.com - Requirements

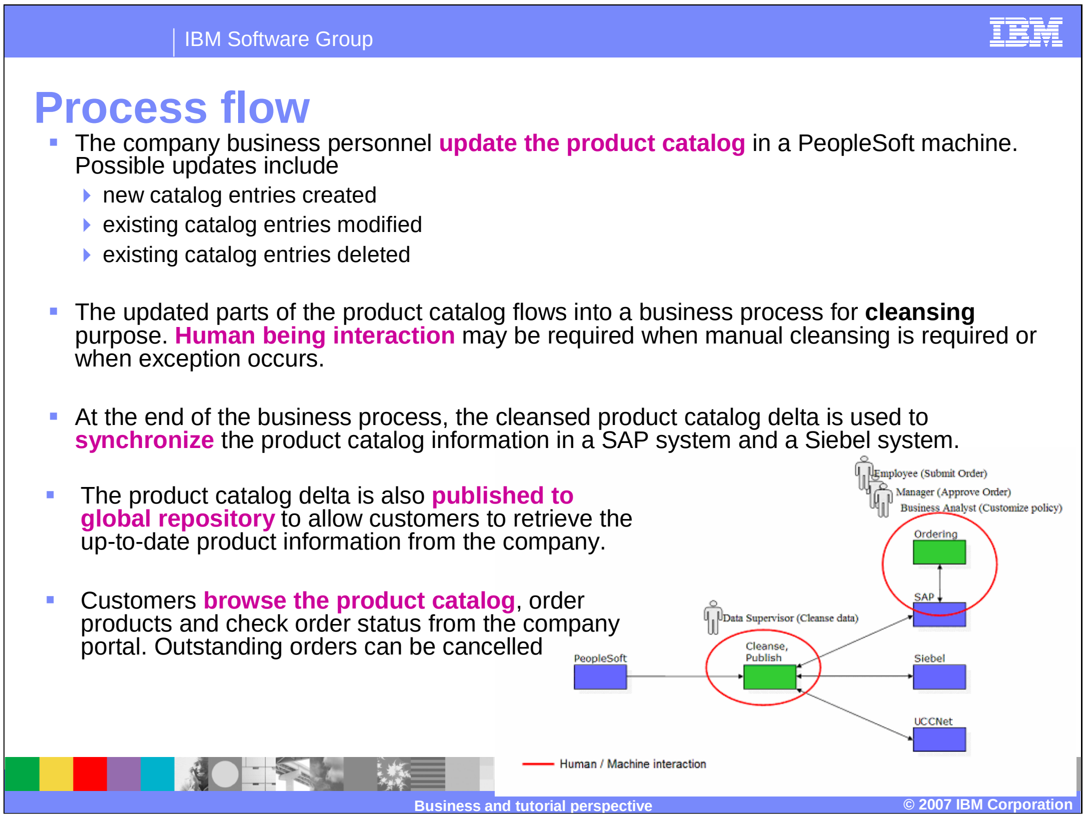
- They want to **participate in a global repository** to ensure that potential business to business (B2B) customers can find their products. The repository is accessible using Web Services and has standardized schemas for product descriptions.
- Products are described in the individual line of business systems, but **corporate** wants to know the product updates that are coming and have the **information available** to the corporate sales team.
- Since the sales team does not need all of the information and some of the jargon and code words will be confusing to them, the content is automatically **cleansed** as it is transformed from one format to the other.
- They want to **automate** their business processes.
- They want to gain greater flexibility and agility as they can easily react on **modifications due to changed business requirements or conditions**.
- They plan to offer customers (both individual and corporate) a service to navigate the product catalog and **order office supply from the company portal server** rather than through their telephone center. A discount rate, decided by the corporate business analysts, will be applied to the order according to the sales period. Once an order is fulfilled, the shipping companies will get notified and ship the order to the customers based on business policies.

ClipsAndTacks.com is a fictional office supply company. It is organized into several different lines of business which produce the products for sale. Information about these products needs to be merged into company wide sales and delivery systems. They sell both wholesale and retail and have several different channels for selling, such as business to business, or B2B, interactions, a corporate sales organization, a call center and Web site.

There are several requirements that their system must address. First, they want to participate in B2B transactions which require that they publish data to a global repository with a standardized schema. This allows B2B customers to use Web Services to locate and order their products electronically. Second, they want to provide all of the product information to their corporate sales team both for current products and soon-coming products. In addition, they provide both a call center and a Web site for retail customers to place orders. This order system needs to deal with a set of business policies regarding the application of different discounts during different sales periods.

The system should be automated, with human intervention kept to a minimum. As each line of business provides information updates about its product offerings, the information needs to be propagated to the various systems used for selling the products. However, the data produced by each line of business may contain product details or descriptions that contain jargon or line-of-business specific information that is not needed for sales. Therefore, the data must be cleansed as it flows from each line-of-business into the sales systems, removing, adding and changing the information appropriately.

All these processes must be as automated as possible in order to make sales information available quickly as the lines of business update their product information.



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Process flow

- The company business personnel **update the product catalog** in a PeopleSoft machine. Possible updates include
  - new catalog entries created
  - existing catalog entries modified
  - existing catalog entries deleted
- The updated parts of the product catalog flows into a business process for **cleansing** purpose. **Human being interaction** may be required when manual cleansing is required or when exception occurs.
- At the end of the business process, the cleansed product catalog delta is used to **synchronize** the product catalog information in a SAP system and a Siebel system.
- The product catalog delta is also **published to global repository** to allow customers to retrieve the up-to-date product information from the company.
- Customers **browse the product catalog**, order products and check order status from the company portal. Outstanding orders can be cancelled

Business and tutorial perspective

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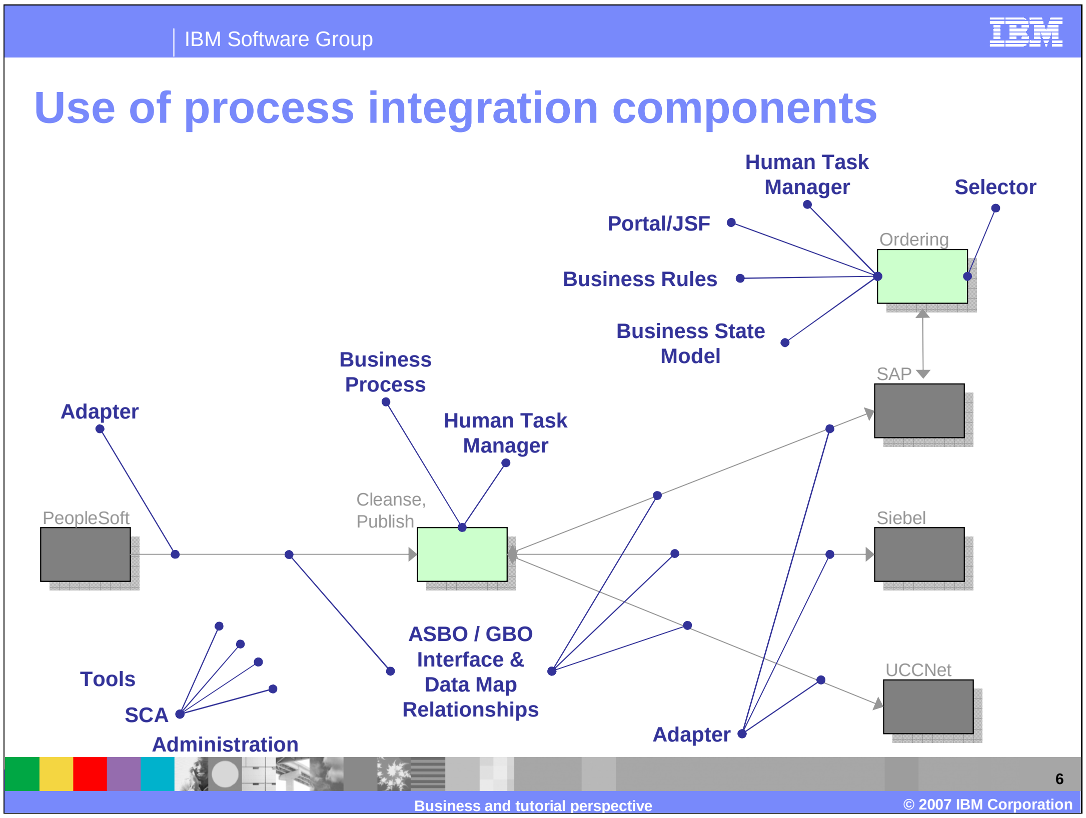
Now that you understand the requirements, you will look at the process flow which is depicted in the graphic on the lower right side. The PaperClip division of ClipsAndTacks.com will be used as the line of business for the example.

