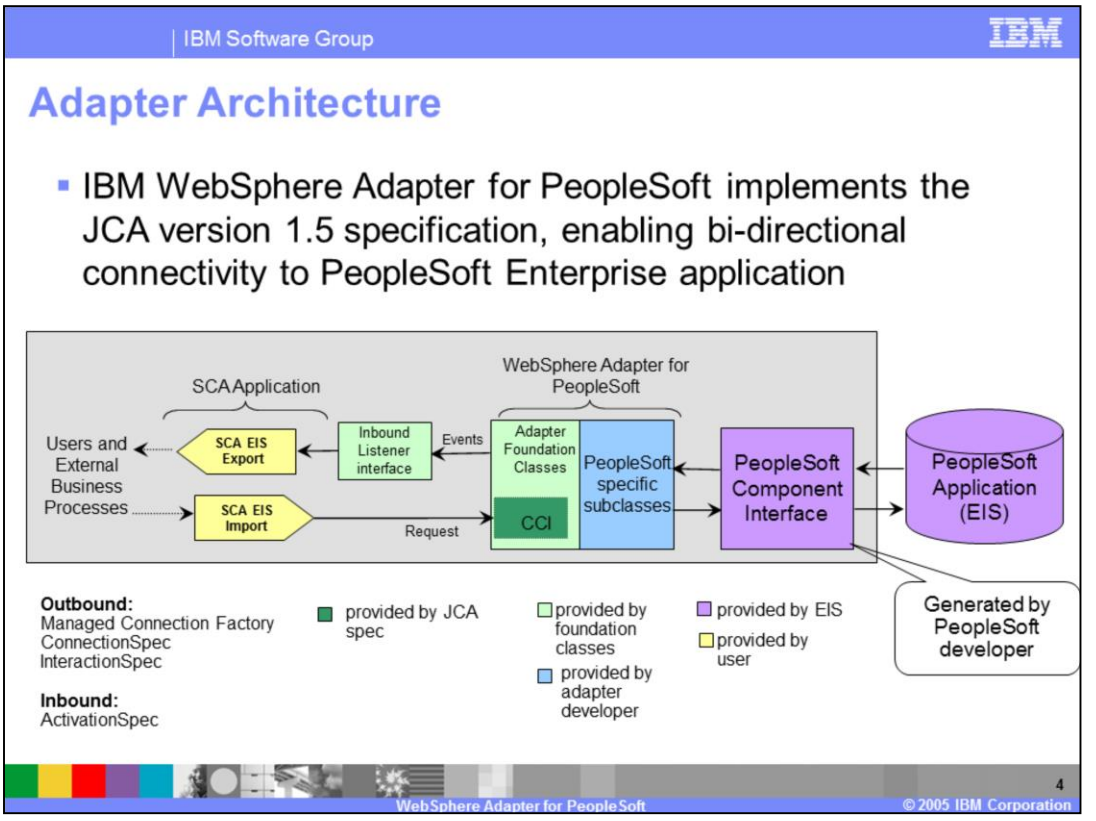
This presentation will cover the IBM WebSphere Adapter for PeopleSoft. Other presentations provide an overview of all the WebSphere Adapters, including installation and deployment of WebSphere Adapters and details of common function.

The agenda for this presentation is shown here. The installation and deployment of PeopleSoft Adapter is covered in a separate presentation common for all WebSphere Adapters.

This section will provide an overview of the WebSphere Adapter for PeopleSoft.



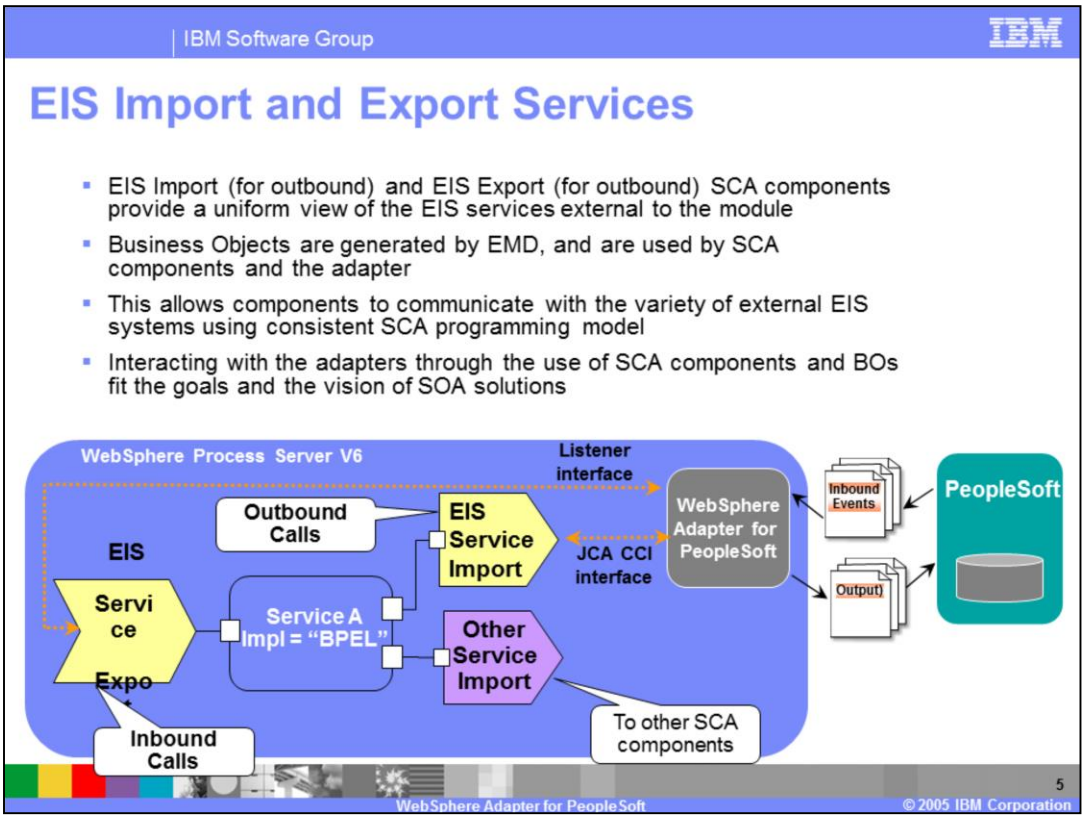
This diagram shows the high-level architecture of components that play a role in the end to end invocation of the outbound or the inbound request. Using the Enterprise Service Discovery tool in the WebSphere Integration Developer (WID), the SCA EIS components are where the associated Business Objects are created. For the outbound request, the SCA EIS Export component is created, and for the inbound request, the SCA EIS Import component is created.

The SCA Clients interact with the SCA EIS Export and Import components to drive a outbound request or receive an inbound request, as shown in the diagram. The Adapter contains the implementation of JCA specifications and has extensions provided by the Adapter foundation classes. The SCA Export component passes a Business Object wrapped in a J2C CCI Record object. The Adapter extracts the Business Object from the Record object and determines the PeopleSoft function to call along with its arguments. The Adapter uses the PeopleSoft Component Interface JAR file to communicate with the PeopleSoft application.

The two main interfaces to a JCA adapter are the Service Provider Interface (SPI) and the Common Client Interface (CCI). The SPI is the application server view of the adapter and contains the contracts necessary to work well with an application server, including

Connection creation and matching, security, and work management.

