Integrating Siebel 8 with Oracle Applications

Kalika Prasad Maheshwari
Sierra AtlanticInc

Introduction

Today, IT organizations manage a large portfolio of legacy systems, Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) solutions with key business data and business processes spread across the various applications. In such scenarios, an extremely important challenge is to not only accomplish seamless integration of data and business processes in the applications but to also enable business continuity. This means information must continue to be shared in real-time, data integrity should be maintained and all applications should be up and running at all times. Enterprise integration is the task of making disparate applications work together to produce a unified set of functionality.

Siebel 8.0 offers several application integration techniques to integrate Siebel with different applications be it Oracle Applications or third party systems. This white paper starts with a brief description of the integration techniques offered by Siebel 8.0. Some of the most common Siebel integration techniques are Enterprise Integration Manager (EIM), Siebel Workflow, Siebel eBusiness Connectors. This paper describes the different approaches a system integrator can adopt while integrating Siebel 8.0 with Oracle Applications.

Objectives

The main objective of this whitepaper is to describe in detail the different approaches to integrate Siebel 8.0 with Oracle Applications. This paper also helps in evaluating the suggested integration approaches based on a set of parameters like risk, time, cost, technology, performance etc. Finally, this paper outlines the pros and cons of each of the suggested integration approaches which would help to choose the right integration solution that suits your needs.

Siebel 8.0 Integration Approaches

Siebel EAI

The basic tasks which form part of any integration are identifying the data, mapping and transforming the data and transporting the data between each of the applications in the enterprise domain. Siebel EAI is the crux that forms part of any integration solution involving Siebel as one of the applications. Siebel EAI is a set of tools that enables the integration of Siebel data and business processes with the data and business processes of other applications.

Siebel EAI provides bidirectional real-time and batch solutions for integration and allows data transformations. It allows flexible service based architecture that can be built on top of configurable messages using XML and other formats. Siebel EAI exposes internal Siebel Objects to external applications and can leverage pre-built adapters and enterprise connectors. External data can also be integrated into Siebel through Virtual Business Components (VBCs). A graphical business process designer, programmatic interfaces, and a high-volume batch interface are some of the tools available as part of Siebel EAI.

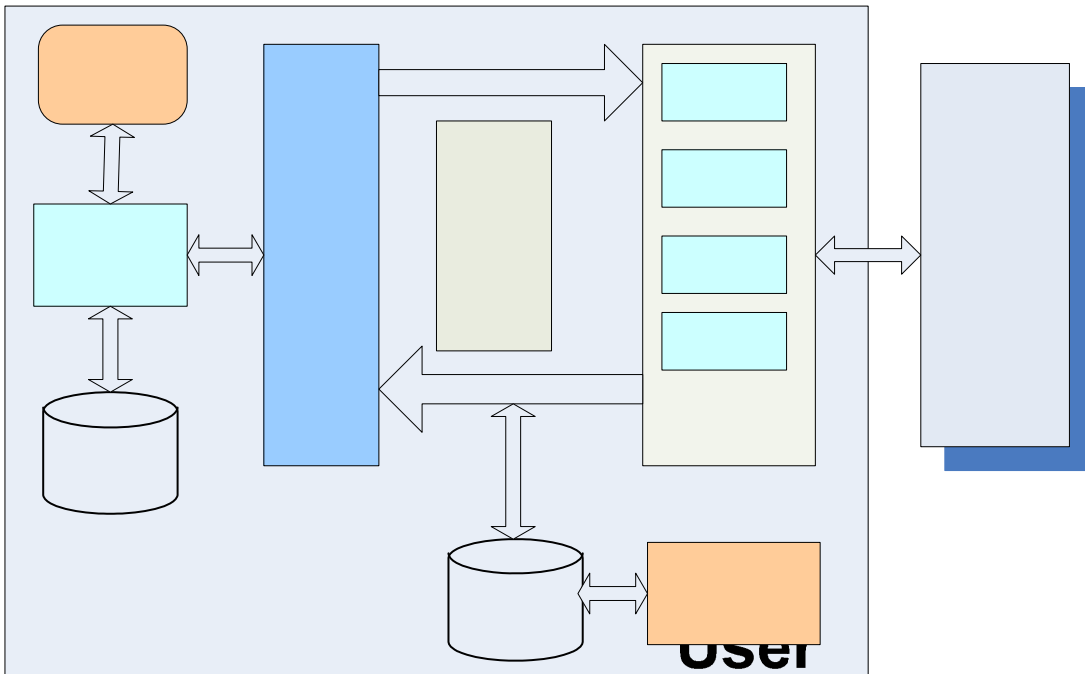Exhibit 1 shown below depicts the Siebel EAI Architecture.

