



**VERSION: 1.0**

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**AUTHORS:**

Abdelmorhit El Rhazi

# SAP ARCHITECTURE BLUEPRINT

## Perishables Procurement

**PROJECT NAME/CPROJECT TITLE: FIP / PI\_ERP05\_4\_TI\_FIP**

**SPONSOR/PROJECT INITIATOR: MICHAEL JONES**

**PROGRAM/PROJECT LEAD: JASMIN VEITH**

**LEAD ARCHITECT: HANS-JUERGEN HESSEDENZ**

**DEVELOPMENT:** ☒ SAP Labs, mainly in St-Ingbert and Montreal

☐ Partner/ISV \_\_\_\_\_

<b>Document History</b>		
Version	Date	Status (Comments)
0.1	17.07.2008	First Draft For TAM workshop
1.0	25.07.2008	Reviewed version

## I MARKET AND PRODUCT BACKGROUND OF PROJECT/PROGRAM

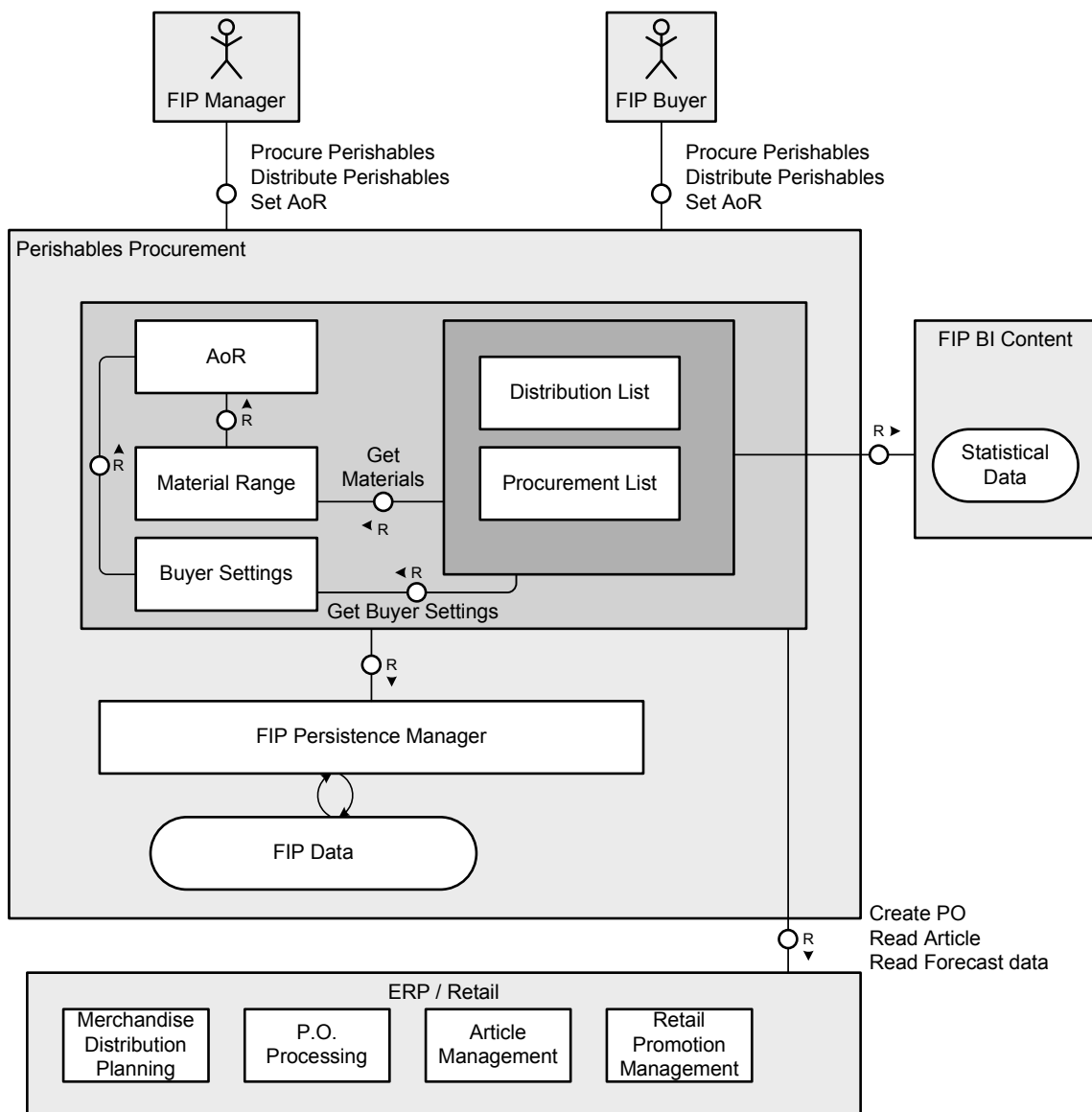
<b>Planned release date:</b>	11/2008	
<b>Underlying SAP NetWeaver release:</b>	NetWeaver 7.00 (NW2004s)	
<b>Used SAP NetWeaver stacks:</b>	<input checked="" type="checkbox"/> ABAP	<input type="checkbox"/> J2EE/Java EE 5
<b>Use cases targeted by the project/program:</b>		
<p>The focus is on the Perishables buyer role in the Distribution Center.</p> <p><b>Responsibility of a perishables buyer:</b></p> <ul style="list-style-type: none"> <li>■ <b>Perishables Assortment</b> Define the - sometimes daily changing - perishables assortment</li> <li>■ <b>Perishables Vendor Selection</b> Decide what vendors will be selected to fulfill the demand</li> <li>■ <b>Perishables Buying Decisions</b> Making qualified decisions in terms of quantity, price, delivery date.</li> <li>■ <b>Perishables Distribution</b> Decide how merchandise is allocated to the stores (own stores or wholesale channel) in case supply does not meet demand</li> </ul>		
<b>Strategic goals SAP wants to achieve with the project/program:</b>		
<p>Perishables procurement supports the perishables buyer at corporate level with tools and consolidated information that is required to manage purchasing documents for fresh products across the company. Perishable buyers are faced with business challenges that are based on the specific nature of the process of Perishables Procurement (short: FIP: Fresh Item Procurement): (Seasonality, High fluctuation, Frequent price changes ...etc).</p>		
<b>Mandatory software capabilities to address goals, use cases, and target market:</b>		
<p><b>Scope</b></p> <ul style="list-style-type: none"> <li>• Creation of a Workplace</li> <li>• New transaction for central perishables procurement</li> <li>• New transaction for perishables relevant Master Data and Customizing</li> <li>• Offer of "Perishables Procurement" BI Content</li> <li>• Usage of F&amp;R Orders</li> <li>• Flexible substitution of products</li> <li>...</li> </ul>		

