Universal Service Definition in the Context of Service Catalog Design

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There are many different definitions for a service, depending on the subject matter it deals with, the type of business, or industry requirements. Nowadays these definitions are used mostly in the context of the IT industry in order to standardize and reuse IT service components (itSMF, ITIL). Some industries, especially in telecom and banking, recognize the necessity of implementing a Service Catalog. Businesses have also recognized this need (e.g., Business Service Catalog - BSC) as they face the same problem as the IT industry. They recognize that process improvement, operations efficiency, cost calculation, tracking, and control cannot occur without the standardization of definitions for services.

Among published standards (i.e., ITIL, TMForum documents, COBIT, etc.) and approaches, with IT service support tools, different WEB Forum discussions, and industry conferences, it has been recognized that **a universal service definition and description is missing.** The IT industry uses the ITIL definition for a service, whereas telecommunication uses a TMForum definition for a service. They are not the same although both industry standards belong to a service industry category. Most countries regulate a "service" in the same way that they regulate a "product," as a sales and marketing category. The correlation between process and service gives additional complexity and sometimes leads to confusion in developing specifications for IT support tools within the SOA environment. Business Process Trends market investigation shows that even consulting companies are not sure when and how to correlate service with process and product, nor are they sure of when to implement it in the SOA environment.

There is no doubt that the market needs a Service Catalog in order to standardize and optimize process, IT support tools, and operational costs. In order to design an appropriate Service Catalog, it will be necessary to identify and describe in sufficient terms each **service** presented in the catalog. A service definition and structure must be identified, prior to implementation, for each particular business segment (e.g., sales, procurement, finance, etc.).

This Article will propose a universal and generic (industry independent) service definition and identify its correlation with processes. Finally, it will propose how to test the maturity level (technical and business quality) of each designed service.

The keywords are Service, Service Catalog, Service Configuration Item, Enabling Service Attributes, Supporting Service Attributes, Service Oriented Architecture, and Service Maturity.

Introduction

The problem of standardization is common for any industry. The major industry benefits of standardization are transparency, cost reduction, and operational efficiency improvement. But these benefits may drive an industry into a trap if the industry becomes "self-oriented" instead of "customer oriented."

Businesses recognize that **availability and stability** (i.e., continuity and repeatability) of service are not enough. An important additional characteristic of service is **serviceability** – the capability of a service to be delivered and supported where and when the customer needs it.

To focus only on serviceability may lead to such an enormous effort to serve the customer that it will add to a high cost of production (e.g., process cost). In order to control the cost and ensure the profitability of a business, it is necessary to establish an additional characteristic for a service – **accountability** (i.e., profitability).

This still does not guarantee that a customer will buy and consume the service, despite the fact that it may be available, stable, well serviced, and optimally priced. The service must be attractive to the customer, simple to use, integrated with other services, and manageable so that the product has real value for customer. Also, the customer should be able to change the attributes of the service in a simple way and pay according to the usefulness of the product. This characteristic of the service is called **usability** (i.e., it is useful, simple to manage and configure).

These characteristics are what is required for a service to attain a **desired maturity level,** whether it is an internal customer service or external customer service, and whether the **"customer" is a human, an organization, or a system**, for this article, all these will be identified in italics as the one entity, the ***customer*.** This is in accord with Lean (i.e., without "waste") Six Sigma methodology (LSS), and Value Stream process analysis. Service structure helps to identify the purpose or service identification of a process before it has been evaluated by LSS methodology.

Conclusion

In order to define what **service** is, and to be able to set up universal and appropriate service definition, it is necessary to set up **Maturity Levels** as major requirements for any service item or structure. They are

1. **Availability** – service presence at multiple service access locations or points (MSAP)
2. **Stability** – capability to be used continuously and repeatedly
3. **Serviceability** - capability to be delivered (push or pull), with the support and response time at MSAP expected by *customer*
4. **Accountability** – capability to be financially measured against profitability (revenue/cost)
5. **Usability** – capability to be used, modified, integrated with other services by one or multiple *customers* in a common and simple way

Definitions

To be able to describe what a service is, it is necessary to create standardized, generic definitions such as those used in this Article. In this text, the methodology will differentiate two major and general attributes of the service crucial for understanding the overall concept.