Exhibit 1: Siebel EAI Architecture

Siebel EAI is designed as a set of interfaces that interact with each other and with other components within the Siebel application. These interfaces are compatible with IBM MQSeries; Microsoft MSMQ, BizTalk, and OLE DB; Sun Microsystems Java and J2EE; XML, and HTTP, and many other standards.

Advantages of Siebel EAI

The advantages of using Siebel EAI as part of the integration solutions are many. To list a few – the tools in Siebel EAI are easy to use, extensible and can be deployed easily. The risk of implementing Siebel EAI in the integration solution is low because we are leveraging the built-in functionality and as a result the development cost and maintenance cost is also reduced.

Siebel 8.0 EAI Tools

The integration tools that are to be used in a particular integration scenario depend on various factors like – should the data be replicated shared across the applications, should the data be transferred real-time or in batches and what is the data transport mechanism needed to transfer the data across applications.

Siebel EAI provides a wide variety of tools to address all kind of integration scenarios. The most commonly used tools are:-

- o Workflow for EAI
- o eBusiness Connectors
- o EAI Dispatch Service
- o Object Interfaces
- o Enterprise Integration Manager (EIM)
- o Virtual Business Components (VBC)

The next section of the whitepaper provides a brief overview of each of the Siebel EAI tools mentioned above and the scenarios in which these tools can be used.

Workflow for EAI - Provides bidirectional data replication (synchronization) between a Siebel application and an external application using standard transports.

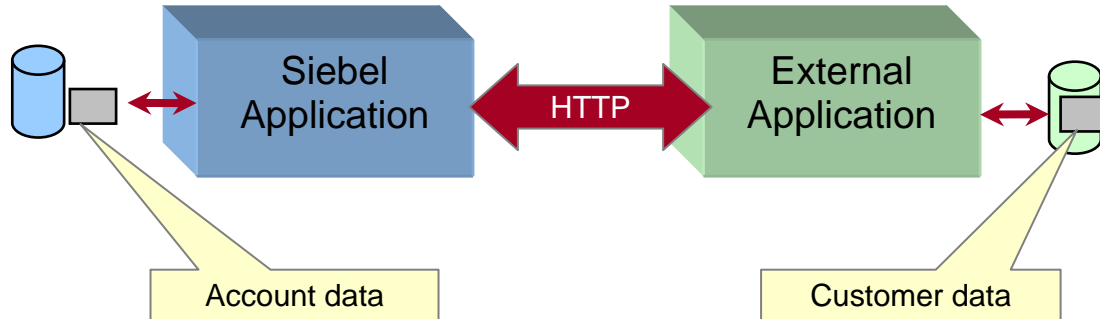Example: Synchronize Siebel account data with customer data on a Oracle Application using the HTTP transport

Exhibit 2: Workflow for EAI

EAI Dispatch Service: Uses rules to evaluate the structure and contents of property set (instances); data that matches a rule is sent to a specified workflow or business service. It can also optionally transform the data before sending it.