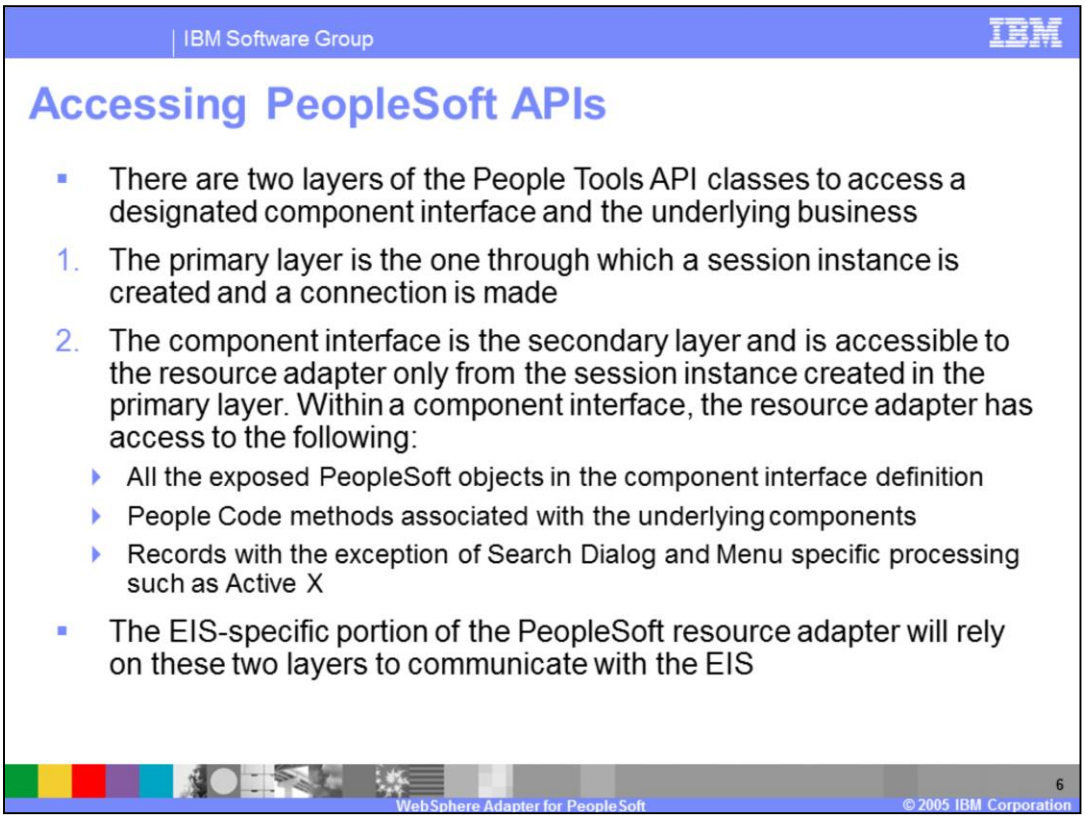
The CCI is designed to provide a common view of data and interaction with the adapter and defines the data model and provides a common mechanism to interact with the adapter.



The Enterprise Service Discovery tool in WID creates an EIS Import SCA component for an outbound request, and creates EIS Export SCA component for an inbound event request. The Business Objects for the outbound or inbound requests are also created. Using the SCA components for the adapter, they can be wired with other SCA components to create a business application.

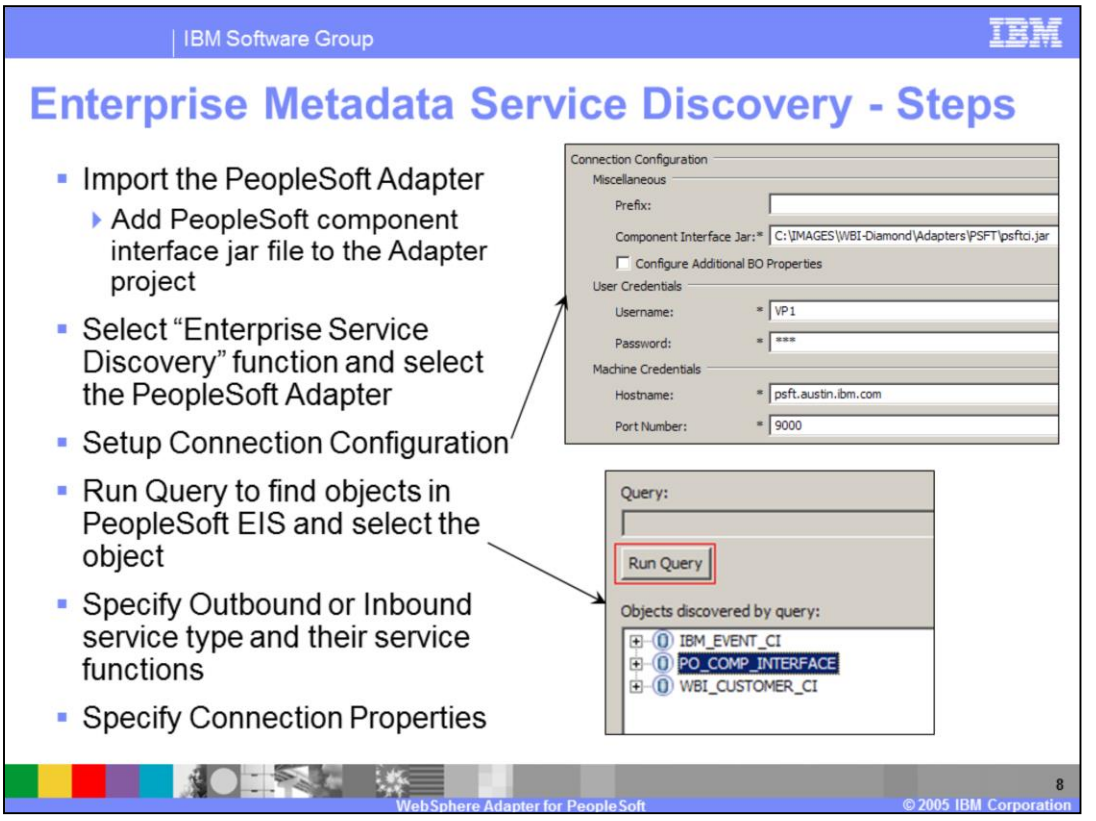
In the diagram, the SCA component representing “Service A” is wired with the Adapter EIS Export and EIS Import component. Also shown is the wiring from Service A to other SCA components through the Import. The implementation of Service A could be BPEL or any other support implementation such as POJO or Human task.

For SCA clients, the adapter functionality is exposed through the EIS Import and EIS Export SCA components.



PeopleSoft API classes expose two layers of classes to the Adapter. The first one is used to create a connection and a session instance to the PeopleSoft application. The second one is the component interface through which the adapter interacts with the exposed PeopleSoft objects and their methods.

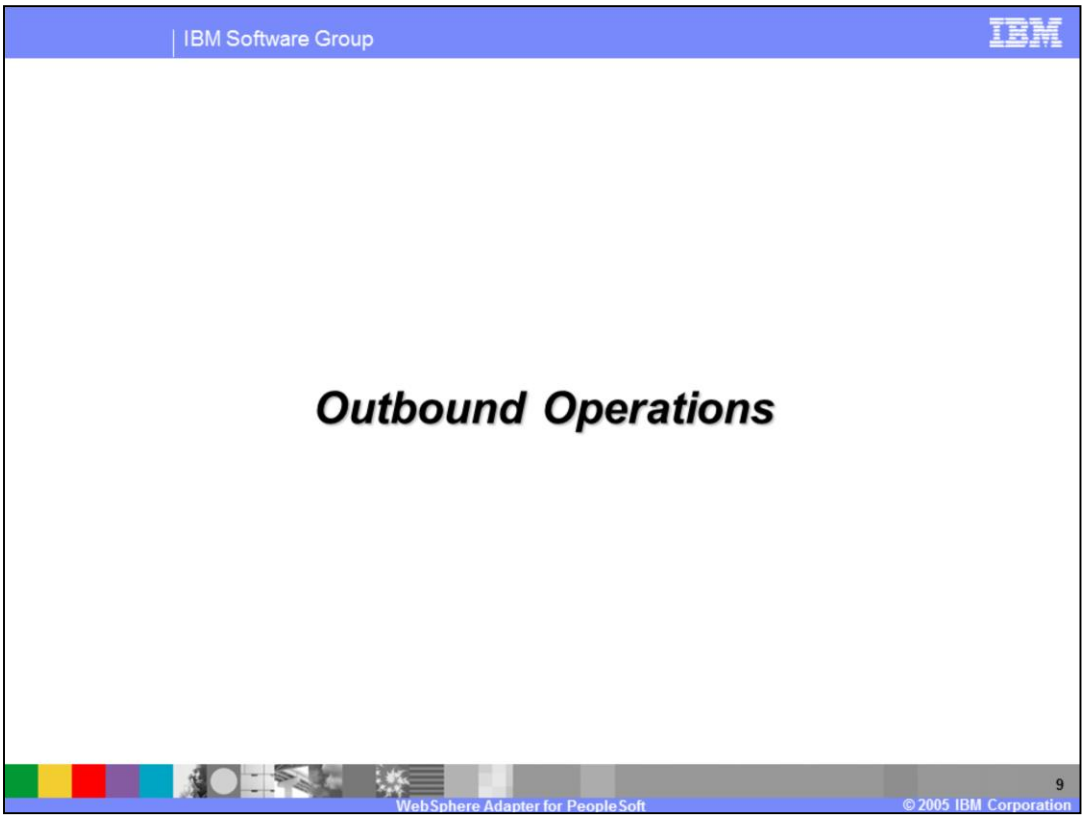
This section covers the high level flow in the tool when using the Enterprise Service Discovery wizard.



