



SAP NetWeaver™
in the **REAL WORLD**

PART 1: OVERVIEW

SAP NetWeaver™ in the Real World

“SAP NetWeaver in the Real World” is a five-part series of technical articles demonstrating a step-by-step implementation of SAP NetWeaver and its key components. The business scenario of the fictional Iridium Motors showcases the components of the SAP NetWeaver stack, and the real-world utility achieved by their integration.

Introduction

“SAP NetWeaver™ in the Real World” is a series of technical articles showcasing how the SAP NetWeaver technology increases operational efficiency and improves business processes. The predicament of the fictional Iridium Motors will serve to demonstrate the different components of the SAP NetWeaver stack and their real-world function.

“SAP NetWeaver in the Real World” illustrates a systematic approach to integrating each component of the SAP NetWeaver stack, solving the operational woes of Iridium Motors.

Scope and Purpose

Those who work directly or indirectly with SAP technology have most likely heard of SAP NetWeaver and the promise it holds for enterprise business applications. But there seems to exist a general lack of knowledge about the SAP NetWeaver stack, since the work of those who use it tends to be restricted to one or two components.

The purpose of the “SAP NetWeaver in the Real World” series is to demystify the SAP NetWeaver technology and its integration by providing a hands-on guide to SAP NetWeaver integration based on a real-world scenario. Each article in the series begins with a "Hello World!" approach and drills down into the purpose and incorporation of an SAP NetWeaver component, while maintaining a broader view of how these components seamlessly integrate with each other to solve a business scenario. The articles serve neither as an encyclopedia nor a marketing tool, but as a means of understanding the components of the SAP NetWeaver stack.

Target Audience and Prerequisites

“SAP NetWeaver in the Real World” targets SAP NetWeaver consultants, the IT staff of SAP customers, developers, support staff, and anyone who would like to know more about the SAP NetWeaver technology. The prerequisites are: a basic knowledge of Java and a penchant for new technology—specifically, SAP NetWeaver.

Scenario¹

09 September 2004

Iridium Motors, Inc.- Dallas Texas

11:25 a.m.

An alarm sounds on the shop floor of Iridium Motors. A high-speed motor suddenly breaks down. John, the production operator, immediately punches the red, flashing “Equipment Failure” button. As a result, all critical equipment in the production unit shuts down as a precautionary measure. The entire production process grinds to a halt.

John rushes to inform the production manager, Anne, about the equipment failure. Anne pages the maintenance supervisor, Raul.

12:15 p.m.

After meeting with Anne to discuss the situation, Raul collects all the information he can about the equipment failure from John. Back in his office, he begins to sort through relevant documentation on his desktop computer. He pulls up various files, wading through manuals and maintenance records to find patterns that would serve as a reference point for carrying out some basic troubleshooting. He also calls the equipment manufacturer to request that service technicians come as soon as possible. Finally, he passes along the troubleshooting information to John.

3:35 p.m.

John returns to the shop floor with an assortment of troubleshooting materials, which he then begins applying to the malfunctioning motor.

¹ The names and events in SAP NetWeaver™ in the Real World are fictional. Any similarity to real people, companies, or events is merely coincidental.