Example: Dispatch rules scan incoming documents for various patterns, and then send each document to the proper workflow.
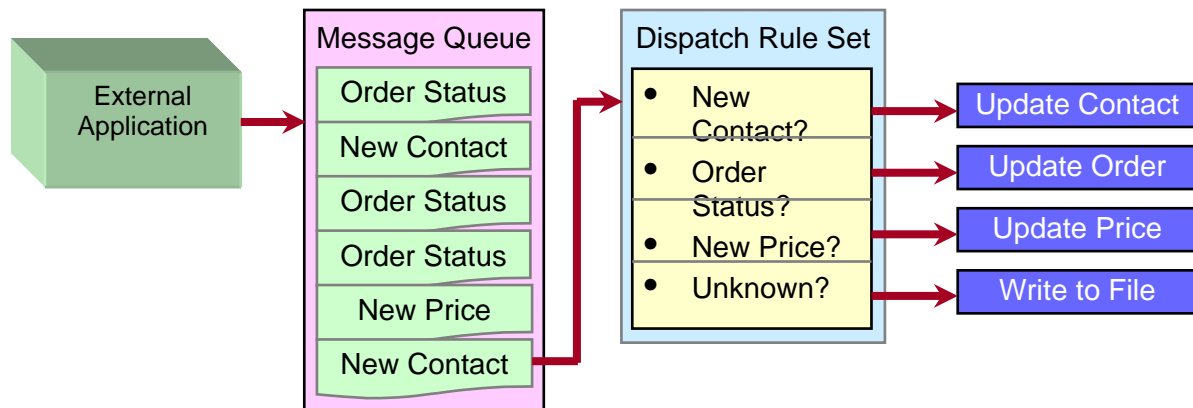

Exhibit 3: EAI Dispatch Service

Virtual Business Components (VBC): Enable the display and manipulation of external data from within Siebel applets without storing it in the Siebel database.

Example: Display Siebel contact data with contact details from an external source in the same view
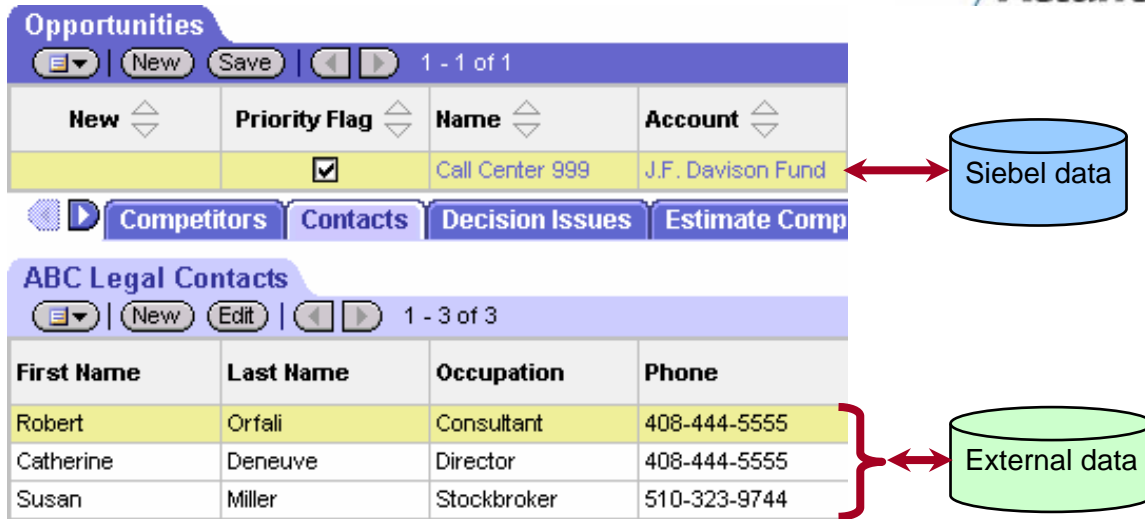
Exhibit 4: Virtual Business Components

Enterprise Integration Manager (EIM): Exchanges large volumes of data between the Siebel database and external sources through interface tables in batch mode.

Example: Each week the application captures mainframe updates and runs a batch job to synchronize the Siebel account data
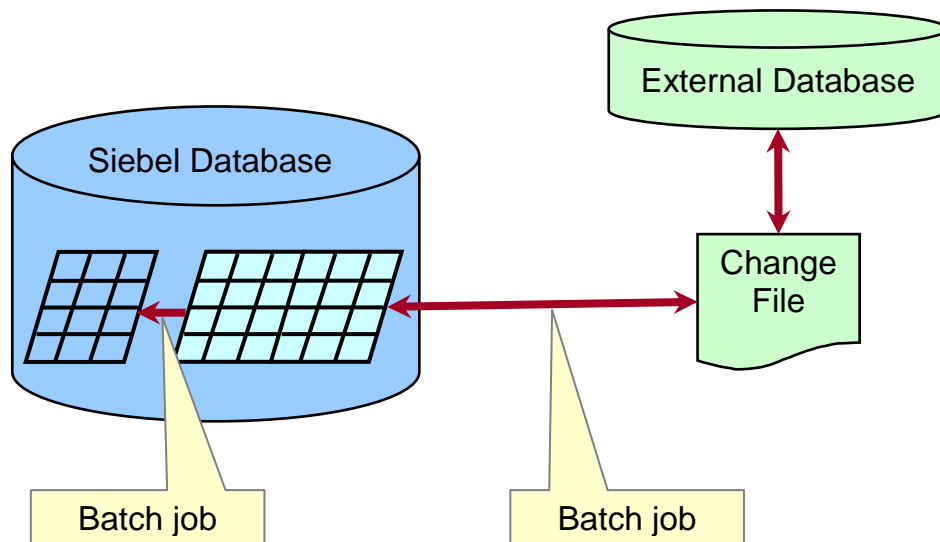

