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11th IFIP Working Conference on VIRTUAL ENTERPRISES

Inter-Organizational Information System Architecture: A Service-Oriented Approach

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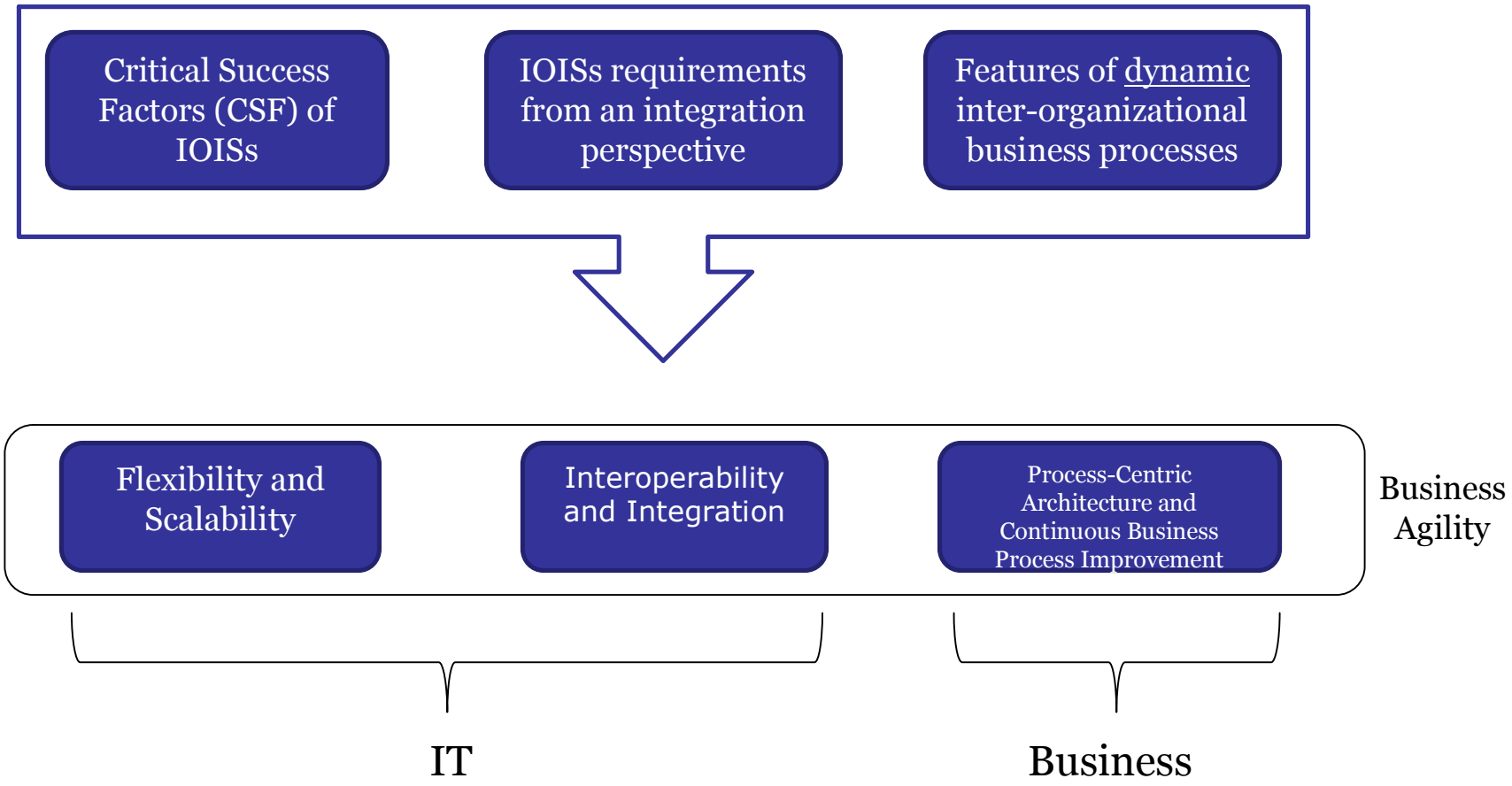
Saint-Etienne, France, 11-13 October 2010

Presentation TOC

- Requirements of IOISs
- SOA and Compatibility of its Features with IOISs Requirements
- Service Oriented-Based Architecture for IOISs

