

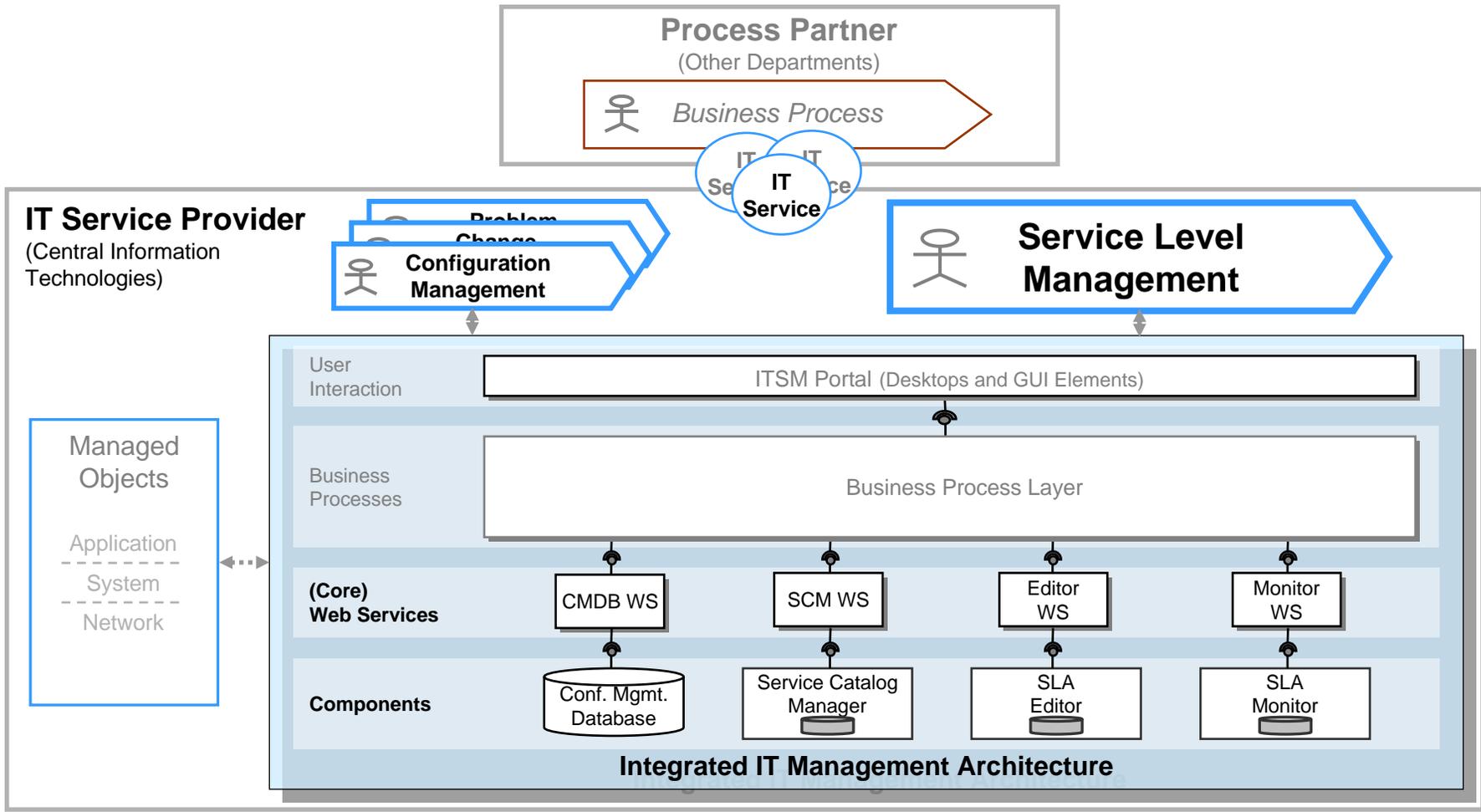
Process-Oriented Integration of Applications for a Service-Oriented IT Management

Integrated IT Management Architecture

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Overview

- Introduction
- Related Work
- Requirement Analysis
- Integrated Architecture
- Prototypical Implementation
- Conclusion and Outlook



- Understanding processes for service-oriented IT management
- Defining relationships between traditional management and service-oriented management
- Extending traditional management architectures to support service-oriented management