Exhibit 5: Enterprise Integration Manager

eBusiness Connectors: Provide end-to-end integration between Siebel Applications and other applications like Oracle and SAP R/3

Example: Exchange orders between Siebel front-office and Oracle back-office applications
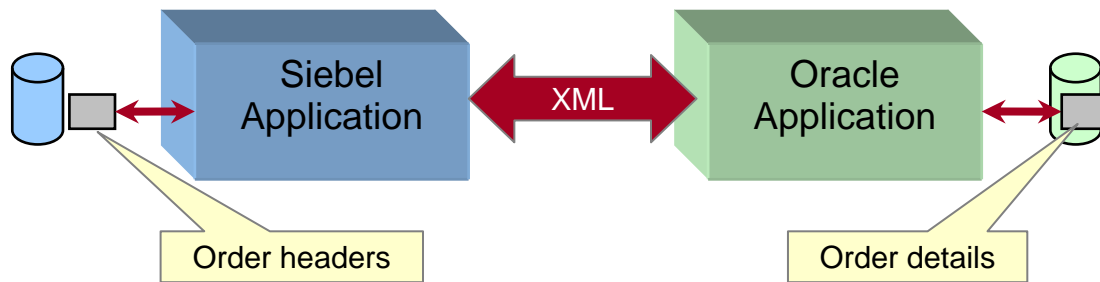
Exhibit 6: eBusiness Connectors

Object Interfaces: Expose Siebel objects to programmatic access from Siebel Visual Basic scripts, eScripts, or external applications

Example: A button in an Excel spreadsheet calls the Siebel COM Data Server to update Siebel contact data from Excel values.
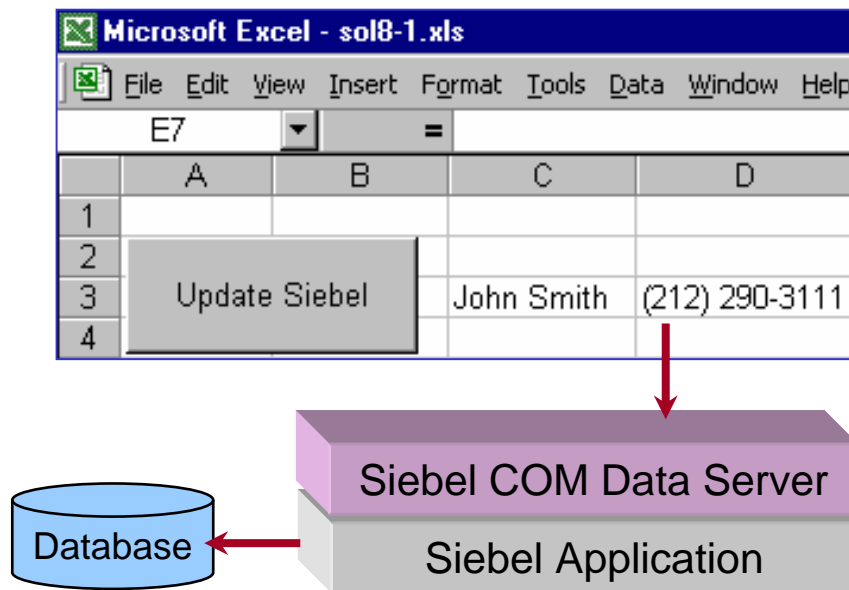

Exhibit 7: Object Interfaces

Siebel 8.0 – Oracle Applications Integration Approaches

This section describes the different approaches a system integrator can adopt while integrating Siebel 8.0 with Oracle Applications.