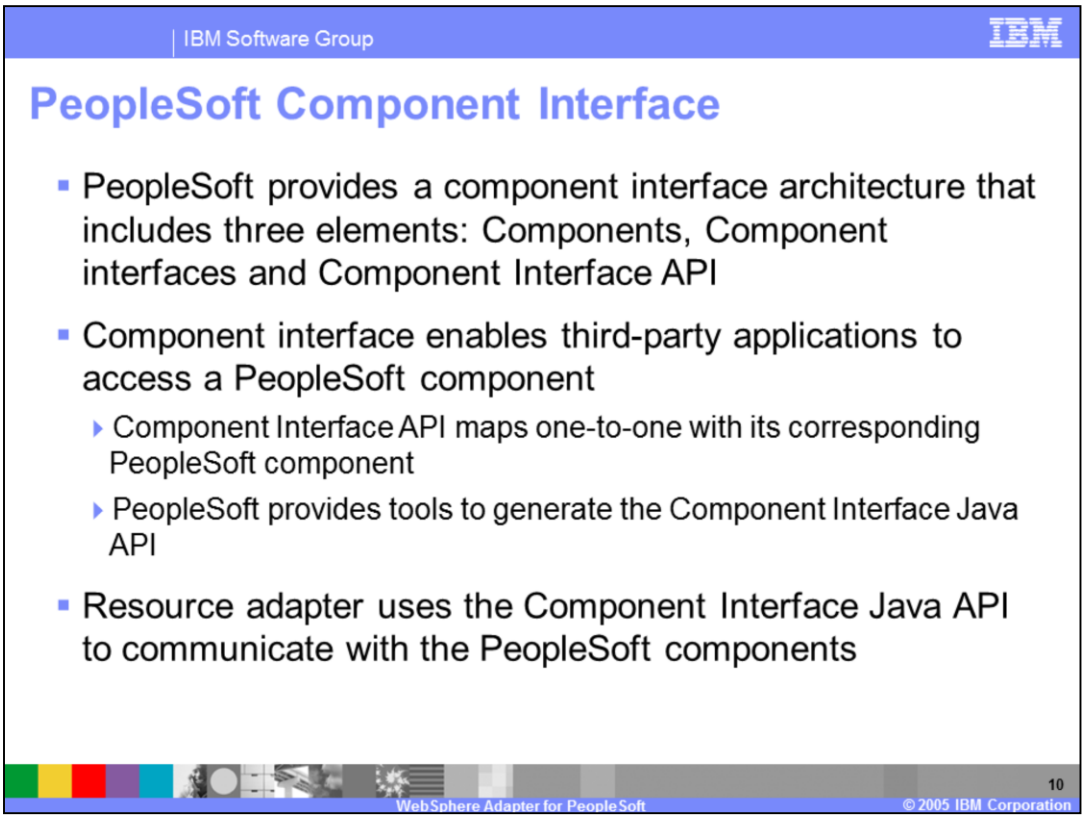
Shown here are the high level steps of the Enterprise Service Discovery performed to create the Adapter SCA components for the outbound or inbound request.

1. Import the PeopleSoft Adapter and add the PeopleSoft component interface jar file to the adapter project.
2. Select the Enterprise Service Discovery tool and the PeopleSoft adapter in the wizard
3. Setup the connection configuration, including host name, port, user id, and password, necessary for the tool to connect to the PeopleSoft application.
4. Run the Query function in the Enterprise Service Discovery wizard. The PeopleSoft application will be introspected and a list of PeopleSoft objects will be retuned on which the outbound or inbound request can be performed.
5. Select the type of interaction, whether outbound or inbound
6. Specify the managed connection properties for outbound request or ActivationSpec properties for inbound request.

These simple steps create the SCA EIS Export or Import component and the Business Objects for the interaction.

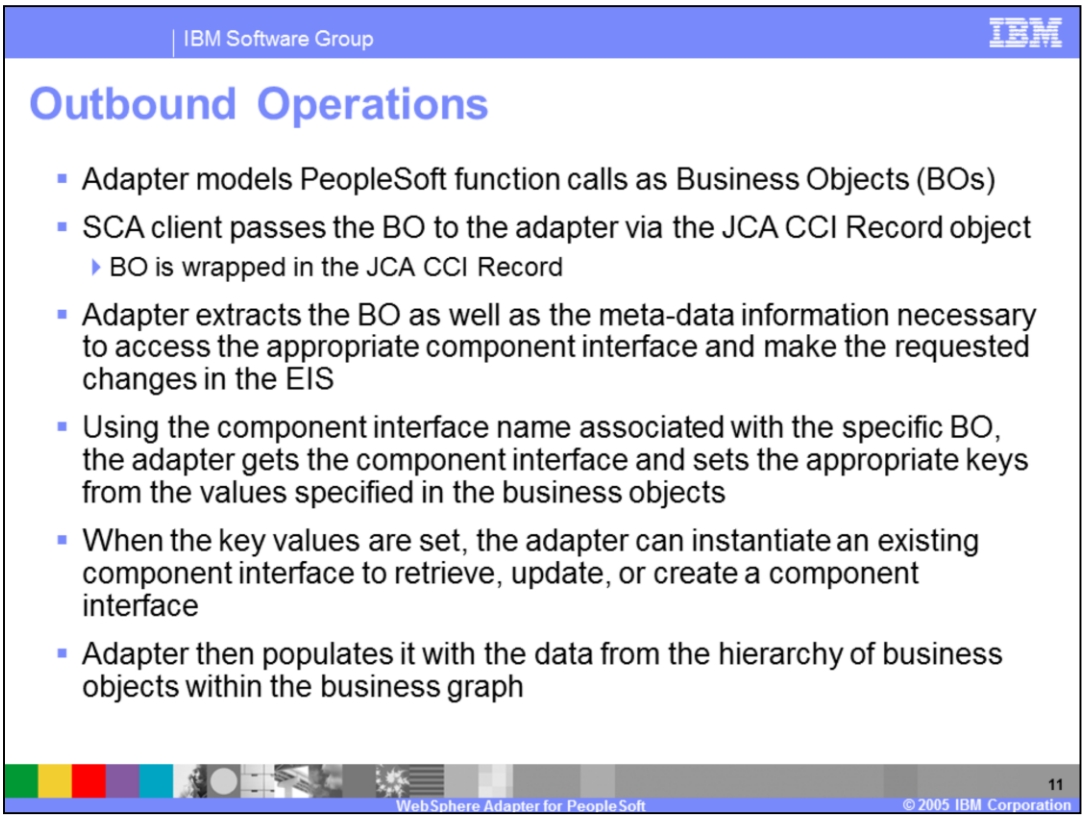


This section covers the outbound operations.



PeopleSoft provides a component interface with an architecture that enables third-party applications to access a PeopleSoft component. The Component Interface API maps one-to-one with its corresponding PeopleSoft component. PeopleSoft also provides tools to generate the Component Interface Java API.

The PeopleSoft adapter uses the Component Interface Java API to communicate with the PeopleSoft components

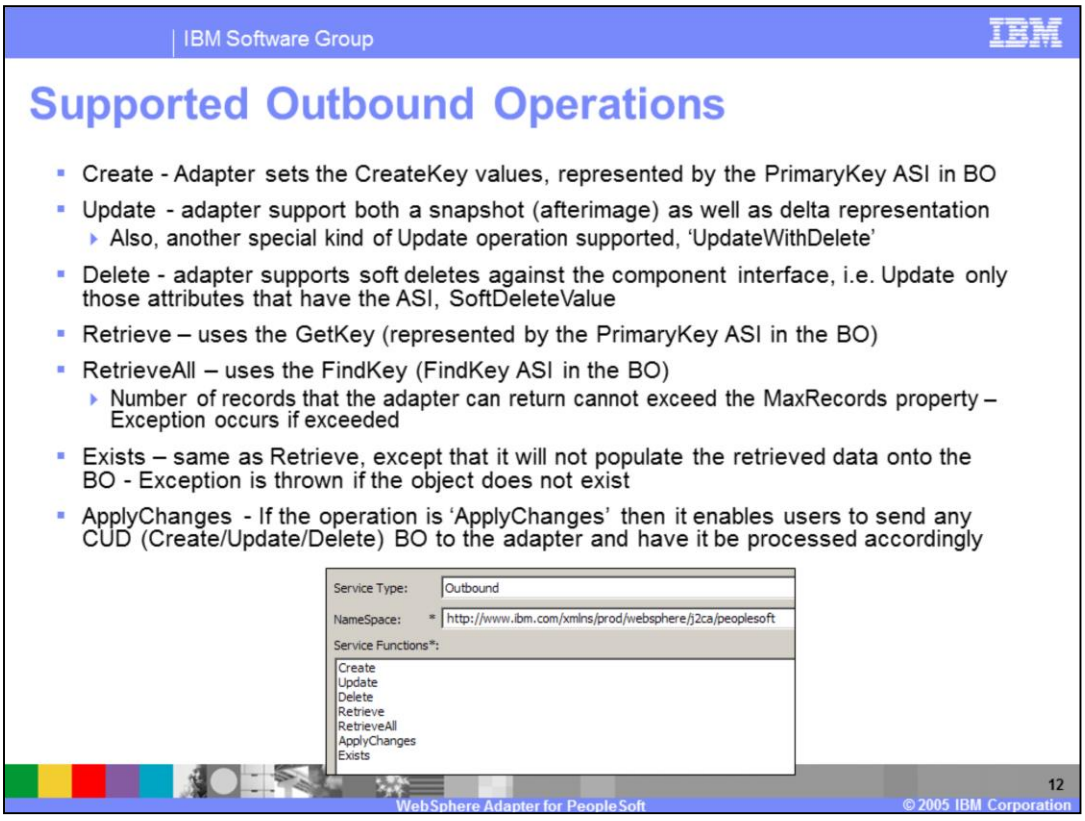


The high level flow of the outbound operations is shown on this page.

