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Εισαγωγή στα Δίκτυα Υπηρεσιών

Διάλεξη 3η: Service Networks, Business Maps and SNAPT

Χρήστος Νικολάου

Τμήμα Επιστήμης Υπολογιστών

Introduction to Service Networks
UC-01/CS-592
3rd Lecture: Service Networks, Business Maps and SNAPT

Christos Nikolaou
Mariana Karmazi
Transformation Services Laboratory
CSD/UoC

Some Clarifications...

Service Providers can provide a (capability) set of services (offerings).

Service Providers are considered to be **Business Entities** that include people, software and hardware systems and are organized with at least one **Cost Center,** where accountings books are kept for revenues, expenditures, capital assets, etc.

Even in the cases of Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS), we will assume that these are associated with a Cost Center and therefore a Business Entity. Thus, we can tie operational performance objectives and SLAs, to business performance objectives.

Service Providers are usually a combination of people, and/or organizations of people (e.g. Companies, departments or Lines of Business (LOBs) within companies

More Clarifications

Service Providers are considered "active"

- If they are **people**, then they offer their **labor**, according to their **skill profile**, and play a **role** assigned to them (therefore we do not consider them as "passive" "human resources").

- If they are organizations, then they offer their services according to their capability set (or mission).

- If they are SaaS, PaaS, then we assume they own thread(s) of control and can respond to service requests (see also agent literature).

- If they are IaaS then we assume that they are operational ("up and running") and offer their services.

How about Resources?

A **resource** is any physical or virtual entity of **limited availability** that needs to be consumed to obtain a benefit from it. In most cases, commercial or even non-commerial factors require **resource allocation** through **resource management.** There are two types of resources; **renewable** and **non-renewable**. (Wikipedia).

Examples of resources in service systems are hardware resources (CPU, memory, disk, communication bandwidth, etc.), data sets and databases, buildings and office spaces, etc.

We will assume that a Service Provider, called **Resource Manager (RM),** provides as a service the allocation and management of the resource that the RM manages. RMs can be people or organizations or a combination of organizations and SaaS.

In the case of CPU, the RM is the CPU scheduler together with the MIS department, in the case of a buidling the RM is the maintenance department (or company), etc.

Atomic and Complex Service Providers

We distinguish between **Atomic Service Providers,** i.e. Service Providers who are single persons offering their labor, and Complex Service Providers who are:

- SaaS, PaaS or IaaS with their owning MIS departments

- Single Cost Centers as defined before

- Some "Business Composition" of the above as we explain next.

The Componentization of Business

IT Consulting Services companies are working with industry maps, one for each industry segment.

Each map contains a detailed map of business units, contained within various business activities, at various command & control levels.

The maps help spot units that need improvement or outsourcing or are of strategic value to the enterprise.

Next comes the SAP Business Map example for Banking.

We have seen that, in large organizations, we can have nested Business Entities. Since Business Entities are also Service Providers, we can have nested Service providers and Service Systems.

We need a way to visualize and analyze them.

We also need a way to attach Key Performance Objectives (KPOs) to Business Entities (nested or not) and to Service Systems (nested or not).

We next need a way to monitor the Key Performance Indicators that correspond to the KPOs set.

If there is divergence we need tools and methodologies to take corrective action.

New Service Systems could emerge because:

- Business entities form an alliance to propose a new service to the marketplace. Important to:

  - analyze the proposal,

  - study what-if questions,

  - Discover services/service providers which/who could be useful (how?)

  - Mashups of web-services?

  - Compare similar service providers (how?)

  - compare with KPOs, etc.

- Emergent behavior of online services forming alliances?

SNAPT
(Service Network Analysis & Prediction Tool)

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Introduction

- SNAPT
  - A tool that models and analyzes Service Networks
  - Facilitates the creation of Abstract Business Processes based on Service Networks

- Service Networks (Systems)
  - Model Services that are offered and consumed by Business Entities
  - Everything is a service or a Service Provider!
  - High level of abstraction
  - Target Group: Business Analysts, System Analysts and Designers

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Concepts

Service Network Metamodel supported by SNAPT

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- Visualize Service Networks
  → *Business Entities* are associated to nodes, while *Services* and *Enablement Services* are associated to links
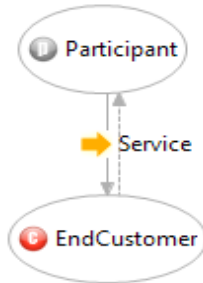
Participant offers a Single service to the EndCustomer

