



Gain better visibility
of your into key
business processes
and operational data
in SAP for better
decision making using
Oracle BAM

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Introduction

For many reasons, organizations have an urgent need to implement business processes across their lines of business and across application assets in their portfolios. Moreover, organizations must be able to monitor measure and improve the efficiency & performance of business operations. When Business processes are spread across discrete application, challenge to integrate data and get a single view of Business operations is a nightmare for IT teams. Oracle BAM is one of emerging answers for enterprise wide Business Activity Monitoring.

Oracle BAM Integration with SAP enables business users to connect, track and monitor business processes and services operational within SAP R/3 system in conjunction with other enterprise systems implemented in IT landscape (including cloud e.g. Salesforce.com). Oracle BAM architecture is enhanced to connect to SAP R/3 system using Oracle SOA middleware. This white paper aims to illustrate technical aspects of this Integration solution and its business benefits.

Target Audience

People who are looking for ability to track and monitor key business processes and services modeled across discrete transactional systems (including SAP ERP) to facilitate quick and better decision making.

Integrating SAP with Oracle BAM

Technical prospective

The solution of Integration between Oracle BAM and SAP ERP is designed to track changes to key business processes and objects (example: PO creation/update, SO creation/update/fulfillment, etc) in SAP R/3 through standard BAM dashboards.

The solution is designed to capture the event changes in the SAP system through event management module and propagate the changed data to Oracle BAM using standards-based pre-built application adapters, plugged into Oracle SOA as middleware platform.

Integration Architecture overview

Application-level integration between Oracle BAM and SAP R/3 through SAP PI & Oracle SOA Mediator, to en-queue, route, transform and deliver messages. The integration utilizes SAP BOR (Business Objects Repository) to



capture pre-configured events in SAP and flow them to Oracle BAM using JMS queues.

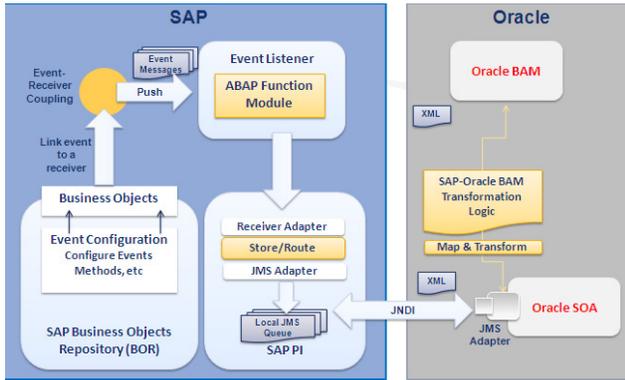


Fig-1: Integration Architecture overview diagram

Solution Components

- Event Source
 - ❖ SAP ERP R/3 ECC 6.0
 - ❖ ABAP Function Modules (Internal SAP routing)
- Middleware
 - ❖ SAP PI 7.1 Infrastructure (JMS Producer, Routing to Oracle SOA)
 - ❖ Oracle SOA Suite 11g – Mediator (Consume, Transform, Route/Delivery)
- Target
 - ❖ Oracle BAM 11g (SAP-specific Data model, Dashboards)
- Connectors/Adapters
 - ❖ Oracle JMS Adapter

Integration Solution

Bristlecone team used proven product development approach to build this interface. The project lifecycle covers the development of the following key artifacts, developed in a modular fashion:

- SAP Event Framework Configuration
- Standard ABAP Extension
- SAP PI Artifacts
- Oracle SOA transformation & routing logic
- Oracle BAM Data Objects & Custom Dashboards

SAP Configurations and ABAP Extension

Following is depicting SAP R/3 business flow.

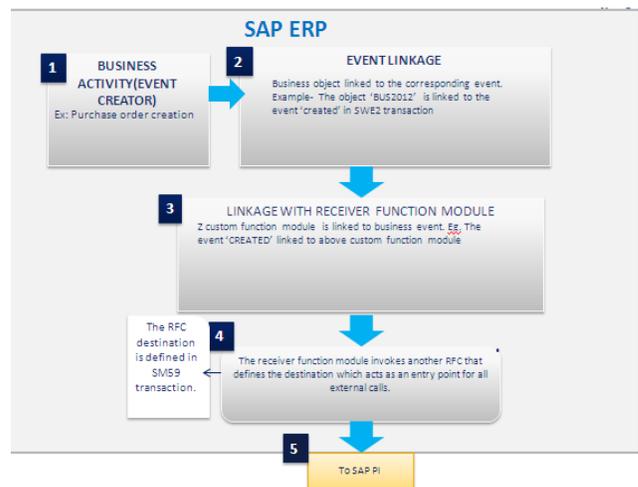


Fig-2: SAP Technical Design Architecture overview diagram



In order to envision solution better, let's consider an example of business process in a supply chain process, related to inward procurement process of raw material from vendor.



To cater above business need, real-time business event integration between SAP event management and Oracle BAM is built. At SAP side, in order to run the process life cycle, standard business object events (Like PO creation, PO Change) and associated custom receiver function modules have been used. E.g. business process standard business objects like BUS2012 (Purchase Order), BUS2017 (GR), BUS2081 (Invoice) and business process of supply have been covered in this solution.