The adapter models the PeopleSoft function call as Business Objects (BO). The SCA client wraps the BO inside the JCA CCI Record object, since the J2C specification does not support passing a BO as a parameter.

The adapter extracts the BO from the Record, determines the PeopleSoft function to call and extracts the parameters represented as metadata within the BO. The adapter will process the attributes in the order defined in the BO

The adapter then executes the function on the PeopleSoft backend.



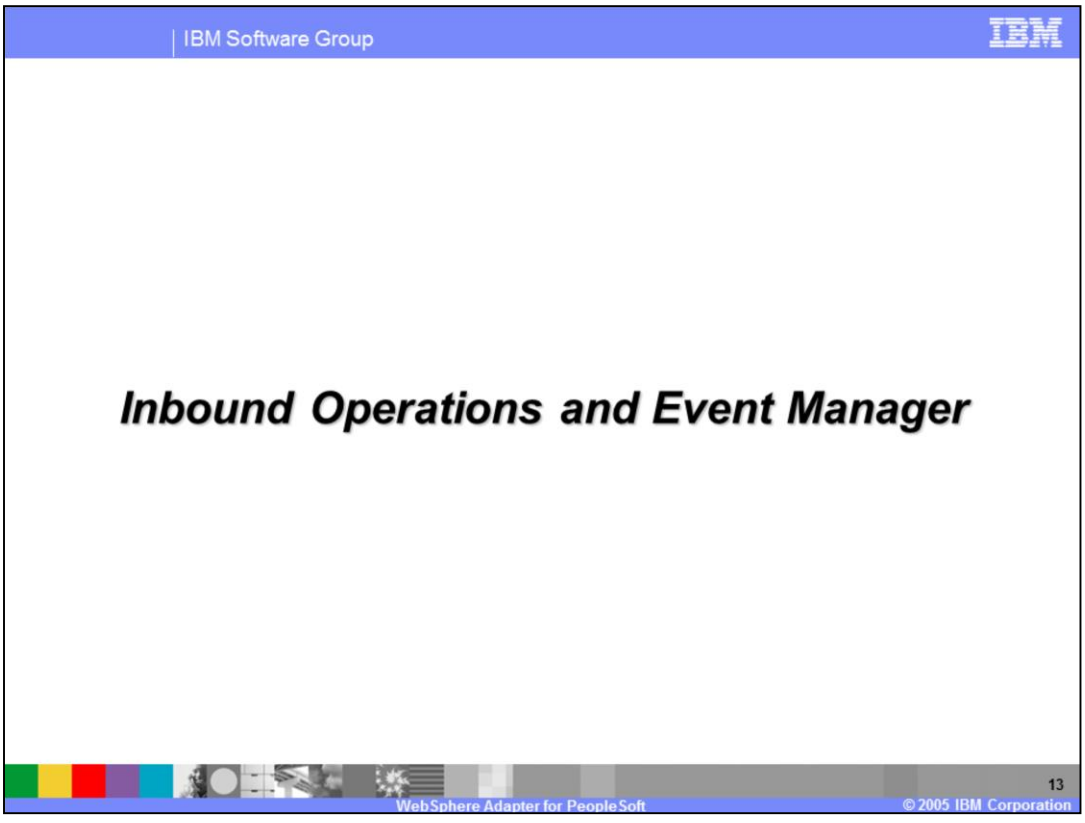
Following are the supported outbound operations and some of their details:

Create: The adapter sets the CreateKey values, represented by the PrimaryKey ASI in the business object

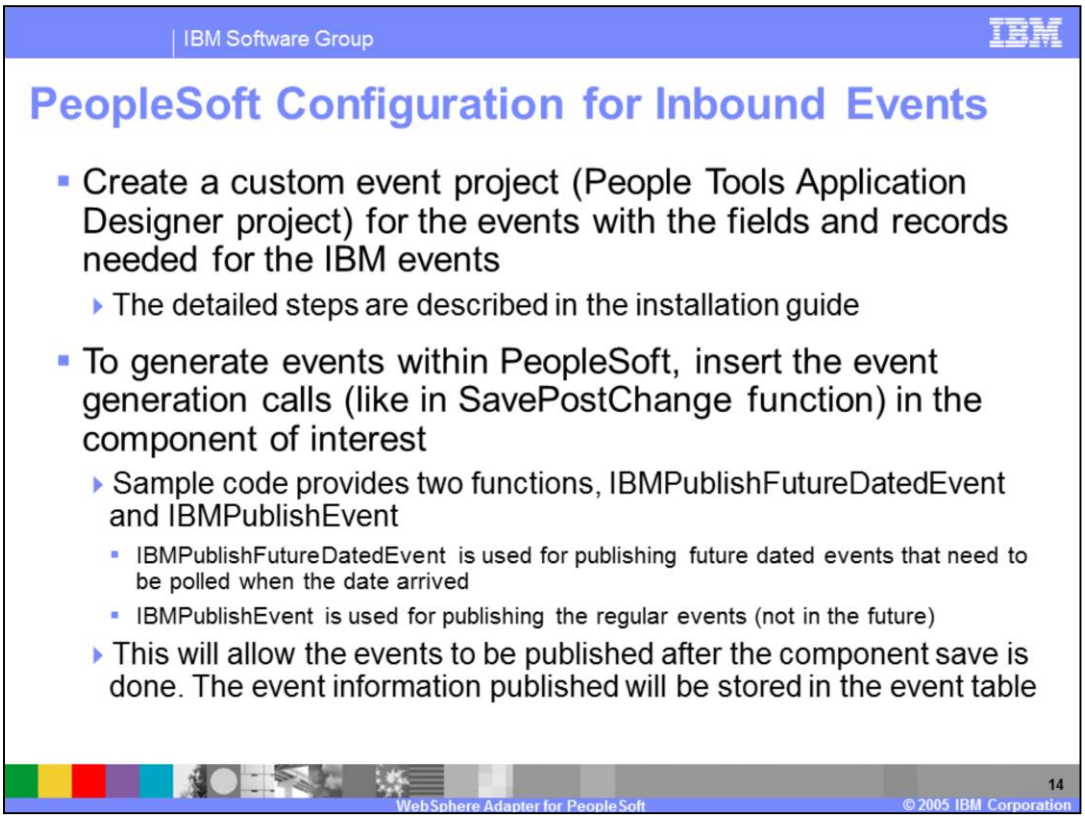
Snapshot Update: If the operation in the interaction spec is Update, the adapter will check for the existence of the verb in the business graph. If the verb exists, it will perform the snapshot Update processing. The adapter will retrieve and compare the input business object with the retrieved object.

Delta Update: If the operation in the interaction spec is Update and the verb does not exist in the business graph, it will perform the delta Update processing. The adapter will inspect the ChangeSummary to identify the operation for each BO in the input hierarchy and perform the same.

UpdateWithDelete: This is a special form of the Update operation that intended to provide better performance. The verb will be set to 'UpdateWithDelete' at the top-level. It always requires a ChangeSummary and the ChangeSummary is expected to include BO-level creates and deletes. The ChangeSummary indicates what needs to be done. If ChangeSummary is empty, the adapter will not take any action on the request.