OR

Enablement Service: an Enabler enables the delivery of the Service 1
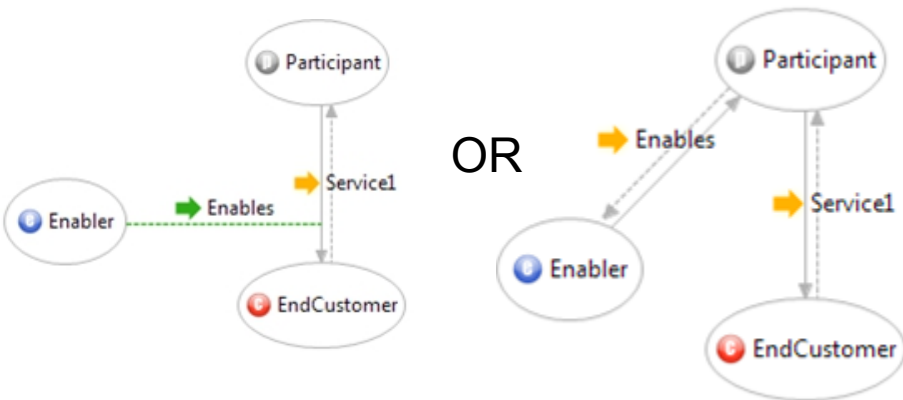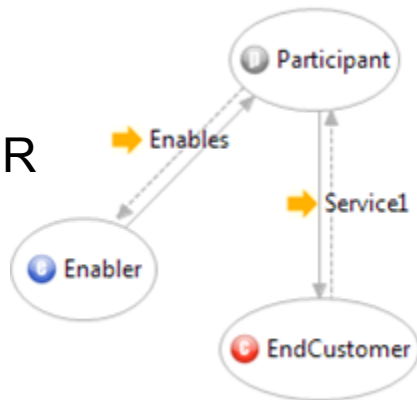
- Visualize Service Sub-Networks

Service Network
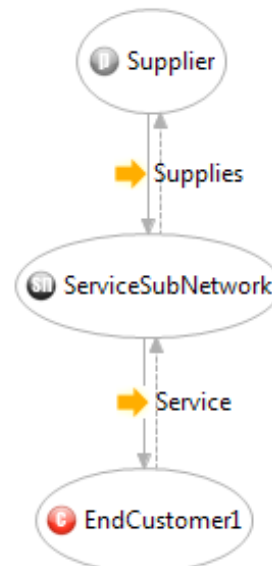
ServiceSubNetwork
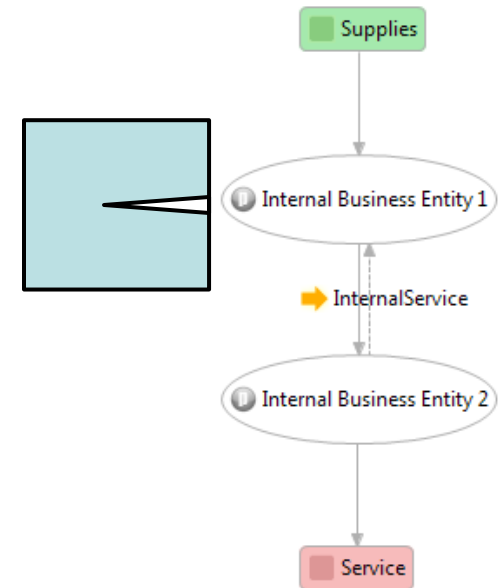
Service "*Supplies*" consumed by ServiceSubNetwork in the SN (left), is mapped to an input port in the ServiceSubNetwork (right).

"Service" offered by ServiceSubNetwork in the Service Network (left), is mapped to an output port in the ServiceSubNetwork (right).

- KPIs Library
  - The KPI Library is based on the APQC Process Classification Frameworks (PCF) and it is fully compatible with IBM Websphere Business Modeler
    - Provides RESTful interface
    - SNAPT updates its internal KPI library from the KPIs Repository
- Defining KPOs
  - KPOs expected value can either be a numeric value, a duration or an unspecified one.
  - SNAPT can work with monitoring tools: imports KPIs from the actual running business processes and compares them with the KPOs.

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- Example KPO: a Simple Cost Revenue Model
  - The profit of each Business Entity is calculated as:
    - *Profit=Σ(IncomingServiceRevenue) – Σ(OutgoingServiceRevenue)*

- Generate KPO Achievement (e.g. Profitability) Sheets that indicates the overall combined (but how?) KPO (e.g. Cost Revenue Model) of the Service Network and individually for each participant.

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- Sequencing Information for each Service of the network
  - Sequencing information of each Service S is created relatively to the set of Services

that are offered to the source Business Entity of Service S
  - Gateways used to express Sequencing Information
    - **Sequential Block**: All Services in Sequential

Block needs to be delivered sequentially
    - **AND Block**: All Services in AND Block needs to be delivered in parallel
    - **XOR Block**: Exclusively one of all Services in XOR Block needs to be delivered
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How it looks on SNAPT –
during the tutorial session you
will go through an example

In this slide:

In order for Service1 to be delivered to

Participant2, both Service2 and Service3

must first be delivered to Participant1

sequentially (i.e. first Service2

and then Service 3).

SNAPT (5/5)

- Supports a methodology to map Service Networks to **Coarse-Grain, Abstract** Business Process
  - Abstract Business Process expressed in Business Process Modeling Notation (BPMN 1.2)
  - Sequencing information is provided in SNAPT
  - Provides BPMN for both open source and commercial software tools
    - Eclipse BPMN Modeler
      - Open source business process diagram editor
    - IBM's WebSphere Business Modeler Advanced
      - Commercial business process modeling and analysis tool

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Τέλος Ενότητας

Χρηματοδότηση

Σημειώματα

Σημείωμα αδειοδότησης

Σημείωμα Αναφοράς