

Title: Collaboration Plan for Joint Activities with ICT SSAI&E Projects

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Identifier: Deliverable # CD-SoE-1.2.2

Type: Deliverable

Version: 1

Date: 25 September 2008

Status: Final

Class: External

Management Summary

This report outlines the liaison and co-operation activities with other ICT projects under the WP2007/2008 Objective “Service and Software Architectures, Infrastructure and Engineering”. These activities aim at exploiting synergies between the projects and increasing the impact of the ICT initiative.

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Published S-CUBE documents

These documents are all available from the project website located at <http://www.s-cube-network.eu/>

PO-JRA-1.1.1: State of the art report on software engineering design knowledge and Survey of HCI and contextual Knowledge

PO-JRA-1.2.1: State-of-the-Art report, gap analysis of knowledge on principles, techniques and methodologies for monitoring and adaptation of SBAs

PO-JRA-1.3.1: Survey of quality related aspects relevant for SBAs

PO-JRA-2.1.1: State-of-the-art survey on Business Process Modelling and Management

PO-JRA-2.2.1: Overview of the state of the art in composition and coordination of services

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List of acronyms

CWG	Collaboration Working Group
NESSI	Networked European Software & Services Initiative
SSAI&E	Software and Service Architectures, Infrastructures, and Engineering

1 Introduction

This deliverable addresses the liaison and co-operation activities with other ICT projects under the WP2007/2008 Objective “Service and Software Architectures, Infrastructure and Engineering” (SSAI&E). These activities aim at exploiting synergies between the FP7 SSAI&E projects and increasing the impact of the ICT initiative.

In particular, we envision that S-Cube beneficiaries will provide contributions to the following activities:

- Exploitation of synergies / technical concertation: participation to workshops, contribution to important working groups.
- Joint activities for exchange of staff, dissemination and training.
- Production of dissemination material that can be used for communication towards the general public.
- Co-ordination of standardisation efforts.

This deliverable only discusses the specific collaboration activities that will be performed jointly with ICT SSAI&E projects. Other S-Cube dissemination and collaboration work packages and tasks (like WP-IA-2.2 “Alignment with European Industry Practices”, WP-IA.1.2 “Pan-European Distributed Service Laboratory”, and WP-SoE-1.1 “Virtual Campus”) cover the individual activities of S-Cube with respect to dissemination, plans for reaching out to other communities and spread of excellence activities.

This deliverable (CD-SoE-1.2.2) will be followed by deliverables at the end of each reporting period (i.e., after each 12 months after the start of the NoE) reporting on the activities done and updating the plans for the next period.

This deliverable is organized as follows. In the following section, we will describe the areas of collaboration for S-Cube in relation with the SSAI&E collaboration groups that were inaugurated during the European launch event, on March 5th 2008. The overarching aim of the collaborative working groups is to foster collaboration between projects and leverage knowledge sharing and joint learning, apply each other’s (intermediate) research results, and increase awareness of novel developments beyond projects to harmonize and adjust their goals accordingly. The sections that follow discuss the specifics of the areas of collaboration, including collaboration through partner involvement in other EU projects, and cooperation with NESSI.

2 Areas of Collaboration

We define the areas of collaboration in line with the SSAI&E *Collaboration Working Groups* (CWGs), in order to ensure that our activities can be aligned with the other projects in the FP7 Call 1 activities. In particular, these CWGs can work on a topic of interest that results into increased understanding and sharing of project results, including new knowledge and experimental toolsets, leveraging the impact of participating projects on the services science research community. Relevant collaboration areas include:

1. Service Architectures,
2. Service Engineering,
3. Collecting of Use Cases,
4. Software and Knowledge Repositories,
5. Joint Dissemination Activities, and

6. participation in Standardization activities.

The following sections outline our contribution to each CWG and present our future plans for leveraging the spread of excellence through the activities of these groups. In addition, we briefly describe S-Cube's approach to standardization.