Technical Aspect

In SAP, a custom Function module has been created and coupled to the standard business object event. Whenever a transaction in SAP is executed, corresponding event associated with it is triggered in real time. On trigger, this event executes the custom function module attached to the event and based on source event, a common structure gets filled with the data changes updated in the SAP and the same is passed via RFC call to the external system over TCP/IP.

All above required configuration/customizations are packaged in one transport for the ease of implementation at customer landscape. End customer does not need to make any changes in source SAP system, except for importing one Transport Request in source system.

SAP PI Architecture

SAP PI platform has been leveraged in proposed solution to provide the real time integration with SAP R/3 here. As soon as any event is triggered in SAP, message is received in SAP PI via RFC adapter (standard feature of SAP). SAP PI transforms incoming message into the desired form of xml and pushes this message into SAP JMS Queue, which is further used for establishing connection with Oracle SOA.

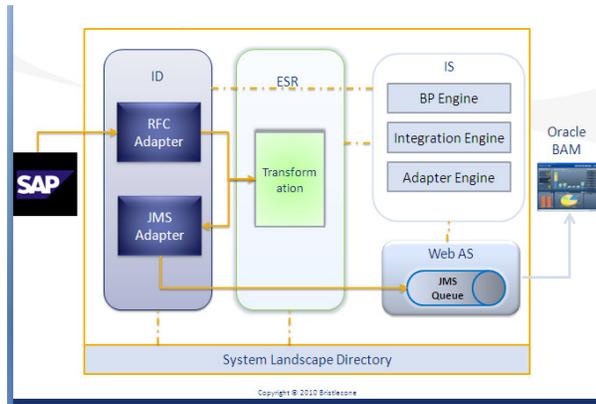


Fig-3: SAP PI Architecture overview diagram

Following steps are followed as a part of implementation of the solution –

- JMS Queue is created in SAP PI using Netweaver Administrator.
- TPZ (SAP PI Transport object) is imported into Enterprise Service Repository (ESR) of SAP PI in order to create all objects automatically.
- Configuration is done in Integration Directory (ID) to connect to respective SAP R/3 and Oracle SOA server.

Process Flow

Below diagram illustrate asynchronous process flow in SAP PI.

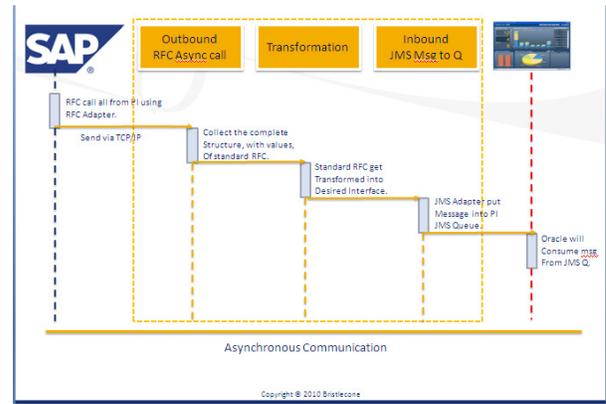


Fig-4: SAP PI Business Process Flow diagram

Oracle SOA

Oracle SOA acts as JMS message consumer from SAP JMS queue. SOA platform get leveraged in mediating, transforming and routing the messages consume from SAP queue to Oracle BAM via BAM Adapter in the desired format.

Oracle BAM

Oracle Business Activity Monitoring (Oracle BAM) gives business executives and decision makers, ability to monitor their business services and processes in the enterprise, to correlate KPIs down to the actual business process themselves, and most important, to change business processes quickly and take corrective actions if the business environment changes or key parameter variance goes beyond allowed limits.

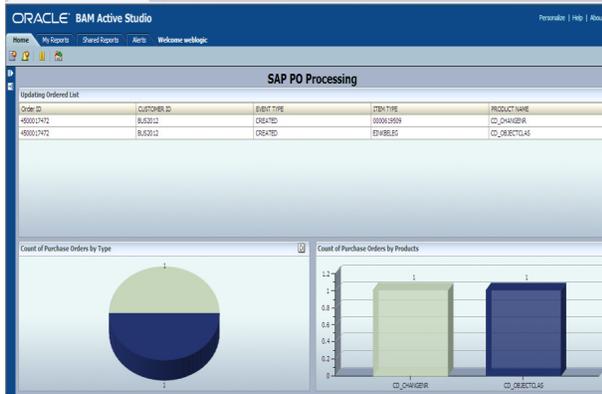


Fig-5: Business Activity Monitoring diagram

Solution Benefits

- Simple & flexible framework
- Highly configurable SAP artifacts
- Code-free, standards-based (SOA based) Integration
- Plug-n-play capturing of process events from SAP modules
- Performance and scalability
- Unified management and monitoring

Why Bristlecone?

- Unparalleled expertise in designing and developing cross-platform application interfaces
- Proven product development methodology packaged with tools and accelerators to ensure quicker and quality output
- Rich experience in integration technologies including Oracle Fusion

Middleware combined with Oracle & SAP applications functional & technical skills

To set up a discussion with our Business Solutions team, please send your inquiry to solutions@bcone.com.

Conclusion

Oracle BAM Integration with SAP is the right choice for organizations that want to monitor SAP Event based process life cycle more effectively and efficiently. They can leverage Oracle BAM functionalities to manage and monitor their Business Performance KPIs spread over discrete transactional system in real-time, using proven SOA based integration Solution.

References

<http://www.bristleconelabs.com/edel/>