Requirements of IOISs



Presentation TOC

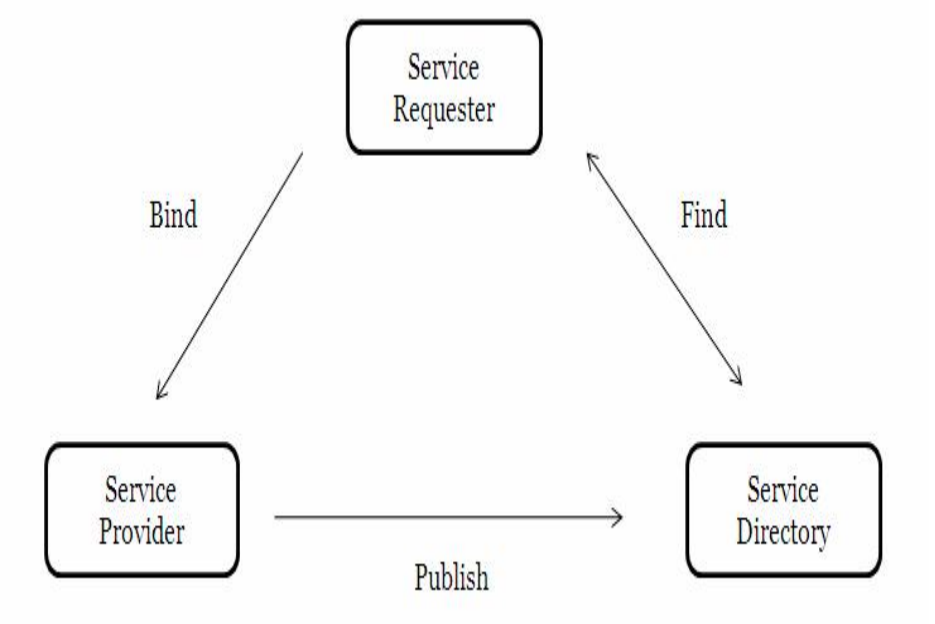
Requirements of IOISs

SOA and Compatibility of its Features with IOISs Requirements

Service Oriented-Based Architecture for IOISs

SOA in a Nutshell

- The business and technical processes are implemented as services
- Each service represents a certain functionality that maps explicitly to a step in a business process
- A service is a software component that can be reused by another software component or accessed via a standard-based interface over the network



Compatibility of SOA Features with IOISs Requirements

Flexibility and Scalability	• Enhanced reuse of existing assets and applications • Reusability and composability between services • Parallel and independent development • Better scalability and graceful evolutionary changes
Interoperability and Integration	• Application connectivity and interoperability • Flexible and cost-effective solutions through interoperability • Application integration issues by opening up the functionality with standardized, interoperable interfaces
Process-centric Architecture and Continuous Business Process Improvement	•Clear representation of the process flows identified by the order of the components used in a particular business service •The process is decomposed into a series of steps, each representing a business service •Each service or component functions as a sub-application •These sub-applications are chained together to create a process flow capable of satisfying the business need