3 Service Architectures

For joint activities with ICT SSAI&E projects on the topic of Service Architectures, S-Cube will follow two main action lines: (1) Coordination and contribution to the SSAI&E Collaboration Working Group (CWG) on Service Architectures; (2) Contribution to NEXOF-RA by means of the Open Architecture Specification Process.

3.1 Service Architectures CWG

Background: This CWG is jointly coordinated by Stefano De Panfilis (coordinator of NEXOF-RA) and Klaus Pohl (network coordinator of S-Cube).

Plan: The following two activities are planned in the short term within the "Service Architectures" CWG:

1. Establish action plan: It is expected that the objectives and the detailed first year action plan of the CWG will be established by September (possibly including contributions to the Future Internet Assembly). This plan will be presented and discussed in a dedicated session at the next Concertation Meeting which will take place from September 22–23, 2008.
2. Organize CWG meeting collocated with ServiceWave 2008: The ServiceWave conference series¹ aims at establishing the premier European forum for researchers, educators and industrial practitioners to present and discuss the most recent innovations, trends, experiences and challenges in Software Services. ServiceWave fosters the creation of cross-community scientific excellence by gathering industrial and academic experts from various disciplines, including business process management, distributed systems, computer networks, grid computing, service science and software engineering. We plan to organize a CWG meeting collocated with the ServiceWave conference.

3.2 Contribution to NEXOF-RA

Background: For what concerns the "service architectures" CWG, NEXOF-RA is a key project within the SSAI&E initiative that aims at establishing the European reference architecture for service-based applications. Specifically, NEXOF-RA aims at achieving the following goals²:

Definition of the Open Reference Architecture Model (ORA-M): The ORA-M is a technology neutral and application-domain independent conceptual model underpinning engineering and management of service-based systems. An integral part of the ORA-M is the NEXOF-RA Glossary, which standardizes the terminology for ORA-M.

Definition of the Open Reference Architecture Specification (ORA-S): The ORA-S is a system design specification that consists of the following elements:

- Description of the system components and the relationships between those components;
- Definitions of internal and external system component interfaces;
- Principles, rules and constraints guiding the design and evolution of the ORA-S based systems;

¹ The description of ServiceWave is taken from www.servicewave.eu

² The following description is based on Annex I of the NEXOF-RA project proposal.

- Set of standardized profiles to enable interoperability between service components as well as between instances of NEXOF-RA.

Proof-of-Concept Implementation: In order to demonstrate the feasibility of an Open Reference Architecture as promoted by NEXOF-RA, proof-of-concepts will be implemented to experiment with and validate novel architectural concepts and/or principles.

In order to define the Open Reference Architecture, NEXOF-RA adopts the Open Architecture Specification Process (OASP)³, to ease interaction with the wide community sharing the common views defined in the NESSI Vision. Participants to the OASP will identify gaps and alignment problems in existing and novel standards, and issue recommendations to be presented to standardization bodies. Work performed through the OASP may also be based on specification proposals submitted by external parties as well as proposals developed within the project are also in scope of the process.

Plan: Based on discussions with the S-Cube's Industrial Advisory Board (IAB) and its members – Stefano De Panfilis (Chair of the NESSI SRA Committee and coordinator of NEXOF-RA), Pascal Bisson (Member NESSI SRA Committee and NEXOF-RA member), Frederic Gittler (Vice-Chair NESSI Steering Committee and NEXOF-RA Chief Architect), Franz Kudorfer (Chair of NESSI Standardisation committee and NEXOF-RA member), the following actions have been agreed in order to closely collaborate with the NEXOF-RA project:

1. Participation in NEXOF-RA Architectural Board Meetings: It is planned that two representatives from S-Cube member organizations will participate in the NEXOF-RA architectural board meetings. Ideally, the S-Cube representatives will come from activities JRA-1, JRA-2 or IA-3. The meetings of the NEXOF-RA architectural board will be held every 3 months.
2. Contribute to Call for contribution of NEXOF-RA: S-Cube partners are encouraged to participate to this call. Currently, the planned timeline for the first contributions are as follows⁴:
 - a. Registering intent to participate by September 5th, 2008
 - b. Submitting a position paper by October 3rd, 2008
 - c. Attending the kick-off meeting on October 20th & 21st (Brussels)

4 Service Engineering

Background: The Service Engineering CWG is coordinated by Schahram Dustdar (coordinator of the NESSI-project COMPAS and participant in S-Cube). The objective of this CWG is to enable the development of a joint research agenda for the area of Service Engineering.

