SOA-based Integration of
IT Service Management Applications

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Abstract

IT service providers use management applications to support their business processes. The need for specific IT management functionality and information generates a multitude and diversity of management applications that can be recognized in an IT provider's scenario. To run IT and to provide IT services effectively and efficiently, management applications have to be integrated along operational processes. Figure 1 introduces an approach to integrate management applications by leveraging a Service-oriented Architecture (SOA). Therefore, a sufficient understanding of IT service management (ITSM) processes is essential. The SOA presented specifies how to integrate management applications in a process-oriented manner.

Analyzing ITSM Business Processes

IT service providers define their business processes according to standards like IT Infrastructure Library (ITIL). Business processes of a provider are for example configuration management, change management, problem management, service level management etc.
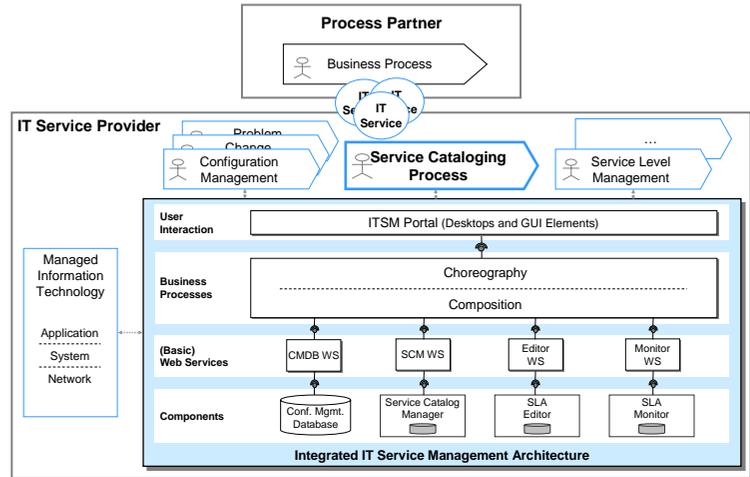

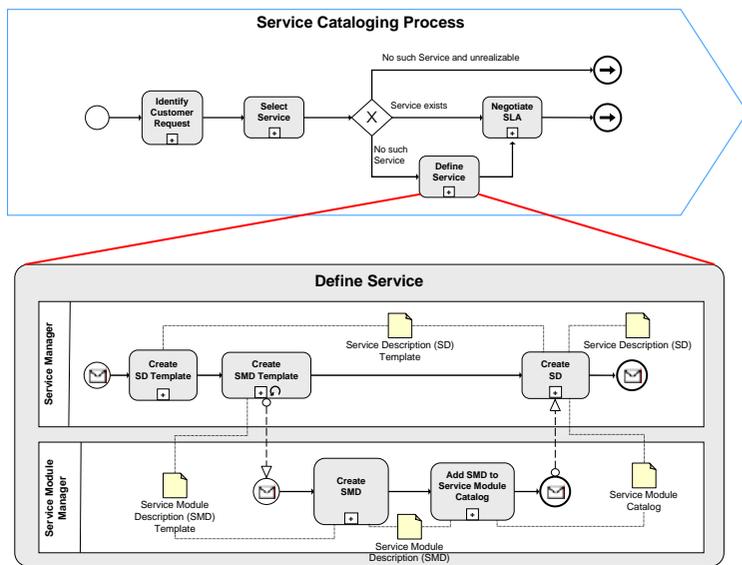Figure 1: Scenario and Objectives of Integrated IT Service Management

As a first step we focus on ITSM business processes to be supported. Their objectives can be seen in provision and management of IT services which support the processes of business partners. Therefore, a provider manages network, system and application technologies.

In a second step, stakeholders and their roles should be considered. The term stakeholder subsumes persons participating in IT service management, namely IT provider's staff members, suppliers and business partners. IT providers have to satisfy partners' demands by offering appropriate IT services on different service levels.

In a third step, ITSM business processes have to be analyzed and detailed precisely (see Figure 2). This includes business processes such as processing service information requests, negotiating and concluding SLAs, delivering services as well as reporting of SLA status. Processes have to be detailed until they can be mapped onto management applications.

Towards an Integrated Architecture

Supporting ITSM business processes, two example management applications are taken into consideration. The Configuration Management Database (CMDB) provides information about managed configuration items. The Service Catalog Manager (SCM) supports administrating and cataloging service (module) descriptions.

Figure 2: ITSM Business Processes

The functionality of CMDB and SCM is wrapped by Web services. Relying on these basic Web services, composite Web services can be implemented. Therefore the proposed integrated ITSM architecture contains different building blocks (see Figure 3). In order to enable for example the SCM to participate in SOA-based integration, adapters have to be added. Enabling clients to interact with the SCM Web service, creating a corresponding WSDL interface description completes the adapter construction. Involved management applications have to be wired along business processes. To perform the technical wiring, the activity sequence as taken from the process modeling has to be mapped to a business process description and execution language. Therefore, the Business Process Execution Language (BPEL) is used to achieve process-oriented integration.

Further Work

This approach has been applied in BEA WebLogic. When implementing the SOA, sophisticated user interaction with process instances is difficult to handle. We are investigating in methods how to map user interaction and collaborative processes based on Web services.
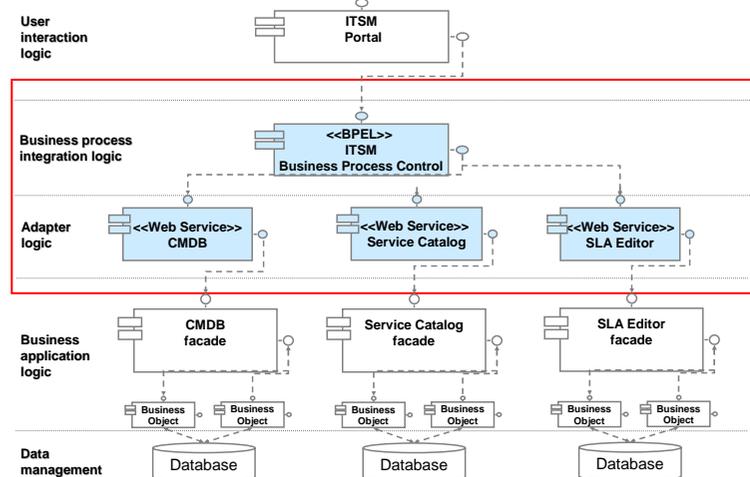

Figure 3: Integrated Architecture for IT Service Management