



Integration of Oracle Fusion Middleware and PeopleSoft Results in Real-time Synchronization of Chartfields



BACKGROUND

The University of Louisville is a state supported research university located in Kentucky's largest metropolitan area. The University of Louisville maintains a complex set of Chartfields that are maintained in PeopleSoft Financials. These Chartfields are needed by other University of Louisville applications in order to properly record General Ledger transactions in PeopleSoft Financials. Multiple Chartfield interfaces run in PeopleSoft Financials on a nightly basis generating flat files which are then loaded into multiple non-Financials applications. These nightly interfaces are accomplished using SQRs and other 3rd party ETL tools.

Industry	Higher Education
Stack	<ul style="list-style-type: none"> • Oracle iAS 10.1.3.3 • BPEL Process Manager 10.1.3.3.1 • JDeveloper 10.1.3.3
Integration Components	Oracle BPEL PM 10.1.3.3.1
Endpoints	<ul style="list-style-type: none"> • PeopleSoft HCM 8.9 • PeopleSoft Financials 9.0
Oracle BPEL PM Deployment	Commercial Clustered (Active-Active) Servers (2) for BPEL PM

In an effort to provide improved support to non-Financial applications and reduce the number of issues with Chartfields, the University of Louisville wanted to implement a real-time interface for publishing Chartfield changes to subscribing applications.

CHALLENGE

The University of Louisville has experienced an increased number of issues with loading General Ledger transactions into PeopleSoft Financials. These issues are largely in part due to incorrect Chartfields being used by other applications when they create General Ledger transactions. Supporting the update of Chartfields was also challenging as the process for synchronizing Chartfields only runs during the nightly batch execution which result in costly delays in business processes. The goal of this project was to create a realtime synchronization of the Chartfields between PeopleSoft Financials and the other applications in an effort to reduce the number of incorrect General Ledger transactions that were being created.

In addition to the Chartfield synchronization process, Human Resources are responsible for loading payroll transactions that rely on the Chartfield Speedtype. Before loading these transactions a process is run that validates Chartfield Speedtypes prior to loading them in PeopleSoft HCM. If a Chartfield Speedtype has not been added to the HCM Account code table, records will not load and errors will be produced. The process for resolving these errors is time intensive and requires a large effort to ensure all error transactions have been corrected. The average time to correct these errors is typically three days.

SOLUTION

Integration of Oracle Fusion Middleware with PeopleSoft Results in Real-Time Framework

Implementing a solution utilizing Oracle Fusion Middleware allowed goals to be met by providing a real-time publish/subscribe framework for Chartfield updates. It was relatively easy to integrate Oracle Fusion Middleware with our PeopleSoft application using Application Messages and Integration Broker. We were able to generate

an event based message out of PeopleCode when updates were made to Chartfields and publish the transaction to Oracle BPEL Process Manager. The adapters provided by the BPEL Process Manager out of the box allowed us to easily interface with different applications even though they were not Web Service enabled.

Implementing this project with Oracle Fusion Middleware allowed us to retire four SQRs and one ETL job. The solution implements the classic “publish-subscribe” pattern. PeopleSoft Financials 8.8 is the single source of truth for the Chartfield Speed Type. A change to a SpeedType or a program code results in the PeopleSoft Application Messenger invoking a BPEL process via Web Service. This process logs a record of the transaction in an audit table, transforms the inbound SpeedType into a canonical form and enqueues it to an AQ queue.

Each application that is interested in the ChartField changes has a BPEL process that subscribes to the AQ queue. The processes dequeue the message, transform it into the end application format and then makes the update in the application.

The PeopleSoft HR subscriber process receives the canonical format, validates, enriches, and transforms the data based on information contained in separate PeopleSoft Financials tables (accessed via the database adapter). It then invokes the PeopleSoft Component Interfaces, exposed as Web Services, to update the HR business objects.

The requirement exists to provide visibility to the business into the synchronization processes involving the University of Louisville infrastructure team, so the last step for each subscriber process is to update the audit table with the transaction status of successful or error. The audit tables permit visibility and, with a bit of PeopleCode, permit “retires” of the publish

process without involving the University of Louisville infrastructure team.

The project was done in two phases:

1. The creation of QA and production SOA environment (for this and future projects)
2. The requirement capture and development of solution. The total time for this phase of the project was approximately five weeks with one senior architect at 100% time, one PeopleSoft integration specialist at 25% time, and various business and IT support resources (10% time).

The integration with PeopleSoft in various ways added to the complexity of the solution. First a business event had to be generated out of PeopleSoft when a Chartfield was created or updated. This business event needed to trigger a BPEL process that started the synchronization process. The integration process also needed to interface with four PeopleSoft Component Interfaces to update Chartfield and SpeedType tables in PeopleSoft.

The transaction volume ranges from 0 to 1,000s of transactions per day depending on time of the year. Each of these data transactions contains about 2K of data.

The solution had its share of challenges, including:

1. The PeopleSoft Integration Broker generates a complex schema for each of its Component Interfaces. These complex schemas require the addition of a namespace before they can be imported correctly by the BPEL Process Manager.
2. A multi-step process in PeopleTools is required to enable PeopleCode to invoke a BPEL Web service. In PeopleTools 8.46, the HTTP connector is required to be setup and configured before PeopleSoft can invoke an external Web Service.

The University of Louisville has already seen benefits that the solution has provided, the following highlights the short-term and long-term benefits:

- **Short-term:**
 - Improved business process by providing Chartfield updates in real-time
 - Reduced the number of General Ledger transactions that are created with the incorrect Chartfield
 - Demonstrated capabilities of IT and the Oracle Fusion Middleware stack to upper management and the business
 - Improved quality of General Ledger transaction and reduced the amount of time spent on the process of performing corrections
- **Long-term:**
 - Created a framework for integrating Chartfield information to all non-Financials applications
 - Created an architectural blueprint to get business events out of PeopleSoft leveraging the Integration Broker
 - Eliminated four SQRs and one Application Engine Program
 - Reduced Chartfield synchronization window from at least 24 hours to 2 minutes
- **ROI:** Approximately 500 hours (25% FTE) of IT time per year has been eliminated from this process

There is now an IT initiative to leverage the SOA Suite wherever possible for integration, business process automation, and composite application projects. A list has been compiled of future projects that are planned to scope and implement during the next year.

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