Plan: In the first meeting in Brussels (4, 5 March 2008) several projects and people mentioned their interest in participating in this working group. An invitation was sent out to representatives from the following projects: DiVA, SHAPE, PERSIST, ROMULUS, SCUBE, SeCSE, COMPAS, MOST and DEPLOY. The first meeting took place on 29 August 2008 in Vienna.

In the first meeting the working group participants identified the following research challenges:

³ The description of the OASP was adapted from NEXOF-RA: "OPEN ARCHITECTURE SPECIFICATION PROCESS -- OPEN CONSTRUCTION CYCLE #1 -- DRAFT – 3-Jul-08 (Architecture Board) – as amended -- INVITATION TO CONTRIBUTE"

⁴ As defined in: NEXOF-RA: "OPEN ARCHITECTURE SPECIFICATION PROCESS -- OPEN CONSTRUCTION CYCLE #1 -- DRAFT – 3-Jul-08 (Architecture Board) – as amended -- INVITATION TO CONTRIBUTE"

1. Specification of Services
2. Engineering of Service Compositions
3. Service Engineering Methodology
 - a. Relationship to Software Engineering Methodology
 - b. Relationship to Business Process Modeling techniques
 - c. Relationship to Ontology-driven techniques
 - d. Model-driven approaches
 - e. Mashup-approaches
4. Autonomic Adaptation - Service Engineering Techniques
 - a. Engineering of Self-* properties
5. Service Testing and Simulation
6. Service Governance Techniques
 - a. Management and Monitoring techniques for services
 - b. Service Evolution and Versioning
7. Engineering techniques for Human provided Services

These research challenges will provide the basic structure for a future book. A meeting to further discuss the details with the publisher Springer, has already been planned for September 2008.

The book will revolve around a case study which will be the basis of all chapters discussing novel research contributions. Therefore, the plan is that the book is not merely an aggregation of project outcomes, but that it will integrate and align them according to the shared case study. This will make it easier for the reader to fully grasp the research contributions as well as make it easier to follow the current state of the art.

A first discussion of the structure, topics and planned contribution will be presented on 22 September 2008 in Brussels at the SSAI&E event. The contributions of this CWG will be used by NEXOF-RA.

5 Collection of Use Cases

Background: The Collecting Use Cases CWG is coordinated by Elisabetta Di Nitto and Carlo Ghezzi (leading IA-2.2 workpackage “Alignment with European Industry Practices” within S-Cube). The objective of this CWG is to enable the creation of a repository of use cases that could be used as a reference by the various projects in the area. The information about use cases will be enriched over time with pointers to the specific solutions for these cases, including their evaluation in realistic contexts.

Plan: The plan for this activity is structured as follows:

8. Conduct a survey among companies to identify those that could be willing to share case studies that are at the same time interesting for S-CUBE.
9. Identify a proper use case description method that will be used to have use cases all described in a uniform way.
10. Collect use cases and related information about them.

As for the first step, we are going to contact industries and other FP7 project and will use a questionnaire with the objective of:

- Informing companies about the advantages of getting in touch with S-Cube, that is, the possibility to be aligned with the state of the research in the area and to get advices on specific issues about services).
- Gathering general information about each company, assessing its willingness to collaborate with us.

Based on the feedbacks obtained from the questionnaire we will start a closer interaction with the ones that will have demonstrated more interest in collaborating with us.

6 Repository

Background: The Repository CWG consolidations work in several European projects and initiatives, including NESSI's NEXOF-RA and BEinGRID's Gridipedia.