The flow begins on the left side of the diagram with the PeopleSoft system. When the PaperClip division updates its product offerings in PeopleSoft, that information will be pushed to a cleanse/publish process shown in the middle of the diagram. The cleanse/publish process is used to remove the line of business specific details and jargon and to update the data so that it is ready for the various sales systems. The cleansing process is mostly automated, although there are times when human interaction is necessary to ensure accuracy. When the cleaning is completed, the data is pushed out to several systems. It pushed to SAP which is used for the call center and Web based ordering system. It also is pushed to Siebel which is used by the corporate marketing team and to the UCCNet global repository, used for B2B interactions.



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Use of process integration components

Human Task Manager

Selector

Portal/JSF

Ordering

Business Rules

Business State Model

Business Process

SAP

Adapter

Human Task Manager

Cleanse, Publish

PeopleSoft

Siebel

ASBO / GBO Interface & Data Map Relationships

UCCNet

Tools

SCA

Administration

Adapter

6

Business and tutorial perspective

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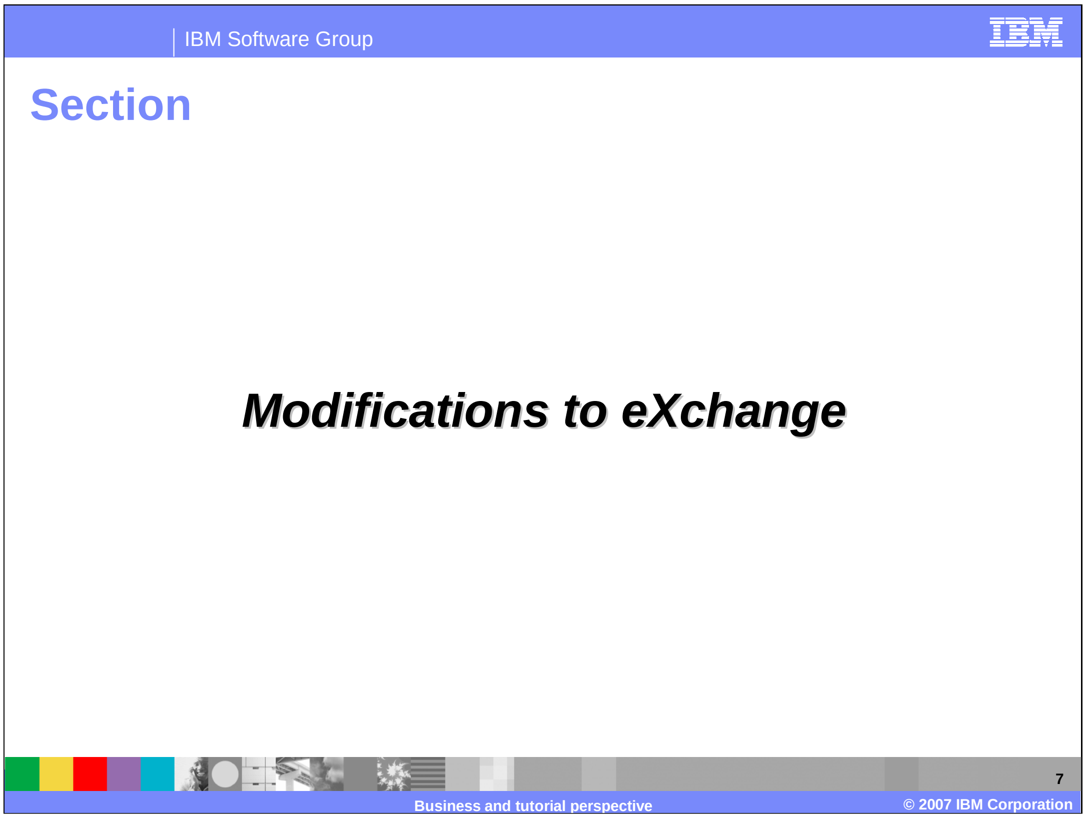
This slide highlights the different process integration components. You can see where they are used in the overall process flow of the ClipsAndTacks.com system.

In the lower left, you see that tools, SCA infrastructure, and administration capabilities apply to the entire scenario.

The PeopleSoft, SAP, and Siebel applications and UCCNet global repository all require adapters in order to be able to exchange data with the Cleanse/Publish module in the server. The Cleanse/Publish module sits between them, receiving input from PeopleSoft and pushing it out to SAP, Siebel and UCCNet. There is a business process in the Cleanse/Publish module which is responsible for cleansing the data, including the use of a human interaction to ensure the data is ready to be published to the sales systems. As data flows from PeopleSoft to Cleanse/Publish and from Cleanse/Publish to SAP, Siebel and UCCNet there must be mapping operations. These operations map between the application specific business objects, or ASBOs, of the external systems and the generic business objects, or GBOs, used in the Cleanse/Publish module. In order to maintain a synchronization of data, relationships must be established and maintained to link the data representing the same entities across the various systems.

The order processing part of the application uses a portal to interact with customers and call center employees. The order processing logic is well suited to a state machine model, so a business state machine is used to drive the processing. The human task manager component is needed when a supervisor must perform a task, such as approving an order that requires some kind of exception processing. Because the system applies different discounts based on timing of the order and other criteria, business rules and selectors are used to allow business analysts to control how the discounts are applied.



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Section

Modifications to eXchange

7

Business and tutorial perspective

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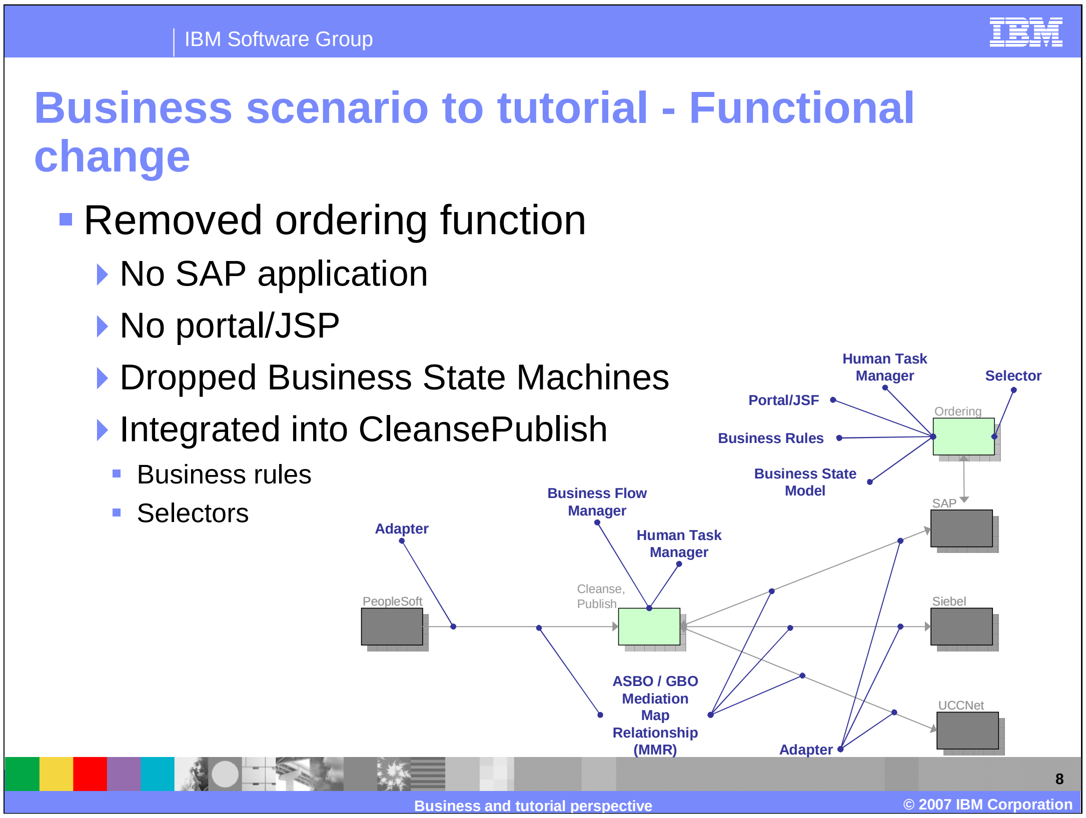
Now that you have an understanding of the application required by ClipsAndTacks.com, you need to look at how you can use this scenario in a set of tutorials. Obviously you are not going to install PeopleSoft, SAP and Siebel to perform a tutorial. The main focus is to illustrate the functionality of the WebSphere Process Server and how that functionality is built using the WebSphere Integration Developer. To that end, the scenario needs to be modified so that it can serve as the basis for realistic tutorials.