Service

Service is the optimal (cost effective) and logical combination of service elements (activity, transactions, inventory or material) that give added value to the *customer.*

Thus, it is possible to identify the major characteristics of a service, such as

a) Service always has a *customer.*

b) Service always must give value (or added value) to the *customer.*

c) Service is always configured with more than one item by default (i.e., any combination of multiple single activities or transactions with or without material, any combination of inventory elements or other combination of the above-mentioned).

d) Service usually has a variable cost, depending on particular *customer* requirements, location or complexity of attributes that creates the service.

This article differentiates Service from Activity. Activity is primarily simple labor. It might be an electronic or process transaction, and it does not need to give any added value. Service is always between a provider and a *customer*, such that the two entities MUST not be the same person, system, system component, or organization. Thus, Service consists of more activities or transactions that, in combination with assets and material, create a service.

Service Configuration Component (i.e., Configuration Item CI)

Service configuration component identifies a particular service element (e.g., person, system component, inventory element, organization unit, material, etc.) implemented and ready to be used in *customer* service creation.

Service attributes

Service configuration components consist of attributes that define how the service and each component have to be configured in order to meet *customer* requirements. In addition, it consists of attributes that define how to apply a service configuration and delivery process in order to meet *customer* expectation.

The two major and generic service attributes in any stage of the service delivery process are

1. **Enabling attribute (EA)** - capability to be configured and consumed
2. **Supporting attribute (SA)** – capability to be delivered, changed, supported, and billed

An enabling attribute identifies all tangible (i.e., network elements, servers, *customer* premises equipment) and intangible (i.e., software, licenses, data, human labor, electronic transactions) inventories that ensure the capability of a service to be configured and consumed by the user. Those inventories are **configured** in such manner as to create and/or configure a particular service required in product structure. For example, these services and associated service attributes in the telecommunications industry are called NGN (New Generation Networks).

Supporting attribute identifies all tangible and intangible inventories (i.e., servers, software, business applications, licenses, human labor, electronic transactions, and personal computers) that are required such that the service may be delivered to the *customer*, supported, and billed through product representation. Those assets are **configured and integrated** in such a manner as to ensure support for service delivery, service support, and performance tracking, as well as to ensure automated billing. For example, these services and associated service attributes in the telecommunication industry are called Operations Support Systems/Business Support Systems (OSS/BSS).

Customer

A customer is a single entity represented by a person, system, or organization that uses a service or combination of services in order to consume the service (end user) as such, combine the service with other services to create a new service or product, and use a service as such to make decisions or conclusions that are not included in the former or initial independent services.

Service Provider

A *service provider* is a single entity (e.g., person, system, or organization) that develops, provides, and supports one or more services to the *customer*.

Contract

A contract represents the complete specification that encompasses the definitions, descriptions, rules, and process transactions of how a *customer* will “order,” configure, and consume the

service. Therefore it must identify the customer, service provider, and service delivered from the service provider to the *customer*, service enabling attributes, and service supporting attributes.

Conclusion

A service has two major templates that are sufficient to describe a service and determine which configurable components it has, as well as how and with what quality it can be delivered to the *customer*.

The following illustrations depict two generic templates, a Service Definition Template (figure 1) and Service Delivery and Quality Template (figure 2).

