COMARCH

White Paper

The advantages of Product Catalog-centric BSS

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What will you learn?

- How service providers' existing BSS systems can slow down their business
- The disadvantages of having multiple product catalogs
- How Comarch approaches BSS transformation in terms of product catalog-centric architecture

Introduction

In the old times, before barcodes and readers were introduced, product offering and sales processes in small grocery stores were quite simple. You would just stick a price tag to the product and put it on the shelf. The customer would then come in, take the product, and get charged by the person managing the cash register. Despite the fact that entering prices manually was more time-consuming, at least the product offer definition was simple and the offer was completed in short time.

In the telecom business, the situation also used to be much simpler then it is today. Nowadays, product offers and definitions consist of many different elements including price, target group, distribution channel and offer validity time. And since an operator often has thousands of products created, managed and offered by multiple departments, managing the product portfolio may become very complex and ineffective. This drawback grows even greater, as product lifetimes get shorter (e.g. promotions / personalized prices) and the number of product variations keeps growing.

The situation can be better pictured from the end-customer's perspective. A customer notices an offer about a new smartphone with attractive, low monthly fees. He goes to a point of sale and wants to purchase the smartphone with a mobile broadband service. The dealer enters the order into the system and tells the customer the estimated time when the service will become active. The estimated time comes, but the service doesn't become active. As a result, the customer gets frustrated and returns the smartphone to the point of sale. Then he goes to another operator's point of sale, where he buys a similar smartphone and gets the service activated in one hour. What went wrong?

Challenge 1 – Difficulties in Managing Multiple Systems

The operators that have existed on the market for many years may have products defined and maintained in multiple systems from different vendors. One billing system handles mobile services, another deals with fixed line telephony services, and yet another is for cable TV services. All these systems need to support sales-related applications such as CRM, a self care portal and a point of sale system. A customer service agent should use the same CRM applications for mobile, fixed and cable TV services, so the sales-related applications need to be able to use all the product data that has been scattered across many systems, and present this data in a unified format.

Developing a telecom operator's business (adding new business models, entering new regions, involving in mergers & acquisitions) calls for the addition of new systems, databases,

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terminologies, data structures and new levels of information quality. As a result, the operator has multiple data models for products managed in various systems. The old BSS system that handles fixed line services may not be as flexible as the new system that handles mobile service offerings.

If the old and new systems are using different terminologies to describe the same things, systems cease to 'speak the same language'. In turn, the people working with product data (e.g. product managers and call center agents), who need to get an overview of product status, face difficulties in obtaining the information they want. This increases the amount of time-consuming manual work, entailing more costs and errors in the service delivery process. Bringing new services into the market using a platform with no common language can be very challenging, and may give an edge to competitors. Operators cannot evaluate their current business performance well, if the underlying system does not provide a consistent, single view of the situation.

Challenge 2 – Complexity of New Product Definitions

Data consistency is not the only challenge. When a product manager is designing new products and offerings, he should be able to design them effectively, without needing to repeat the same work multiple times using various applications. The same should be possible during the implementation of the product.

Having many parallel systems for product management can bring various disadvantages:

- **Duplicated work.** Depending on the system, the data model may be different so one data structure cannot be used for multiple products. This entails product managers' additional effort at product definition stage and disables product inheritance. All of this means a lot of time is spent making similar configurations instead of re-using existing ones.

- **Complicated maintenance of product data**. Managing existing product data and reconciliation of the data between products and systems becomes complex, leading to increased effort on the side of service providers' staff.

- **Lack of consistent product performance data**. It may be difficult to get an overview about the products defined in different systems. To analyze the overall product portfolio, the product manager may need to browse data in multiple systems, which takes more time.

All these disadvantages are slowing down the operator's business. This becomes a severe drawback, damaging the operator's ability to respond swiftly to changing market conditions. Apart from time to market on new product launches, operators need to think about product life cycles that are getting shorter nowadays. This calls for effective management of the product retirement strategy, in order to keep maintenance and retiring costs under control. This is also a relatively new challenge. Back when fixed-line voice telephony was almost the only type of service, retirement was not essential, as the same service could have been offered for years.