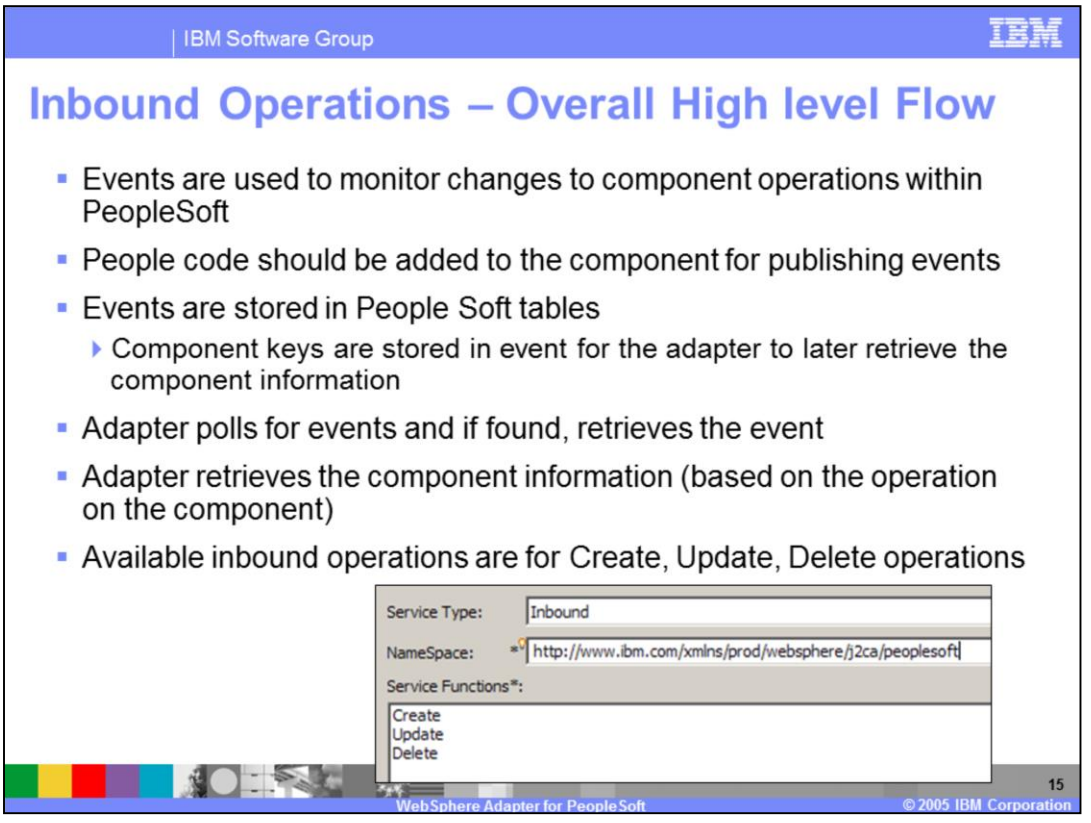
This section discusses the inbound operations and event manager.



To support the inbound operations, a custom event project must be created in PeopleSoft for its event store. The schema for the event store is provided by IBM and should not be changed, since the adapter will expect the custom event store with that schema.

Event triggers will need to be inserted in the PeopleSoft components of interest. Future Dated events are supported by the adapter. The future events are polled and brought in by the adapter when that time arrives.

Samples are provided with the PeopleSoft adapter for the custom event project and the special custom event script.



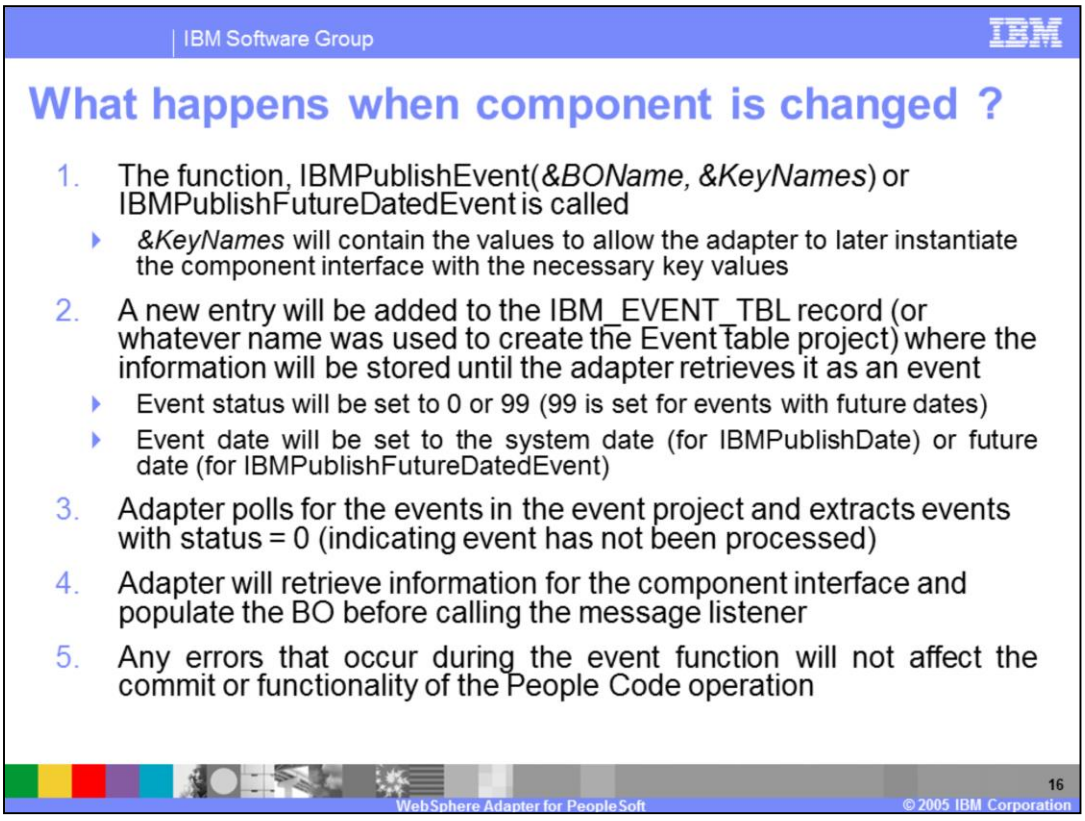
Inbound operations are based on events being triggered when a PeopleSoft component is created, modified or deleted. The PeopleSoft developer must create a custom PeopleSoft component to store the events that are being triggered as a result of the updates to the PeopleSoft component. The schema for the custom PeopleSoft component for event store cannot be changed. A sample custom PeopleSoft component, called, “IBM Events” is provided with the adapter.

Triggers must be inserted in the PeopleSoft component that need to be watched for events. Sample triggers are also provided.

The adapter polls for the events looking in the custom PeopleSoft component event store and uses its own event staging table and the custom PeopleSoft component event store to support “once and only once” event delivery. The details of the “Once and only once” event delivery are covered in the common adapter details presentation.

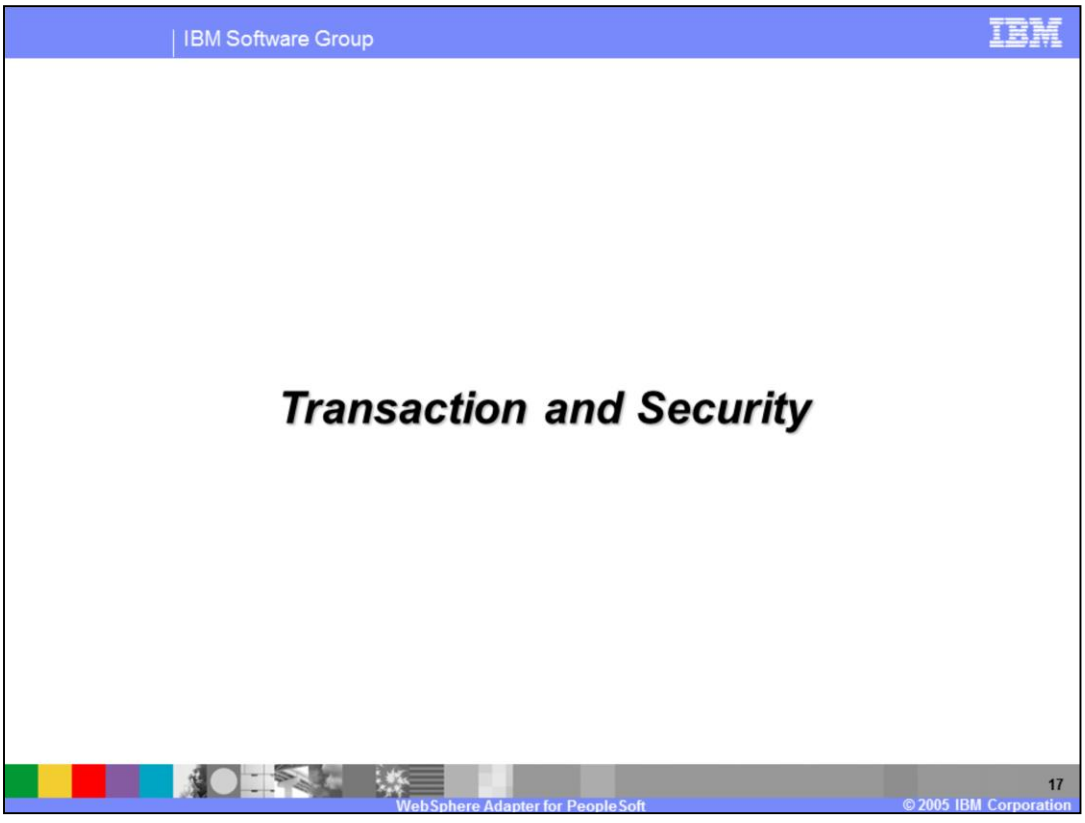
When a new event is detected by the adapter, based on the event status, the adapter retrieves it and stores it in its event staging table. The adapter retrieves the integration object represented by the event, wraps it in a Business object and calls the registered endpoint for that event, passing the business object to the endpoint.

