Catalog Integration

System Concept

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iv Notation

None of the notations used in this document need extra explanation.

v Official Documents and Standards

No superior, related valid documents or standards were used when creating this document.

vi Revision History

| Version | Date | Type of change | Author / team |
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Table of Contents

Document Organisation 2

i Authorized & signed by 2

ii Copyright 2

iii Responsibility for updating the document 2

iv Notation 2

v Official Documents and Standards 2

vi Revision History 2

Table of Contents 3

1 Introduction 5

2 Requirement Overview 5

2.1 Catalog system Consumes information from other third system 5

2.2 PC 5

2.3 User Authorization Process 5

3 Retrieve Information from Catalog System 6

3.1 New or Changed Concepts 6

3.1.1 Generic Interface API 6

3.2 New of Changed functionalities 6

4 Import Messages by Gold Catalog System 6

4.1 New of changed Concepts 6

4.1.1 Technical Service 7

4.1.2 Usage Price Template 7

4.2 New or Changed Functionalities 7

4.2.1 Message Import by Gold Catalog System 7

5 Messages Published by Gold Catalog System 7

5.1 New or Change Concepts 7

5.1.1 Replication Context 7

5.1.2 Request Context 8

5.1.3 Message Splitter 8

5.2 New or Changed functionalities 9

5.2.1 Publish or Push messages from Gold Catalog system 9

6 Message download from Gold Catalog system 9

7 Architectural Diagrams and Information Model 9

7.1.1 Architecture Diagram 9

8 Impacted Components 10

8.1 Details impact on the above components 10

8.1.1 Product Catalogue GUI 10

8.1.2 Messaging infrastructure 11

8.1.3 Common / Shared LDAP 11

8.1.4 Order Management BPM 11

8.1.5 OSS/BSS System 11

8.1.6 Gold CCB System 11

8.1.7 CRM and other Selling 11

9 User Stories 12

9.1 CRM and Selling System Integration 12

9.2 OSS/BSS System Integration 12

9.3 Integration with Order Management BPM 12

9.4 Integration with external Catalog System 13

9.4.1 User Stories where Gold Catalog act as a Slave System 13

10 Design Hints 15

# Introduction

This document describes the externally visible behaviour of GOLD Catalogue and Order Management (will be called GOLD COM here onwards) from point of view of ‘interaction and integration of Catalog System with other systems.

This document describes details capabilities of Catalog system provides information to external systems. Catalog system will act as a pre-loaded carriages and provides re-usable building blocks to other systems so construct a concrete offers, which will be consumed with any CRM or Selling system.

# Requirement Overview

Following requirements have been derived from

## Catalog system Consumes information from other third system

PC pulls information from other system comprises of following key functionalities

1. Import of devices from external system.
2. Import price template.

## PC

Both human and system users will be identified by a unique userid and password.

Upon successful credential check user will be able to login into the system. Credentials check will not only, check userid and password, it will also check if user is active in the system.

## User Authorization Process

Once user is authenticated, authorization process checks access rights of the user to perform certain action. Authorization process will be based on user permissions. Permission can be checked on given jsp page, services, domain object and range of permitted value of a domain object, section of a screen.

User can associated with roles, each role will be associated with certain permissions.

# Retrieve Information from Catalog System

## New or Changed Concepts

### Generic Interface API

Generic interface design model will allow any service of Gold Catalog system to be exposed via multiple access channels. Any service will be exposed automatically both as web service and JMS service by changing configuration file only. Channel includes SOAP based web service channels and messaging based channels. SOPA web service will work over http protocol and messaging based channel will work over JMS.

## New of Changed functionalities

All business entities of Gold Catalog like Offerings, Product Specification, Product Service, Technical Service, Resource, Price and Characteristics information will be available for retrieval by name using generic service interfaces. Any external system that supports web service standard and specification can access this information for Gold Catalog system.

Integrating system which supports messaging infrastructure can access above information using queuing system by pushing request message into the queue.