## II. ARCHITECTURE

### Main Architecture Concepts and Decisions (Runtime)

*Perishables Procurement* (FIP) application will be available as part of SAP standard solutions. Consequently, different type of industries, such as retailers and wholesalers, can use this solution. However, some of its functionalities, e.g. the replacement material functionality, will be available as part of SAP retail solution for retail customers only.

From a business point of view, FIP is embedded in the SAP ERP solution in EhP4 (*Enhancement Package 4*). However, FIP is built using the ABAP composite architecture. Consequently, the communication between FIP and the ERP/Retail modules and BI (Business Intelligence) system will be handled only using BAdi interfaces. Figure 1 illustrates the architecture overview of FIP at runtime.



**Figure 1 Architecture Overview Diagram (Static Structure at Runtime)**

Due to the fact that FIP is built using the ABAP composite architecture, the block diagram, depicted in Figure 1, shows two components: the Perishables Procurement component and ERP/Retail component. Practically, FIP will be embedded in the software components SAP APPL 6.04 and EA Retail 6.04. ERP/Retail provide all of the services and data needed by FIP, such as the creation of

Purchase orders, the materials data read and the forecast data read. All access to these software components shall go through the BAdi interface implementations. This rule shall also be applied when retrieving the statistical data from BI system.

FIP has its own database tables and its own logic (Area Of responsibility, Material Range, Buyer Settings, Procurement List and Distribution list).

## **Main Architecture Concepts and Decisions (Design time)**

FIP is designed using the ABAP composite architecture. Hence, it is orchestrated using the layers principle. Figure 2 depicts the architecture overview of FIP at design time. It shows the main content of different layers (*Enterprise portal, UI Layer, Business Logic Layer, Business Abstraction Layer and Connectivity Layer*) and how they are connected.

