

# A system supported method to design IT services

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## **Abstract**

IT infrastructure providers are forced more and more to evolve into IT service providers. As part of this evolution one of their goals is to provide a catalog containing all IT services customers can be offered. Therefore they have to know how to identify and describe a service, so that provider and customer have a common understanding about what kind of service will be delivered and how this is done. The Service Design Method was developed as an UML-based approach to support IT providers in the design and description of their IT services.

## **Keywords**

IT Service Management (ITSM), Service Design Method (SDM)

## **1. Introduction**

Service orientation is one of the major issues in the IT sector at present. IT service managers have been working intensively on this topic to achieve standards which ease the life of an IT service provider. But still the question ‘What is a service?’ cannot be answered definitely. Helping to find a common answer, the core contribution of this paper, is a method supporting IT service design in a systematic way according to requirements derived from a real-life IT service provider scenario. The Service Design Method (SDM) is the result of a research project which has been carried out in cooperation with a partner in the automotive area.

First the scenario of the service provider who the SDM was developed for will be outlined. Second related work influencing the approach presented in this paper will be described and finally an overview of the SDM is given and illustrated by an example from the real-life scenario.

## **2. Scenario and related work**

The work on the SDM was initiated by a IT department called ‘Central Information Technologies’ (CIT) who’s main task is to provide IT services (e.g. server hosting

services) especially to in-company customers. CIT's scenarios are very similar to the scenarios of many other IT service providers and will therefore be used as a case study in this paper.

The SDM was motivated by the fact, that there was no common understanding between CIT and its customers which and how services were offered by CIT and under what conditions. As a consequence, those services were not delivered according to any systematic process, making CIT's task providing quality-based services more and more complicated and inefficient.

The goal was to develop a systematic process, a method how to identify, define and describe CIT's services. This was salient because no design method capable of being applied to the IT services necessary for CIT's scenario was found in the literature. The SDM defines the overall concept which enables CIT to establish a service catalog. The services in the catalog had therefore to fulfill two requirements:

- They had to fit the needs of the process partners.
- They must be based on and combined from those services provided by the CIT's departments.

In [1] a framework for IT, service management is described, including a flexible service model that can be applied to dynamic IT environments, where services, service parameters and roles related to the services change quickly. Other research work has been done on service models, e.g. based on the Common Information Model (CIM) [2]. These investigations have affected this work.

### 3. Service Design Method

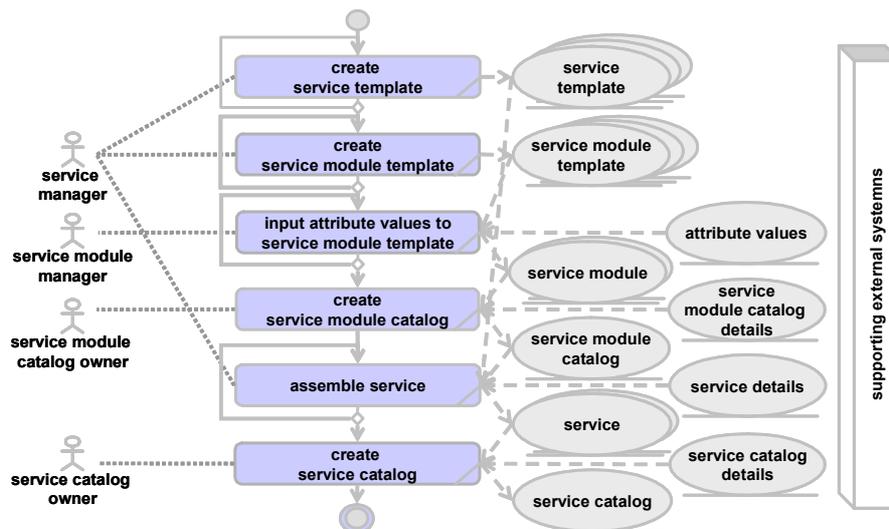
The suitability of the SDM depends upon the fulfillment of the following requirements:

- (1) The design steps and terms used by the method have to be defined clearly and communicated inside CIT and to the customers.
- (2) It must be obvious which roles are assigned to which design step.
- (3) The SDM should be supported efficiently by tools.

Requirement (1) led to the development of a glossary, which was discussed intensively with CIT. The most relevant terms the SDM is based on are in short:

- **Service:** a service is an insubstantial, non-superposable product providing functionality with a certain quality.
- **Service module:** the functionality and quality of an IT service is based on the functionality and quality of usually more than one technical and / or human resource. Those more basic services are called service modules and are for internal use only.
- **Service (module) template:** usually a service provider has more than one service to offer. To raise usability, services and service modules should be comparable and therefore described in a consistent manner by using templates.

- **Service catalog:** the service catalog contains descriptions of all services the service provider offers to its customers.
- **Service manager:** the service manager is the name for the role which takes care of one or more services.
- **Service (module) catalog owner:** the service (module) catalog owner is in charge of the service (module) catalog.



**Figure 1: Service Design Method described by an UML Activity Diagram**

The left-hand side of Figure 1 shows the different roles of the SDM, based on the fact that it is necessary to differentiate between two aspects: services and service modules (requirement (1)) and managers and owners (2).

The right-hand side of Figure 1 covers requirement (3) by introducing the artifacts and the tools to adequately support the SDM. The SDM consists of the following design steps:

1. The SDM is initiated by the service manager creating a service template. The service manager's main focus is to provide all necessary attributes, which will hold all the information the customers needs to identify the service they are looking for. As shown in Figure 1, the service manager can continue by working on another service template or move on to step 2, the creation of service module templates. The iteration between the service and the service module level is a major characteristic in the starting phase of the SDM.
2. Next the service manager develops templates for service modules. As mentioned, a service is based on service modules, so the service module template has to provide at least the same attributes as used in the service description. Additionally some internal attributes can be added, because service modules are for internal use and therefore will not be accessible to the customer.

3. The service module manager fills the templates with information about its service modules and hands them over to the service module catalog owner.
4. The service module catalog owner collects the service modules and arranges them in the service module catalog. He adds information about the service module catalog as for example the name of the catalog, its version number etc.
5. The service manager accesses the finished service module catalog and builds services based on the service modules handed in from all departments. He has to meet the customer's demands using available service modules.
6. As the final activity the services are arranged by the service catalog owner in the service catalog, which will be presented to the customers. The service catalog owner – according to the service module catalog manager – adds some information like the name of the service catalog, the duration of validity of the catalog and some more.

Finally a service catalog containing all services provided by CIT (accurately and identically described) is available.

#### **4. Future Work**

As one contribution to ITSM, the SDM provides a procedure how to develop an common description of all services provided by an IT service provider, which is understood by the service provider and his customers as well. Furthermore these descriptions are the basis for service level agreements to be contracted between an IT service provider and a customer.

Taking one step forward it should be analyzed, which software systems can be used to support the SDM or if new ones have to be developed. Taking a further step the question arises, how a conceptual framework for orchestrating users and systems according to ITSM's processes including the SDM ,must look. Service Oriented Architectures (SOA) as the latest innovation of software architecture focus on a loosely coupled integration. Although SOA is not limited to Web Services they seem to be a natural fit for establishing SOA. Web Services allow system integration based on open, standardized internet technologies, SOA provides an environment for process driven integration which might be a reasonable way to follow. However, it remains an open issue, whether a Service Oriented Architecture is capable of meeting the integration challenge in ITSM or not. Therefore, current research activities have to be intensified investigating its feasibility and effectiveness.

#### **5. References**

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