The available inbound operations where events can be generated are Create, Update and Delete.

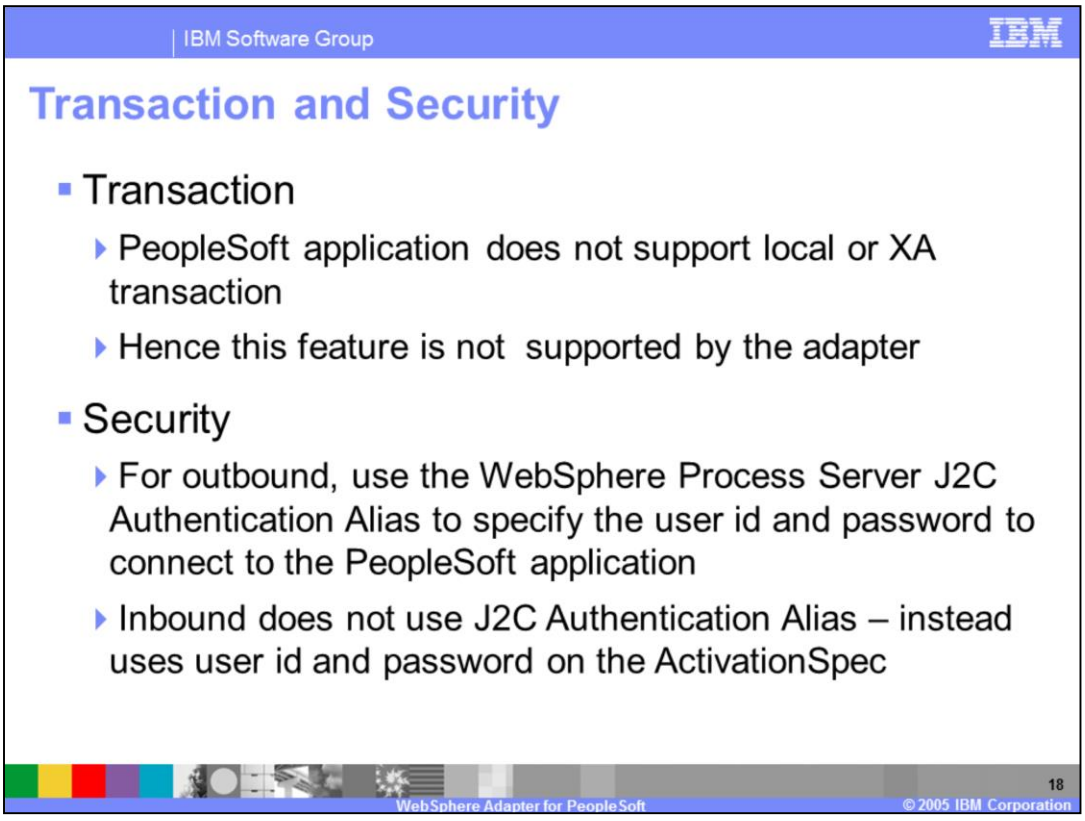


Shown here are the details of what happens when a component, which has event trigger, is changed. Based on the trigger function, IBMPublishEvent or IBMPublishFutureDatedEvent, when the component is changed, a new entry is added to event store with the status of 0 for new event or 99 for new event for a future date. The adapter periodically polls for the new event, based on the polling period. New events (status = 0) are extracted and processed within the adapter.

For each new event, the adapter retrieves the component information related to the event and then populates a business object before sending it to the endpoint.



This section covers the transaction and security support.

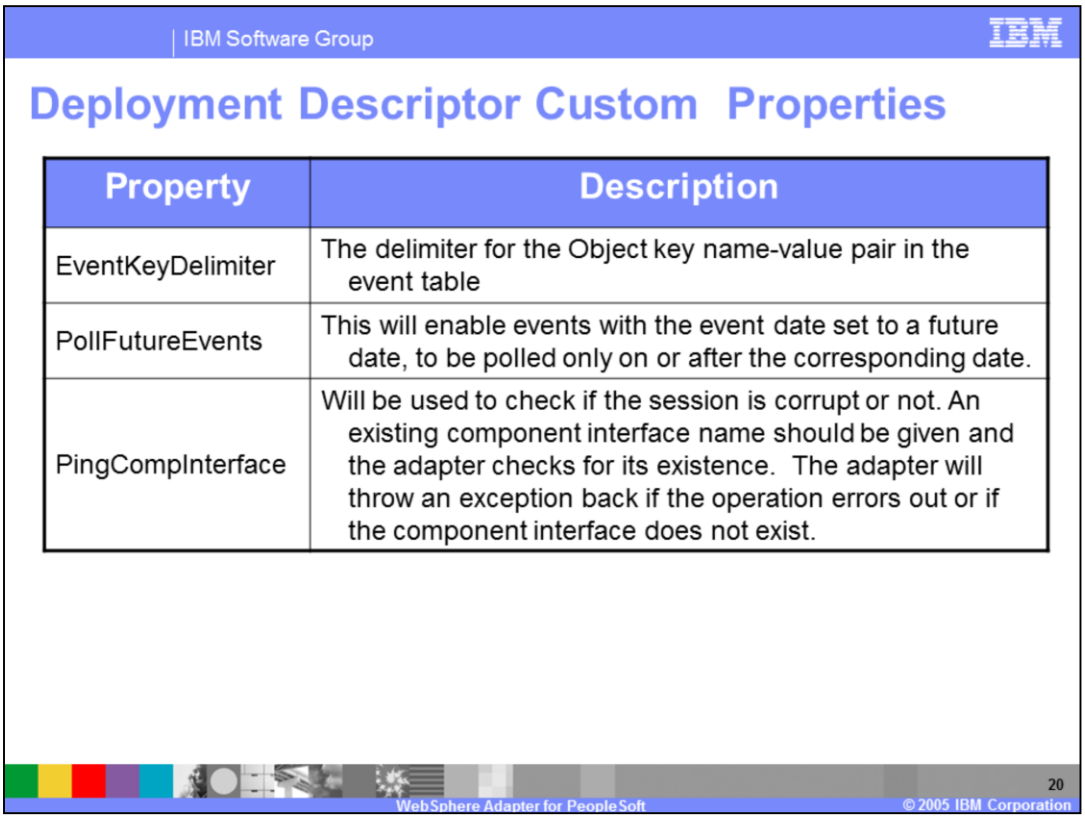


The PeopleSoft application does not support transactions, so there is no end to end transaction available from the adapter to and from the PeopleSoft application.

In terms of security, for the outbound request, the J2C Authentication Alias within the WebSphere Process Server is used. The authentication alias name can be specified in WID. The administrator must have that J2C Authentication Alias defined within the Process Server with its user id and password to authenticate the PeopleSoft application. The pre-defined J2C Authentication Alias "**SCA_Auth_Alias**" can be used for authentication.

