Chapter 2. The Architecture

This book is based on SAP EM 7.0 and will thus cover the option where SAP EM is installed as an add-on to SAP ERP as well as the other options such as a part of SAP Supply Chain Management (SCM) and optional add-ons for other SAP Applications.

> *2004 saw the birth of SAP's answer to Supply Chain Event Management*

2.1 Technical Overview

SAP EM is based on SAP NetWeaver Web Application Server (WAS) technology. Since it's a "Powered by SAP NetWeaver" solution it can take advantage of SAP NetWeaver PI, SAP NetWeaver BI and SAP Enterprise Portal.

In addition it can take advantage of the Alert Framework and the SAP Workflow Engine, both native to SAP NetWeaver WAS.

As can be seen in Figure 4 and Figure 5, SAP EM can communicate with a multitude of components both SAP and non-SAP.

SAP components, such as SAP ERP and SAP 4.6C, usually make use of the Application Interface (a SAP basis plug-in) to communicate with SAP Event Management using a Remote Function Call (RFC).
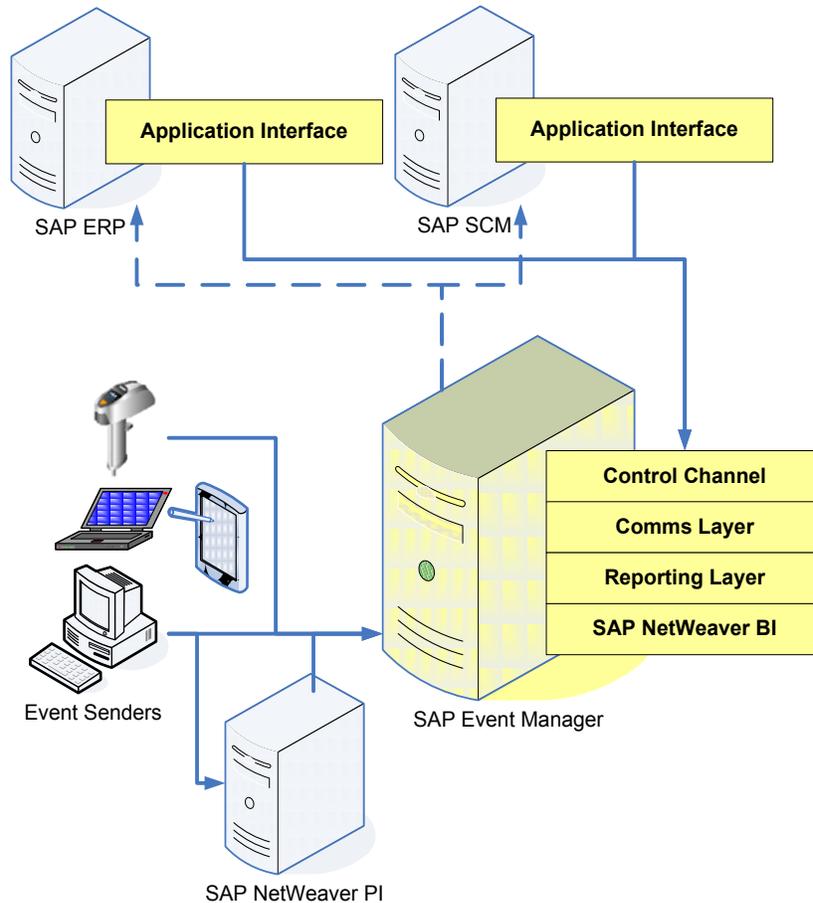
Figure 4: SAP Event Management: A Functional View

For status retrieval you have the option of building your own report to pull data from SAP EM or you can use the provided web interface. In addition, since the solution is driven on SAP NetWeaver, you can easily retrieve status and send events using the mobile infrastructure, BAPI calls from external systems, XML service calls via XI or IDoc interfaces from EDI or B2B solutions.
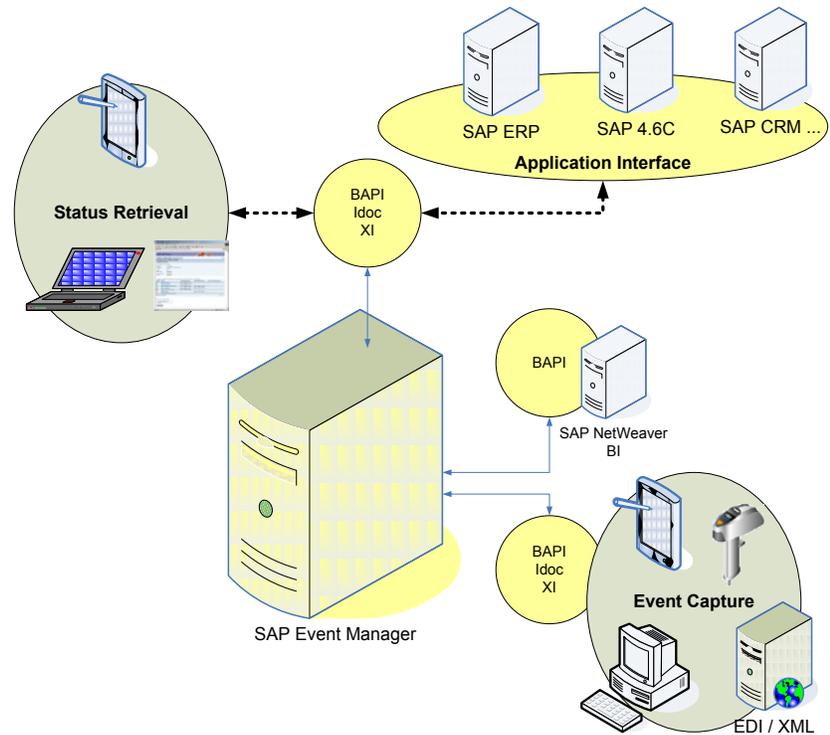
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Figure 5: SAP Event Management: A Technical View