6.1 Collaboration with NESSI through NEXOF-RA

One of the primary means for S-Cube to establish an intense and long-lasting collaboration with industry will be through participating in the European Technology Platform NESSI (Networked European Software & Services Initiative).

As briefly mentioned above, the NEXOF-RA project is NESSI's first step in the process of building a generic open platform for creating and delivering applications enabling the creation of service based ecosystems where service providers and third parties easy collaborate. NEXOF-RA main results will be the Reference Architecture for NEXOF, a proof of concept to validate this architecture and a roadmap for the adoption of NEXOF as a whole. The NEXOF repository will contain the following elements:

- NEXOF-RA Glossary contains key definitions with respect to the NEXOF-RA reference model (conceptual model of the architecture), and the
- NEXOF-RA reference architecture (concrete specification).

Aligning the work on the NEXOF-RA repository with the S-Cube Knowledge Model will also help achieve a common view of architectural issues.

6.2 Collaboration with BEinGRID through Gridipedia

The repository of Gridipedia, a part of the BEinGRID (Business Experiments in Grid) IST project, is organized with Grid software components and solutions that are designed to meet common business requirements. Information on these components can be found in the Technical Solutions section of their portal. Released components can be downloaded via the Component Access page on their portal.

Other contents include: Information on how the components relate to business needs, design patterns providing solutions to common Grid problems, an explanation of what the Grid is, including a classification of Grids and a glossary, information on how Grid technology is being applied to business today, and, information about the leading Grid middleware.

6.3 Collaboration Plan

Given that Gridipedia and NEXOF-RA hold components for Grid and framework architecture implementations, it was concluded that the best way to collaborate is to link to each project's repository, and to find ways to cross-reference each other's glossaries and conceptual maps.

The first teleconference to discuss this idea of a federated, cross-linked knowledge model across these projects and S-Cube was held on 25 July. On the basis of this kick-off telecon, another telephone

meeting was organized during summer to exchange ideas on the high-level integration backbone architecture.

We plan to further discuss this during the upcoming collaboration meetings. The objectives of these Collaboration Meetings are to achieve a better understanding of the results of the FP6 projects in the area (and their use by the new projects), and, to consolidate the collaboration activities among the FP7 projects in order to build an even stronger community.

As a first important step, S-Cube will participate in the Concertation Meeting on 23 September presenting and discussing the integration of the knowledge models along three SSAI&E projects, viz. NESSI, Gridipedia.

7 Joint Dissemination

The Joint Dissemination CWG is coordinated by Christos Nikolaou (S-Cube member and WP leader of Community Outreach), and addresses two powerful joint dissemination instruments, viz. books and other publishable material, and, summer schools and training.

7.1 Books and other publishable material

Background: Currently, dissemination efforts throughout SSAI&E activities are dispersed and diffused. Typically, projects publish their research output using their own communicational channels, resulting in fragmentation of the research community. What is urgently needed is a shared dissemination outlet through which EU FP-7 projects and networks can spread excellence.

Plan: We plan to organize discussions with the executive editor of Springer-Verlag for launching a dedicated book series on Services Science under the Lecture Notes on Computer Science. A decision from Springer-Verlag is expected by mid October. In addition, we plan to publish a S-Cube specific book under this series that will capture all state-of-the-art reports in S-Cube research activities. Moreover, we expect that the Springer book on Service Engineering (mentioned in section 4) will be brought under the umbrella of the new series.

7.2 Summer Schools and Training

Summer schools and training activities constitute an important means to spread excellence across the scientific and other communities. As a foundational step, we have taken stock of joint educational themes and expertise which can be leveraged through this activity. The outcome of this process can be found in Appendix-A. In the remainder of this section, we will firstly indicate which partners from the SSAI&E initiatives are involved in this activity, and then continue with a description of joint activities to launch a training program and a high-profile summer school.