Challenge 3 – Geopardized Customer Experience

The problems occurring from the complex definition and management of products won't only affect the product management department. These problems can eventually damage the customer experience too. If the product data is inconsistent, the order management process may encounter difficulties, for example in situations where incorrect product data (e.g. wrong price) would be presented to the customer. Additional difficulties may occur from the service fulfillment process. For example, the service activation component of an operator's BSS platform may obtain wrong data (e.g. in case multiple database are used) so the wrong product is activated as a result. This entails dissatisfaction on the end customer's side. The damaged customer experience may not only increase churn rate, but also customer service costs.

To conclude, operators can no longer afford fragmented and inconsistent product catalogs. They are too time consuming to manage, which is a huge burden for operators struggling to optimize their business processes. A centralized product catalog also shortens the time-to-market, which entails cost savings (products are designed with less manual effort) and revenue loss elimination (delayed product launches result in lack of revenues from the products). It also enables definition of new products and management of the product life cycle using a single system. The system services multiple stakeholders of the operator (e.g. product managers, sales and marketing), while using a single, consistent data model for product data standardization.

Comarch's Solution

A central product management should cover offer and product specification, product relationship definition, and a possibility to specify which products are exclusive or sold only as a component of a bigger package. It should also provide tools for defining target customer types, offer locations and many other parameters. Central product management should be an integral part of the BSS architecture, fully integrated with its other components.

Based on these principles, Comarch has designed its Central Product Manager (CPM). The figure below presents the logical architecture of the product. Comarch Central Product Manager is located between the Sales Channels, Order Management, Service Activator, and Billing System layers.

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As shown in Figure 1, the Sales Channels group includes CRM, Self Care and Dealer Care applications. This group may also contain other Comarch or third party applications that are supporting the sales process.

The most important element here is Order Capture, integrated with CPM and Order Management. The Order Capture element gathers complete order data and sends it to the Order Management component. In addition to the basic information delivered from the CPM for the order capture process (e.g. product and price information), CPM can bring additional value to the process by providing sales recommendations and price quotations. Integration between CPM and the underlying billing system depends on the billing systems' capabilities. In the case of Comarch Convergent Billing integration is performed using pre-defined interfaces and pricing algorithms as the main tools for sharing information between systems.

The order gets sent from the Order Management module to the Service Activator. This module can perform complex service fulfillment tasks, consisting of various steps and based on workflows. Such functionalities provide enable the operator to flexibly customize business processes.

The Product Inventory module is used for managing product instances, which store information about the product offerings to which customers subscribed, and subscription conditions. It provides an interface for other modules (especially Order

