

## View Point



### Winning in the Age of Convergence: Product Framework for CSPs

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#### Abstract

Convergence is fundamentally transforming the way Communication Service Providers (CSPs) operate. Falling Public Switched Telephone Network (PSTN) revenues coupled with triple / quadruple play<sup>1</sup> are driving CSPs to formulate convergence-led strategies for future growth. The critical question that CSPs need to ask themselves is whether they have the process and IT flexibility to cut-across silos of products/services. This Infosys paper focuses on the complex CSP product environment structure and proposes a product framework that caters to convergence.

The proposed product operations framework provides centralized visibility of all enterprise product propositions across different customer segments and product lines. It also provides a product and bundle-creation environment while synchronizing deployment of new products across lines of business. The framework provides a single product master across the organization maintaining both business and product hierarchy. The core of the framework is built around product rules and is synchronized with the OSS and BSS systems through a Service Oriented Architecture (SOA). Organizations need to be cognizant of the impact of bundling too many rules in a single logical entity. The framework bridges the gap between capability to market between a silo and converged market-place besides providing support and consistency for product management processes through centralization. It also provides a single point of truth for all product and offer capabilities.

<sup>1</sup> Triple play is the combination of Voice, Video and Internet (Data). Quad Play combines this with a powerful wireless technology like Wi-Fi to make the service ubiquitous.

The new industry phenomenon of convergence across voice, data and mobility is creating new operating paradigms for Communication Service Providers (CSPs). Traditional PSTN (Public Switched Telephone Network) providers are feeling the pinch as a result of falling land-line revenues. Needless to add, they are often first in the market-place with a convergence led strategy for future growth. However, process and IT flexibility is a critical component along with sound strategy for CSPs to succeed in this age of convergence.

While convergence is redefining the way business works, consumers are the primary beneficiaries. It provides the ability to mix and match the services in-order to cater to the market demand for flexibility, quality and value. Changing the communications landscape rapidly, convergence has impacted devices, services and networks. For example, Fixed Mobile Convergence (FMC) handsets now provide consumers with an ability to swap between their landlines and mobiles. This offers consumers the cheapest network available at a given location. While this reduces the cost of communications to the consumer, it exerts dynamic pressures on CSP revenues.

CSPs have coupled these external drivers of convergence with internal drivers to come up with flexible and innovative models to better meet the needs of the consumer. Additional drivers include:

- Smaller time-to-market window - CSPs need to move quickly in product service rollout to stay ahead of the competition
- Flexible business model - CSPs have extended their business models to ensure that new services are provided either through network or partnerships
- CSPs must increase their focus on and intimacy with the customer in order to reduce churn. One of the must-adopt strategies for service providers to increase customer loyalty and stickiness is the bundling of services (triple play, quad-play or bundling with other partner services such as DirecTV or Dish TV)
- Decreasing PSTN revenue per minute has had a drastic effect on the average revenue per user (ARPU). Hence, companies are increasingly providing bundled offerings with value-added services to increase the ARPU. To achieve this there is need for increased efficiency of operations in creating and managing the entire product portfolio
- Commoditization of individual services is decreasing differentiation leading to increased competition. The key is in bundling these services into attractive packages
- Customers in multiple-service relationships with a CSP are less likely to defect to competitors as switching costs are higher in bundled scenarios
- Fixed-Mobile convergence will act as a defense against pure-play VoIP providers who cannot offer the convenience of a 'mobile-fixed' handset
- New market entrants, like Skype's recently announced fixed and mobile package in North America are adding fuel to the competitive fire

CSP companies with a PSTN bias are the first ones in the market to start the process of transformation of their existing Operations Support Systems/Business Support Systems (OSS/BSS) in addition to laying down NGN (New Generation Networks) and partnering with content providers. The complexity of product propositions in a diverged market (non-convergent) needs to be de-mystified to cater to the converged market space. The differentiation between individual services is low as a result of increased competition. This means that companies need to differentiate themselves through branding, bundling and by offering complex but flexible services. While these companies have always had challenges in product introduction, convergence is driving them to address these issues now. The good news is that industry body standards and technology trends of Web-services and Service Oriented Architecture (SOA) are emerging as enablers for CSPs to evaluate their legacy architectures and take the first steps toward winning with convergence.

## Existing Model

In the typical BSS environment today, new product introduction relies heavily on manual and semi-automated processes. As depicted in the figure below, marketing places intense demands on the IT organization which struggles to meet these demands on time.

Since each system in such IT landscapes has its own product data and associated functionality, a key challenge is the existence of different product IDs for the same product across multiple systems. This creates the need for mapping various product IDs.

**Sales and Marketing:** The Sales and Marketing application administrator updates the system with details around the new product, promotions associated with the product, pricing details and commission details. This is typically done through a file upload or manual configuration on this platform.

