

Generic Software Development and Enhancement Framework – Service Oriented Architecture



Applies to:

general development architecture - environment independent

Summary

This paper describes a technical concept of a generic 4 layer table based development model based on organizational data, application characteristics, a product list view and a base view. Software products and or software services are represented by dynamic runtime objects.

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Author Bio



Axel Dietrich offers as a freelanced consultant professional services in the areas development of SAP solutions and consulting with a special focus on processes related to “global shared services”. He is SAP certified Development Consultant for SAP NetWeaver 2003 – ABAP Workbench and Solution Consultant SAP NetWeaver BI 7.0.

Due to his professional experience and education Mr. Dietrich gained a good knowledge in the SAP development environment including ABAP workbench, SAP BI modeling workbench, SAP BI operation, SAP portal content administration, general data modeling as well as in SAP base technology like transport management, system monitoring, data takeover or authorization maintenance. Beside a special business process knowledge in the modules Customer Service and Plant Maintenance Mr. Dietrich has a very broad knowledge of the value flow within the SAP system.

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Scope

The usage of this development model has a special focus on solutions with shared software services associated with high complex organizational structures and usage types.

This technique might be used in the following content:

- Enhancements of complex used standard components
 - preconfigured processes / applications
 - parallel development on same enhancements / components
 - remove of “hard-coded” organizations etc.
- general development of configurable applications
- generic, efficient and high flexible customizing and configuration framework
- development of reusable, redefine able and version able components
- Process / Service related approach

SOA – Layer Model

Process view

Main focus of this data structure is to answer the following questions:

- Which organization is using this process?
- Which service is assigned to this organization?

Table key fields of the the process view are the process ID and a free defined organizational hierarchy.

Process ID	Org. 1 (free)	Org. 2 (free)	Service ID	active?
PC0001234	*	*	SR0001234	X
PC0001234	1000	*	SR00012341	X
PC0001234	1000	S101	SR00012342	X

Table 1: simplified Process view: Service filter based on organizational structures.

The organizational structure on a higher level “Org. 1 (free)” could be “Company Code”, on lower level “Org. 2 (free)” “Sales Organization” depending on a business scenario. Only one service may be assigned to the table keys. The best specified record is valid.

Take note of a simpler approach based on a product oriented architecture ([POA](#)) with the assignment of one product to one process.

Service view

Main focus of this data structure is to answer the following questions:

- Which application characteristics are using a service?
- Which product list and runtime object is assigned to a characteristic?

Service ID	Char. 1 (free)	Char. 2 (free)	Product List ID	Class name	Tabname	Srtfield
SR0001234	*	*	PL0001234	ZGEN_SV	ZSVTAB_0	000001
SR0001234	YCCC	*	PL00012341	ZGEN_SV	ZSVTAB_0	000002
SR0001234	YCCC	ZS	PL00012342	ZGEN_SV_1	ZSVTAB_1	000003
SR0001234	YZZZ	ZM	PL00012341	ZGEN_SV	ZSVTAB_0	000004

Table 2: simplified service view – filter conditions based on application characteristics.

The characteristic “Char. 1 (free)” on higher level could be represented by “Service Order Type” and “Char. 2 (free)” by “PM Activity Type” dependent on a business scenario. Only one product list ID and runtime object or configuration may be assigned to the table keys. The best specified record is valid.

Product List view

Main focus of this data structure is to answer the following questions:

- Which sequence of products represents the product list ID?
- How is a product defined?

Product List ID	Product ID	Sequence	Protocol	Dest.	Class Name	Tabname	Srtfield
PL0001234	PD0001234	1	RFC	local	Z_CLASS1	ZTAB_0	000001
PL0001234	PD0001235	2	ABAP	local	Z_CLASS2	ZTAB_1	000002
PL0001234	PD0001236	3	HTTP	DEST_A	Z_CLASS3	ZTAB_3	000003
PL0001235	PD0001234	1	RFC	DEST_X	ZCLASS1	ZTAB_0	000004
PL0001235	PD0001234	2	RFC	local	ZCLASS1	ZTAB_0	000001

Table 2: simplified product list view – sequence and description of products.

Base View

Basically a dynamic created runtime object identified from the upper views in combination with table based configuration settings represent the Software product.

Runtime Objects

The enhancement points (of a standard application) required for the particular process / product have to be bundled into one object and implemented in the methods.

It is mandatory to use object oriented interfaces and or inherited objects for the creation of dynamic runtime objects.

Configuration

Process related configuration data can be stored in a database cluster table based on a specified structure "Tabname" and a table index ID "Srtfield".

The configuration settings may be used for preconfigured business scenarios (use order type XX, don't process step A ...) or configured UI's (normalized structure for field properties processing required).

Options

There are several options to enhance the framework:

- implementation of exception processing (service or process replacement)
- dynamic field lists for filter processing (use of “Select Options”)
- service selection UI
- true hierarchy resolution
- licensing, valid to ...

Implementation

Each process implementation requires a separate specification.

Take care of at least the following features:

- LUW, Locks
- Interfaces, Structures
- Organizational View, Characteristics view
- methods, enhancement points
- global data
- standard customizing

Don` t:

- Maintain master data (or similar attributes) in the configuration cluster. This would reduce the reuse ability.
- It seems to be more efficient to separate processes for header and items. (Don` t mix up different processes.)

Restrictions:

- Active standard enhancements with filter functionality
- menus
- multiple use

Related Content

Please include at least three references to SDN documents or web pages.

[Product oriented architecture @ www.z-api.net](http://www.z-api.net)

[Service oriented architecture @ www.z-api.net](http://www.z-api.net)

[SDN SOA modeling](#)

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