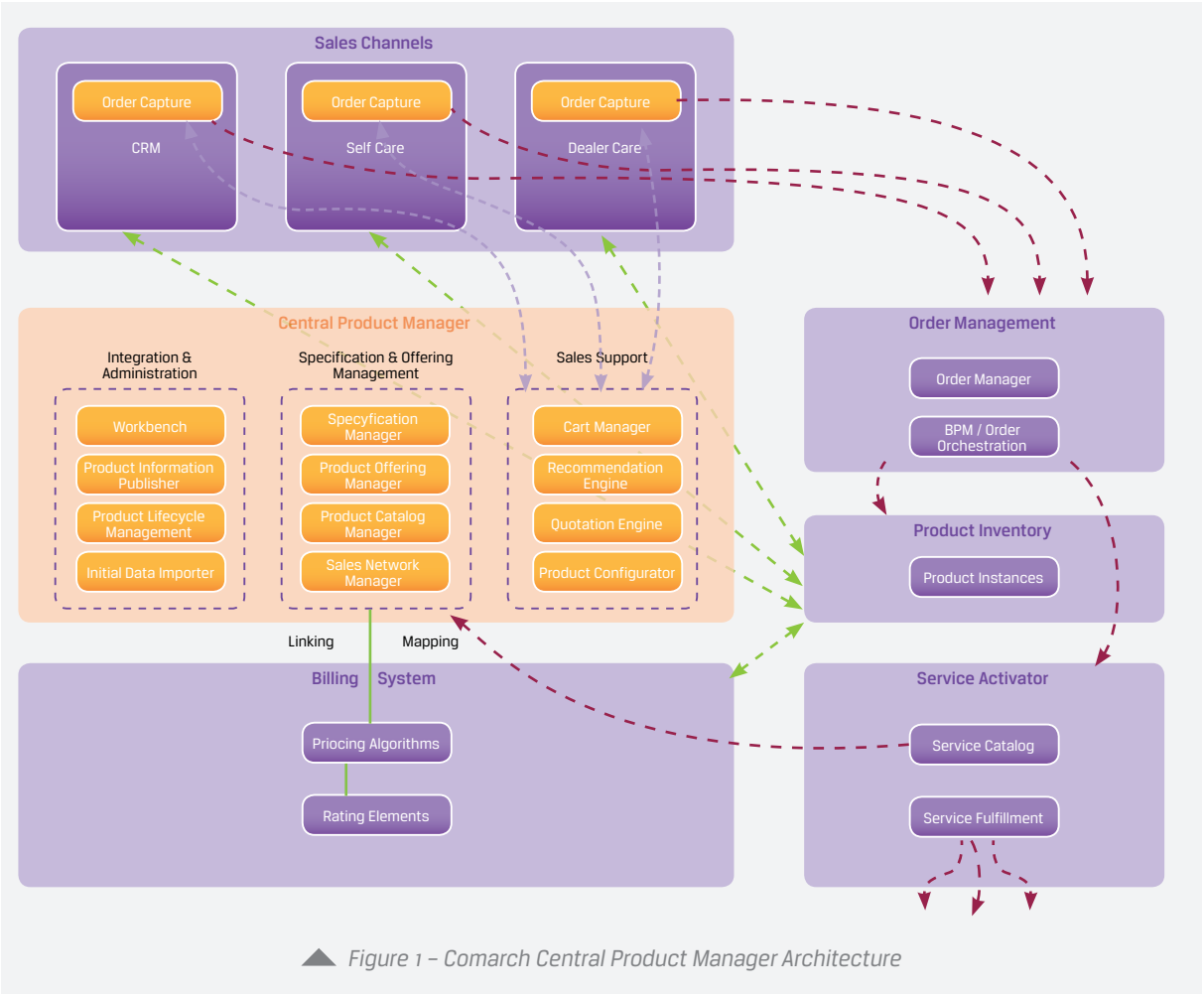


Figure 1 – Comarch Central Product Manager Architecture

Management) to create and terminate product instances, and for obtaining information about product instances e.g. by the CRM application in the sales channel layer. Example case can be where the CRM application is used to terminate a specific product subscription from a customer or to get current subscriptions.

Information model based on SID

As the product structures of operators usually depend on multiple legacy systems managing product data in their own databases, managing this data becomes complex. To enable managing products centrally and making them "speak the same language", consistent data and terminology must be applied to product-related information. Only this way product life cycle management can be applied effectively.

To achieve this, Comarch based its Central Product Manager on the TM Forum Information Framework, also called the Shared Information Data (SID) model. The SID model provides a single information / data reference model and a common information / data vocabulary from a business entity perspective. The model is becoming widely adopted among the telco operators, so it means that the integrations between systems from different vendors can use a similar data model which facilitates system integration.

Product and offer definition

Operators that have complicated product catalogs scattered around multiple systems can still use these catalogs to launch new products. But this means product managers will struggle with duplicated product information, keeping fragmented data consistent and maintaining integrated legacy systems. Additionally, legacy systems can limit the creativity of product managers in defining products and offers, whereas a modern BSS with centralized product catalog improves the situation significantly. It enables product managers to define any kind of associations and rules in relation to the products. It also ensures product data is available for sales channel applications, order management, billing system and service activation components. Managing product specifications and defining associations in Comarch's CPM is possible thanks to the specification manager component.