7.2.1 Involvement of FP6 and FP7 projects

The SSAI&E representatives of FP6 and FP7 projects that participate in this CWG are listed in the following table (remove NS from addresses):

<i>Project Name</i>	<i>Main Contact</i>	<i>e-mail</i>	<i>Training Contact</i>	<i>e-mail</i>
NEXOF-RA	Stefano de Panfilis	stefano.depanfilisNS@eng.it		
DEPLOY	Alexander Romanovsky	alexander.romanovskyNS@ncl.ac.uk	Thierry Lecomte	thierry.lecomteNS@clears.y.com
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IRMOS	Eddie Townsend	eddie_townsendNS@xyratex.com	George Kousiouris	gkousiouNS@telecom.ntua.gr
OPEN	Fabio Paternò	fabio.paternoNS@isti.cnr.it	Fabio Paternò	fabio.paternoNS@isti.cnr.it

7.2.2 The S-Cube Summer School

S-Cube has organized a summer school and training workshop of an international and interdisciplinary character that helped forge a new research and scientific community on Service Science Management and Engineering (SSME).

The first workshop in the series was held in Crete, during the last week of May 2007 (from Wednesday May 30 to Sunday June 3). The topic of this first workshop was: "The Business Process in the Service Science". The second workshop was held in Sicily (June 2008) and was limited in size (around 50 participants), to facilitate exchange of ideas and help researchers, both senior and young researchers and graduate students from around the world, to understand each other's work, network and start new cooperative research projects.

Funding for the summer school participants was provided by the S-Cube Network of Excellence, while Engineering Ingegneria Informatica and IBM generously supported the event by covering meeting room expenses and lunches.

7.2.3 Joint Training Initiatives

The role of the activity "Organization of Joint Training Initiatives" is to define an action plan for the working group in order to co-ordinate the different training activities organized by the different partners that are involved. This activity has the following objectives:

- Define common areas of technical interest among all projects in SSAI&E.

- Identify the best lecturers for these technical areas who can train graduate students and young researchers and professionals.
- Establish a Europe-wide self-sustainable Center for Training on SSAI&E.

7.2.4 Plan

1. S-Cube Summer School: It is proposed that the third summer school be held in Crete and be widened in scope and themes to address educational requirements of other FP7 SSAI&E related projects. Time and location will be chosen carefully by a local organization committee so that to attract high profile instructors and maximize attendance.
2. Joint training activities. We plan to use the S-Cube virtual campus facilities to transfer knowledge on topics of interest relating to the joint training activities. In order to accomplish our plans and attract a large number of researchers as possible, we need to define a strategy for reaching/disseminating/advertising the S-Cube training activities to the wider community (graduate students, researchers, professionals) and set up the logistics (registration, fees, compensation for instructors, etc) to organize training events. This will be further discussed in CD-SoE-1.2.3.

The actions that will be taken within the next months are summarized in the following:

- Attendance of the dissemination session (part of the Collaboration sessions on the Internet of Services) on Sept. 23 in Brussels.
- Refining this plan with input from other projects before and during the dissemination session.
- Decide on date and time of the summer school during the dissemination session
- Setup Steering and local organizing committees, plan their actions.

Timeline:

- July 30, 2008: First version of training/summer school collaboration plan.
- Sept. 23, 2008 (Brussels session): final version of plan approved.
- Sept. 23, 2008: Steering Committee, Local Organizing Committee defined
- Sept. 23, 2008: Date and place of summer school confirmed
- October 2008: search for lecturers starts
- December 2008: final list of lecturers confirmed
- January 2009: advertising campaign for summer school starts
- January 2009: call for participation issued
- March 2009: final list of participants selected
- May-June 2009: summer school

7.3 Organization of other events

In addition to the CWG plans, S-Cube intends to co-organize a series of dissemination events, such as conferences, workshops, and special meetings.

7.3.1 ICSOC

S-Cube is strongly involved in the organization of the premier scientific conference in the field of software service, the International Conference on Service Oriented Computing (ICSOC). The Sixth International Conference on Service-Oriented Computing follows the five previous editions in Vienna, Austria (2007), Chicago, USA (2006), in Amsterdam, The Netherlands (2005), New York City, USA (2004) and Trento, Italy (2003).