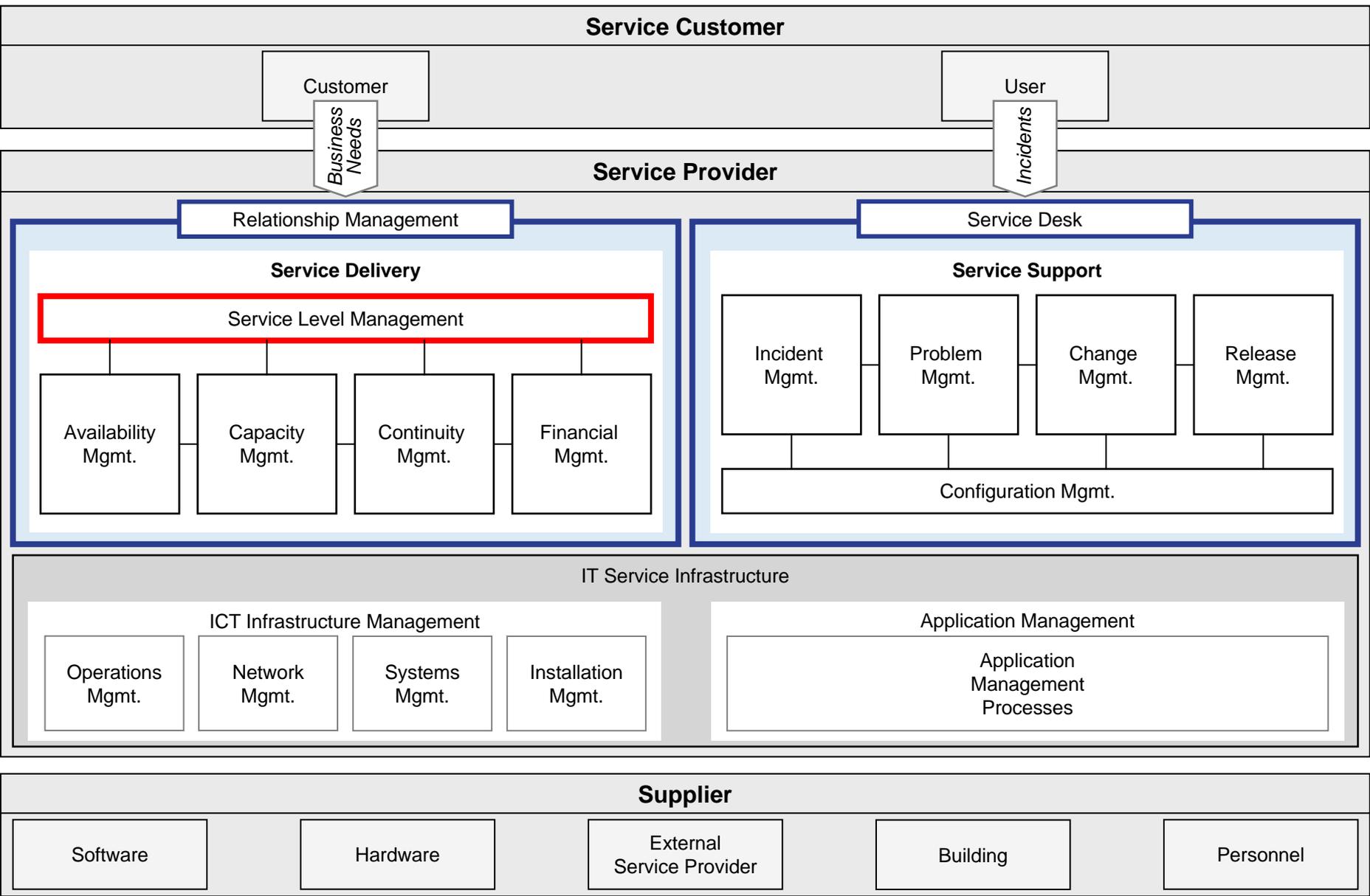
RELATED WORK – Development and Standardization Achievements

- IT Service Management
 - Best-practice processes for service-oriented IT management
 - Office of Government Commerce (OGC):
IT Infrastructure Library (ITIL) as de facto standard
 - Rather organizational level, not sufficient to develop management applications

- Management Architectures
 - Models to formalize IT services (function, quality, resource, view, lifecycle etc.)
 - Internet Engineering Task Force (IETF):
Structure of Management Information (SMI)
 - Web-Based Enterprise Management (WBEM) initiative:
Common Information Model (CIM)
 - More technology-oriented, not sufficient to model IT services

- Technologies
 - Technologies to automate the SLA negotiation
 - World Wide Web Consortium (W3C):
Web service technologies (SOAP – used to transfer data, WSDL – used to describe available Web services, UDDI – used for listing what Web services are available)
 - IBM Research Division:
Web Service Level Agreement (WSLA) Framework
 - SLA specification language associated with Web services

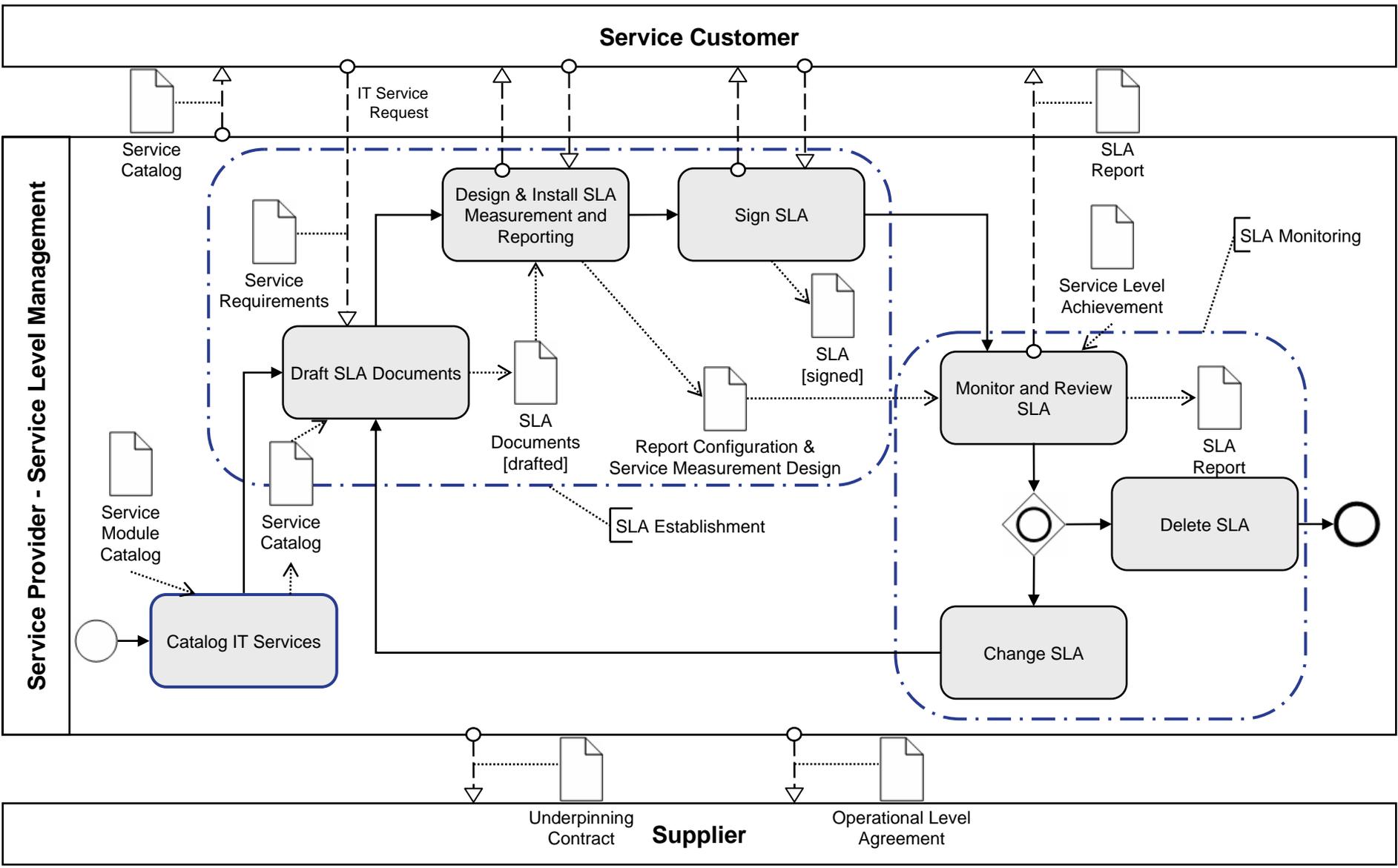
RELATED WORK – Structuring IT Operation Processes According to ITIL