The basic tasks in integrating Siebel 8 with Oracle Applications are
- o Identify data to be integrated
- o Map and Transform Data: Siebel message format mappings to Oracle Apps data format
- o Transport the Data between the applications
- o Customization of API package
- o Generate WSDL for identified Integration Points.
- o Implement the business logic and perform business transactions
- o Logging of business transactions

The integration approaches that have been suggested are as follows:

- o   Approach 1: Point to Point Integration (P2P)
    - •   Using Oracle Connector
    - •   Using Web Services
- o   Approach 2: Using Integration Server
- o   Approach 3: Using Oracle Fusion Middleware (AIA)

Approach 1: Point to Point Integration (P2P) Using Oracle Connector

In this approach, data in Siebel is transformed to the Oracle format using the Data Transformation Engine and populated into buffer tables using the EAI Database Adapter. The Oracle Procedure Adapter in the Oracle connector polls these buffer tables and picks up the data as soon as it is populated. The data thus picked up is sent to the Oracle interface tables using stored procedures that are invoked within the Oracle Procedure Adapter. Import Program/ API within Oracle Applications are executed by the Concurrent Manager to transfer the data from Interface tables to the base tables.

Any addition or updation to the data in the Oracle base tables are notified to the Oracle Connector through triggers. The Siebel EAI Database Adapter now acts as a receiver of data and passes on this data to the Data Transformation Engine. The data is then transformed to Siebel format and updated in Siebel database using the pre-built Siebel EAI Adapter business services.

Exhibit 8 shown below depicts the pictorial representation of the integration solution described above.
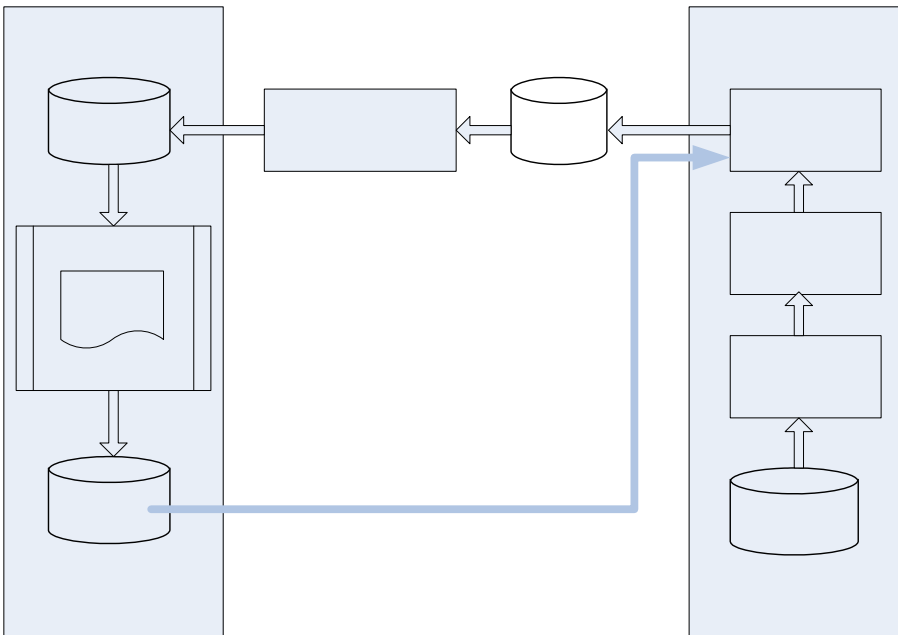

Exhibit 8: Point to Point Integration (P2P) Using Oracle Connector

Approach 1: Point to Point Integration (P2P) using Web Services

As of release 8.0, Oracle Siebel's native Web Services Offering includes 130+ Web services which are right-sized to be leveraged by business analysts. In addition, using Siebel Tools, any Siebel Business Service and Workflow can be exposed as a Web service.

This approach can be implemented if the XML Gateway is implemented in Oracle Applications. The XML Gateway enables us to expose the pre-built Oracle API and any stored procedures as Web services that can be consumed by external applications.