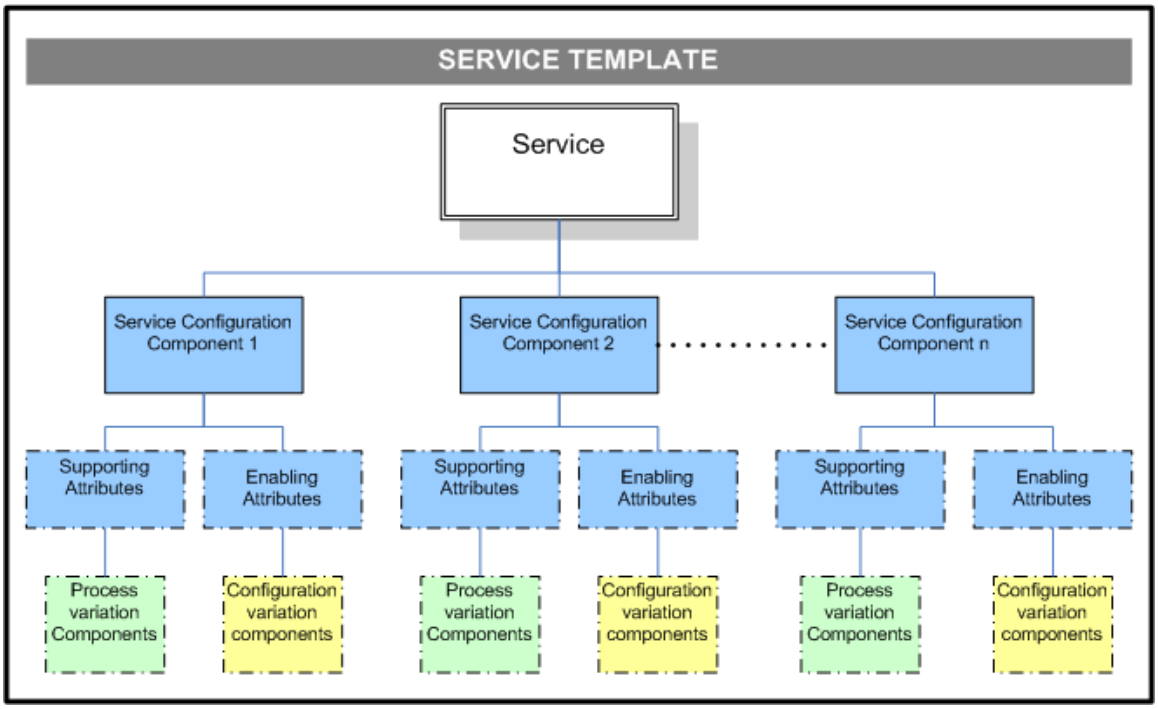

Figure 1: Service Definition Template

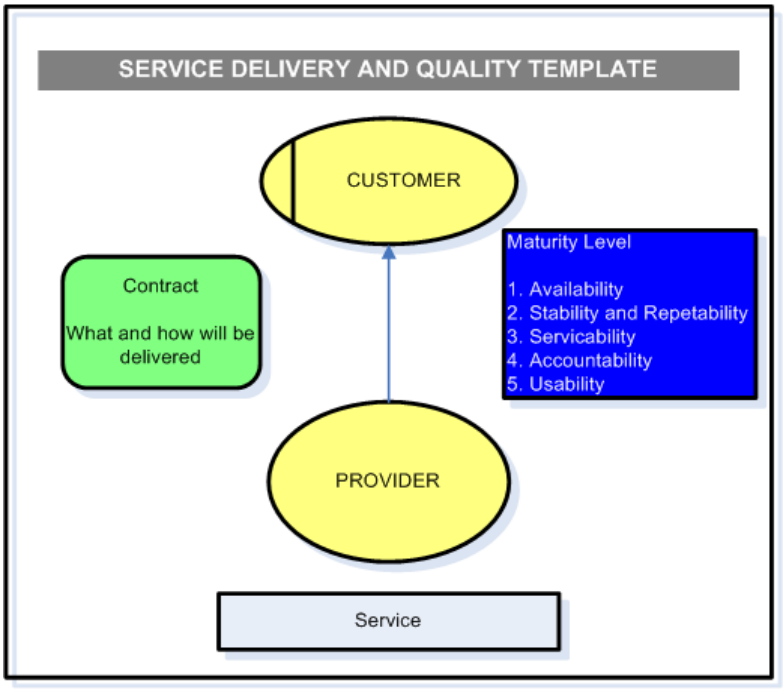

Figure 2 Service Delivery and Quality Template

Service Definition Template

Each particular service consists of service components configurable by specific *customer* requirements using enabling attributes. These requirements have been requested through a contract and configured by supporting attributes, as shown on figure 3.