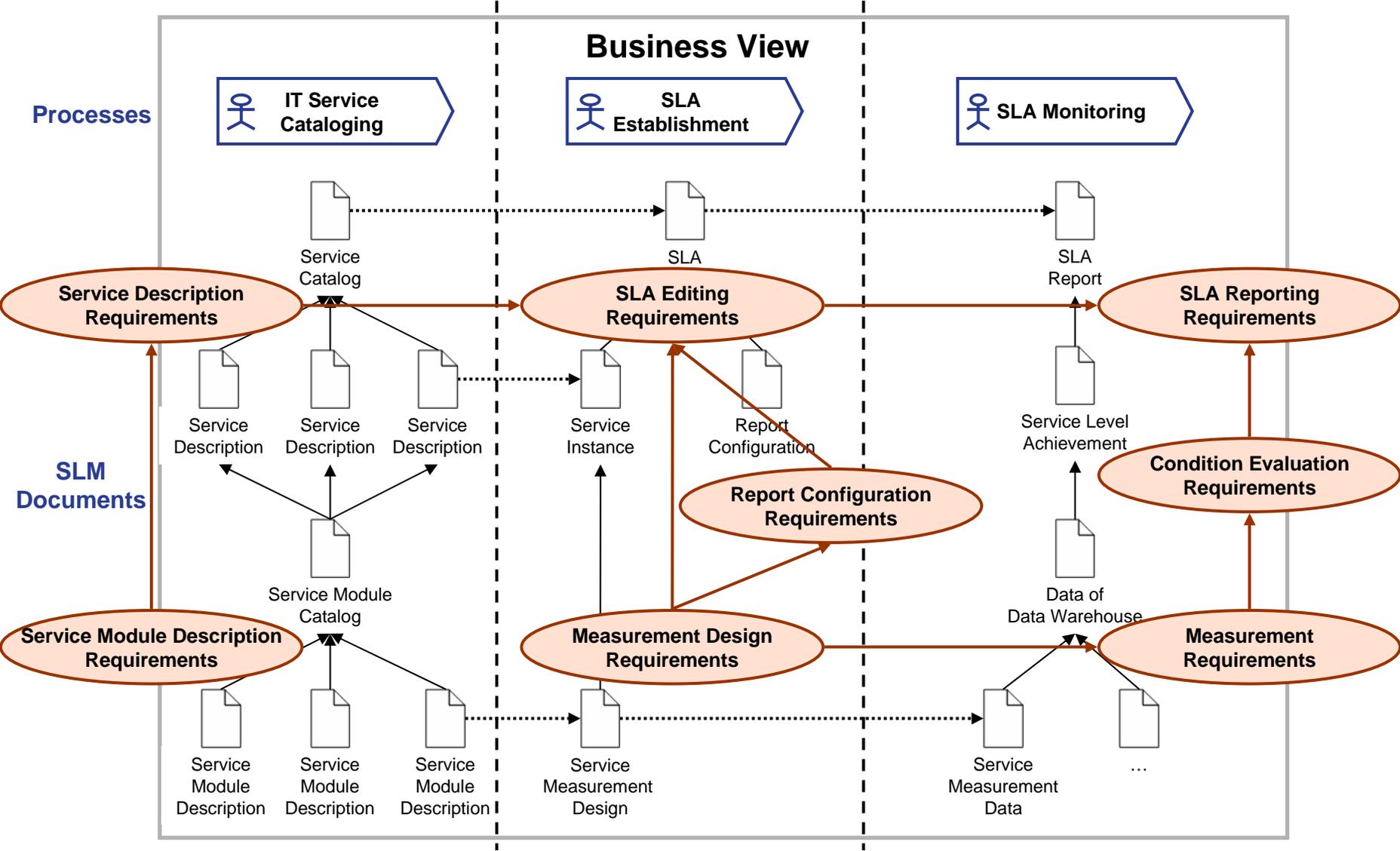




- Starting point – focused business domain and IT landscape
- Business View – process-oriented domain analysis
 - Functional areas
 - Roles and responsibilities
 - Activity sequences
 - Information and document flows
- System View – business-driven service definition
 - (Application-based) service identification
 - (Application-based) service specification
- Objective – directory with services which can be used

SERVICE (LEVEL) MANAGEMENT PROCESSES - Modeled with Business Process Modeling Notation (BPMN)