In this approach, data in Siebel is transformed to the SOAP request using the Data Transformation Engine and posted over HTTP by the HTTP Adapter. The XML Gateway picks up the SOAP request which contains the details of the service to be invoked along with the input data. The service implemented at the XML Gateway in turn invokes the corresponding API/ stored procedures which populates the Oracle interface tables. Import Program / API within Oracle Applications are then executed by the Concurrent Manager to transfer the data from Interface tables to the base tables.

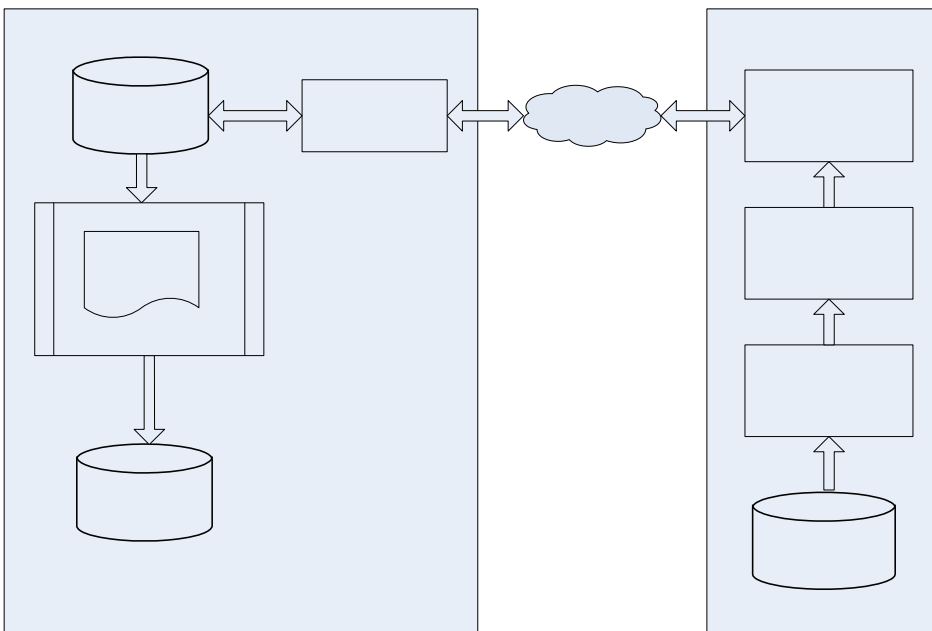Exhibit 9 shown below depicts the pictorial representation of the integration solution described above.

Exhibit 9: Point to Point Integration (P2P) using Web Services

Pros and Cons using P2P approach:
- Technology Risk is Minimal
- Existing Interfaces can be leveraged
- Implementation Time varies based on Integration Option
- Reusable Components exists
- Cost can be moderate

Approach 2: Using Integration Server

This approach can be implemented if there are more than two applications in the enterprise domain. A canonical data model can be used to apply any application agnostic business logic on the data in the process flows implemented on the integration server. The process flows will also aid in maintaining the cross reference data, domain value maps, validation of the data being transmitted and content based routing. In this approach the process flows are typically developed and implemented on an integration server like TIBCO, WebMethods etc.

The data in Siebel is transformed to the canonical data model using the Data Transformation Engine and sent to the Integration Server process flow either using EAI Database Adapter or as an xml over HTTP by the HTTP Adapter. The process flow will in turn apply the business logic, validate and route the data as an XML over HTTP or insert data directly in the interface tables of Oracle. If data is sent as XML over HTTP, the service implemented at the XML Gateway in turn invokes the corresponding API/ stored procedures which populate the Oracle interface tables. Import Program / API within Oracle Applications are then executed by the Concurrent Manager to transfer the data from Interface tables to the base tables.