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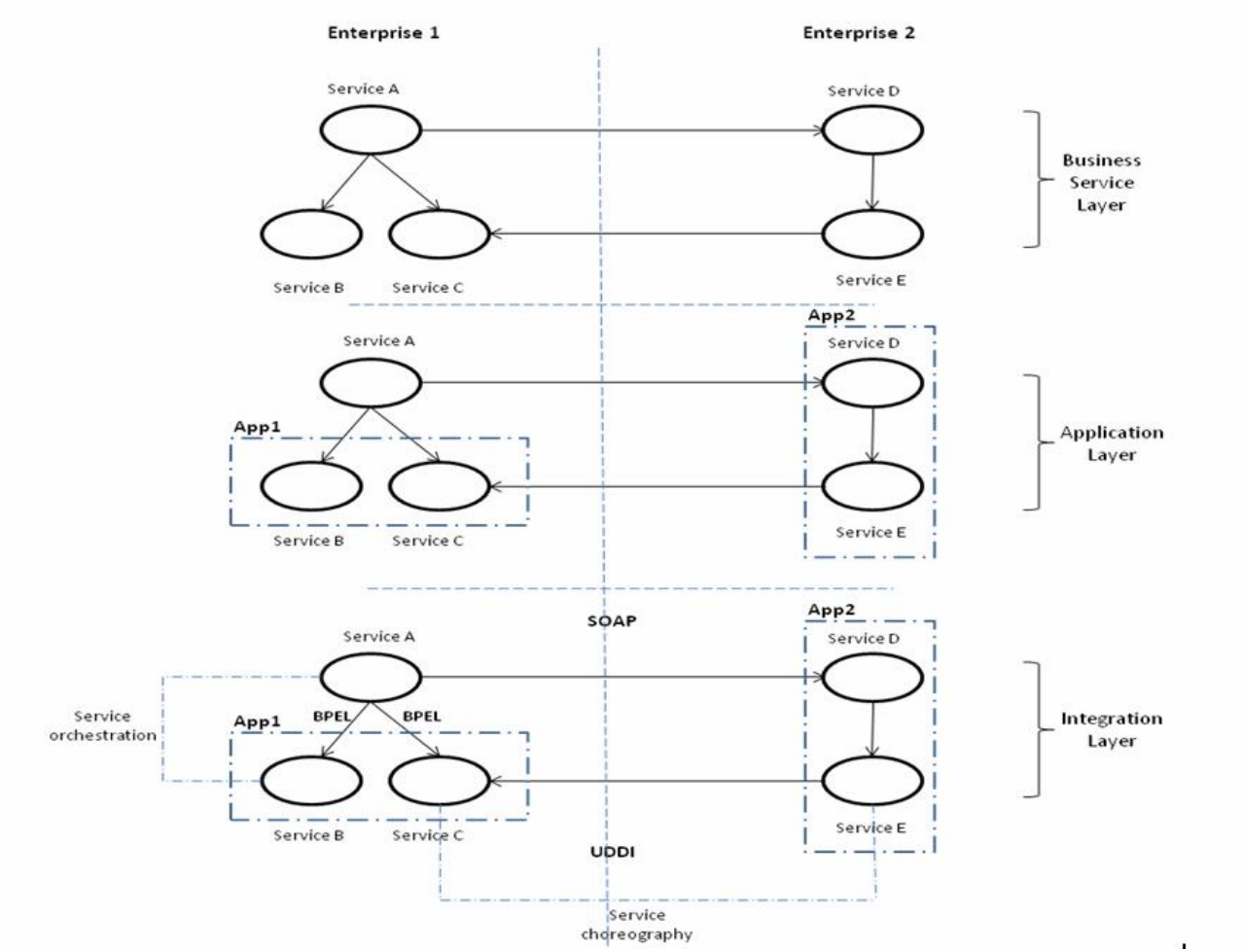
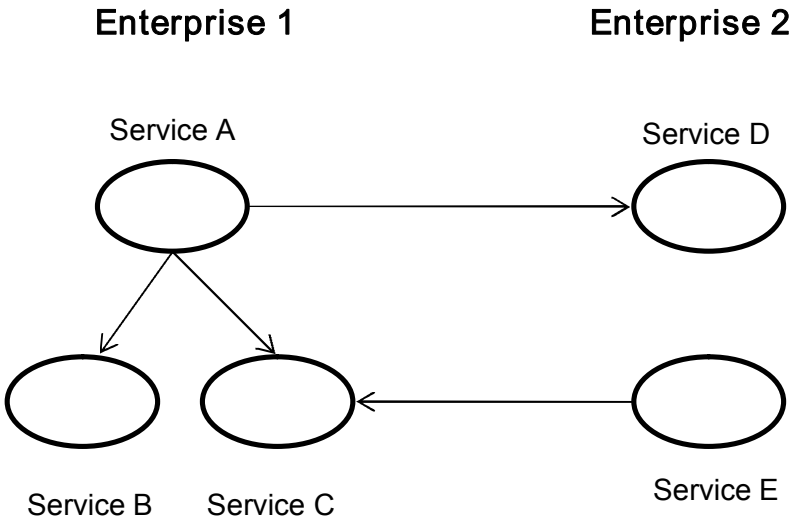
Service Oriented-Based Architecture for IOISs