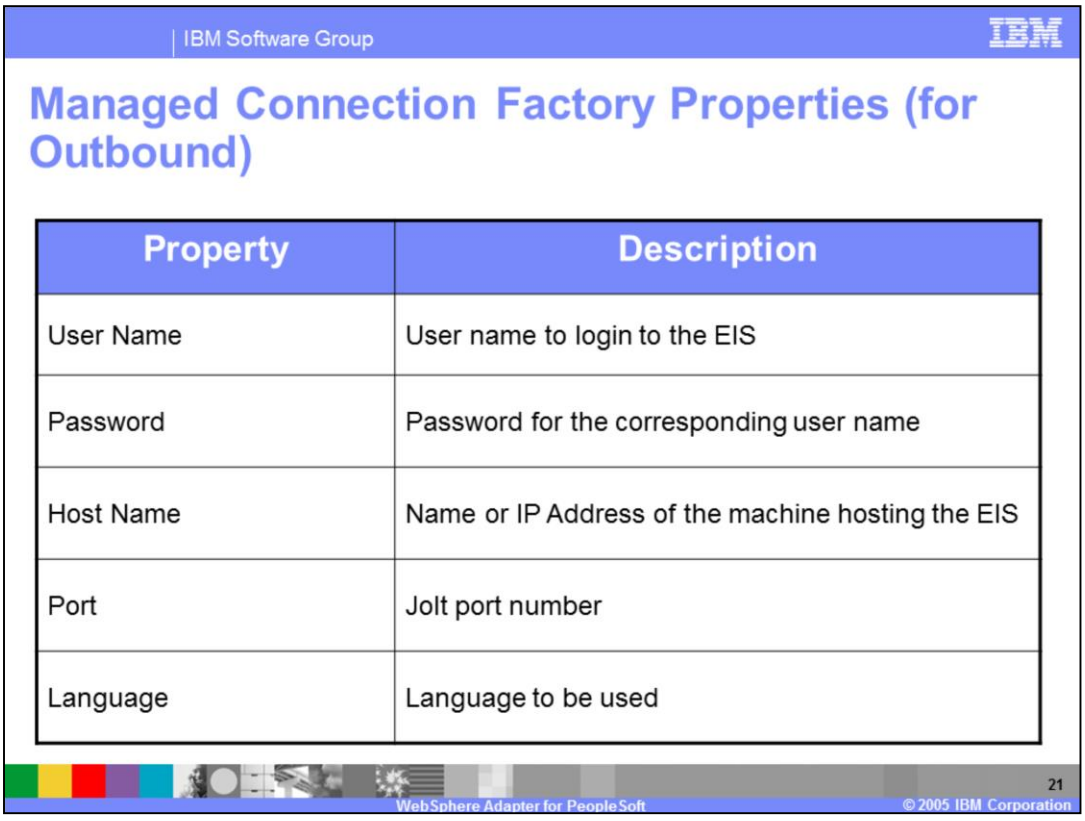
For the inbound request, the user id and password properties specified on the inbound ActivationSpec are used. J2C Authentication Alias is not used for inbound operations.

Common properties were covered In the WebSphere Adapter common details presentation. This section covers the PeopleSoft specific attributes.

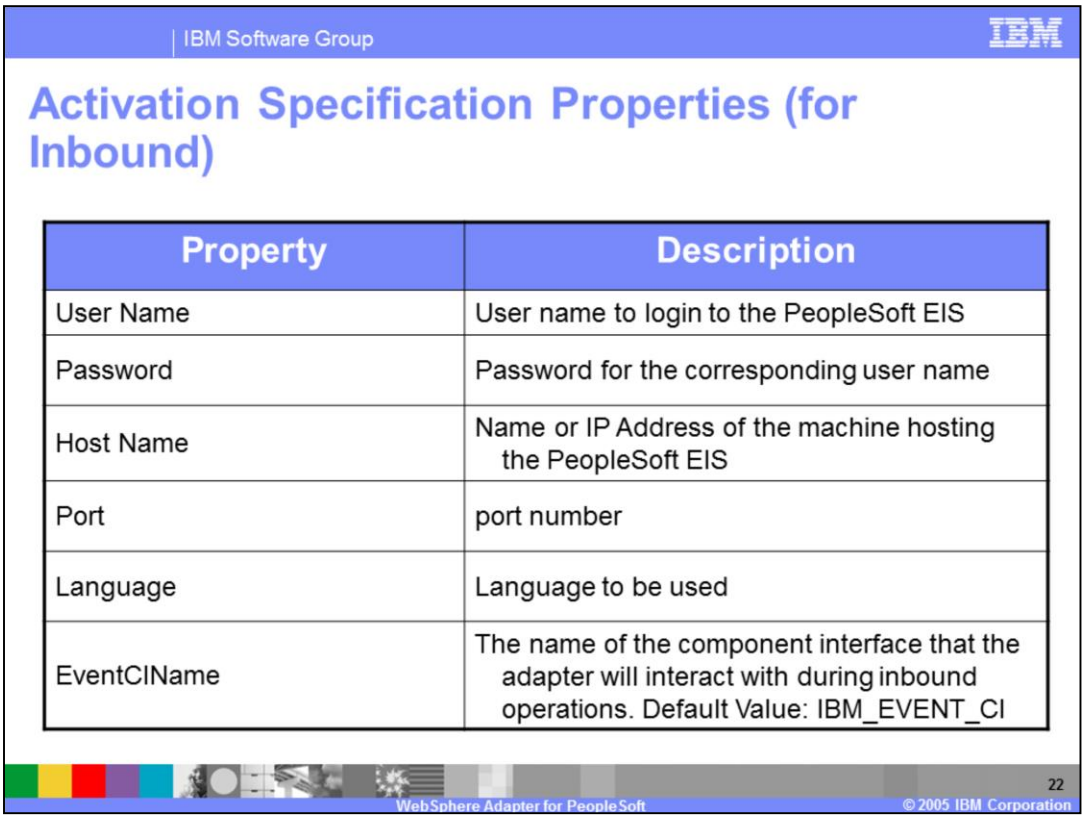


Some of the specific PeopleSoft Adapter custom properties are shown here. The descriptions is self explanatory.

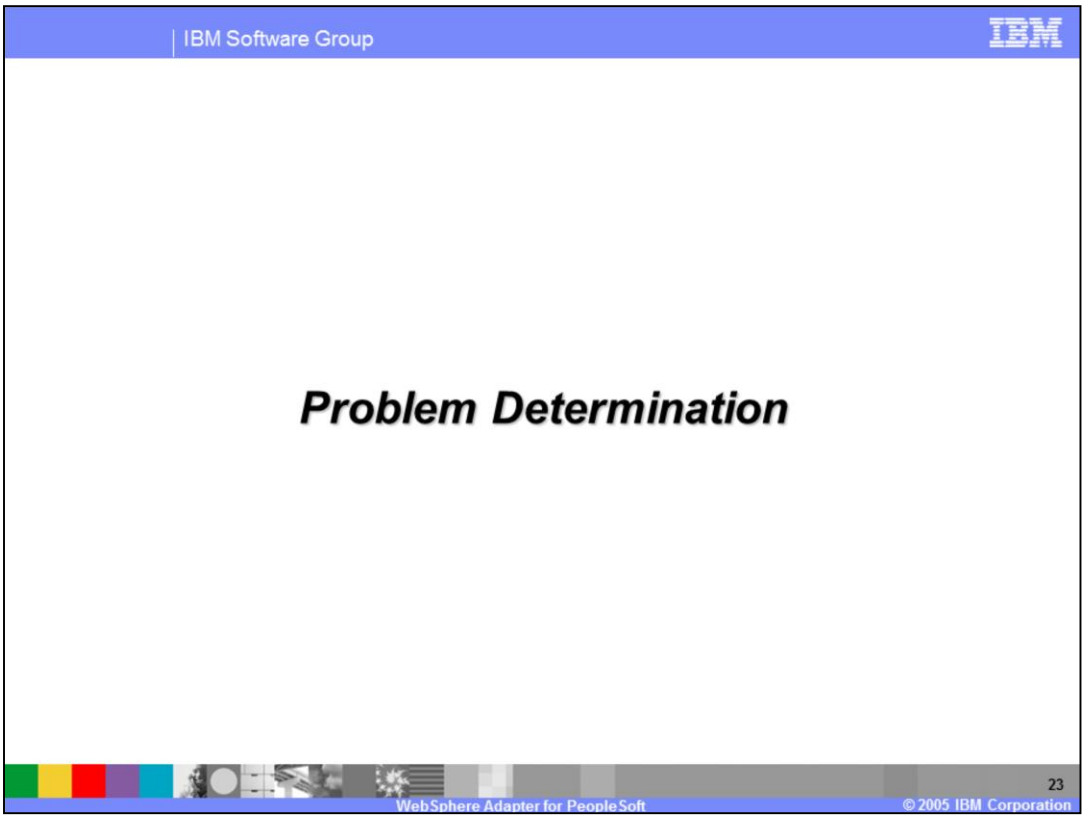
The event triggers within the PeopleSoft components can insert events for future processing. The adapter needs to know that future events will be used within PeopleSoft. The PollFutureEvents property lets the adapter know if future dated events should be expected.