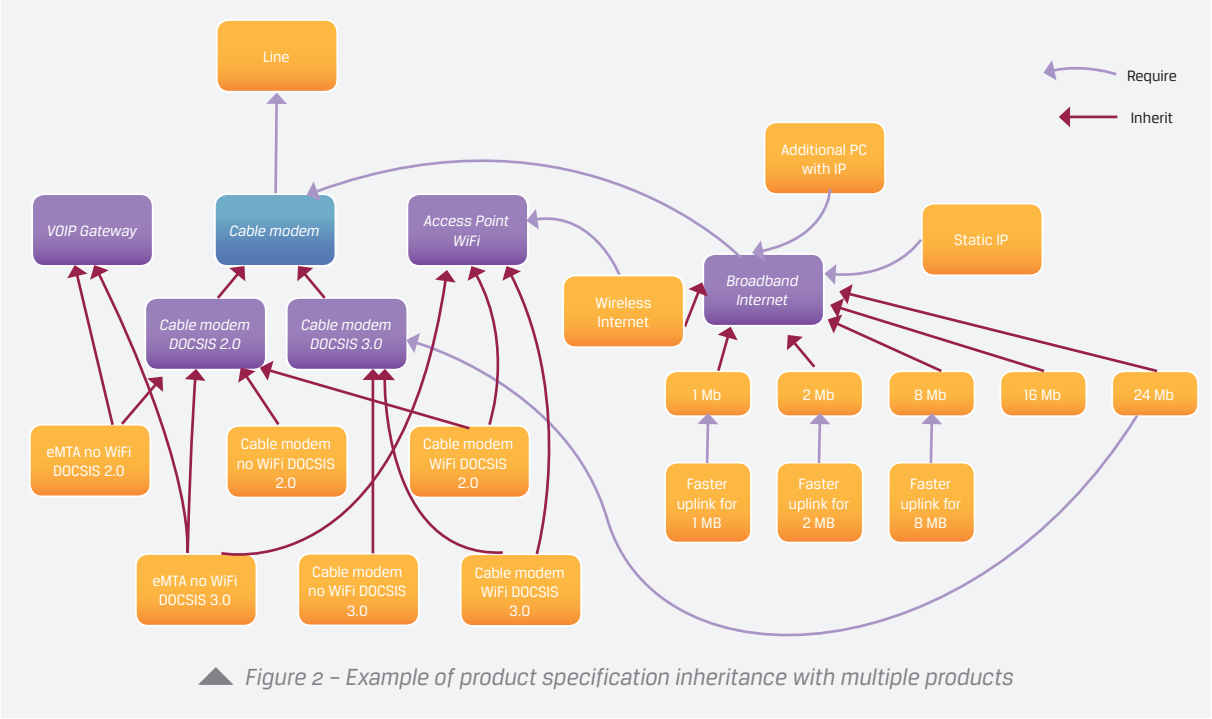


Figure 2 – Example of product specification inheritance with multiple products

One of the essential processes that a central product catalog should enable is product life cycle management (PLM), which facilitates maintenance and retirement of products. Faced with an increasing number of offered services and shorter service lifetimes, operators must focus on their service retirement strategies.

One of the essential processes that a central product catalog should enable is product life cycle management (PLM), which facilitates maintenance and retirement of products.

Comarch Central Product Manager enables operators to deploy their PLM processes effectively. After a product is defined in the system, it must be made available as an offer to the customers. Different offers may be targeted e.g. based on the end customer type, geographical location, or sales channel (point of sale / web shop). Comarch CPM provides a large set of capabilities for preparing offers such as definition of: prices, promotions, upgrade rules as well as publication and termination rules.

In the stage of product definition, Comarch CPM simplifies configuration and allows the existing specifications to be reused easily by providing an advanced inheritance functionality based on a mix-in concept. The figure below presents examples of products, which can be inherited by various versions with slight changes, leading to saved time and effort. Multiple products can be mixed in – thus the inheritance can be used while keeping the hierarchies of multiple products.

Inbound and outbound integration

Although the product catalog provides a central point for managing products and storing master data, it must be used in tandem with legacy BSS systems. It should provide various possibilities for inbound and outbound integration with legacy BSS systems that may not support the SID model. Comarch CPM provides a Data Importer component that supports data migration from legacy systems – the imported data can be used as an entry point for configuring a full product catalog with marketing offers.

The data can also be exported from Central Product Manager to legacy systems. In such a case, the replication module of the Central Product Manager can be used. This is useful in situations where online integration cannot be performed and data needs to be replicated into the format of the target legacy system.

Accelerating sales support

A customer service representative needs information about the products that are available to a customer. Presenting information about the products that the customer cannot pur-

chase makes no sense, because it will lead to situations where invalid information is given to the customer, and may entail order drop-out as well as reduced customer satisfaction.