**Order Management:** The Order Management application administrator updates the system with the new product and bundle information. This includes generation of new product codes and setting up of compatibility rules for the order. Any rules pertaining to product eligibility also need to be set up. These are typically done through front-end configuration or through a file upload.

**Billing:** The Billing platform is the backbone or the core of the product catalog. Product catalogs are largely driven by what billing systems support. The Billing Configurator performs new product ID generation, creation of the price plan, rating configuration, configuration of journal entries. Configuration in the billing system is also typically achieved by manual entry or by file uploads.

**CRM:** The CRM system administrator performs updates on compatibility rules, price list and activation/order codes. If the new offer has product bundles, the bundling needs to be visible in CRM to enable the contact centre agent or any other CRM user to position the bundle effectively to new customers or prospects.

**Self-Service:** The Self Service administrator creates products along with associated rules. Bundling and product configuration must be accurate on the self-service platform as this is used by the customer directly and there is no room for back office manual work-arounds. Self-Service is the most important system from a customer experience perspective and hence the need for accurate product bundling and pricing information.

**Provisioning:** The Provisioning layer administrator creates new order codes and technical products. If the new bundle introduced by marketing involves configuration and set up of new technical products, the Provisioning layer becomes a touch-point in the introduction of a new offer or product bundle.

**Mediation:** The mediation layer needs to maintain the rates and certain billing information. Introduction of a new bundle/product could potentially have a mediation touch point. The rates and billing details need to be configured on the Mediation platform.

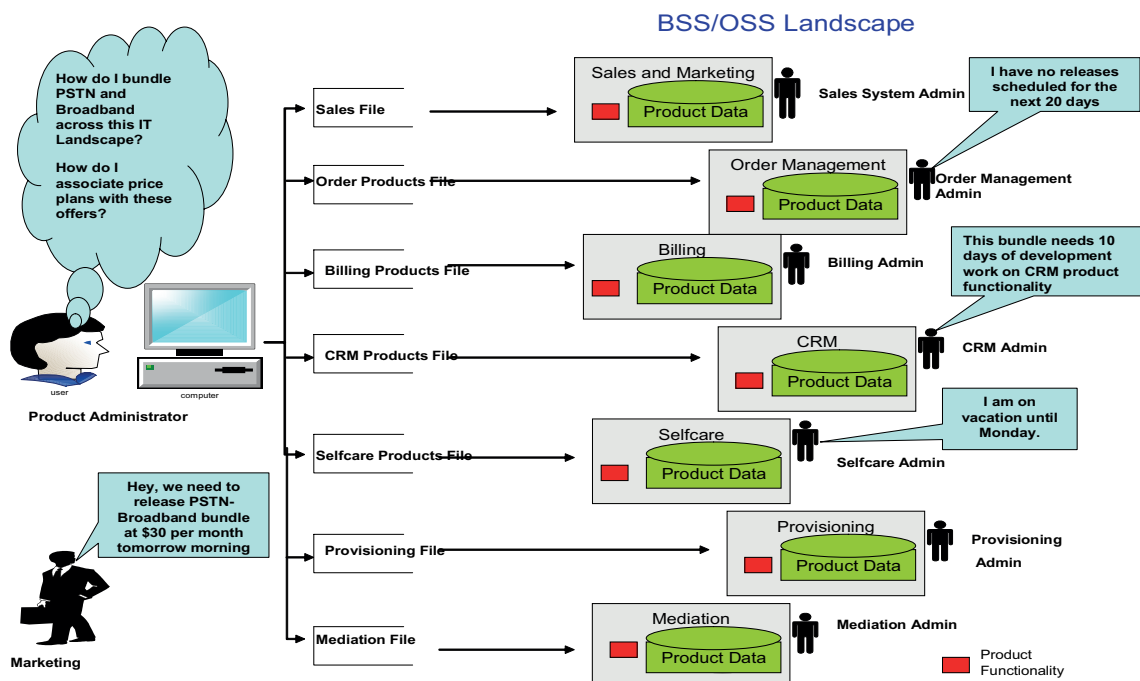


Fig 1: Typical existing CSP IT landscape

## Current Scenario

A typical product introduction can take anywhere between 80 and 100 days due to the manual overheads and the coordination involved across a large number of stakeholders. This overhead erodes the first-mover competitive advantage besides delaying revenue generation.

This problem will be further compounded in the future due to innovative and dynamic product bundling needs imposed by convergence. For example, today an introduction or change of a price plan from concept to market takes an average of 80 to 100 days. Take the introduction of a convergent offering, say a PSTN and mobile line (also known as Fixed Mobile Convergence) with differentiated prices based on the location of the subscriber during a call, coupled with a Christmas offer of 50% discount on the first month bill, but only for purchases in the London district of the United Kingdom, implementation in the BSS would literally be a nightmare! By the time, a program of this nature could be implemented, significant revenue would be lost as a result of the lost time to market.