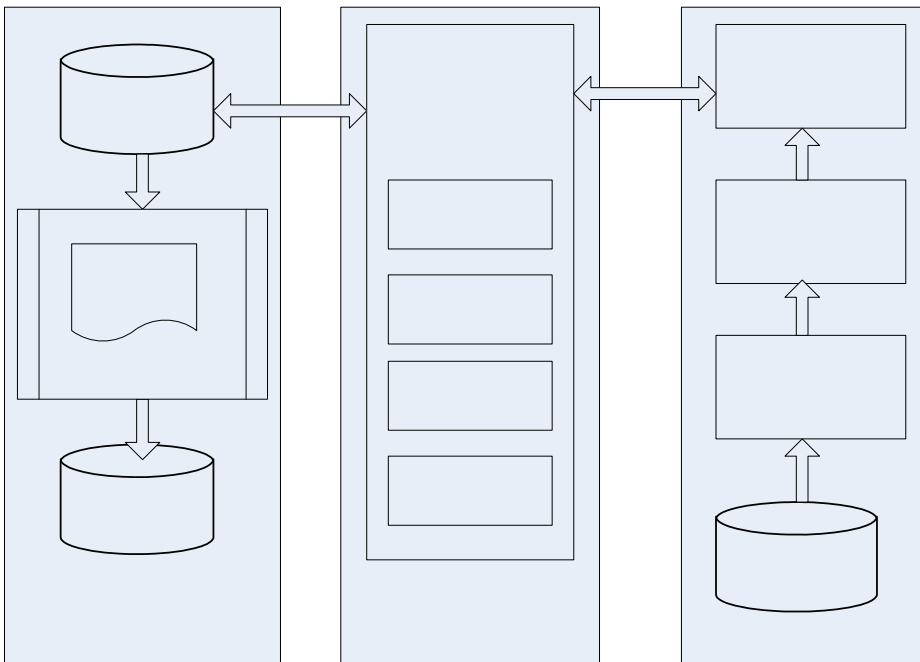Exhibit 10 shown below depicts the pictorial representation of the integration solution described above.

Exhibit 10: Using Integration Server

Pros and Cons using Integration Server
- Technology Risk varies based on the IS
- Implementation Time can be high
- Extendable and Scalable
- Cost could be moderately high

Approach 3: Using Oracle Fusion Middleware (AIA)

With release 8.0, a comprehensive set of pre-built Web services are exposed to make it easier to interface with other systems, and to leverage these services in new applications and processes. Siebel Tools will provide UDDI and WSDL readiness so that tools like Oracle BPEL Process Manager can easily intraspect available services without needing additional adapters. In Oracle applications, by creating a service layer on top of them, those well-defined interfaces can be easily re-used for different purposes. Similarly, it makes sense to develop new applications with standards-based tools so that extra work does not need to be done to service- and event-enable them.

Interface Tables

Oracle Fusion Middleware is a unified suite of standards-based middleware components that provides a comprehensive technology foundation – an Application Platform Suite (APS) – and an extensive set of best of breed capabilities like providing an UDDI registry to manage all services and events, providing an Enterprise Service Bus for common communications backbone etc.

A special package called Oracle Fusion Middleware for Siebel is also available to Siebel CRM customers, which provides an extensive set of middleware capabilities. This package includes the following components of Oracle Fusion Middleware: - Oracle SOA Suite components include Oracle Enterprise Service Bus (ESB), Oracle BPEL Process Manager, Oracle Integration BAM, and Oracle Integration Adapter for Siebel CRM etc. Oracle Integration Adapter for Siebel provides access to Siebel CRM and also exposes additional service and event metadata through standard interfaces.

This approach can be implemented if there are more than two applications in the enterprise domain. A canonical data model can be used to apply any application agnostic business logic on the data in the process flows implemented in the Application Integration Architecture (AIA). The process flows will also aid in maintaining the cross reference data, domain value maps, validation of the data being transmitted and content based routing. In this approach the process flows are typically developed and implemented in Oracle BPEL Process Manager.

The data in Siebel is transformed to the canonical data model using the Data Transformation Engine and sent to the BPEL process flow as an XML over HTTP by the HTTP Adapter. The process flow will in turn apply the business logic, validate and route the data as an XML over HTTP. When data is sent as XML over HTTP, the service implemented at the XML Gateway in turn invokes the corresponding API/ stored procedures which populate the Oracle interface tables. Import Program / API within Oracle Applications are then executed by the Concurrent Manager to transfer the data from Interface tables to the base tables.