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Business scenario to tutorial - Functional change

- Removed ordering function
  - No SAP application
  - No portal/JSP
  - Dropped Business State Machines
  - Integrated into CleansePublish
    - Business rules
    - Selectors

8

Business and tutorial perspective

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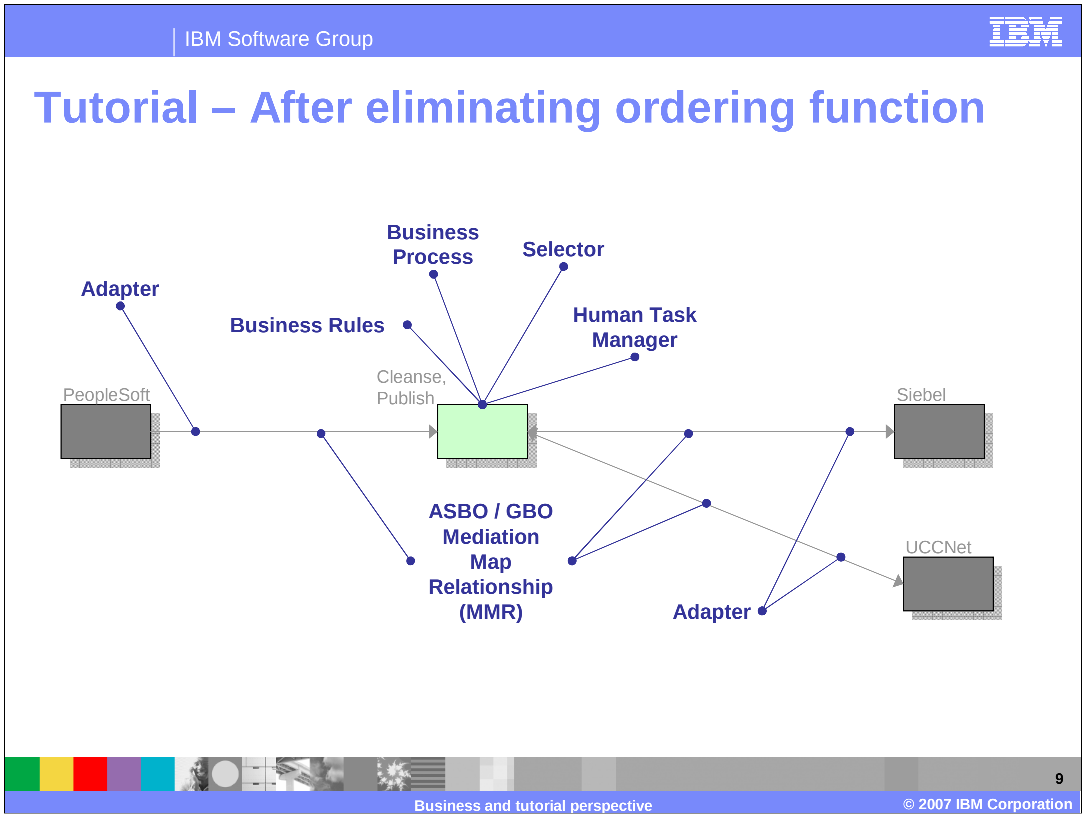
The first step of simplification is to remove the Ordering function. This removes the SAP application from the scenario which reduces the number of adapters, maps and relationships needed in the tutorials. It also removes the Portal/JSP interface which is not part of the technology the tutorials are designed to illustrate. The functionality of the Business Rules and Selectors is part of the technology the tutorials are designed to illustrate, so they are included in the scenario by integrating a use for them into the Cleanse/Publish module. Finally, the use of the Business State Machine is removed from the scenario. This technology will be illustrated with a tutorial that is independent of the eXchange scenario and is tailored specifically to Business State Machine capabilities.



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Tutorial – After eliminating ordering function

Adapter

Business Rules

Business Process

Selector

Human Task Manager

PeopleSoft

Cleanse, Publish

Siebel

UCCNet

ASBO / GBO Mediation Map Relationship (MMR)

Adapter

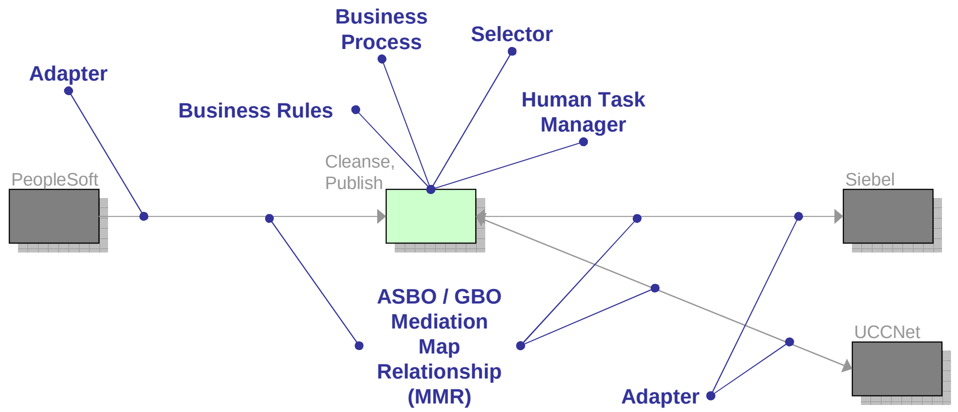
9

Business and tutorial perspective

After the set of changes discussed on the previous slide, the eXchange scenario is represented by this diagram. Notice that there is still the requirement of PeopleSoft, Siebel and UCCNet to run this scenario. This concern is addressed on the next slide.