Therefore, the CRM system needs to use the available product and offering data from the product catalog. Additional information could be delivered from the product catalog to the sales channel applications to facilitate the order capture process. The CRM application should be able to access the information in the product catalog about available products during customer interaction, together with quotations for the products that the customer would like to contract. In addition, the central product manager should analyze the data about customer's current services and provide sales recommendations to the CRM applications, based on the customer data (for example current agreements, consumption information).

The advantages of Comarch Central Product Manager from the sales perspective include:

- Consistent information about products and offers for the customer
- More accurate order management and service fulfillment process
- Personalized products, due to flexible product creation
- Better up-selling and cross-selling opportunities

A sample scenario will be best to describe how the product catalog can support the sales process. A customer goes to a point of sale and wants to buy two smartphones: one for him and one for his wife. The customer service agent gets a list of available smartphones on his screen. After selecting the smartphone, the list of available tariff plans appears on the screen. Only those tariff plans that can be used with the smartphones are shown, so there is no possibility of error during the contracting process. Next, the appropriate payment details are chosen. For example, information such as whether the customer would like to have both smartphones billed on the same invoice. After capturing all the order details, the service agent can provide an accurate quotation and the estimated service activation time, based on the data from the central product manager.

The sales process is also supported by the Cart Manager component of Comarch CPM. It supports the order capture process by exposing an advanced interface, which can be used by external applications such as CRM or a self service portal, providing information about products to the sales channel layer. The Cart Manager provides information on products which are available for specific customers, and enables order building using a cart, as in web shops (building an order is like adding items to the cart). This component can also be integrated with the external serviceability check systems to verify in real time which service can be installed at customer's premises. This reduces the risk of order drop-outs and service activation errors. The Recommendation Engine functionality of the Cart Manager is exposed to sales channels using the same interface. It generates sales recommendations based on various conditions, to support the Cart Manager in the Order Capture process.

Comarch CPM also contains a Quotation Engine that can estimate prices for the currently selected products. Customers who are interested in purchasing multiple products, either separately or in bundles, can be informed about the total cost of their order. If the tariff plans are based on multiple parameters (monthly fee, usage fee, initial fee etc.), the customer can obtain information about upcoming costs, which reduces the risk of bill shock. In addition, the Quotation Engine is useful for preparing quotations for business customers, who would like to purchase a large set of products at the same time, as it provides them with full transparency of the costs.

The advantages of Comarch Central Product Manager from the sales perspective include:

- **Consistent information about products and offers for the customer** – reduced risk of inaccurate prices and other data inconsistencies
- **More accurate order management and service fulfillment process** – leading to fewer order drop-outs and fewer service activation errors
- **Personalized products**, due to flexible product creation – the underlying platform is no longer limiting the creativity of new product definitions
- **Better up-selling and cross-selling** opportunities, originating from the recommendation engine component

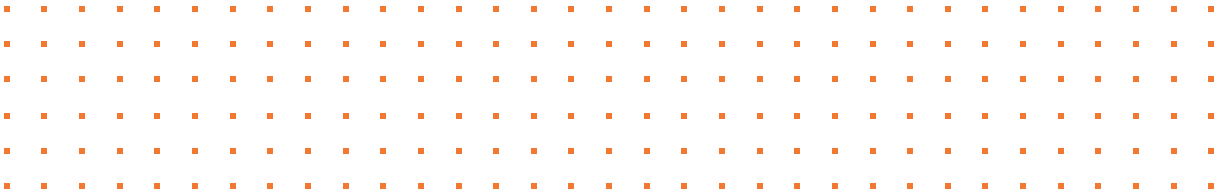
Business process optimization

To maximize the benefits of switching to centralized product catalog, associated business processes should be optimized. As the product catalog has an impact on many different business processes, such as sales, order management, service fulfillment and billing, it needs to support seamless integration of these activities. Composing the end to end process that translates the customer order into service fulfillment accelerates the operator's revenue flow, as the service is activated with fewer drop-outs or errors.

Conclusions

The operators need to improve their agility when introducing new products to the market. Multiple legacy systems containing product data that is scattered around multiple databases increases operating costs, increases the risk of errors and slows down product development.

Having the product data available and manageable from a single location accelerates the operator's business. Not only can it speed up product management, it also reduces the cost of system maintenance, improves customer experience, and increases visibility of the business performance. Centralized product catalog is the perfect answer to these challenges.



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