Proposed Architecture at a glance



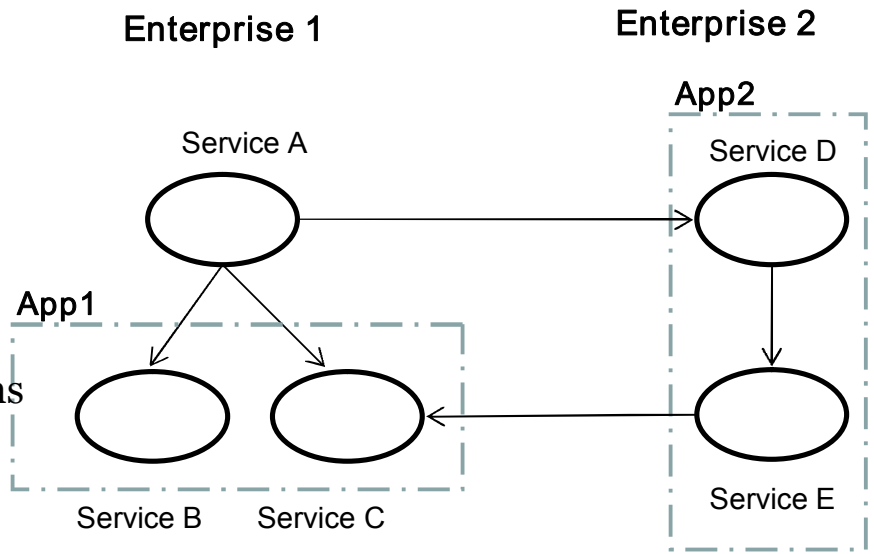
Business Service Layer

- The business architecture is the vital part and the first architectural layer of an IOIS
- Decompose business processes in order to determine business services: functionality is encapsulated as a service
- Business process: a series of continuous actions or operations that are performed upon a commodity
  - *Organizational level*
  - *Interaction*
  - *Value chain*
- Identify the functionality of each business process, so-called aspect: functional, control, organizational, operational
- BPEL4WS: supports "business process decomposition"