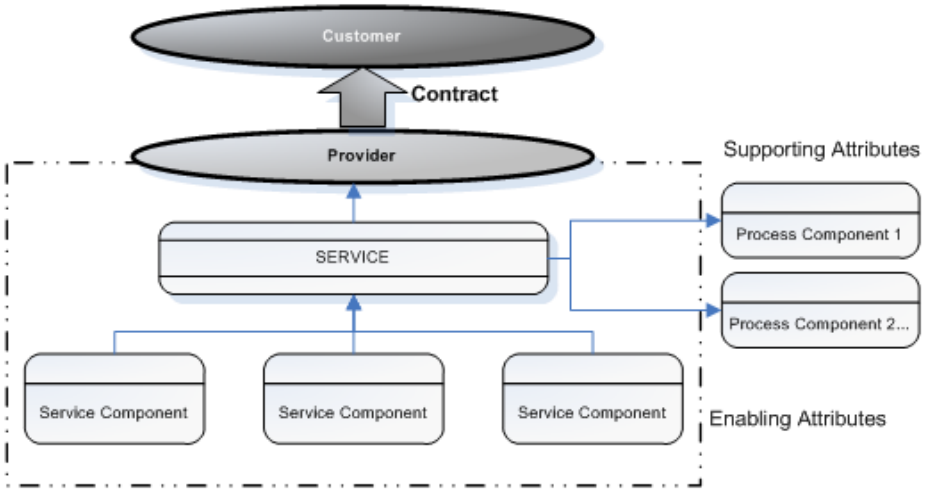

Figure 3. Structuring Enabling and Supporting Attributes

Each Service Component can be broken down into subcomponents until the last, most basic configurable element. This means that the number of service components or element levels is

limited by its capability to be configured. The number of levels of the most basic configurable elements is not limited technically, but it must be limited logically by its service position in the value chain. For example, this limitation differentiates a product from *customer* service, *customer* service from a resource service, etc…

In order to prove the universality of such an approach, the following two examples will be presented in different industries: telecommunication and furniture manufacturing.

Real-life telecommunication and furniture manufacturing industry examples are depicted in figures 4 and 5, respectively. These examples show that a service approach has the capability to be used for different industries.