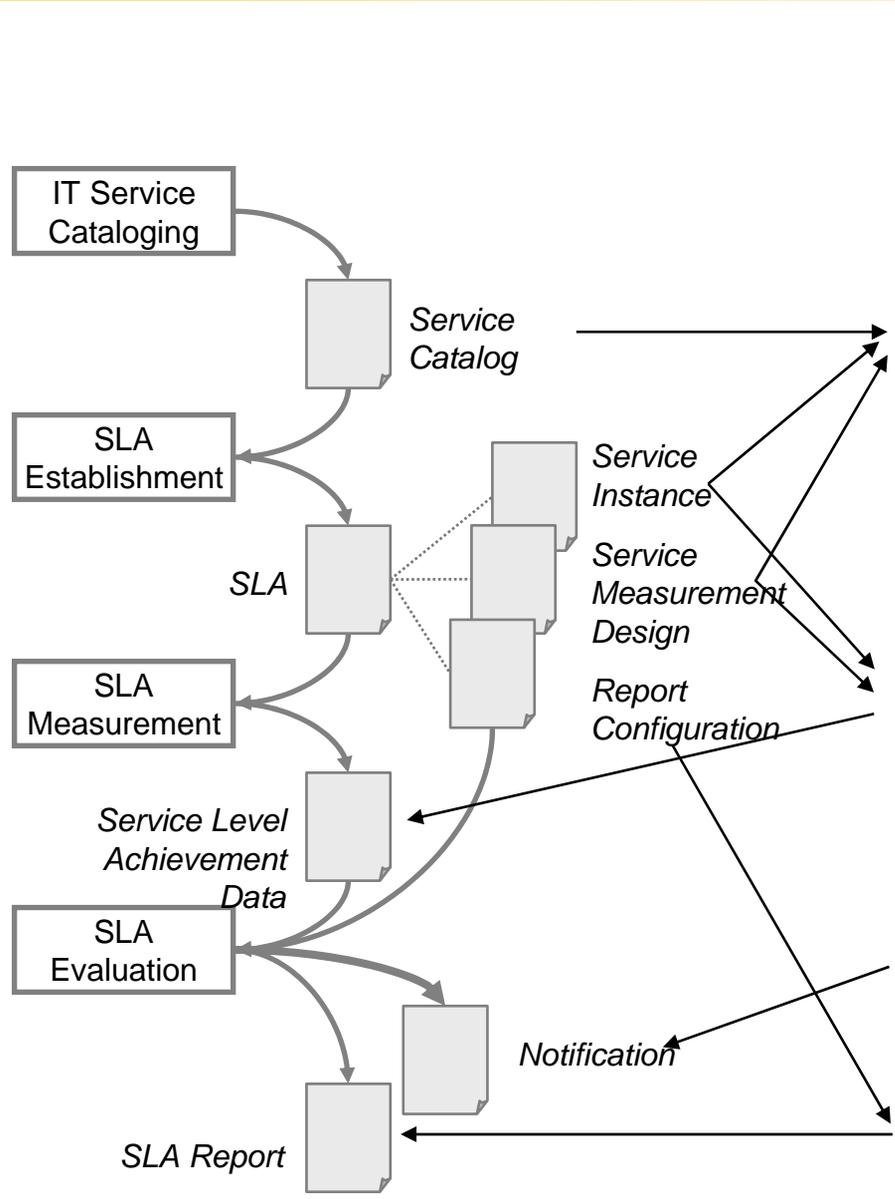






- Functional requirements
 - Service (module) description
 - SLA editing, measurement design, report configuration
 - SLA reporting, condition evaluation, measurement

- Architectural requirements
 - Integration of existing applications supporting traditional IT management
 - Customization to align management applications with service management processes
 - Integration and composing management functionality along processes
 - Highly flexible and adaptable to fulfill future needs on processes
 - Workflow mechanisms to support the cooperation between various roles of a service provider