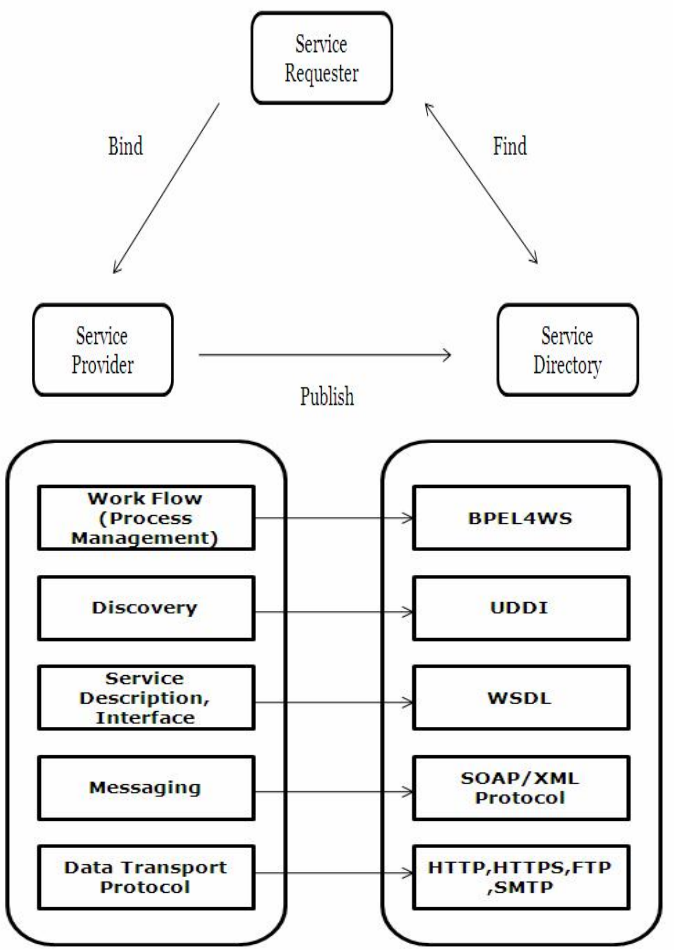


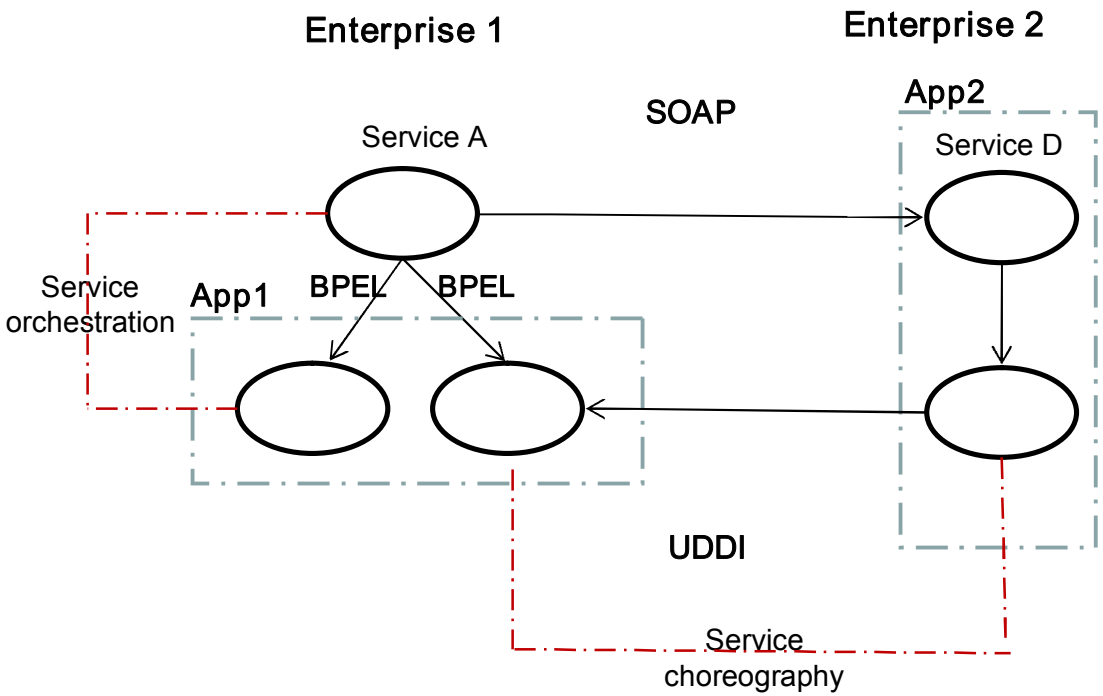
Application Layer

- Composite approach for defining applications
- Combine different services for determining application services
- A composite application is created by a set of interconnected and specialized services
- Layers of a composite application:
  - User interface layer: the different forms and functions are presented to the user
  - Choreography layer: defines the correct order of calling services in the composite application
  - Service layer: represents service to composite application
- BPEL4WS: supports compositional approach



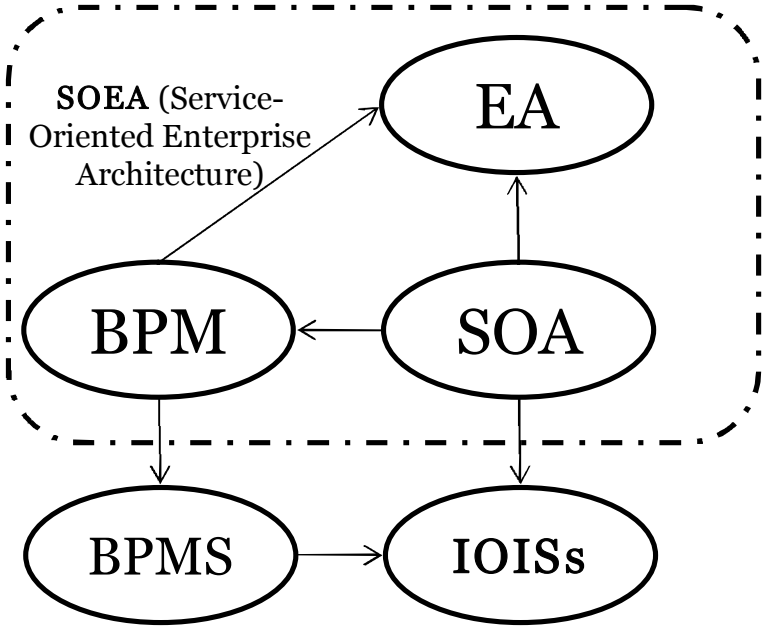
Integration Layer





Service-Oriented Enterprise Architecture (SOEA)

- Step-by-step framework to design a service-oriented enterprise:
  - Phases, steps and deliverables
  - Artifacts and notations
  - Project management with PMBOK
- SO-BPM
- Enterprise Service Bus (ESB)



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