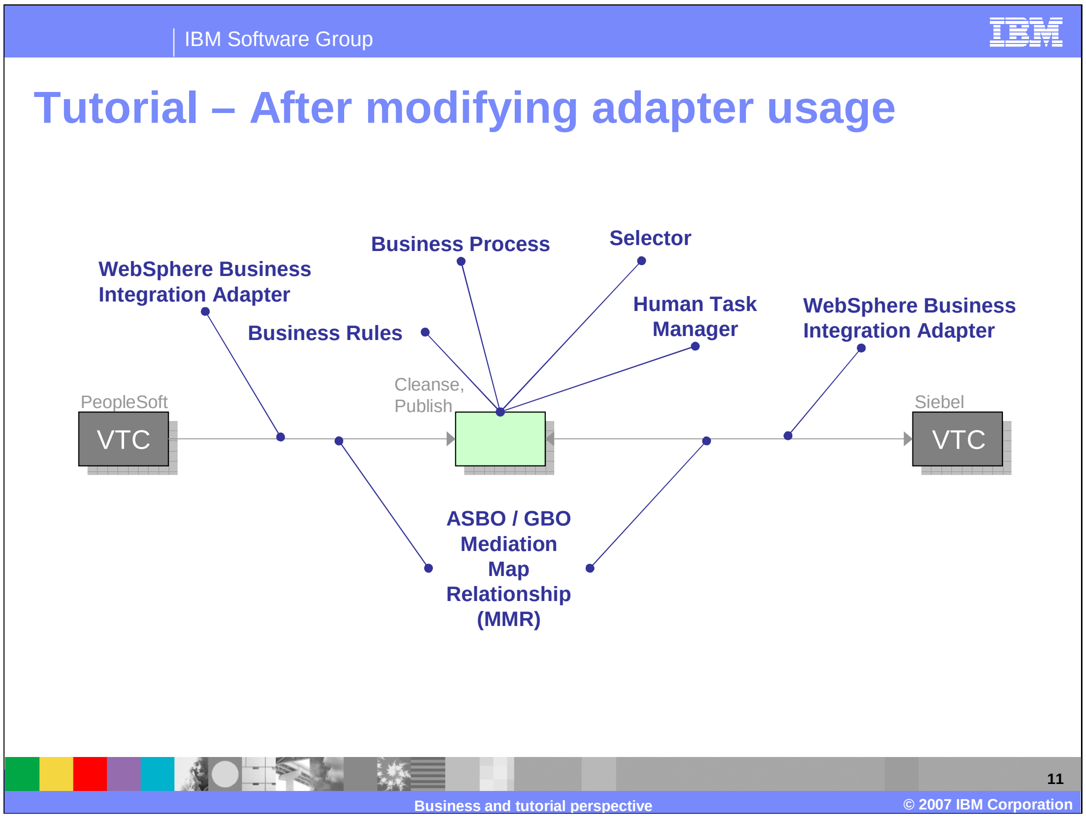
Business scenario to tutorial – Modify adapter usage

- PeopleSoft and Siebel – Use visual test connector
- UCCNet – Drop from scenario



Business Process
Selector
Adapter
Business Rules
Human Task Manager
Cleanse, Publish
PeopleSoft
Siebel
ASBO / GBO Mediation Map Relationship (MMR)
UCCNet
Adapter

The WebSphere Business Integration Adapter toolkit provides a tool called the visual test connector, or VTC, which is used to simulate an application that is using a WebSphere Business Integration Adapter to communicate with a server. The Visual Test Connector is used for the tutorials rather than requiring a real PeopleSoft or Siebel system to run the scenario. Because of this, the connections to PeopleSoft and Siebel are implemented with WebSphere Business Integration Adapters rather than as WebSphere (JCA) adapters. In a prior version of these tutorials, simulation of writing to UCCNet was done with the WebSphere adapter for flat files as this illustrated the use of the WebSphere adapter technology that is based on JCA. However, in this version that has been removed from the eXchange tutorials because other tutorials are now available that better illustrate the usage of WebSphere adapter technology.



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Tutorial – After modifying adapter usage

Business Process
Selector
WebSphere Business Integration Adapter
Business Rules
Human Task Manager
WebSphere Business Integration Adapter
Cleanse, Publish
PeopleSoft
VTC
Siebel
VTC
ASBO / GBO Mediation Map Relationship (MMR)

11

Business and tutorial perspective

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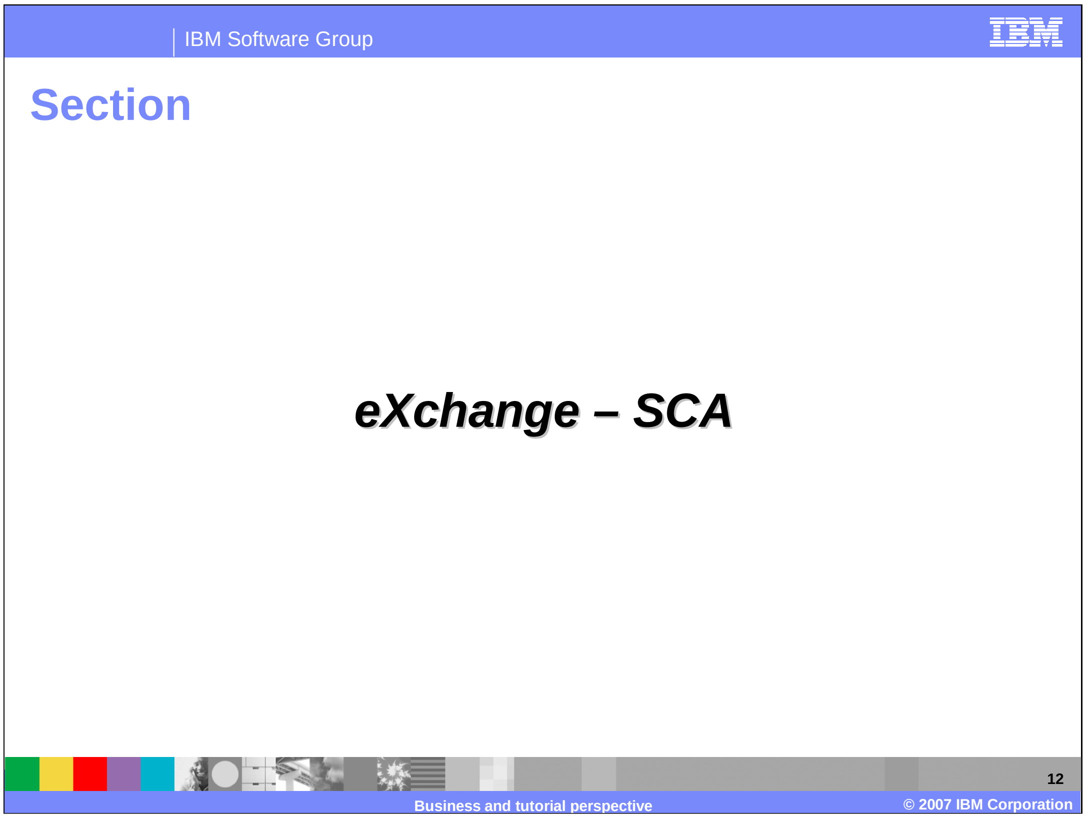
After the set of changes discussed on the previous slide, the eXchange scenario is represented by this diagram. You can see that the visual test connector is now shown on the diagram for PeopleSoft and Siebel and that the UCCNet has been removed.



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Section

eXchange – SCA

12

Business and tutorial perspective

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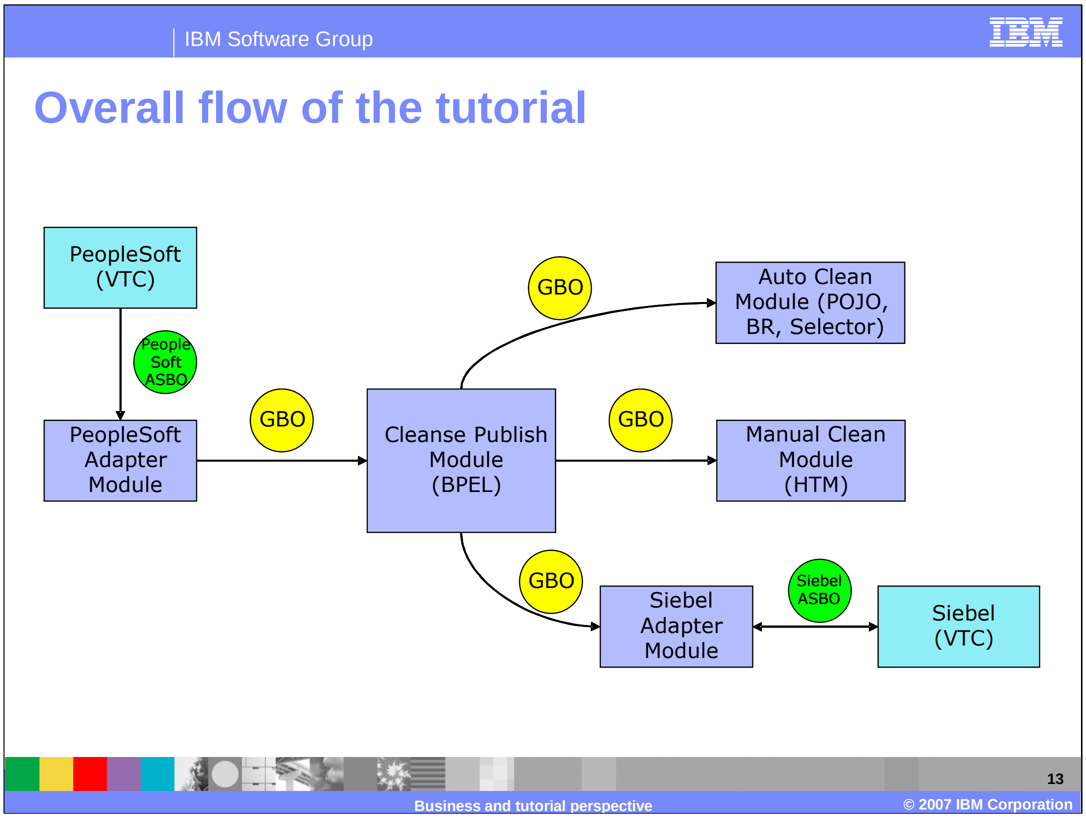
You now understand the business view of the eXchange scenario and how the scenario has been modified to make it practical for tutorials. This section continues with you examining the Service Component Architecture structure that makes up the scenario. You will first look at the overall scenario in terms of the SCA modules involved and will then look at the SCA components, imports and exports within each of the modules.