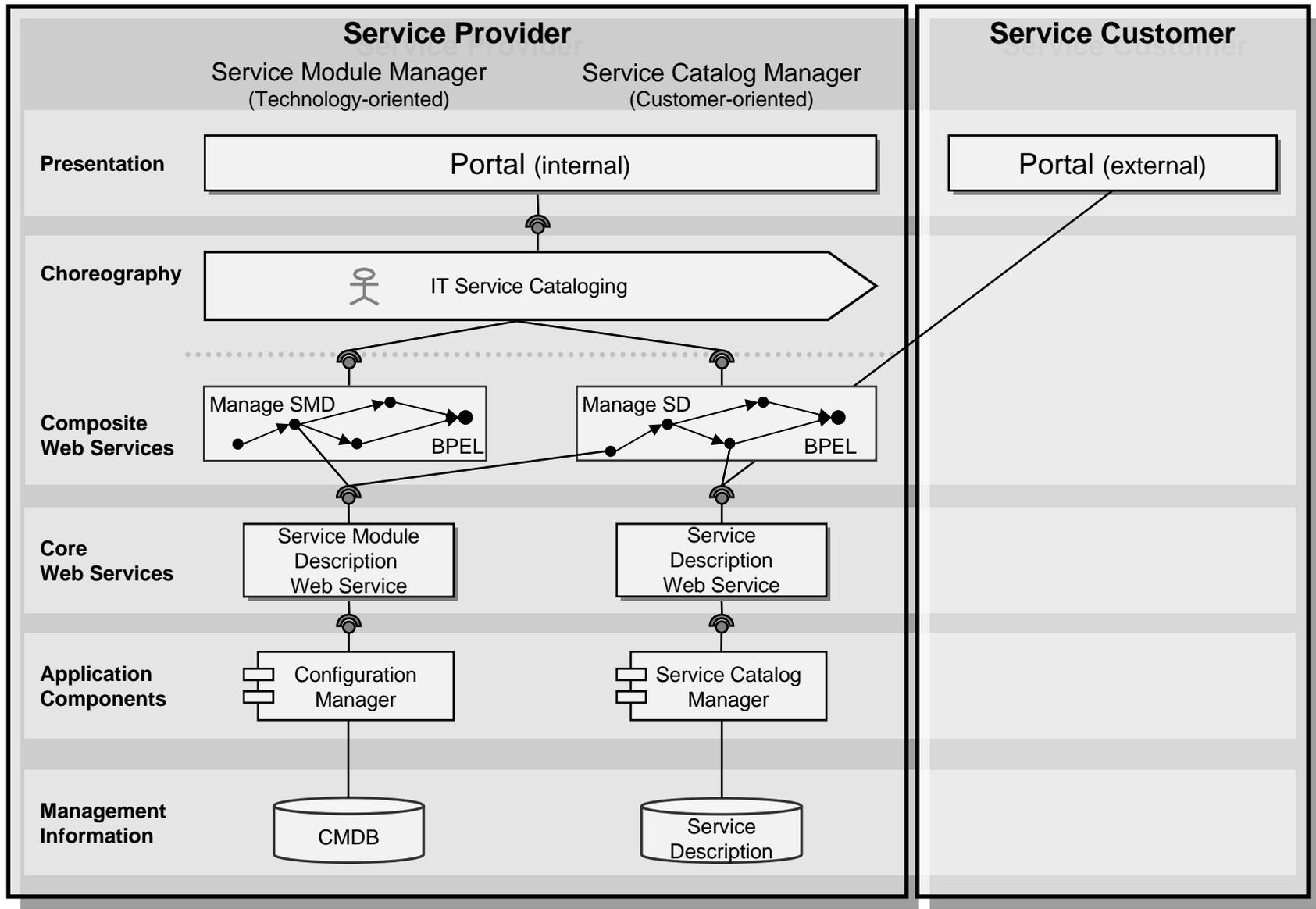
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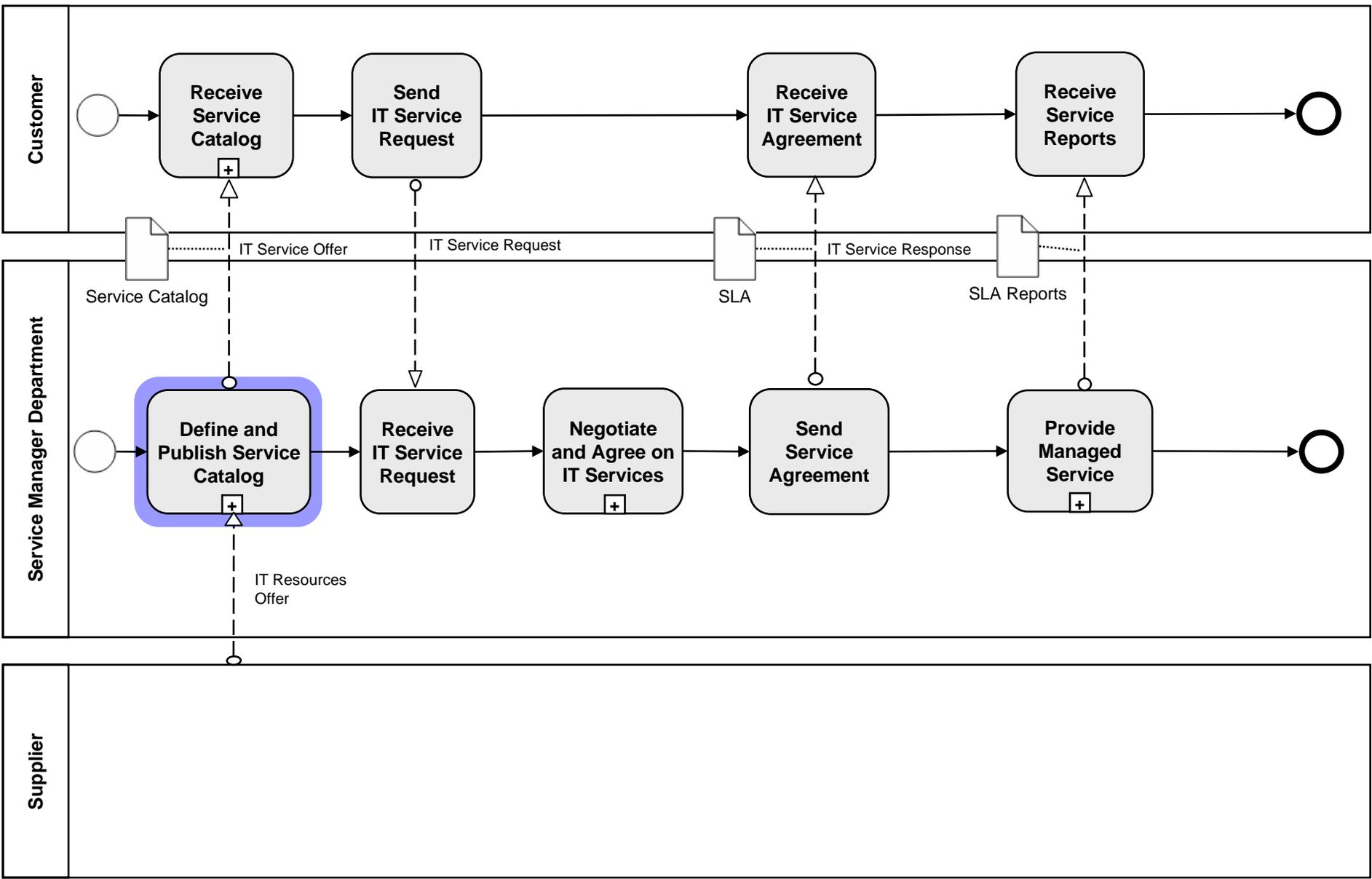
  <ReportConfiguration>
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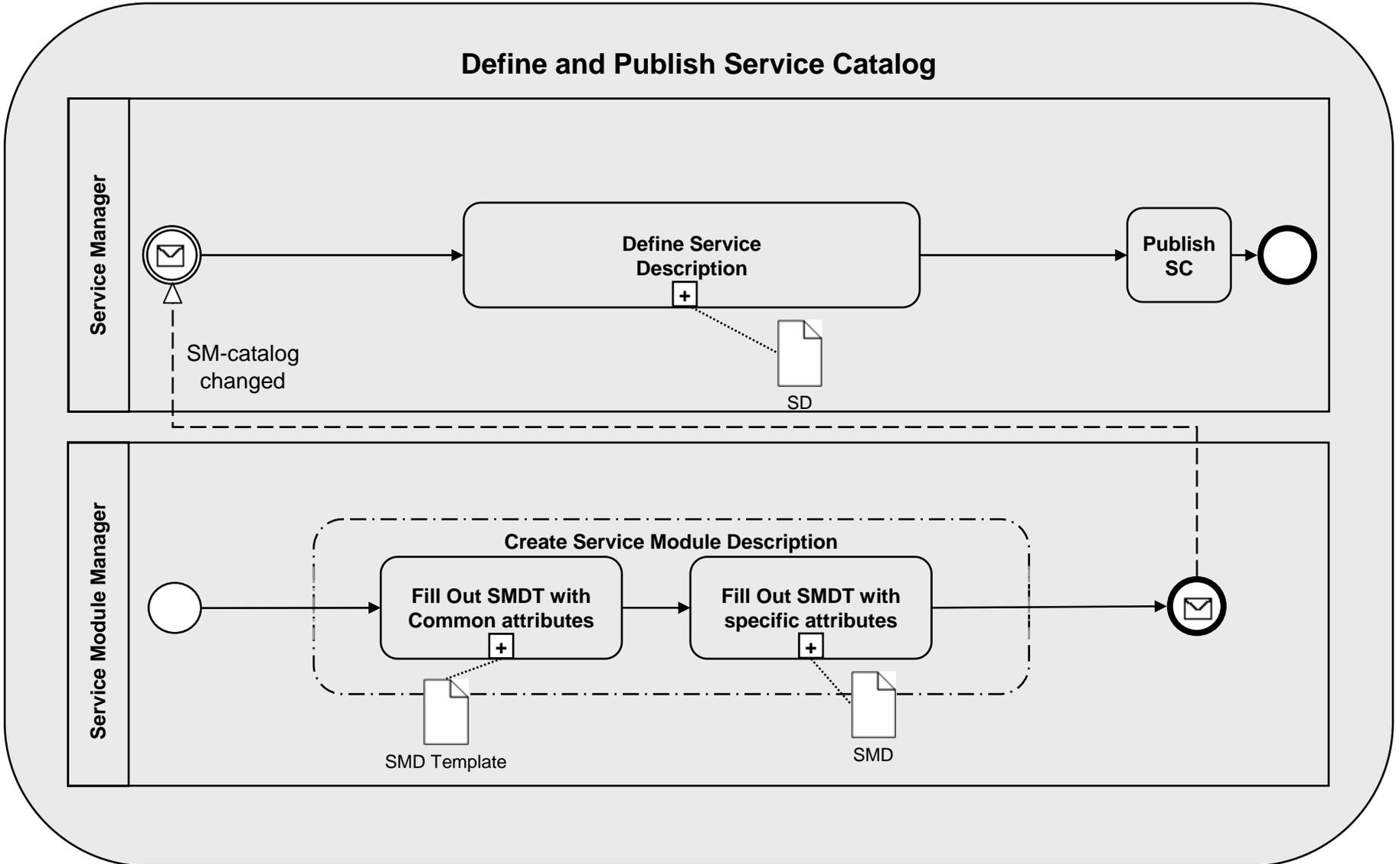