Exhibit 11 shown below depicts the pictorial representation of the integration solution described above.
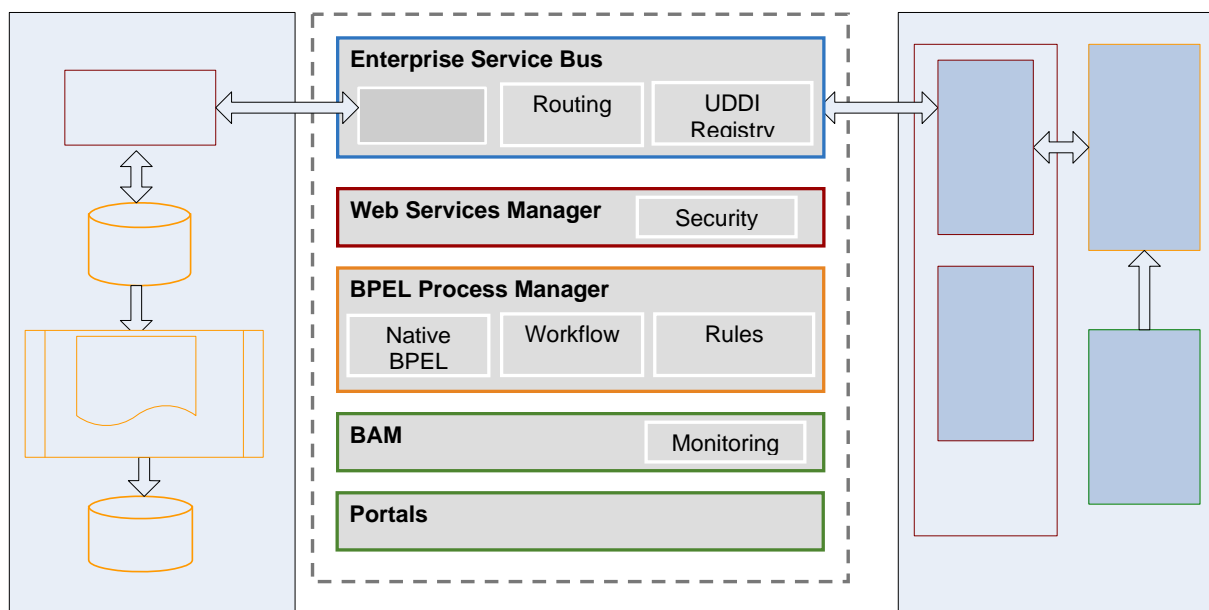

Exhibit 11: Using Oracle Fusion Middleware (AIA)

Pros & Cons Using Fusion (AIA)
- Implementation Time can be moderate
- Highly extendable and scalable
- Cost would be slightly high
- High Performance & Reliable
- Adaptability; flexible
- Multi-channeled
- Reduces the cost and complexity of process integration initiatives
- BPEL can interleave human interactions and connectivity to systems/services into a single end to end process flow

Evaluation of Suggested Integration Approaches

The standard set of criteria that have been used to evaluate the integration approaches suggested above are:-technology and business risk, time taken to realize the benefits of the integration , the various cost factors related to maintenance, training, license, infrastructure and most importantly a host of technology factors like stability, performance, scalability, security, error handling etc.

The table given below rates the integration approaches described in this whitepaper against the parameters listed. A rating of 1 to 5 is applied where 1 means low rating on the feature and 5 means high rating on the feature.

Parameters/Approaches	P2P	IS	Fusion (AIA)
Risk	4	3	2
Time	3	4	4
Cost	3	4	4
Extensibility	2	3	4
Performance	2	3	4
Time to Realize	4	3	3
Maintainability	3	3	3
Stability	3	3	4
BAM	2	4	4
Common Error Handling	2	4	4
Standards Adherence	3	4	4
Reusability	2	3	4

Conclusion

Integration solutions enable organizations consolidate business processes and deliver data in real time, ex from production to order management and sales applications to more efficiently and effectively serve customers, partners and suppliers throughout the value chain. Therefore, integrating these systems poses as a huge investment. Organizations can now achieve their business goals easily by implementing integration solutions using industry standards and best practices, as described in this paper. The choice of the right integration technology for the right scenario lies at the discretion of the enterprises.

References:

- Siebel Enterprise Application Integration Part 1 to Part 5 in Siebel 8.0 Bookshelf
- Oracle Fusion Middleware Documentation available on Oracle Technology Network.