This implies user will send request either via web service or via JMS request and wait for reply. All operations of Catalog system will be available over SOAP as web service as well as JMS services. For JMS Services, requester will push request message in a queue and will wait for the reply in reply queue.

While sending message over Web Services, system will expect SOAP message with proper security header. (Please refer FSP for User Management for details of Web Service security).

For, JMS service messages will be send as XML data exchange format to make the data exchange inter operable. JMS Message header will contain security information (Please refer FSP for User Management for details of Web Service security).

Generic interface API will expose information model to the external system. Development approach will follow top down integration approach so that XML structures will be defined via XML Schema definition language called XSD.

# Import Messages by Gold Catalog System

## New of changed Concepts

Gold Catalog system follows reference architecture provided by TM Forum SID module. All information models are aligned with SID specification. Following table describes SID mapping between Business Entities of SID with Business Entities of Gold Catalog system. Gold Catalog will accept SID aligned information from other OSS/BSS system while importing data into the system. Gold Catalog system will consume following Business information form OSS/BSS system.

### Technical Service

### Usage Price Template

## New or Changed Functionalities

### Message Import by Gold Catalog System

Gold Catalog system also imports technical service, usage price template from OSS/BSS system including Gold CCB.

Gold Catalog will listen to the topic where OSS/BSS/Gold CCB will publish technical Service information, usage price information. After message will be published Gold Catalog will consume that information. Gold Catalog expects information to be in the XML data exchange formation and aligned to SID data model.

# Messages Published by Gold Catalog System

Gold Catalog system publish offering information, change in offering information, pricing information, product specification information, product specification change information , product service information and product service change information to other system .

## New or Change Concepts

### Replication Context

Gold Catalog system can be integrated with online shopping applications /Selling applications and CRM application. In order to commercially sell offerings via these applications, above mentioned system requires offering information, product specification information or product service information. Also any OSS/BSS system requires offering information form Gold Catalog system. Any offering information or product specification information or product service information comprises of different composite business entities.

But, these integrating systems require full of some part of composite business entities. Replication Context will allow Gold Catalog to configure the level of nested information structure which will be published during the creation / update of Offering / product specification / product service information. Replication context will be pre-populated during system configuration time. While publishing messages system will check for replication contexts and according to the pre configured replication contexts composite business entities will be splitted into required structure and will be pushed into the topic.

If the system is configured with multiple replication contexts, Gold Catalog system will split the response messages in to different format and will push the multiple messages as per pre configured replication context into the topic.

Following table describes list of replication context and mapping between business entities to be replicated.

|  |  |  |
| --- | --- | --- |
| **Sl.No** | **Replication Context** | **Description** |
| 1 | PRODUCT\_SERVICE | This replication context will allow integrating application to pull full product service structure. |
| 2 | PRODUCT\_SPEC | This replication context will allow integrating system to pull product specification along with only associated product service name, resource name and all characteristics with value. |
| 3 | PRODUCT\_SPEC\_WITH\_STRUCT | This replication context will allow integrating system to pull full structure of product specification. |
| 4 | OFFERING\_WITH\_STRUCTURE | This replication context will allow integrating system to pull Offering along with product specification name and price and characteristics with values. |
| 5 | OFFERING | This replication context will allow replicating system to pull full offering structure. |
| 6 | PRICE\_STRUCTURE | This replication context will allow integrating system to pull complete price structure along with offering reference. |
| 7 | RESOURCE\_STRUCTURE | This replication context will allow integrating system to pull complete structure of a resource. |

While publishing messages into topic replication context will be put into message header as message selector so appropriate messages will be consumed by corresponding listening system.

### Request Context

Request context defines a name of the business operation along with corresponding business entity on which the operation is performed. Naming convention would be ParentEntityName\_SubEntityName\_Action i.e Offering\_Price\_Change.

While publishing messages into topic request context will be put into message header.

### Message Splitter

Message splitter will be a layer which will convert a single message into multiple messages as per replication contexts.

## New or Changed functionalities

### Publish or Push messages from Gold Catalog system

During the event of creation/update of offering, change in offering or offering prices, creation/update of product specification or change in product specification or creation/update of product service or product service, Gold Catalog will push messages into topic.