Billions of dollars in revenue and profits are unrealized because service providers are unable to quickly respond to market opportunities and competitive dynamics. Research shows that implementing Product Lifecycle Management methodologies in other industries can reduce product development time by 40 per cent. This efficiency results in significant cost savings with a positive impact on revenue goals (Source: Telemanagement Forum TMFC1836 The PLM Problem).

## How do Communication Service Providers address today's challenges?

In order to address the challenges with today's model, CSPs need to perform routine 'architectural health checks' on the overall health of their BSS/OSS architecture with particular focus on the systems that house product catalogues. They need to constantly evaluate whether the changes and the growth of their BSS/OSS architectural landscape are aligned with future business needs and growth plans around new product bundles and offers. This assessment should ideally be carried out by an external consultant/vendor with expertise in BSS/OSS Systems Integration and Architecture Study. A periodic health check is critical considering the dynamic nature of the market and the business needs.

The consultant/vendor would typically perform a study of the 'As-Is' architectural landscape and As-Is business processes around product management and selling. They would also assess changes to selling specific business processes and SLAs in the immediate future as a result of new bundles and product offers. At the end of the study, the consultant/vendor would recommend any changes required to the BSS/OSS landscape around product management from a strategic perspective to align with business goals.

The CSP should choose independent, technology-neutral consultants without bias toward the promotion of a particular application or product. The consultants should be able to recommend optimal solutions that meet the specific environment and business needs of the service provider.

A typical framework for managing products in a converged market place is discussed below.

## Product Framework for a converged market place

Convergence is a catalyst for organizations to review their product portfolio strategy. By deploying next-generation capabilities and establishing new content and services partnerships, CSPs are moving away from selling simple products or service capabilities toward complex and bundled products.

For CSPs with multiple services across voice, data, mobility services, and content services the only way forward in order to achieve the benefits of consolidation (product bundling for crosssell/ up-sell) is to ensure that the product application landscape is simplified. This will not only shorten the time to market and cater to convergence but also reduce costs in manual / multiple processes around products.

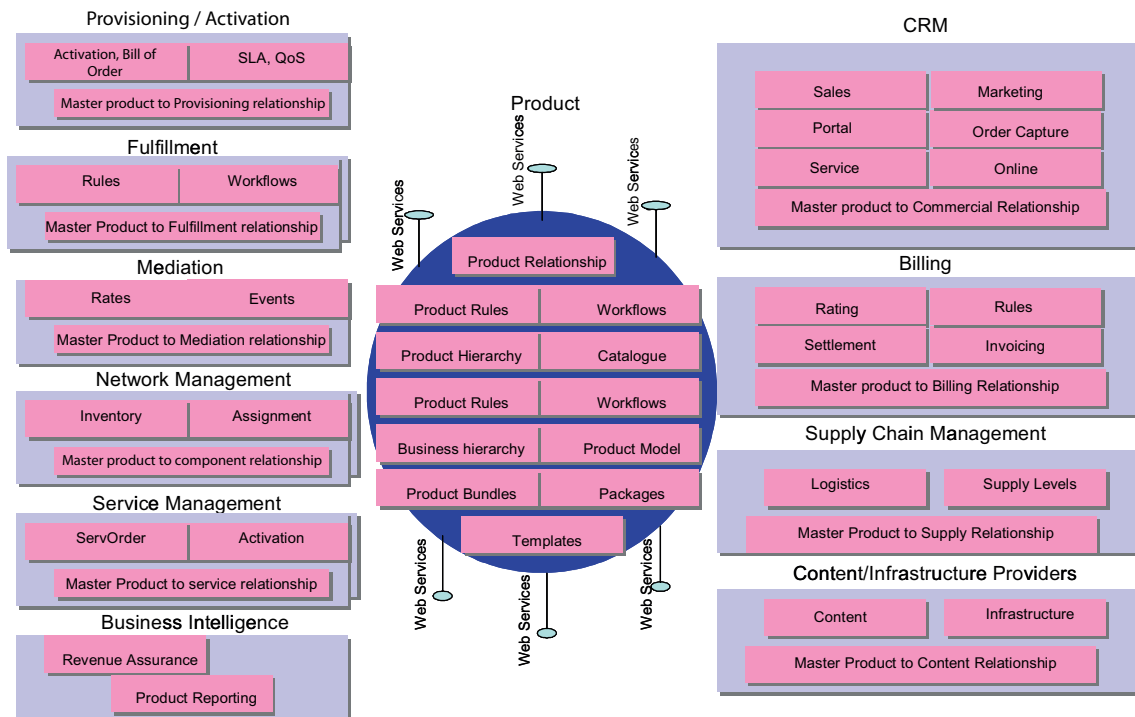
## Characteristics

The product framework provides centralized visibility of the enterprise's product propositions across different customer segments and product lines. It also provides a product and bundle creation environment, synchronizes deployment of new products cutting across lines of business and creates a flexible workflow to co-ordinate the teams involved. This workflow helps automate the following tasks to formulate the rollout of new product/price plans:

- Creation, review, authorization and approval of the product structure
- Modeling and testing of the product structure
- Versioning of the product structure to cater to any changes
- Rollout after final authorization for use in production

The business process flow involves various levels of the organization across different user communities. This flow can be effectively managed through a workflow in order to minimize process deviations.

The framework provides a single product master across the organization maintaining both business and product hierarchy. The core of the framework provides a logical entity for product rules. This is synchronized with the OSS and BSS systems through a Services Oriented Architecture (SOA). Organizations need to be cognizant of the impact of bundling too many rules in a single logical entity. The framework bridges the gaps in capability to market and also provides support and consistency for product management processes through centralization. It also creates a single point of truth for all product and offer capabilities.



The framework encompasses interactions between the logical product repository and BSS/OSS systems. In the telecom environment, there are many interactions between systems in the OSS/BSS space. The system(s) that make up the product framework typically interact with the following OSS/BSS systems:

- **CRM system** – Interaction with the CRM system is needed to support Sales, Marketing, Order Capture, Service Management and Online capabilities supported by the CRM system of a CSP.
- **Billing system** – Interaction with the Billing system is required to enable the support for Rating, Payment and Compatibility rules, Settlement and Invoicing.
- **Supply Chain** – Maintaining a product to supply relationship ensures that available supply levels are adequately tracked with minimal gaps in the demand to supply chain. This requires updates on new product information in the strategic supply chain platform from the products framework.

- **Content/Infrastructure Providers** – New offerings, especially in the 3G space, include content like mobile TV and entertainment services for which CSPs tie up with third party service providers. The product framework can facilitate integration with third party systems for real-time synchronization of new content related products. A similar integration can be established with infrastructure and network providers.
- **Provisioning/Activation system** – The introduction of new products through the product framework could entail setting up of technical product(s) in the Provisioning/Activation system. This enables interaction between the Product framework and the Provisioning/Activation system.
- **Fulfillment** – Any new product or product related rule towards fulfillment may need to be set up in the Fulfillment system through an interaction between the product framework and the Fulfillment system.
- **Mediation** – The Mediation system plays a key role in mapping events and rates associated with Billing products. Any new product introduction or existing product modification could need an interaction between the product framework and the Mediation system for the necessary data set up.
- **Network Management** – The relationship between the product and network component provides a crucial link to manage the network. Any new product that involves a new network product or update of network parameters of an existing product is facilitated by an interaction between the product framework and the Network Management layer.
- **Service Management** – Service Management involves providing after-sales support and service on products. Any new product introduction involves synchronization with the Service Management platform to facilitate real-time or near-real-time product and service updates.
- **Business Intelligence** – A centralized product framework can facilitate support for product data mining for marketing, research and forecasting purposes. This can be achieved by mining data in the correct format for the Business Intelligence (BI) platforms.

## Key Benefits

A robust product framework offers strong benefits to communication service providers in a converged market place:

- Improved customer experience due to better serviceability and capabilities, providing value for customer's wallet
- Consistency and accuracy in the product management processes across multiple business units and OSS/BSS landscape
- Significantly reduced operational costs due to streamlined multiple product functionalities in different / discrete application landscape. This also reduces the IT costs of taking a new product to market
- Decreased revenue leakage through improved business and systems processes related to product and price changes
- Improved time to market of services / products helping marketing to innovatively increase the wallet share of the consumer
- Consistent product description across the organization with the ability to distribute real-time product information across the OSS/BSS platform
- Grouping of products, offers with complimentary products, and bundling of complex products facilitating efficient after-sales service
- A single point of product truth creating a master for rules, workflows, product hierarchies, and catalogues
- Standardized product model across the organization and increased accuracy of data in the application landscape

## Conclusion

For CSPs to survive and ride the convergence wave successfully, it is critical to streamline their product management processes. A strong product framework will help them cut costs, stay ahead of competitors, better retain customers, increase wallet-share, and minimize losses from declining fixed-line voice revenues.

In today's scenario the centralized product catalogue can go a long way in increasing product management efficiencies. However, SOA advancements coupled with the fact that product organizations are increasingly moving towards Web Services based technologies over the next 5 to 10 years, even the centralized product catalogue would need to be periodically re-assessed as part of the routine 'architectural health checks' prescribed earlier.

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