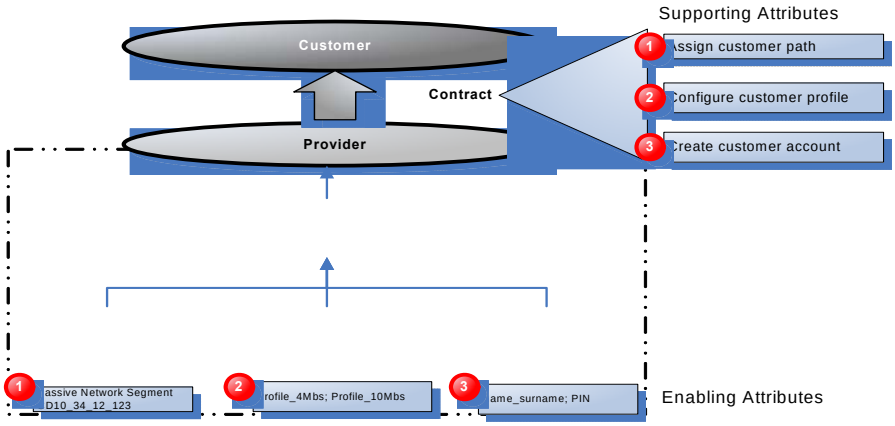

Figure 4. Example for telecommunication Industry – ADSL BB Access Service

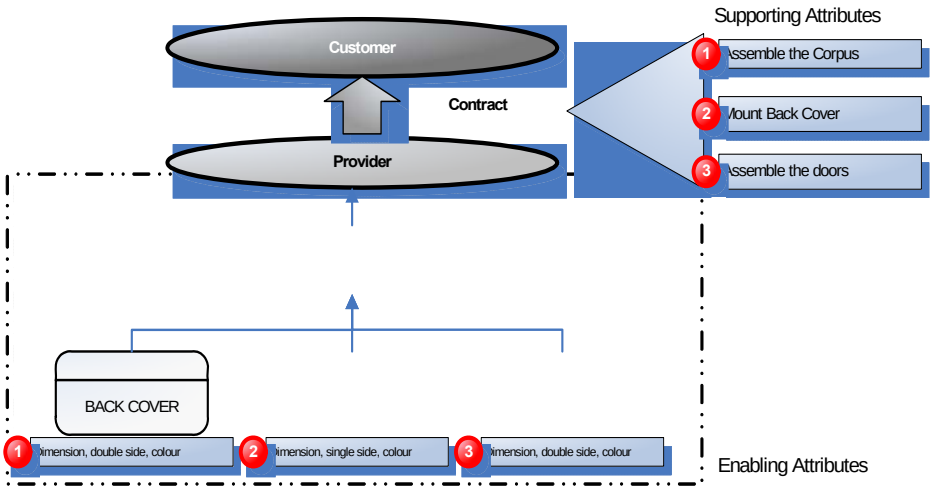

Figure 5. Example for furniture manufacturing industry

In the above diagram, one level of service decomposition is used. It most commonly represents "Customer Service Description." Further in the theoretic structure of service components, a service designer has to describe what resources are used to create a service component. To avoid an overly complex service structures with multiple levels, it is proposed that one create a new service called "Resource Service" provided to "Customer Service." This approach in service differentiation is called Service Catalog. Thus, the final *customer* service provider does not have to be involved in the resource details and structure of a service. Examples of this in the IT, telecommunications, and manufacturing industries are the SaaS approach (Software as a Service), deregulated wholesale model, and supply chain model, respectively.

Conclusion

The first step in service design is to identify a potential *customer* and potential resource *supplier*. Thus, there exists a clearly identified scope of service and appropriate number of most basic sublevels.

The next step is to identify the service components (Configuration Items) that create a service, with associated enabling attributes and descriptions for each particular level.

The last step is to identify the processes (supporting attributes) that are used or triggered in a logical order to provide each particular service to the customer.

Service Delivery and Quality Template

Once service is defined as described, it has to be tested against Maturity Levels and Quality requirements fulfillment. As a result, it would be possible to finalize a *Contract* that identifies the conditions under which that service may be delivered, and according to which quality conditions to the *customer*.

A Service Delivery Template should contain a number of tests (usually called "Use Cases" or scenarios) which assess a designed service for its capability to be delivered in different locations. The output of these tests is conditions (business rules) that have to be fulfilled in order to deliver a service to the *customer*.

Using maturity levels, these tests should answer to the following questions:

1. Availability – the locations at which the service may be delivered
2. Stability/Repeatability – the capability of a service provider to deliver the service repeatedly at the same or multiple locations
3. Serviceability – the time and resources engaged to deliver the service; the expected quantity of requirements for service in a particular period; service provider performance and utilization in peak periods; the support a customer may expect for a delivered service
4. Accountability –the cost/price per delivery, based on the delivered amount
5. Usability – the level of automation required, usage ergonomics and simplicity

These tests should identify what degree of effort, investments per location, and cost per *customer* service provider may be expected by delivering and supporting the service. These results could, for example, show that a particular service may not be profitable for each proposed location that a service may not be delivered within a set target time, within a peak period. Additionally, it could identify other undesired technical and/or business issues.

The data collected from testing against service delivery maturity levels are then considered in service quality testing.

A Service Quality Template is based on input from Service Delivery testing and identifies **what** a *customer* might expect at a particular location when he or she tries to use and configure a particular service. In business terms, this template is known as a "Service Level Agreement" (SLA).