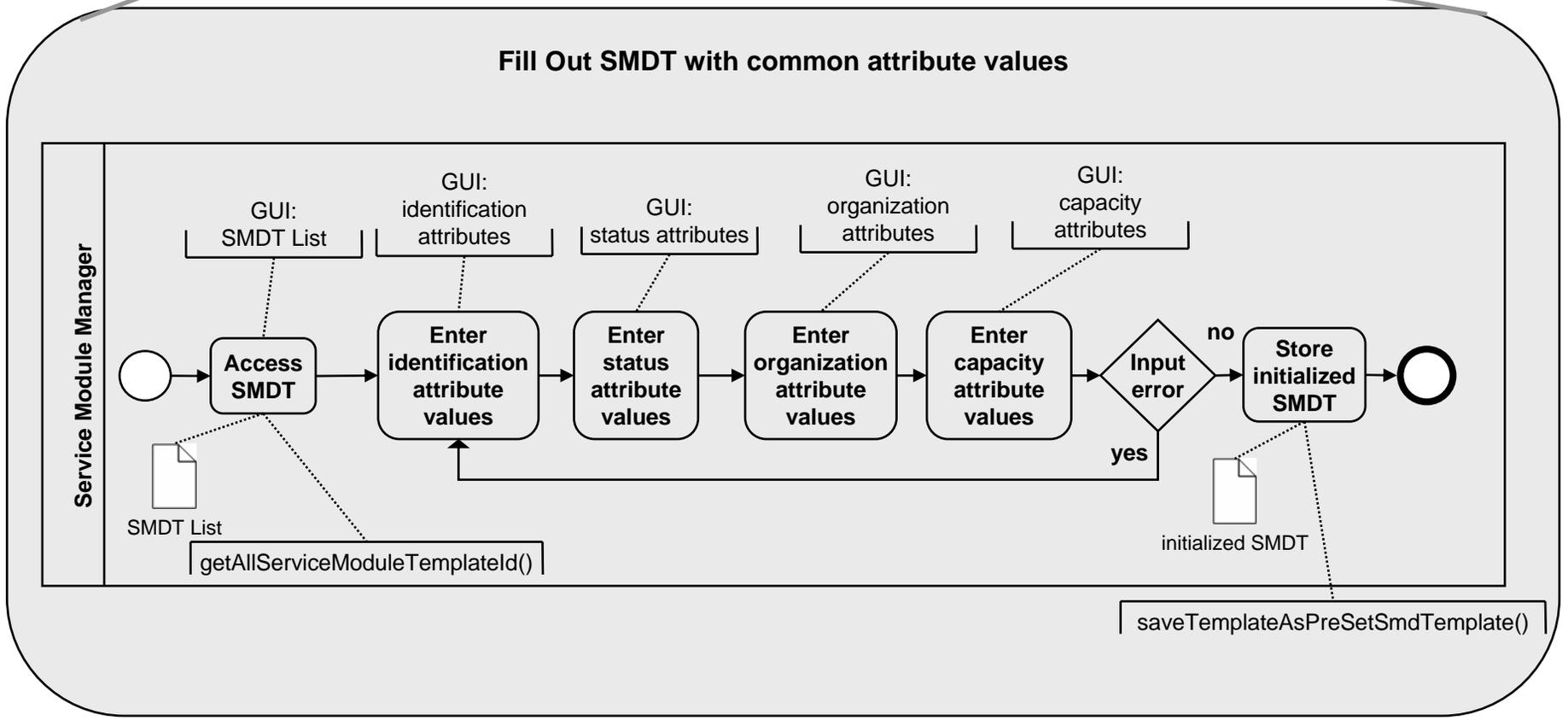
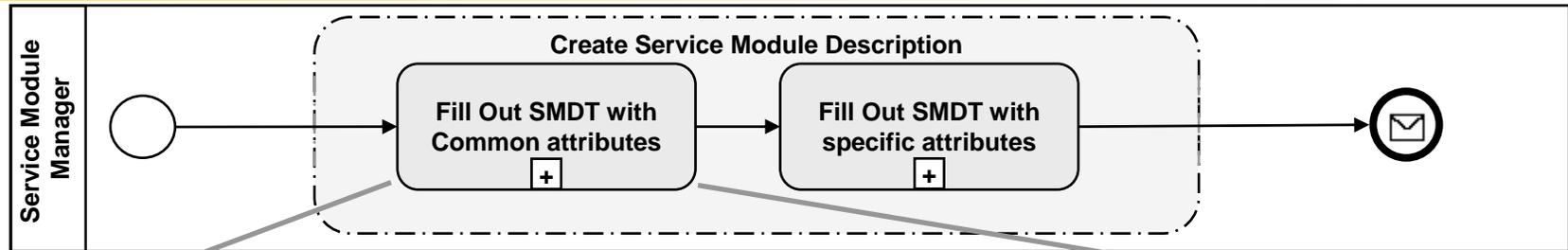
- Implementation strategy
 - Extension of existing (Java-based) management applications
 - Description of Web service interfaces with Web Service Description Language (WSDL)
 - Process-oriented integration of Web services using Business Process Execution Language (BPEL)