During message publish, Gold Catalog will retrieve pre configured Replication Contexts information as described in above section, replication contexts are retrieved, Gold Catalog will pass the message to a message splitter layer. Along with messages splitter layer will also receive replication context and request context. Based on the received replication contexts, message splitter layer split messages as per each request context its received. Messages will be created for each replication context. Once multiple messages are created, messages will be populated with message header / message selector. Key of the message header or selector will be “EventType” and GCOMEvent attribute value will be put as value of the event type. Structure of the event type value has been defined in the above section.

# Message download from Gold Catalog system

# Architectural Diagrams and Information Model

### Architecture Diagram

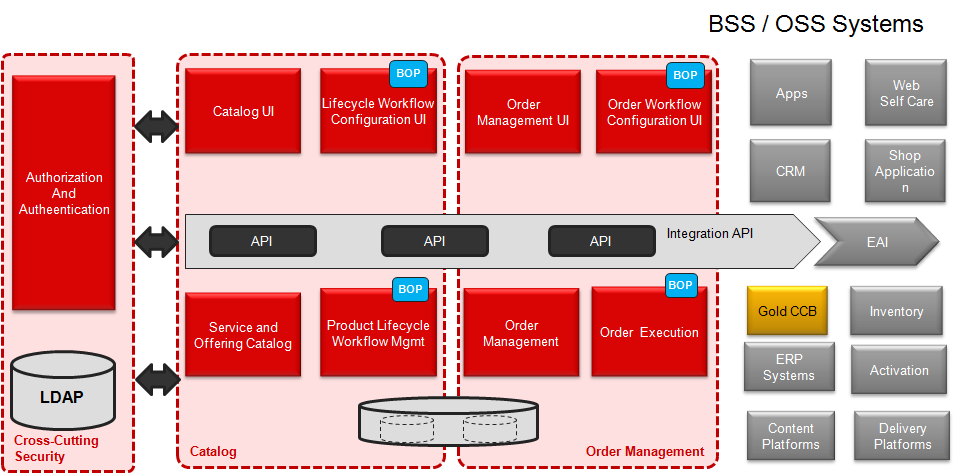


Figure 3 GCOM Overall Architecture

# Impacted Components

Catalog integration functionality will impact following components.

1. Product Catalogue GUI.
2. Messaging infrastructure.
3. Shared / Common LDAP.
4. OSS/BSS System including Gold CCB.
5. Order Management BPM.
6. CRM and Selling Portal.

## Details impact on the above components

### Product Catalogue GUI

* **Creation of Generic API**

Need to create generic API interface for following functionalities.

1. Offering creation.
2. Read Offering by name.
3. Read all offering.
4. Create Product Specification.
5. Read Product Specification by name.
6. Create Product service.
7. Read product service by name.
8. Create resource.
9. Read resource by name.
10. Create technical service.
11. Read technical service by name.
12. Create characteristics.
13. Read characteristics by name.

To create generic interface API, contact first design methodology will be implement. This involves creation of XSD libraries for all info models including offering with offering versions,

### Messaging infrastructure

1. In messaging infrastructure one request queue and one response queue will be created to crate the need of generic API.
2. Need to configure topic for publishing offering information.
3. Need to configure message listener so that Gold Catalog can consume usage price template and technical services published into the topic.
4. Need to create error queue so that error messages will be pushed into the error queue while processing input request receive via generic service API.

### Common / Shared LDAP

1. Create user for all systems those are accessing Gold Catalog system.

### Order Management BPM

### OSS/BSS System

### Gold CCB System

For details of impact in CCB system kindly refer to Functional Specification Document for COM-CCB integration.

### CRM and other Selling

CRM and Selling System will retrieve Offering information from Gold Catalog system. Following will be the impact on the CRM and Selling API.