ICSOC'08 builds on the success of previous conferences in this series, establishing bridges between established and new service research and applications communities and fostering cross-community scientific excellence. This year, the conference themes are focusing on building bridges with the business community because of its ongoing contribution to the emerging field of Services Science.

ICSOC'08 acts in close collaboration with NESSI, ACM and the D3-unit on Software and Service Architecture and Infrastructures.

7.3.2 ServiceWave

The ServiceWave conference series aims to establish the premier European forum for researchers, educators and industrial practitioners to present and discuss the most recent innovations, trends, experiences and concerns in Software Services (or the "Future of the Internet of Services") and related underlying network technologies.

ServiceWave fosters the creation of cross-community scientific excellence by gathering industrial and academic experts from various disciplines such as business process management, distributed systems, computer networks, wireless and mobile communication networks, grid computing, networking, service science and software engineering.

ServiceWave 2008 is organised by NESSI and hosted in Madrid by UPM in cooperation with

- European Technology Platforms eMobility, EPoSS, ISI and NEM
- Spanish Technology Platform INES
- Networks of Excellence CoreGrid and S-Cube
- Support actions Eiffel, 4NEM and NESSI 2010
- ICSOC, the International Conference on Service Oriented Computing

7.3.3 Collaboration Meeting for FP-6 and FP-7 projects

During the Future of the Internet conference in Bled (<http://www.fi-bled.eu>), the participants to the 'Services session' organised by the D3-unit on Software and Service Architecture and Infrastructures, identified three important cross-cutting topics. These cross-cutting topics were:

- Architectures and Infrastructures of the Future Internet
- Trust at Scale and Granularity
- Management and Governance of the Future Internet

The plenary sessions at the Collaboration Meeting in Brussels, September 22-23, will host three panels on these topics with stakeholders from the different domains. S-Cube will participate in organizing a panel on the 'Architectures and Infrastructures of the Future Internet'. Contributions to this topic are expected from stakeholders from various domains, including Networking, Services, Security, Broadcasting, and Internet of Things. This panel consists of speakers who address several of these domains.

7.3.4 Workprogramme 2009/10

The European Commission is encouraging the scientific and industry communities to contribute to the preparation of the Software and Services priorities for the work programme for 2009-2010 in the 7th Framework Programme. Specifically, the ICT Work Programme for 2009-10 is currently under preparation and is expected to become publically available by November 2008. In the area of Software and Services, a consultation committee was established and multiple inputs from individuals, projects, expert groups, etc., were received. These are available at the website of the EU D3-unit for

consultation by the research community. These documents will be taken into account for the preparation of the Work Programme.

S-Cube participated through its network manager and scientific director in a series of meetings with other experts and EU officials who all contributed and edited a research document on future service research paper entitled “Longer term research challenges in Software and Services”. This document is publicly available for the international community.

7.3.5 Planning

- ServiceWave will be held from the afternoon of the 10th of December until the 13th of December 2008, immediately after the Future Internet Assembly event organised by the European Commission and hosted by UPM on the 9th and morning of the 10th December 2008.
- ICSOC will be held in Europe in 2009 in conjunction and most likely co-located with ServiceWave to attract a wider community of researchers and practitioners. The time frame will be December 2009, and the location will be determined in collaboration with NESSI.
- Collaboration meeting participants will present in the September 22-23 SSAI&E event their point of view with regard to the Future of Internet according to their domain expertise. They will address:
 - how the Internet will evolve in their domain,
 - what consequences this will have for their domain, what requirements this poses on other domains (if any),
 - what possibilities it offers for other domains. For instance, will discuss how novel developments in media and contents are enabled by new networking technologies and how new requirements are placed on service oriented infrastructures.

These activities are expected to continue and intensify in the remainder of 2008, as well as in 2009.