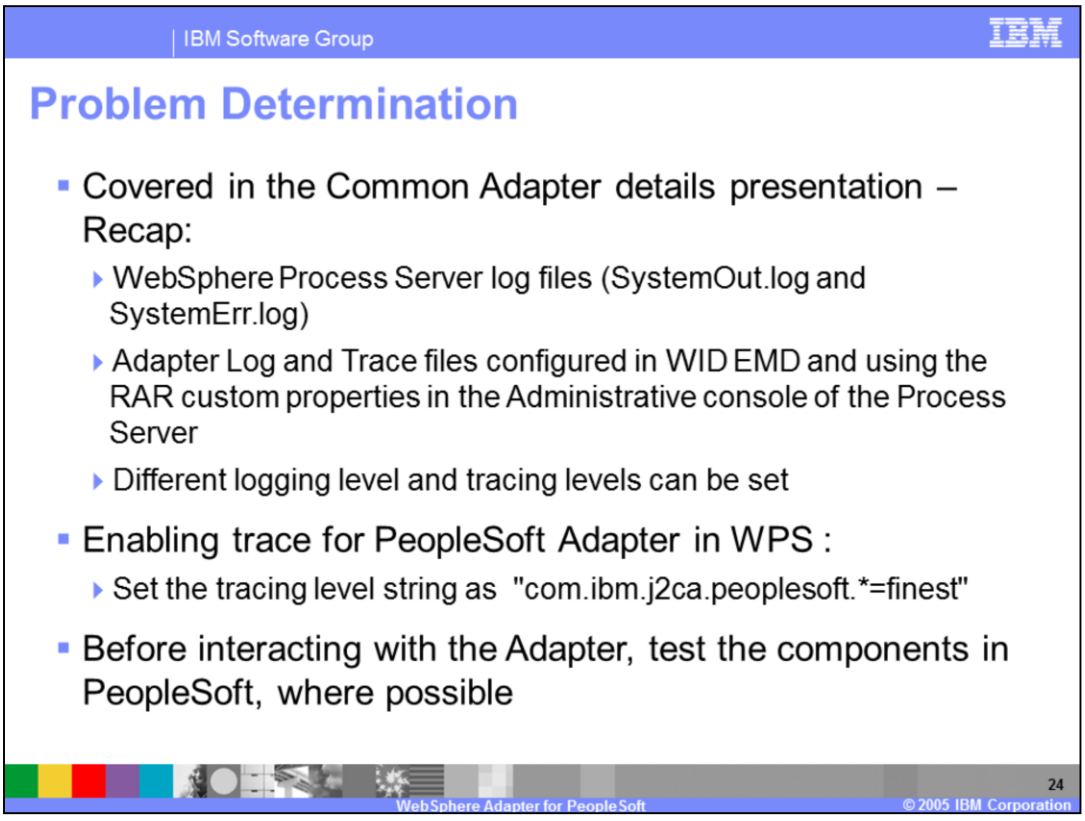
The Managed Factory outbound events used to connect to the PeopleSoft backend are shown here and are self explanatory.



The properties for the inbound ActivationSpec are shown in the table. They are same as the outbound except a new one called the EventCIName, which specifies the name of the custom event component in PeopleSoft that has been created to store the events from the PeopleSoft components.

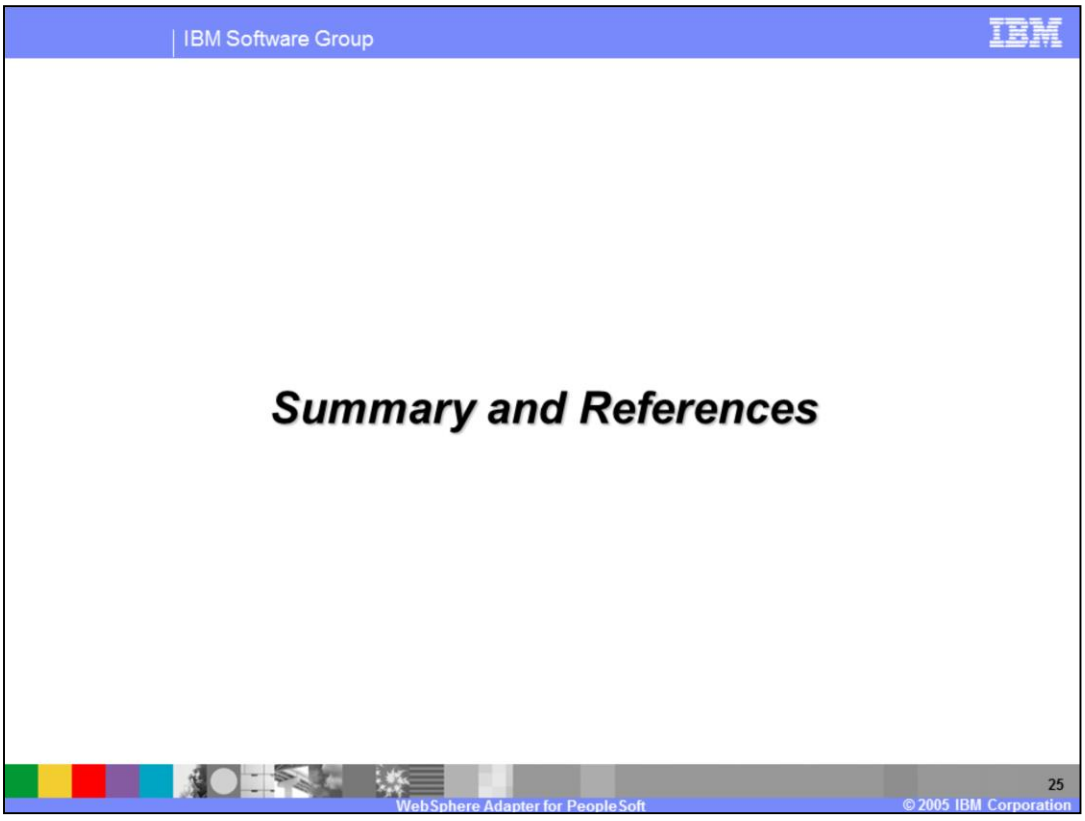


This section is a recap of Problem Determination. Problem Determination methodology, log and trace files are similar in all the WebSphere Adapters, and are covered in the common details section.

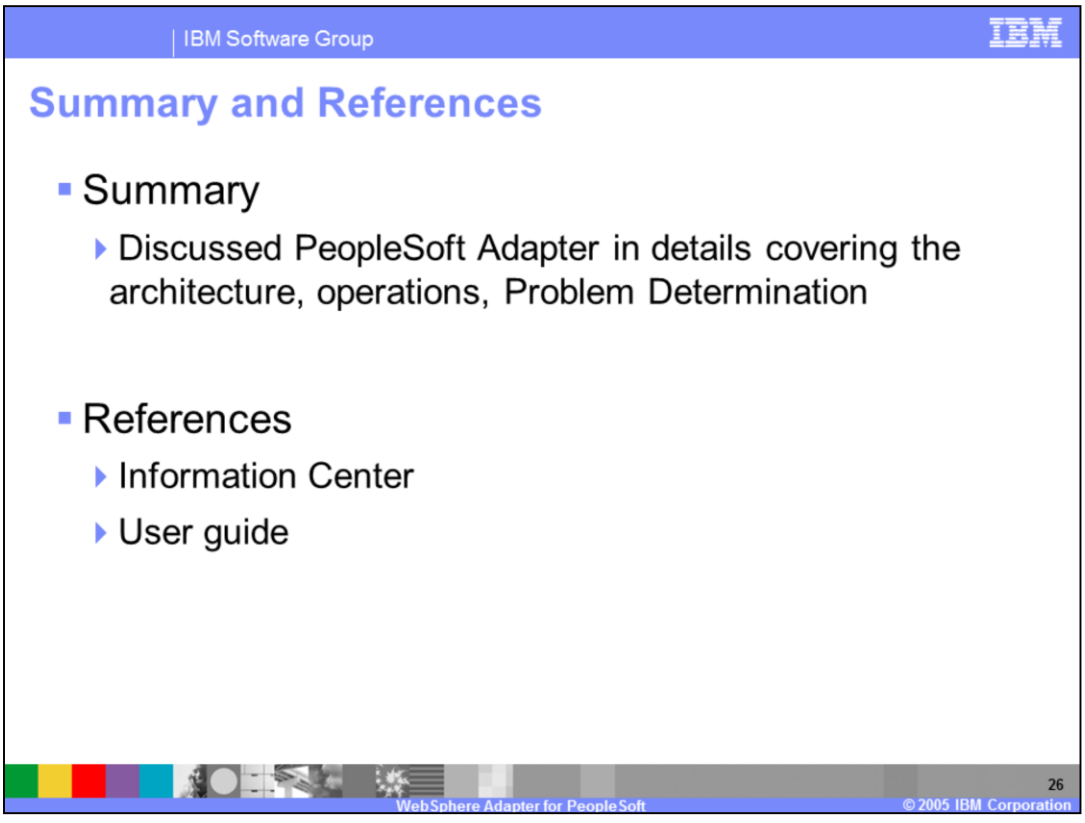


Listed here are the log files for WebSphere Process Server. Note the trace string used to turn on tracing of the PeopleSoft adapter, along with the levels.

Best practice is, where possible, to try to test the PeopleSoft components like the custom event component, generation of event triggers within the PeopleSoft backend before trying the end to end scenario with the adapter.



This section provides a summary and references.



In summary, this presentation covered the details of WebSphere Adapter for PeopleSoft.

More information can be found in the user guide and the Information Center for the Adapter.

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.