Overview of the SAP NetWeaver™ Architecture

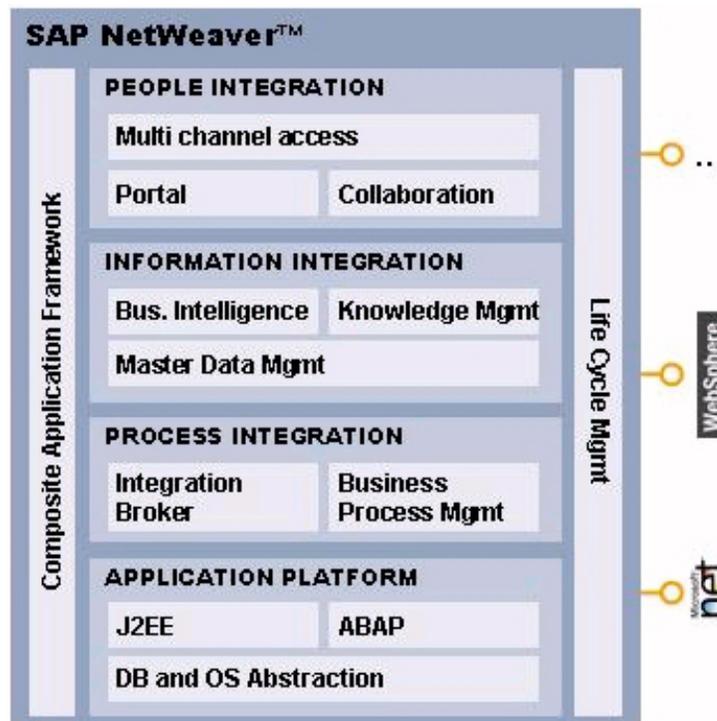


Figure 1

Figure 1, often referred to as the “refrigerator diagram,” represents the SAP NetWeaver technology stack. At the top, the **People Integration** layer ensures that the appropriate people get the appropriate functionality and information to carry out their work. People Integration provides a seamless user experience, boundless collaboration functionality, and pervasive access. This layer consists of SAP® Enterprise Portal and SAP® Mobile Infrastructure.

The **Information Integration** layer makes both structured and unstructured information available in a consistent and accessible manner. In this layer, SAP® Business Intelligence handles structured information. This component extracts information from a variety of systems, consolidates it, analyzes it, and draws conclusions.

SAP® Knowledge Management provides capabilities that allow its users to manage vast amounts of accumulated knowledge within an organization. Users can search for information, index information, restrict or authorize access to information, and provide version management—with data originating from file servers, web servers, webcasts, Lotus notes, or elsewhere.

Finally, SAP® Master Data Management ensures information integrity across the business network. It provides central master data maintenance, data harmonization, and consolidation.

The **Process Integration** layer enables business processes to run seamlessly across heterogeneous IT landscapes. Previously known as Enterprise Application Integration (EAI) technology, this layer is now part of, and delivered by, the integrated technology platform, which provides for both internal and external process integration. It consists of SAP® Exchange Infrastructure.

The bottom layer is the **Application Platform**, the SAP® Web Application Server. It provides a complete infrastructure to develop, deploy, and run platform-independent, robust, scalable Web services and business applications. The application server supports both J2EE and ABAP in one integrated and flexible architecture. The SAP Web Application Server forms the foundation of all SAP solutions and all custom-developed applications.

In addition to the application and integration platforms, there are two components that extend across the entire stack. **Life Cycle Management** consists of all the tools needed to design, develop, deploy, monitor, and upgrade systems. **Composite Application Framework** is the technology that creates an abstraction layer on top of which composite applications can be created. Composite applications are applications that orchestrate Web services; they lead to new functionality and drive a uniform process across a heterogeneous set of applications. SAP NetWeaver™ also has full .NET and J2EE interoperability and extensibility.

Scenario Mapping: Iridium Motors and the SAP NetWeaver™ Architecture



Figure 2

How would the components of the SAP NetWeaver™ stack resolve the situation at Iridium Motors? Figure 2 shows a high-level overview of the data flow in this scenario.

The Application Platform is used to create a Web Dynpro application that reads the status of the equipment on the shop floor using BAPIs® from the SAP® R/3® system. This Web Dynpro application is eventually integrated as an iView into the SAP Enterprise Portal. Anne can log in to the production portal at any time to monitor the status of the equipment on the shop floor.

The Process Integration layer uses SAP Exchange Infrastructure to send a message to the OLTP (On-Line Transaction Processing) system as soon as John engages the Equipment Failure button. Upon reaching failure status, the system sends an SMS/email to Anne, immediately notifying her of the problem. In this example, file system XML indicates that the Equipment Failure button had been triggered.

The Information Integration layer uses SAP Business Information Warehouse to provide various reports related to the service history of the equipment on the shop floor, as well as analysis capabilities that help troubleshoot and diagnose equipment malfunction. Knowledge Management is used to store the various documents and manuals pertaining to the equipment; TREX search technology enables the maintenance supervisor Raul to easily search through the document repository.

The People Integration layer uses SAP Enterprise Portal extensively in order to cater to the needs of the people in various roles in the organization. It enables the Anne to monitor the status of the equipment on the shop floor at all times and to communicate with Raul in real time using instant messaging provided by SAP® KM Collaboration technology. Through a portal interface, Raul is able to search through the equipment documentation. He is also able to analyze the service history of the equipment by viewing the relevant BW reports that are integrated as iViews into the portal environment.

Resources

For more detailed information about the SAP NetWeaver™ architecture, please refer to:

The SAP Developer Network
www.sdn.sap.com

SAP NetWeaver Home
www.sap.com/netweaver

SAP Help Portal
<http://help.sap.com/>

Preview of “SAP NetWeaver™ in the Real World” Part II

The next article in the “SAP NetWeaver in the Real World” series focuses on building a Web Dynpro application that enables Anne, the Iridium Motors production manager, to check the status of the production equipment by logging in to the production portal and taking action. Stay tuned!