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Overall flow of the tutorial

PeopleSoft (VTC)
People Soft ASBO
PeopleSoft Adapter Module
GBO
Cleanse Publish Module (BPEL)
GBO
Auto Clean Module (POJO, BR, Selector)
GBO
Manual Clean Module (HTM)
GBO
Siebel Adapter Module
Siebel ASBO
Siebel (VTC)

13

Business and tutorial perspective

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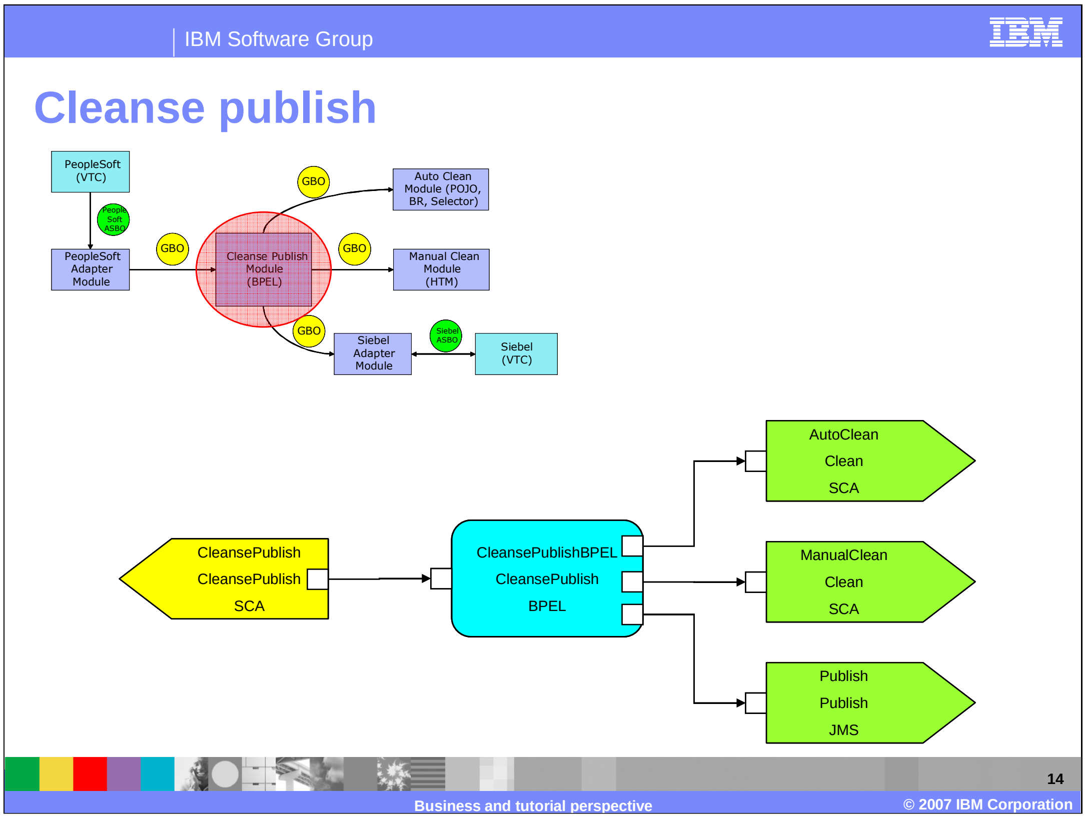
This diagram shows the SCA modules in the eXchange scenario tutorials. The blue boxes represent the individual SCA modules while the aqua boxes represent the non-SCA parts of the scenario. Starting in the upper left corner is the visual test connector used to simulate the PeopleSoft application. It sends an ASBO to the PeopleSoft adapter module where it is converted to a GBO and passed to the Cleanse Publish module. The Cleanse Publish module is implemented in BPEL and controls the cleansing process. It first passes the GBO to the Auto Clean module which manipulates the data based on selectors and business rules. The Cleanse Publish module then passes the updated GBO to the manual clean module which uses the human task manager to complete the updating of the data. Then the GBO is published to the Siebel adapter module where it is converted to an ASBO which is then passed to the visual test connector representing the Siebel application.



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Cleanse publish

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Business and tutorial perspective

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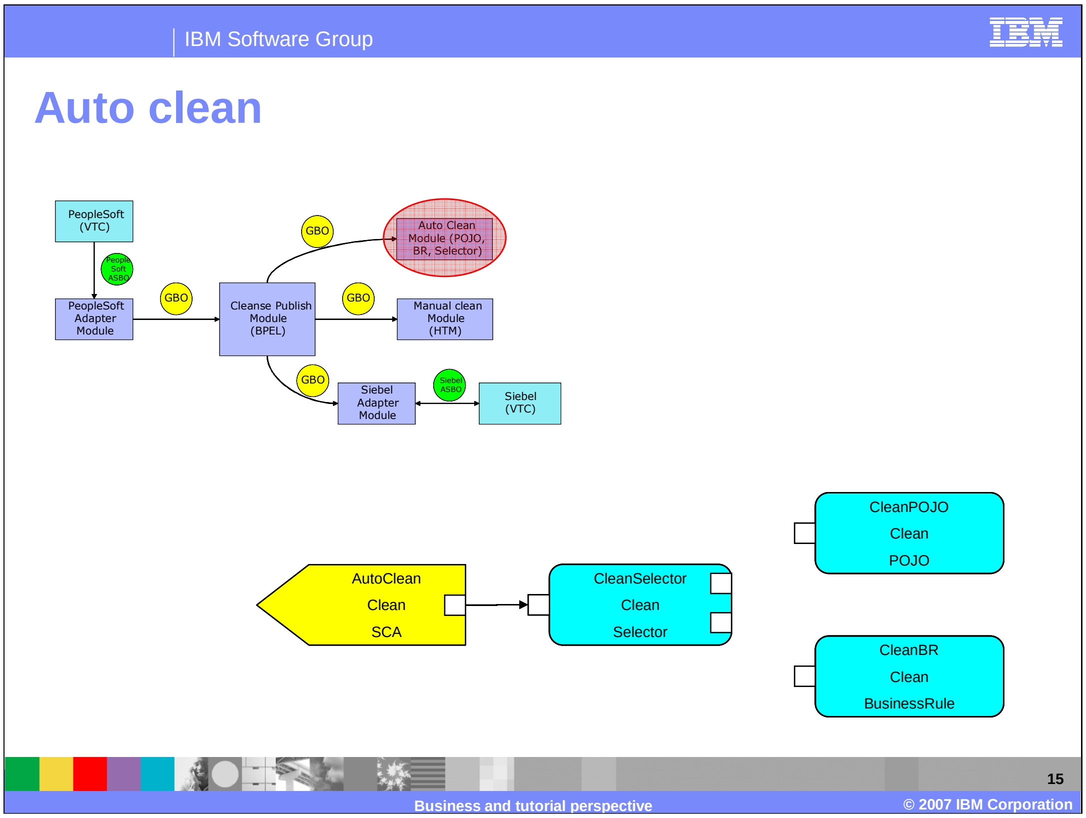
This slide describes the SCA wiring diagram for the Cleanse Publish module. The yellow shapes represent SCA exports and the green shapes represent SCA imports. There are three things defined in each shape. The top text is the name of the import or export, the middle text is the name of the interface that it supports, and the bottom text is the configured binding type.