Note: SAP suggests using the Application Interface and the RFC technique to communicate with SAP EM when communicating from an SAP component, as this allows for utmost flexibility and easier maintenance due to the configuration options.

2.2 Core Services of SAP EM

In order to understand how the solution operates at a technical level we need to break it up in to its components as shown in Figure 6. Each component is then described in further detail.
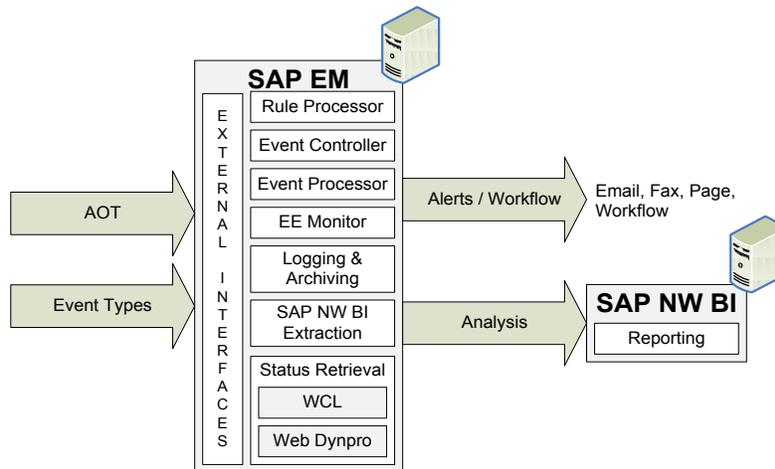
Figure 6: Core services of SAP EM

Rule Processor

There are 2 main areas where the rule processor comes in to play. The first is when an event arrives for processing. It checks the Event Handler or Handlers that it belongs to and determines what Rule Set to use to process the event in to SAP EM. The rule set comprises of a group of activities that allow you to manipulate the Event Handler's status, as an example. It also allows you to trigger a workflow or call a function to update the application system.

The second set of rules that are executed is done by the Expected Event Monitor which is described below.

Event controller and Event Processor

When an event enters SAP EM it is handed over to the Event Controller which takes a look at the tracking ID of the event and then looks up any Event Handlers that this Event Message is applicable to. If it finds any then it splits the message up in to separate events to be processed separately against each applicable Event Handler.

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The event is then handed to the event processor for processing. If it is unable to process the event to the event handler at that time it queues it for later processing. The event processor handles activities like mapping and validation of tracking Ids, event codes, dates and times… After writing the message to the database it determines which rule set to use and then executes the task activities associated with the relevant rules. E.g. send an email or create an alert.

The event processing then executes the relevant activities as defined in the applicable rule set for the applicable Event Handler against each of the event messages.

Expected Event Monitor (EE Monitor)

The expected event monitor is a program that is scheduled to run in the background (typically at 3 to 5 minute intervals). Its purpose is to evaluate expected events that have not yet been received. If the EE monitor determines that the event is overdue it flags the event's status as such and executes any applicable activities as defined in configuration.

It's here where we typically raise alerts and kick off workflows to get action taken to correct a process that is falling behind its plan.

Message Logging

All actions taking place on SAP EM are stored in the application log unless otherwise configured in the Event Handler Type.

In addition to the application log you have the log for rule set activity execution. This log shows the details of what occurred during the processing of the rule set's activities. You may individually deactivate this logging for each activity which is probably a good idea in a stable productive environment where performance is key importance.

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Archiving

Standard archiving is available in SAP EM for Event Handlers, Event Messages and Event Handler Sets.

SAP NetWeaver BI extraction

A comprehensive customizing solution is available for minimizing the steps and coding required to pull data out from SAP EM and in to SAP NetWeaver BI.

Status Retrieval

Status management, status visibility through transparency is a big part of what makes SAP EM valuable and part of the solution to bringing this visibility to the supply chain network is providing a view to the status.

Two main options are available for retrieving the status from SAP EM, both of which are web enabled and offer a thorough attribute-based authorization and filtering concept: SAP EM‟s classic Web UI based on Java technology (WCL) and the new standard SAP EM Web UI based on ABAP Web Dynpro. Both options are based on the same configuration, are fully customizable and don‟t require coding to enable them for your scenario.

Note: Coding is only required in this area if you do not like the look and feel of the web reports.

External Interfaces

SAP EM has a number of ways for applications, both SAP and non SAP, to communicate with it:

> ➢ With an RFC (used in the case of the sending system being an SAP system) The Application Interface falls in to this category

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