* Consume web service exposed by Gold Catalog system. This requires creation of web service client in CRM and Selling system.
* CRM and Selling systems need to send messages to generic web service queue as a predefined XML format.
* Implement listener for retrieving response of the requested offering.
* Include security information in web service header as per OASIS standard.
* Data exchange format for offering must supports SID information model. As per SID information model Offering structure will contain

# User Stories

Following section describes list of user stories related to Catalog Integration.

## CRM and Selling System Integration

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl.No** | **As a** | **I want to . .** | **Acceptance Criteria** |
| 1 | Catalog System | Retrieve Offering information from Catalog system via web service as well as via messaging systems. CRM and Selling system will pull offering information based on offering name. | 1. Able to view offering in CRM or Selling Portal. |

## OSS/BSS System Integration

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl.No** | **As a** | **I want to** | **Acceptance Criteria** |
| 1 | Catalog System | Push new Offering and Offering change information to messaging infrastructure so that OSS and BSS system can consume the same. | 1. Able to view imported Offering in OSS and BSS System. |

## Integration with Order Management BPM

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl.No** | **As a** | **I want to** | **Acceptance Criteria** |
| 1 | Order Management BPM | Retrieve offering information from Catalog System using offering name.  This will be exposed via web service as well as integrated via messaging infrastructure. | 1. Able to get offering information. |
| 2 | Order Management BPM | Retrieve Product specification from Catalog system using product specification name.  This will be exposed via web service as well as integrated via messaging infrastructure. | 1. Able to get product specification information. |
| 3 | Order Management BPM | Retrieve Technical Service information from Catalog system using Technical Service name.  This will be exposed via web service as well as integrated via messaging infrastructure. | 1. Able to get technical service information. |
| 4 | Order Management BPM | Retrieve Product Service information from Catalog system using Product Service Name.  This will be exposed via web service as well as integrated via messaging infrastructure. | 1. Able to get Product service information. |
| 5 | Order Management BPM | Retrieve Resource Specification information from Catalog system using Resource name.  This will be exposed via web service as well as integrated via messaging infrastructure. | 1. Able to get Resource specification information. |

## Integration with external Catalog System

During Integration with other Catalog system will be performed in two mode i.e

* Gold Catalog system will act as a slave and provide information to external Catalog system.

### User Stories where Gold Catalog act as a Slave System

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl.No** | **As a** | **I want to** | **Acceptance Criteria** |
| 1 | External Catalog System | Retrieve all offering information in batch mode. This will be done using scheduled batch process, so that all offering created in Gold Catalog will be pulled by external Catalog system. |  |
| 2 | Gold Catalog System | Publish new offerings and change in existing offering to the messaging system so that external Catalog system can consume the same. |  |
| 3 | External Catalog system. | Retrieve all Technical Service information from Catalog system in a batch mode. This will be done using a scheduled batch so that all technical service related information will be pulled by external Catalog system. |  |
| 4 | Gold Catalog system | Changes in technical service will be pushed into a messaging system so that external master Catalog system can consume the same. |  |
| 5 | External Catalog system | Retrieve all product specification information from Catalog system in batch mode. |  |
| 6 | Gold Catalog System | Publish new/changes in product specification into a messaging infrastructure so that external master Catalog system can consume that. |  |
| 7 | External Catalog system | Retrieve all product service information from Catalog system in batch mode. External Catalog system will pull information from Gold Catalog using a scheduled batch. |  |
| 8 | Gold Catalog system | Publish new / changed product services to messaging system so that same can be consumed by external Catalog system. |  |
| 9 | External Catalog system | Retrieve all Resource specification from Gold Catalog in batch mode. External Catalog system will pull information using a scheduled batch process. |  |
| 10 | Gold Catalog System | Publish new/changed Resource specification into a messaging system so that external Catalog System can consume the same. |  |
| 11 | External Catalog system | Retrieve all Characteristics from Gold Catalog in batch mode. External Catalog system will pull information using a scheduled batch process. |  |
| 12 | Gold Catalog system | Publish new/changed Characteristics into a messaging system so that external Catalog system can consume the same. |  |

# Design Hints

Following design decision may be followed during implementation phase.