The aqua boxes are SCA components. At the top is the component name, the middle is the interface that it supports, and on the bottom is the implementation type of the component.

The aqua box in the center is the CleansePublishBPEL component, which supports the CleansePublish interface and is implemented in BPEL. On the left is the export that exposes the CleansePublish interface for use by other modules, and it has been defined to use an SCA binding. This export will be used by the PeopleSoft Adapter module to call CleansePublish. On the right side are the imports. Two of the imports support the Clean interface and are used to call out to the AutoClean and ManualClean modules and are defined with SCA bindings.

The third import supports the publish interface and is defined with a JMS binding. An interesting thing about this import is that the use of JMS with publish/subscribe allows multiple modules to receive the data to be published. The import will push the data to a topic, and any module interested in that data can subscribe to the topic. In this limited tutorial, it is only the Siebel module that will be receiving this publish data. However, in the full blown scenario, the SAP and UCCNet modules would be able to have bindings which subscribed to the same topic and received the data without any changes in the import doing the publish.



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Auto clean

PeopleSoft (VTC)

People Soft ASBO

PeopleSoft Adapter Module

GBO

Cleanse Publish Module (BPEL)

GBO

Auto Clean Module (POJO, BR, Selector)

GBO

Manual clean Module (HTM)

GBO

Siebel Adapter Module

Siebel ASBO

Siebel (VTC)

AutoClean

Clean

SCA

CleanSelector

Clean

Selector

CleanPOJO

Clean

POJO

CleanBR

Clean

BusinessRule

15

Business and tutorial perspective

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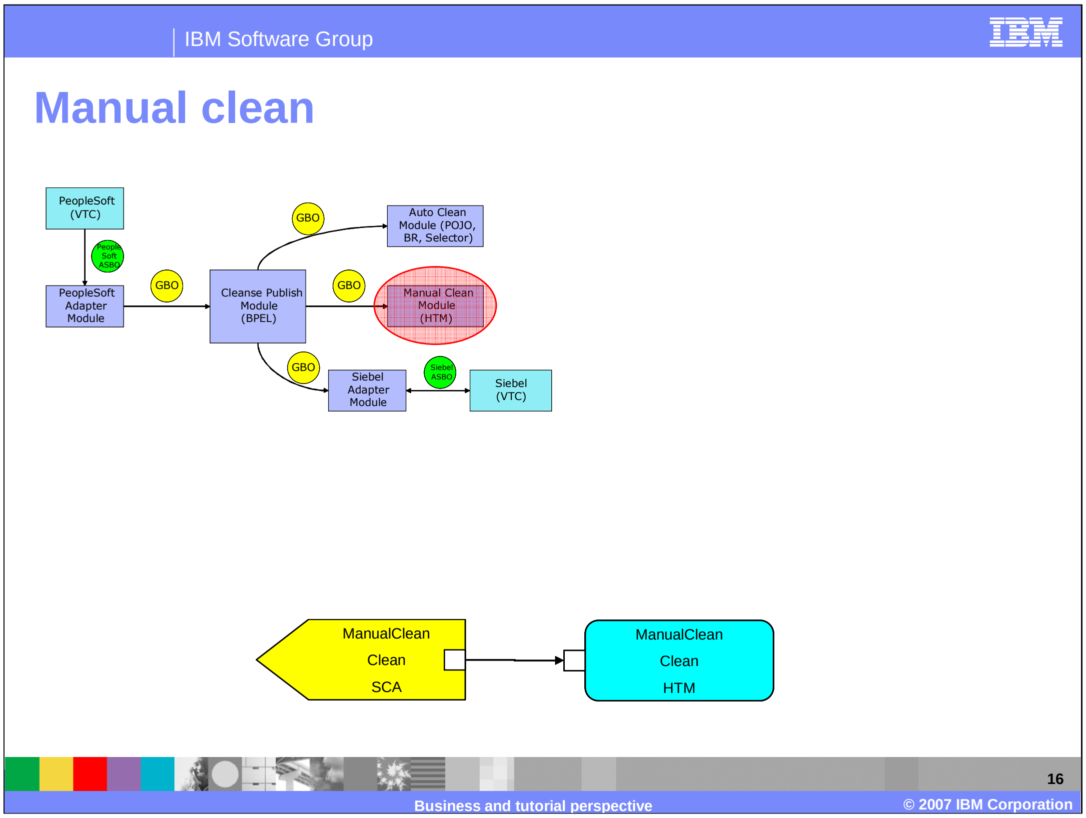
This slide illustrates the Auto Clean module. On the left is the export that exposes the Clean interface by which this module is called. The CleanSelector component supports the Clean interface and is implemented as a selector that will use a date and time to determine whether the CleanPOJO or CleanBR component will be called. Both of these components also support the Clean interface, with the CleanPOJO using a Java implementation to update the GBO while the CleanBR uses a Business Rule implementation to update the GBO. Note that there are no wires connecting the CleanSelector component to either the CleanPOJO or CleanBR components. This is how selectors are represented in SCA wiring diagrams, without a visual cue as to which components they may be calling.



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Manual clean

16

Business and tutorial perspective

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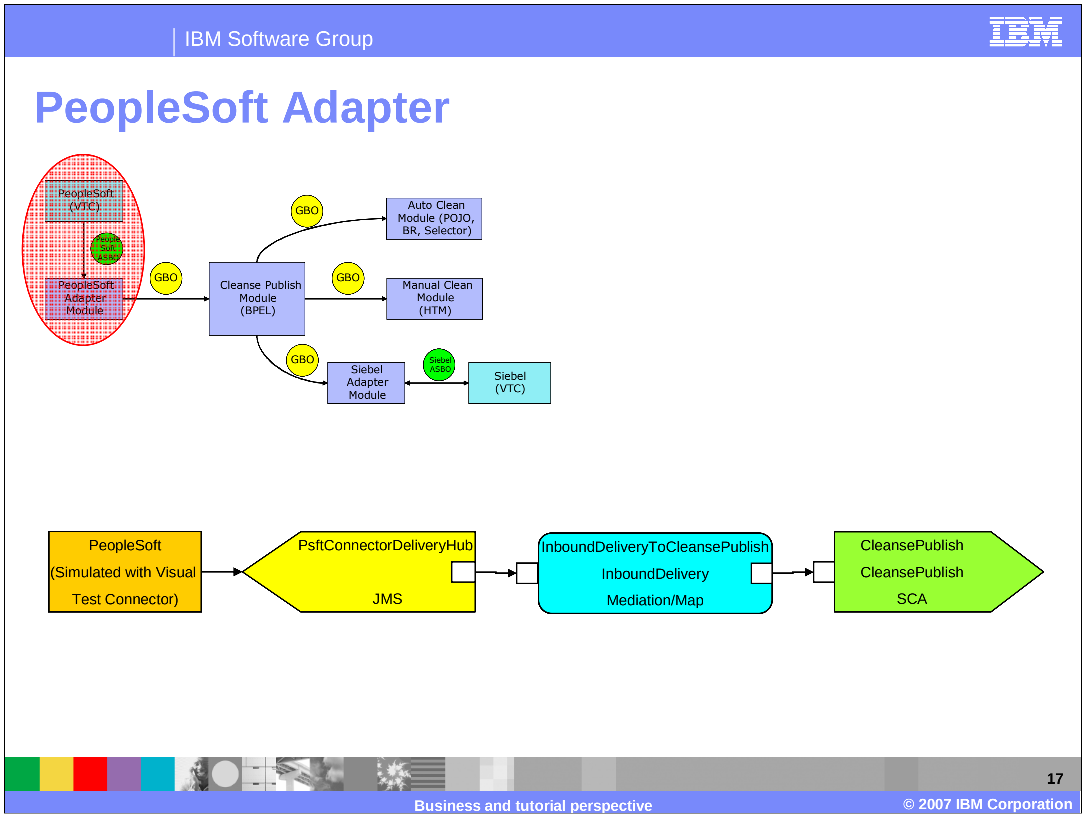
The ManualClean module is represented here. The export exposes the Clean interface used by the ManualClean component which is implemented as a human task. This human task enables further updating of the GBO.