8 Standardization Activities

S-Cube partners are currently involved in several standardization bodies like OASIS, W3C, OMG, NIST, ISO, GGF/OGF. However, S-Cube is not going to pursue its own standardization initiatives but rather collaborate with NESSI to achieve this purpose. More specifically, work on standardization as already stated in the DoW document, will be performed through the European Technology Platform NESSI. This implies that S-Cube partners who are involved in standardization efforts will closely work together and align their activities with the industrial members of NESSI.

Plan: Regarding the activities in standardisation bodies, S-Cube is following a three-step approach:

1. Primarily S-Cube will engage in NESSI's standardization activities in order to benefit from the strong industrial power of this ETP.
2. If there is a standardization topic that is currently not considered within NESSI for standardisation, S-Cube could initiate a standardization activity within NESSI.
3. If both (1) and (2) are not applicable, S-Cube will explore its own standardization opportunities; e.g., through the S-Cube beneficiaries who are involved in standardization bodies, like OASIS, W3C, OMG, NIST, ISO, GGF/OGF.

The standardization efforts of S-Cube are also reported in task T-IA-2.2.3 (Alignment with Industrial Research Agendas) of workpackage WP-IA-2.2 (Alignment with European Industry Practices). This task is supported by the Standardization Chair of the ETP NESSI as member of the S-Cube Industrial Advisory Board (IAB).

Appendix A Educational Themes and Expertise

Technical Areas of Interest

The collaboration task will be focused in the following activities for the next period:

- Topics on Service Architectures
- Topics on Service Engineering
- Topics on Software Engineering
- Topics on Service Oriented Infrastructure
- Topics on Research Methodology
- “Vision” Topics (Each project (or better a cluster of projects) presents their vision for future service systems)

Topics on Service Architecture

- The NEXOF/NESSI Services Architecture (Stefano de Panfilis, Engineering, NEXOF)
- SOA architectural principles and technologies (OU, UIBK, SOA4ALL and also IRMOS)
- Architecture for Lifecycle Management of Agile Service Networks:
 - Business objectives, SLAs and QoS for agile service networks (C. Nikolaou, M. Bitsaki, U. of Crete, S-Cube and IRMOS).
 - Designing service networks through abstract business processes (M. Papazoglou, W. de Heuvel, U. of Tilburg, S-Cube)
 - Mapping business processes to orchestrations and choreographies (Frank Leymann, U. of Stuttgart, S-Cube)

Topics on Service Engineering

- “QoS optimization in composed web services“, (Barbara Pernici, Polytecnico di Milano, S-Cube)
- Semantic Web (OU, UIBK, UKARL, SOA4ALL) and Semantic Web Services (OU, UIBK, SOA4ALL)
- Web 2.0 (OU, UIBK, UKARL, SOA4ALL)
- Real Time enabled multimedia applications (IRMOS)

Topics on Software Engineering

- Aspect-Oriented Development, Model Driven Development, (Dynamic Adaptive Systems, System Evolution), (DIVA)

Topics on Service Oriented Infrastructure

- Grid computing tutorials from Coregrid (Rosa Badia, UPC)
- Framework services (Service Discovery, SLA Mapping, advanced reservation, etc) (IRMOS)
- Virtualization and execution environment, intelligent networking (life migration, fault tolerance etc) (IRMOS)

Topics on Research Methodology

- Evaluation Techniques: what techniques (e.g., statistical methods, user evaluation, controlled experiments, etc.) there are for evaluating various projects/solutions. How to select the suitable technique for the given problem (DIVA)
 - Audience: research students and industrial researchers
- Training researchers on “Relating Research to Industry: How to Identify the Open Current Open Issues for Industry and Provide RELEVANT Solutions”.
- Motivation: researchers in academia often solve problems, which are not relevant to industry, or propose solutions, which are not viable. This training activity will focus on helping to bring relevant solutions to the real problems to make research project solutions more applicable to industry (DIVA).
 - set up studies to identify industrial needs
 - set up workshops to evaluate potential solutions
 - set up evaluation process for assessing the selected and developed solution
 - Audience: research students and industrial researchers