SAIL Project Newsletter

Scalable and Adaptive Internet Solutions

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Editor: Luis M. Correia

Inside this Issue

1. Editorial

The first half-year period of SAIL has passed and already we are showing results of our architectural work. Our first public deliverables are due and available at the web-site for download and we are preparing for our first periodical review with the Commission. Research work wise we are now at the stage of the detailed architecture work and iteration of the first prototyping approaches. It means there is an intense activity on-going across all Work Packages.

In a project of the size of SAIL, how do you connect the deep scientific research work produced within each Work Package, to something that is understandable and concrete to an outside follower of the project? How do you secure that you maintain alignment in-between the work-packages so that the initial objectives with the project is kept intact? And from another angle, how do you maintain an innovative and free-thinking work environment where prosperous ideas are allowed to grow - even though they might not be fully in-line with what you originally have foreseen? How do you balance between control and free-thinking? Well, good questions all of them and no given answer.

In this 2nd Newsletter we go under the spotlight and shed light on how we in SAIL will address these aspects in a way we believe will be a successful one, namely by looking more into detail on our recent project wide work with "scenarios" and "use cases" and the related deliverable that summarised this work. In SAIL we put a lot of emphasis in securing that in whatever work we do, and whatever result we

disclose, we refer to it in a context that shall be easy to relate to for a broader audience. That it makes sense to everyday people with an interest in our industry! Sometimes the scenarios are deliberately stretched and perhaps too visionary - yet, they refer to situations we envision our technologies will be used in - by people in the generation of our grand-children. It is our strong intent not to see the scenario work as a "tick-in-the-box-document" that is put aside once approved, but instead repeatedly use it as guidance and sanity check for the research work to come. Let us know once you see that we deviate from this approach!

Thomas Edwall

(Project Manager)

2. Under the Spotlight: Focus on WP-A

The main focus for WP-A during the initial phase of the project has been Deliverable D.2.1/D.A.1 "Description of project wide scenarios and use cases". The deliverable describes overall scenarios that tie together the work in the different WPs. These scenarios have been refined into specific use cases, highlighting important functions, technologies, and capabilities enabled by SAIL technology and network architecture. The deliverable includes an extensive business analysis of the scenarios and use cases. The project-wide scenario has three iterations, each adding additional aspects and functionality, which have been defined to guide the main direction of the research in the project.

Alice is in the base scenario streaming video from her mobile handset to a personal content repository. Initially, just a few friends are interested in watching, but it turns out that the content is exceptionally popular, and a consumer crowd is forming. In the next two scenario iterations, a multi-operator network, and multiple people providing content from the same event are added, respectively.

While the scenario starts out with a simple case of small-scale distribution of user-generated

content, the iterations add complexity and scale that is very difficult to handle with today's technology. The scenario thus provides ample challenges for the research in SAIL.

Deliverable D.2.1/D.A.1 "Description of project wide scenarios and use cases" is already available at the project website.

Another main responsibility for WP-A is to enable and coordinate SAIL dissemination activities. In order to reach as wide an audience as possible, SAIL is trying out a wide range of dissemination methods and channels. Besides the more traditional means of dissemination, the project is also engaged in new social networks approaches, like a blog and a LinkedIn group. The SAIL project also has a Slideshare account and is engaged in YouTube, which is being used for videos and presentation slides. Other channels, such as Twitter are also explored. The blog, for example, has received some positive reactions.

SAIL workshops will constitute one of the primary channels for SAIL to interact with the surrounding research community. The first workshop, planned for October/November 2011, will focus on the topics of Information Centric networking, Open Connectivity and Cloud Networking in a way that can bring input to the architectural and technical development work in the SAIL project. The focus of the second workshop, planned for fall 2012, will be on disseminating SAIL results.

As the legal and regulatory landscape will delimit which technologies will be possible to deploy in the future internet, SAIL is considering arranging a set of national regulatory workshops during 2011 to understand the critical issues. If the workshop results indicate that it would be meaningful to address these issues on a European level, we will consider a European regulatory workshop in 2012.

These workshops will be open, and announced in due time at the project website.

3. Inside SAIL: News from WPs and Themes

WP-A
Impact and Collaboration Enabling (ICE)

Under the spotlight in this issue.

WP-B
Network of Information (NetInf)

The Information-Centric Networking (ICN) paradigm that SAIL is investigating in WP-B is gaining momentum in the international research community. SAIL is taking a leading role in these efforts and has co-organised and contributed to a seminar in Dec. 2010, Dagstuhl Seminar on Information-Centric Networking. The seminar was attended by an international group of renowned researchers that are involved in different projects on ICN. At the seminar, fundamental elements of ICN such as information object naming, name resolution and routing, as well as APIs and migration possibilities have been discussed. The seminar proceedings are available online. One of the results of the seminar is an ACM SIGCOMM 2011 Workshop on ICN that will be co-organised by SAIL members and will help to further advance the research on ICN and enlarge the community around it.

The SAIL research on ICN is progressing towards an inter-domain architecture with a focus on interoperability (between different domains as well as between different ICN approaches). In addition to this architecture design, WP-B has defined first concrete specifications, e.g., on a universal naming scheme for information objects.

WP-C
Open Connectivity Service (OConS)

Work continued on the Open Connectivity Service architectural framework and its interfaces. WP-C focused on building a shared view about the context/information management, the decision making and the executing functional entities; likewise, we have started the mapping of this framework onto use-cases previously defined.

In parallel, we took a bottom-up approach, identifying the deficiencies of current transport mechanisms and proposing possible solutions based on the Multi-P schemes (point, path, protocol). We have also started to identify WP-C internal cooperation opportunities and clustering of prototyping activities and we have initiated the discussions for project-wide demos and prototypes.