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PeopleSoft Adapter

PeopleSoft (VTC)

People Soft ASBO

PeopleSoft Adapter Module

GBO

Cleanse Publish Module (BPEL)

GBO

Auto Clean Module (POJO, BR, Selector)

GBO

Manual Clean Module (HTM)

GBO

Siebel Adapter Module

Siebel ASBO

Siebel (VTC)

PeopleSoft (Simulated with Visual Test Connector)

PsftConnectorDeliveryHub

JMS

InboundDeliveryToCleansePublish

InboundDelivery

Mediation/Map

CleansePublish

CleansePublish

SCA

17

Business and tutorial perspective

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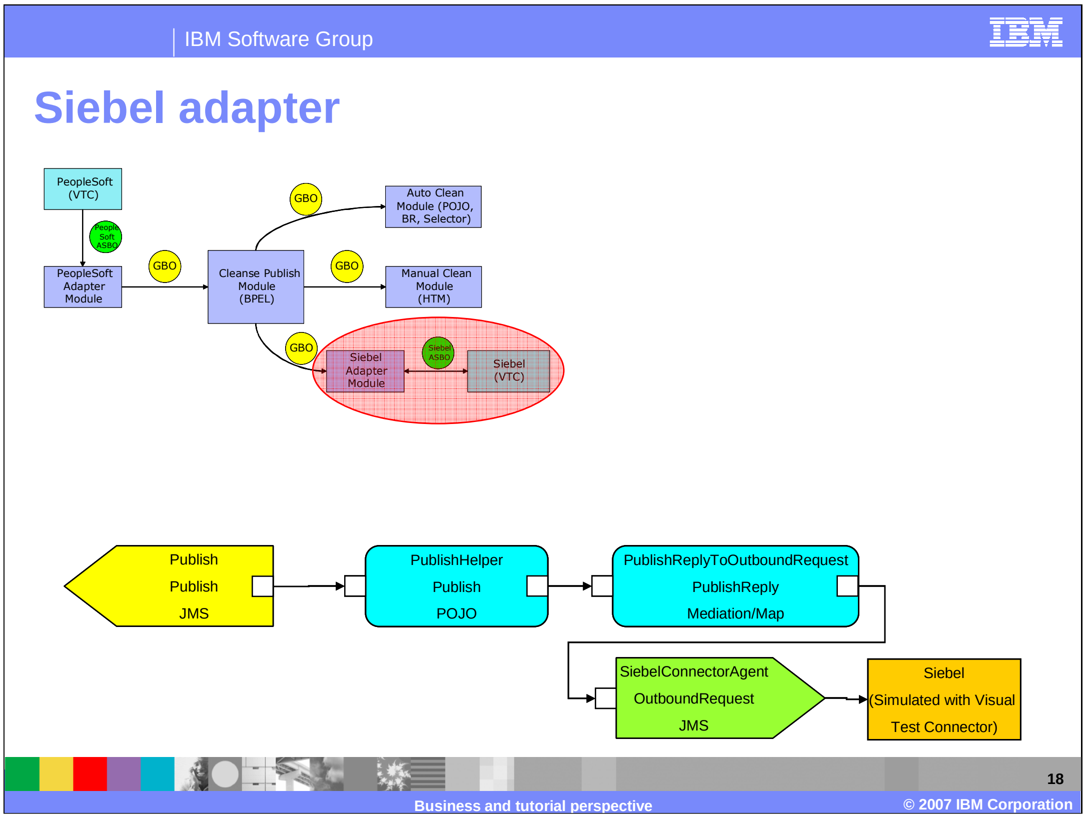
The PeopleSoft Adapter module is examined on this slide. The brown box on the left is not actually part of the PeopleSoft Adapter module, but rather is the visual test connector used to drive input to the PeopleSoft Adapter module. The PsftConnectorDeliveryHub export uses JMS to receive input from the visual test connector. This import understands that it is receiving data from a WebSphere Business Integration Adapter and does the required processing so that the business object coming in is in a form required by the WebSphere Process Server. The InboundDeliveryToCleansePublish component supports the InboundDelivery interface and is implemented as an interface mediation containing several business object maps. These maps convert the incoming ASBOs to GBOs. The maps define relationships to synchronize data between PeopleSoft and Siebel. The GBOs are then passed to the import using the CleansePublish interface. This import uses an SCA binding to connect it to the export in the CleansePublish module.



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Siebel adapter

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Business and tutorial perspective

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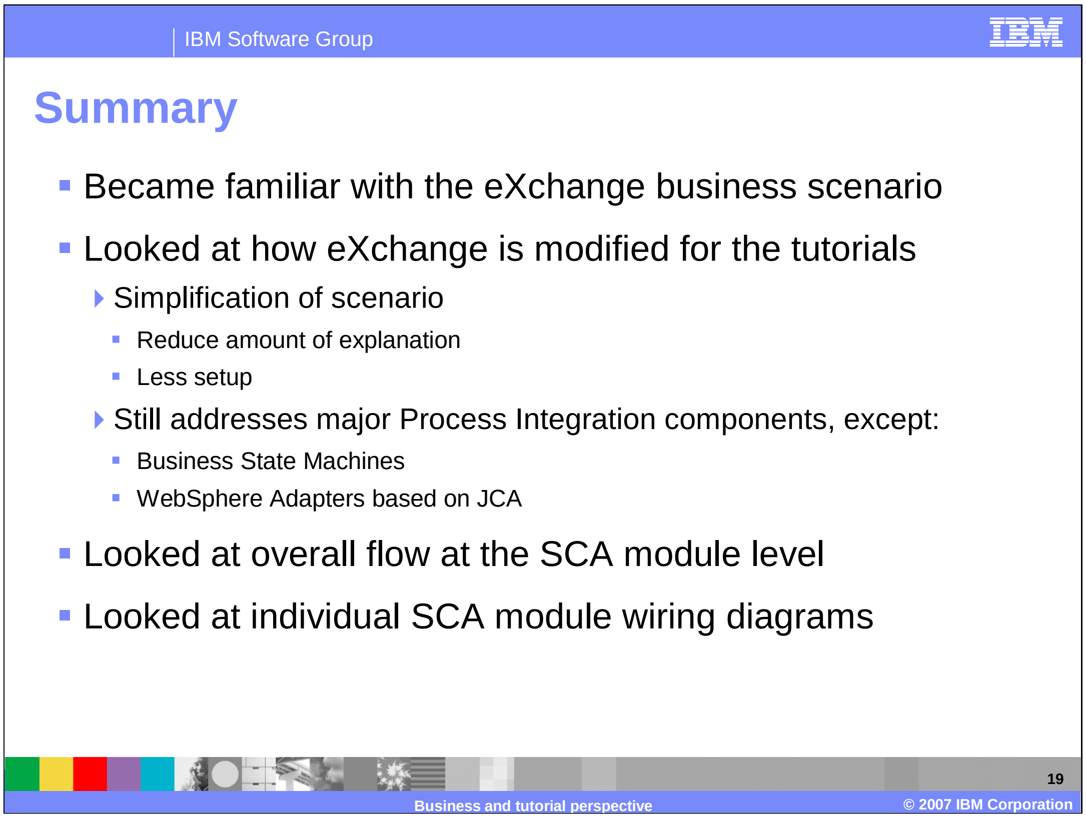
The Siebel Adapter module is examined on this slide. This module is slightly complicated by the requirements of the Relationship service. The Publish interface uses a one way operation rather than a request response operation, but the relationship processing requires the component containing the business object maps to be called using a request response operation so that the appropriate relationship processing completes. Therefore, an additional component needs to be inserted to convert the one way operation to a request response operation.