### **Enterprise Portal**

The complete interactions between FIP and the users will be handled by the enterprise portal. This later offers views to the FIP buyer for his different tasks. Its content consists of iViews of different kinds (such as WebDynpro (WD) Applications iViews, BI reports iViews ...). All the iViews of WD Applications shall be provide by the FIP. The major Web Dynpro components containing iViews are: *Area of Responsibility (AOR); Material Range (MR); Procurement List (PL); Distribution List (DL); Supplying plant Setting, Material Setting, Vendor Setting and Recipient Setting; and General Search.*

### **UI Layer**

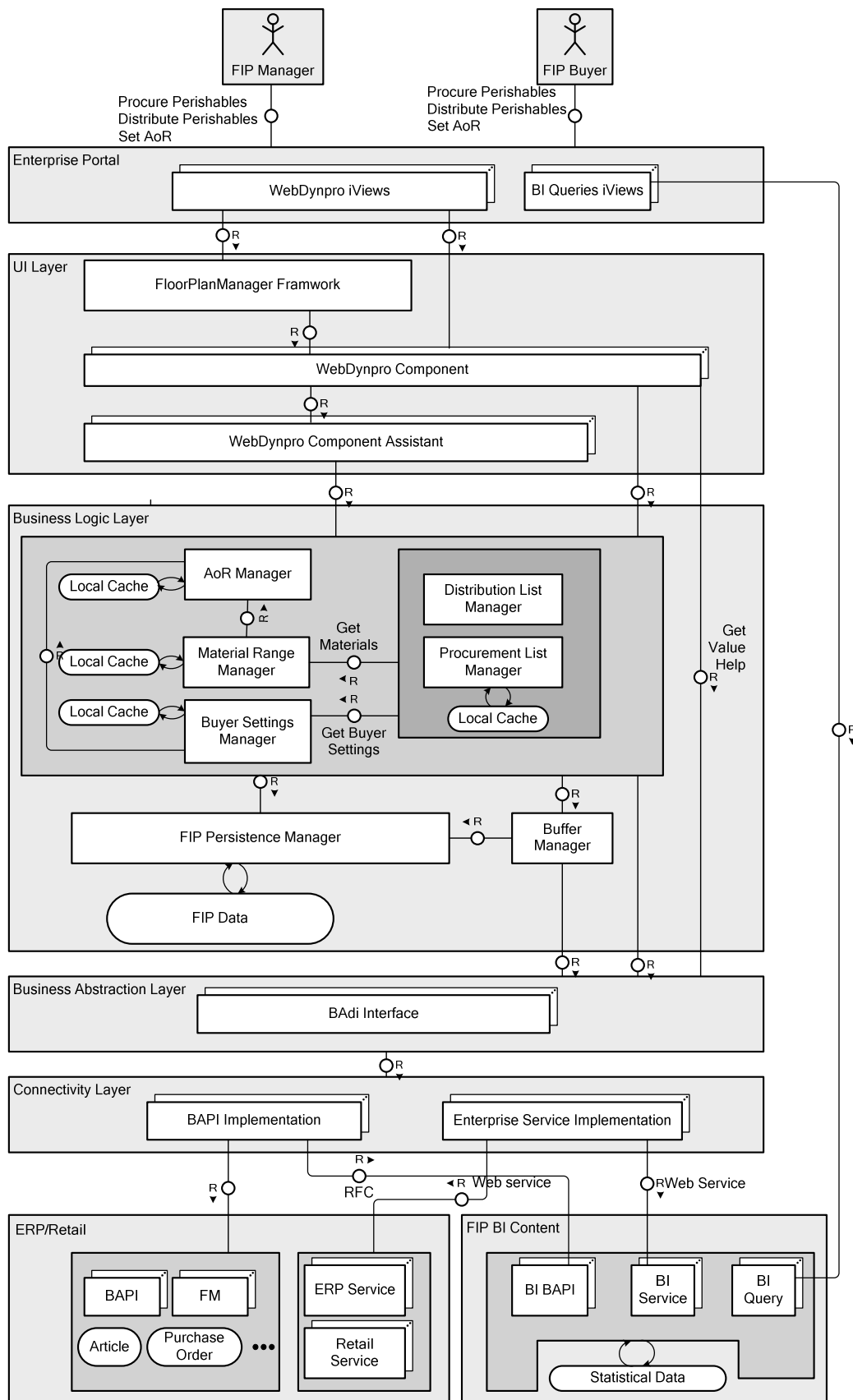
UI layer provides the *WebDynpro (WD)* applications. *Floor Plan Manager (FPM)* framework is used to build the screens following standard UI patterns. The FPM component *FPM\_GAF\_COMPONENT* for the Guided Activity Floor-plan (GAF) pattern will be used to configure the AoR, and the FPM component *FPM\_OIF\_COMPONENT* for the Object Instance Floor-plan (OIF) pattern will be used to configure AR, PL, DL, and Buyer Settings.