Finally, WP-C partners are organising the International Workshop on Mobility Management for Flat Networks, with topics closely related to the work on mobility management from OConS.

WP-D
Cloud Networking (CloNe)

In the end of 2010 and beginning of 2011, some of our efforts were put on the analyses of the business perspective of the CloNe scenarios. The market potential for the cloud services is large and growing very rapidly. The strongest incentive for deployment of services in the cloud is cost efficiency. In many ways, CloNe will try to bring the benefits of the pay-as-you-go model to networking, something that is new to the market.

An important achievement of CloNe in the beginning of 2011 was the specification of a draft architecture. The architecture builds upon existing components in the cloud world. A bottom up approach was taken, starting from the basic elements of the full architecture: computing, networking and storage resources. Infrastructure services are built on top of that for each one of the administrative domains of the architecture (e.g., cloud provider, network operator provider). Finally, the proposed distributed control plane is the bridge across different administrative boundaries.

The next step is the specification of the full CloNe architecture, including initial management and security frameworks. In parallel, the prototyping plan will be developed and the testbed will be deployed. The progress on the architecture work will be presented in next FIA meeting in Budapest.

Prototyping and Experimentation Theme

By the second plenary meeting in Feb 2011, all the dedicated prototyping tasks in the work packages had taken up their work as planned.

So, for the first time, it was possible to present and discuss a complete overview of WP-specific prototyping plans in the theme meeting, and relate the planned practical work to the overall scenario and use case stories developed in Deliverable D.2.1/D.A.1 "Description of project wide scenarios and use cases". The work packages are now further detailing their experimental contributions to the SAIL-internal prototyping workshop, scheduled to be held early in 2012 in conjunction with the 4th general project meeting.

The Theme started to support these WP activities with considering how generic interfaces between partner components could look like (e.g. based on REST-ful web interface principles), how the experimentation network and platform planned in WP-D could be used by other WPs, and how virtualisation techniques would enable hardware and platform independent cooperation between partners and WPs.

Security Theme

There is a systematic approach to address security in SAIL, e.g., in the case of cloud networking, SAIL starts by defining security goals that needs to be achieved in cloud networking and looks at relevant attackers that try to break these security goals. On this basis SAIL compiles cloud networking specific security challenges that need to be addressed during the project.

Network Management Theme

The Network Management Theme has intensified its studies of management-related topics in SAIL. For that purpose, the following structure is being used as a guideline:
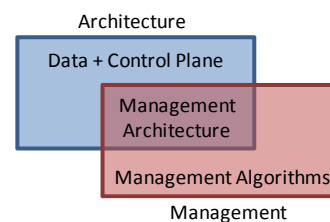
On the one hand, this structure shows how an overall management architecture will integrate parts of each of the architectures in WP-B, WP-C, and WP-D, which are not management-specific and include also data and control plane concepts. On the other, the management architecture will contain subsets of management-related concepts that also contain non-architectural components, such as management algorithms. At this time, the theme is analysing each of the work packages' initial architectural drafts in order to identify in which parts of these architectures management needs to be taken into account. These considerations will be integrated again with the overall SAIL architecture at a later time.

Interprovider Management Theme

In the Interprovider Theme we are starting to consolidate a common view on the evolution of the domain concept. We need it in order to understand if we can or should establish boundaries, where these boundaries should be and what interactions we expect between domains in the different WPs. We also got a paper accepted in the Network Virtualisation – Challenges and Solutions Workshop of the Communications in Distributed Systems '11 conference in Kiel, Germany.

4. Looking Outside: Views on SAIL

The following papers have been accepted or published:
- Bengt Ahlgren, Christian Dannewitz, Claudio Imbrenda, Dirk Kutscher, and Börje Ohlman, "A Survey of Information-Centric

Networking", [Dagstuhl Seminar on Information-Centric Networking 2010](); Schloss Dagstuhl, Dagstuhl, Germany, Dec. 2010.
- Anders Lindgren, "Efficient content-distribution in a hybrid opportunistic network", [IEEE Consumer Communications and Networking Conference](), Las Vegas, NV, USA, Jan. 2011.
- Pedro Aranda, Jorge Carapinha, "Cloud Networking: Implications of Agile Virtualisation on Provider Relationships", [KIVS 2011 Workshop on Challenges and Solutions for Network Virtualization](), Kiel, Germany, Mar. 2011.

5. What's Next:
Coming Events

SAIL will be participating in upcoming conferences and workshops:
- [IM 2011 - 12th IFIP/IEEE International Symposium on Integrated Network Management](), Dublin, Ireland, May 23-27, 2011.
- [SIGCOMM 2011](), Toronto, Canada, Aug. 15-19, 2011.

Some conferences have paper submission deadlines in the upcoming weeks:

- [ACM SIGCOMM Workshop on Information-Centric Networking - ICN 2011](), Toronto, Canada, Aug. 19, 2011. Deadline: Mar. 18, 2011.
- [Future Internet Assembly](), Budapest, Hungary, May 17-19, 2011.
- [IEEE International Symposium on Personal, Indoor and Mobile Radio Communications – PIMRC 2011](), Toronto, ON, Canada, Sep. 11-14, 2011. Deadline: Mar. 21, 2011.
- [International Symposium on Wireless Personal Multimedia Communications](), Brest, France, Oct. 3-7, 2011. Deadline: Mar. 31, 2011.
- [International Workshop on Mobility Management for Flat Networks](), Brest, France, Oct. 3-7, 2011. Deadline: May 15, 2011.

To Probe Further

For more information, go to the project website (http://www.sail-project.eu), or contact via email (info@sail-project.eu).

Visit also the project blog, *Sailor's Inn* , http://sail-project.eu/sailorsinn.