With that background in mind, here is the description of this module. On the left is an export that exposes the Publish interface. It uses a JMS binding that is configured to subscribe to a specific JMS topic, the same topic that the Cleanse Publish module uses on its import for the Publish interface. The incoming message is passed to the PublishHelper component where the Java implementation passes the call onward using the PublishReply interface. The PublishReply interface operation is the same as the operation on the Publish interface except that it is expecting a reply. In the PublishReplyToOutboundRequest component, the implementation is an interface map containing business object maps that also define a Relationship. These maps convert the GBOs to ASBOs which are then sent over the OutboundRequest interface on the JMS import that sends the message to the visual test connector. When the visual test connector replies, the response flows back through the import to the PublishReplyToOutboundRequest component where the relationship is updated. It then responds to the PublishHelper component where the return flow terminates.

You will notice when doing the tutorials for mapping that the additional PublishHelper component is not included, and that the mapping component uses the Publish interface. However, when you do the relationship tutorial, it will be constructed as shown in this slide.



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Summary

- Became familiar with the eXchange business scenario
- Looked at how eXchange is modified for the tutorials
  - Simplification of scenario
    - Reduce amount of explanation
    - Less setup
  - Still addresses major Process Integration components, except:
    - Business State Machines
    - WebSphere Adapters based on JCA
- Looked at overall flow at the SCA module level
- Looked at individual SCA module wiring diagrams

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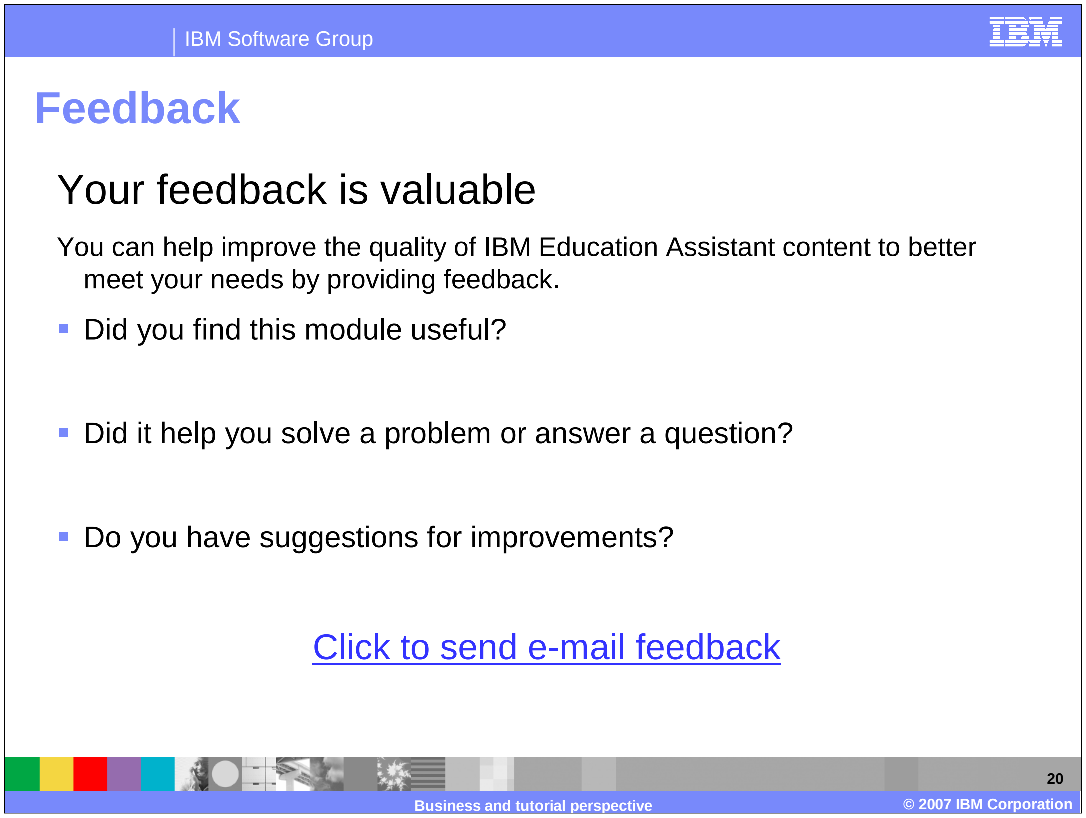
Business and tutorial perspective

In this presentation you examined the requirements of ClipsAndTacks.com to understand the eXchange business scenario. In order to provide practical tutorials based on this scenario, it was necessary to simplify it and to reduce the setup dependencies and requirements. However, all the major components except Business State Machines and WebSphere Adapters based on JCA are still addressed. You then looked at the service component architecture module flow and the internal wiring diagrams for each of the modules. With this background, it will be easier to understand the tutorials built around the eXchange scenario.



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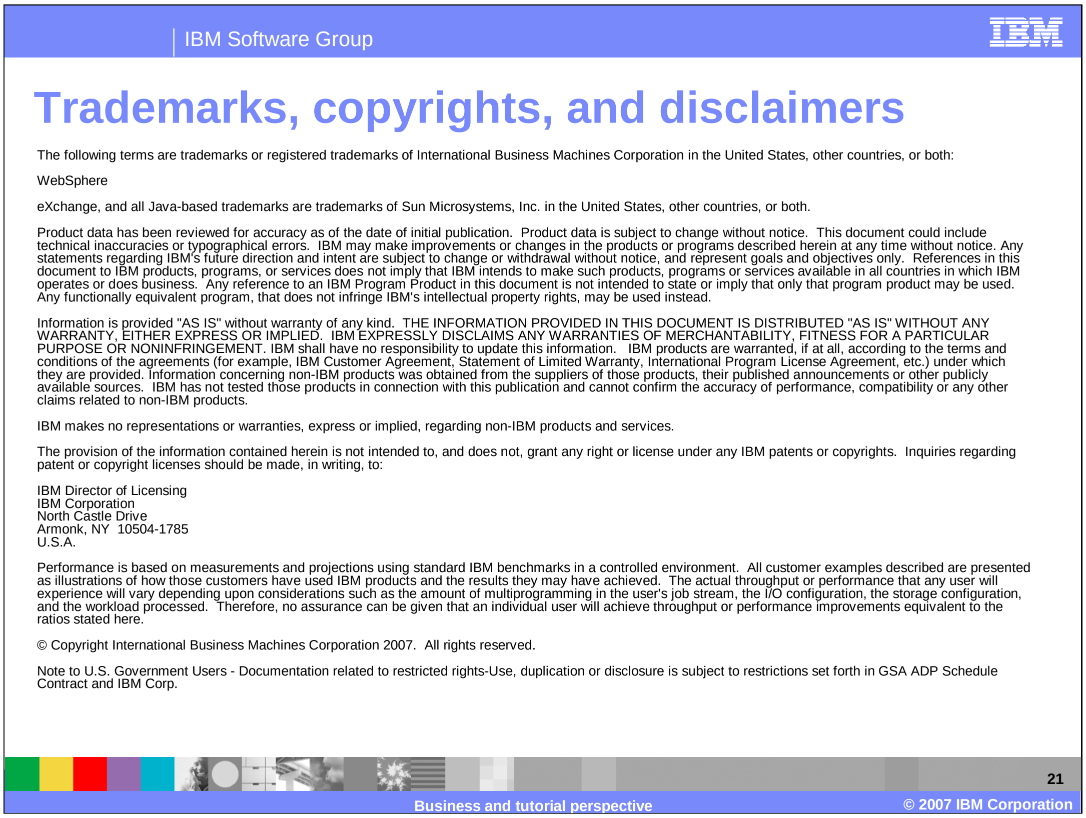

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