Additionally, some FIP WD components will not be provided as GAF or OIF. These components will not use FPM framework and they shall provide their own applications.

FIP WebDynpro components will use generally the services of WD Component Assistant. This active agent is responsible for the semantic structuring of the user interface. The data is bundled together and portioned in such a way that it can easily be used by WD components. WD Component Assistant should strictly be used to manage the component context and local/application data buffer and perform UI logic. It should not provide the FIP business logic. For example, this component can be used to do conversion from the back-end data structure to the appropriated UI structure.

### **Business Logic Layer (BLL)**

FIP Business Logic Layer contains the perishables procurement application logic that is independent from the UI Layer and the backend accessing technology. The transaction commits should be performed only when requested by the FIP UI layer.



**Figure 2 Architecture Overview Diagram (Static Structure at Runtime)**

Three main semantic components constitute the BLL: FIP Managers (AoR Manager, Material Range Manager, Buyer Settings Manager, Distribution List Manager and Procurement List Manager), FIP Persistence Manager and Buffer Manager. First, FIP Managers provide all the business logic. Second, the main aim of the FIP Persistence Manager is to permit accessing FIP database tables, that are the new tables created by FIP, in such way that their integrity is guaranteed. Finally, the buffer Manager allows accessing the backend system (ERP/Retail and BI) data in fast way due to the fact that this manager buffers these data.

Additionally, and in order to enhance the performance of the application, the majority of FIP Managers uses a local cache that buffers the master data per user session.

### **Backend Abstraction Layer (BAL)**

The main idea of the Backend Abstraction Layer (BAL) is to hide the details of the backend access from FIP application. A Composite actually accesses a backend via Enterprise Services. But since not all Enterprise Services required by FIP are available in EhP4 the access also has to take place via BAPIs and function modules. If all required eSAO services will be available, FIP can be extended to access the Backend via Enterprise Services. In order to reduce the impact of exchanging the BAPI and Function Module calls with Enterprise Service calls, BAL is introduced. Each access to the Backend has to be done via the BAL.

The BAL consists of well defined ABAP OO interfaces which are used by FIP to access the Backend. One ABAP OO interface represents a logical Enterprise Service (ES) and contains the service operations as methods.

### **Backend Connectivity Layer (BCL)**

The Backend Connectivity Layer (BCL) implements the interfaces defined in the Backend Abstraction Layer. Two main components constitute this layer: One component provides the backend access using BAPIs and Function Modules and the second component uses the Enterprise Services to access to the backend systems.

The BCL isn't used directly by neither the FIP business logic layer nor the UI layer, rather all calls have to use the BAdi interfaces defined in the BAL.

## **Deployment**

All FIP's UI content will be bundled and delivered in Business Package as portal roles – Perishable Buyer, Perishable Manager and deployed into SAP Enterprise Portal, or NetWeaver Business Client (NWBC). When deploy to NWBC, NWBC needs to be connected to the portal, and once connected, it will automatically get all the roles assigned to the portal users inside the NWBC.

## **Architecture Documentation**

More detail about the ABAP Composite Architecture is provided in a presentation<sup>1</sup>.

### **Additional Important Aspects**

The customer will be able to access its own backend system for parts of FIP (e.g. Forecast data) using the BAL concept.

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<sup>1</sup> Download the presentation slides at  
[\\Dwdf051\trade\Projects\PI\\_ERP05\\_4\\_TI\\_FIP\30\\_Design\Architecture\Composite\ABAP\\_Composites\\_Architecture.ppt](\\Dwdf051\trade\Projects\PI_ERP05_4_TI_FIP\30_Design\Architecture\Composite\ABAP_Composites_Architecture.ppt)

### **III. OPEN ISSUES, OUTLOOK AND RISKS**

#### **Open Issues and Outlook**

- To access the backend systems (ERP/Retail and BI), the current version of FIP uses BAPIs, Function Modules and database table direct access. The usage of Enterprise Services is planned but not in the near future.