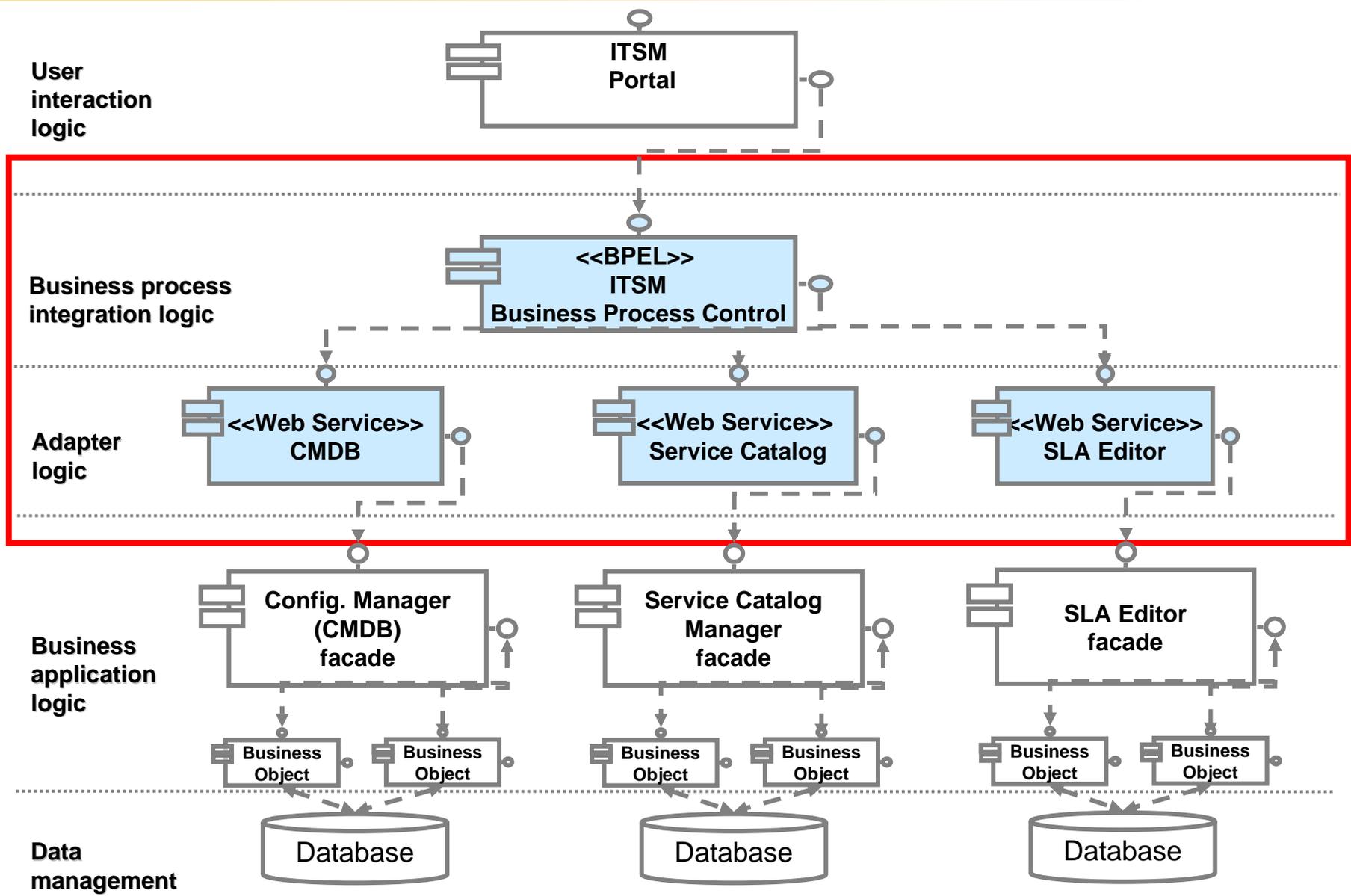
- BEA WebLogic
 - Graphical design of integration process
 - Behind graphical design Process Definition for Java (PD4J) generated (precursor of BPEL and Java-enhanced BPEL/J)