A service quality template goal is designed to set real maturity values for each service at a specific location. It has to define certain quality parameters (i.e., values) for each location and business rules that have to be implemented into the customer delivery process for each particular service. This task oftentimes proves to be very demanding in practice, since it might reveal conflicts amongst various business interests within the same or multiple service provider companies.

However, a service quality template should answer the following questions based on maturity levels:

1. Availability – what is the percentage of availability at each particular location and in what period of time (% of availability)

2. Stability/Repeatability – the percentage of time that the service will be delivered within the agreed (i.e., guaranteed) time (% of accessibility)

3. Serviceability – the service delivery and support max utilization per location in order to keep the desired (i.e., guaranteed) stability (% of utilization)

4. Accountability – the number of customers per location to keep a profitable margin and NPV (Net Present Value) per month and/or year (cost per service delivery)

5. Usability – whether the service definition, ergonomics, and usability will ensure customer retention and new customer acquisition in order to keep service profitable (% churn, % of net adds)

These maturity level indicators, in combination, should prove that the designed service has the best possible parameters under which the designed service would ensure profitability from an investment perspective.

Summary

A universal service definition approach in the context of Service Catalog design should help engineers, process designers, and managers to properly design a service based on the specific business context within which they work, as well as to identify service performance and quality requirements which aid in designing processes that support this service.

It is clear that service design requires multiple competencies. In other words, various departments (e.g., technical, technology, finance, marketing, and process) within a service provider company must work together and cooperate not only to reach a business target, but also to reach the targeted service maturity level.

In this Article, various aspects of service have been defined in order to incorporate each particular service into a Service Catalog. There are different types of Service Catalogs which are dependent upon the perspective (i.e., capabilities, constraints, needs) of each service provider and

customer. The next step in service consideration would be the creation of Service Catalogs and service process integration into the value chain targeted towards the final user/consumer.

Creating a service, product, and resource or supplier/partner catalog is demanding task that requires full understanding what a service is. Today a great number of organizations ask for support, templates, approaches, or methodologies, or even out of the box tools in the context of the service catalog creation since they recognize that such standardization may lead to enormous cost reduction.

References

1. OGC (Office of Government Commerce): ITIL v3 (Information Technology Infrastructure Library) (2007)
2. ISO/IEC 20000 – Code of Practice for IT Service Management
3. ISO/IEC 27001 – ISO Specification for Information Security Management
4. ISACA IT Governance Institute: COBIT 4.1 (2008)
5. TMForum: Business Process Framework (eTOM – enhanced Telecom Operations Map) GB921 v8.2 documents (2009)
6. TMForum: SLA Management Handbook 917-2 (2004)
7. TMForum: Service Delivery Framework Reference Architecture v1.1 (2009)
8. Supply Chain Council (SCC) - Authors: Peter Bolstorff and Robert Rosenbaum; Supply Chain Excellence 2nd Edition (2009)

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Nino Sipina received the engineer diploma at 1988 at Faculty of Electrotechnical Engineering (today Faculty of Electrotechnics and Computing), University of Zagreb, Croatia. Since then he has been working in different industries such as IT industry (programmer), manufacturing industry (RIZ elements) manufacturing high accuracy capacitors (process improvement), subsea oil exploration industry improving and operating (operations engineer) subsea underwater equipments (Allseas Marine Services Ltd.), and today he has been working for Croatian biggest telecom operator Croatian Telecom Inc. as a manager for Quality Assurance and Operations Support. Today he is focused on service management and process improvement within Croatian Telecom but also actively participate in TMForum as a representative of Croatian Telecom implementing standards across the organization. He is also President of itSMF Croatia as a part of itSMF International (IT Service Management Forum). His work is focused particularly in implementation of Service Catalog and IT system support implementation based on SOA (Service Oriented Architecture) and Cloud computing. He practically implements the Supplier/Partner Service Catalog (2010) in Croatian Telecom for infrastructure services and thus integrates in B2B environment all the partners and suppliers into one “on-line” IS system using Service Bus approach and SOA. He owns Lean Six Sigma Green Belt certificate, ITIL certificate and participate in several conferences in Europe as process and eTOM expert.

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