PROTOTYPICAL IMPLEMENTATION – BPMN Process “Define and Publish Service Catalog”





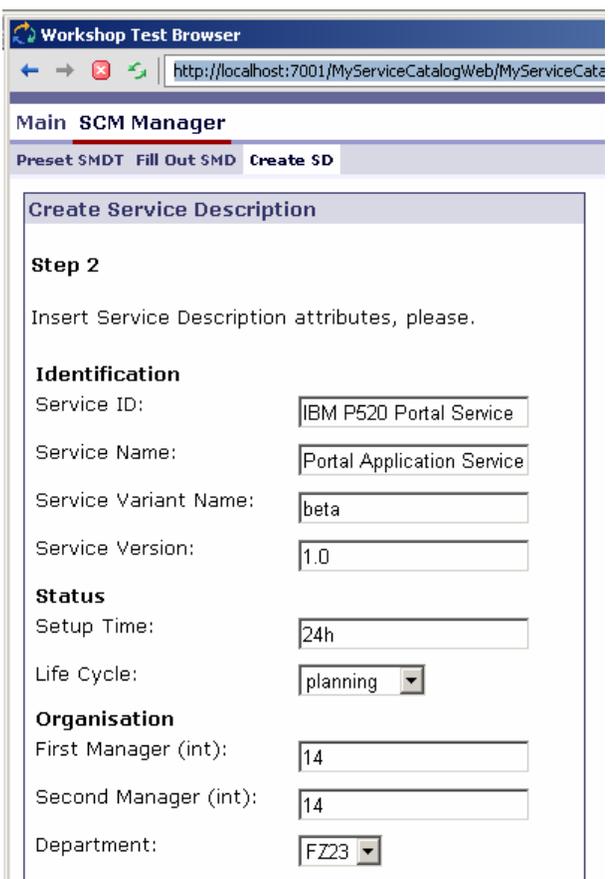
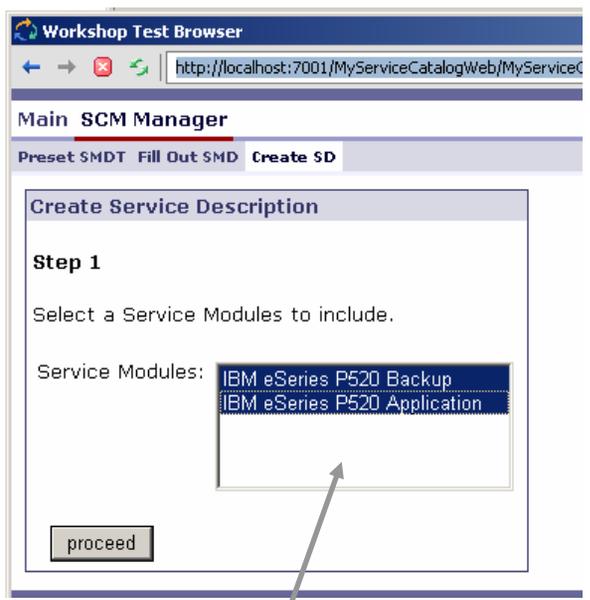




The image displays four overlapping screenshots of a web-based configuration manager interface, illustrating the steps for creating a Service Module Description Template (SMDT).

- Step 1:** "Enter the Service Module Description". A "proceed" button is visible.
- Step 2:** "Enter the Service Module Description". A dropdown menu for "Autonomy" is set to "yes". "back" and "proceed" buttons are visible.
- Step 3:** "Fill out the organisation attributes. Insert integer (Table ID) value". Fields for "First Manager (int): 14", "Second Manager (int): 14", and "Department: FZ" are shown. "back" and "proceed" buttons are visible.
- Step 4:** "Fill out the capacity attributes, please". Fields for "Capacity Brief Description: Der IBM eServer p5 510 E", "Capacity Description: Der IBM eServer p5 510 Express ist ein", "Capacity Unit: Power5 1.5Ghz, 2048MB", and "Supply Result: Installation, Configuration" are shown. "back" and "save SMDT" buttons are visible.

- GUI elements to support the Service Module Description
- Describing service-relevant resource properties to enable the definition of services



Access to Configuration Manager via Web service

- GUI elements to support the Service Description
- Definition of services based on service modules respective resources



- Conclusion
 - Paradigm shift from traditional IT management to service-oriented IT management
 - Models of service-oriented IT management processes as prerequisite to develop management applications
 - SOA-based integration of traditional management applications with additional service management applications
 - Business-alignment of management applications through loosely coupling applications according to management processes
- Outlook
 - Formalization of management information, especially the specification of quality of service information
 - Derivation of (quality of) service requirements on invoked IT services from business processes