Future Internet Week

24-28-October, Poznan – Poland

http://www.event.fi-poznan.eu/online/

1. Mission statement

The UniverSelf project initiated and co-organized 3 sessions to the FIA Poznan event. This is in itself a large success and should provide a high visibility to the people and activities of the project.

The 3 sessions are:

> **Session 1.1 on Value creation, value flows and liability over virtual resources**
>
> http://www.event.fi-poznan.eu/online/?view=session&session_id=136
>
> **VIDEO**

> **Session 1.4 on Building a Trust Framework for Future Internet Services and Infrastructures**
>
> http://www.event.fi-poznan.eu/online/?view=session&session_id=146
>
> **VIDEO**

> **Session 2.4 on Architectures**
>
> http://www.event.fi-poznan.eu/online/?view=session&session_id=145
>
> **VIDEO**

There has been also a session on Standardization in which UniverSelf contributes through the activities in the FIA Standardization working group.

> **Session 1.3 on Standardisation**
>
> http://www.event.fi-poznan.eu/online/?view=session&session_id=141

The Future Internet week is one of the major EU events on Future Internet Technologies in terms of attendees, co-events and topics addressed. It is therefore a not-to-be-missed occasion for the projects. The event is thus a good opportunity to interact and meet other researchers, engineers from the academic and industrial communities, and people from the European Commission.

Note that all sessions have been video-recorded and broadcasted, and are now available on demand on the FIA website.

2. Participants

#	Name	Organisation
1	Laurent Ciavaglia	ALBLF
2	Didier Bourse	ALBLF
3	Panagiotis Demestichas	UPRC
4	Alex Galis	UCL
5	Makis Stamatelatos	NKUA
6	Vânia Gonçalves	IBBT
7	Stuart Clayman	UCL
8	Klaus Moessner	UNIS

3. Session 1.4 on Building a Trust Framework for Future Internet Services and Infrastructures

Overall impression

The feedback and impression on the session is very positive. The session was lively and presentations have been of good quality. The speakers managed to present different viewpoints (user-, service-, network-centric) while preserving an overall consistency. The audience has been quite active and generated good and numerous interactions; multiple questions/comments were received during and after the session. The session's topic has attracted a broad/diverse, interested and knowledgeable community. The number of participants is estimated to approx. 60 persons

Entry questions

> Question 1 - What needs to be protected?
>
> Question 2 - What is the end-to-end trust model? What are the metrics?
>
> Question 3 - How to enable end-to-end trust?
>
> Question 4 - Is trust an element to consider only at the design-time or run-time?
>
> Question 5 - What actions should be taken towards research and standardization?
>
> Question 6 - What is changed by the introduction of software and autonomic systems?

Agenda

> **Opening** (5min.) - Laurent Ciavaglia (Alcatel-Lucent, FP7-IP UNIVERSELF)
>
> **Introduction** (10min.) - Amardeo Sarma(NEC, TDL consortium)
>
> **Position statements** (60min.)
>
> > Amardeo Sarma (NEC, TDL consortium)
> >
> > Aljosa Pasic (Atos, FP7-NoE NESSOS)
> >
> > Laurent Ciavaglia (Alcatel-Lucent, FP7-IP UNIVERSELF)
> >
> > Henning Arendt (@BC)
>
> **Panel discussion** (30-45min.) - Moderator: Henning Arendt
>
> > All speakers + interactions with the audience
>
> **Questions**

Summary report

Amardeo Sarma introduced the session with a comprehensive overview outlining the multi-facet nature of trust and stressing the need to ensure end-to-end trust across applications, services, systems or devices. Trust frameworks need to go beyond trusted systems and include those that use, operate, or access it in order to enable multiple Levels of Assurance (LoA) for different end-to-end environments and application scenarios towards a continuum and total trust management. The three dimensions addressed in the session are: 1) *network-centric trust*, dealing with autonomic networks and their behavioural models, in terms of compliance/conformance to operator and service strategies; 2) *component-centric trust*, dealing with software components, services and their respective security aspects; and 3) *user-centric trust*, dealing with authentications, identity management, operational issues, socio-economic and psychological factors, vendors, end-user, etc. assuming a growing number of stakeholders.

Amardeo presented the Trust Framework Provider developed within the Trust in Digital Life consortium [1] focusing on the novel attributes provider role. In his presentation, Aljosa Pasic argued about the path from assurance to assumptions management as proposed by the NESSOS project [2] based on devising mechanisms to validate or manage assumptions including secure services architecting and engineering; design- and run-time validation; simulations; ability to monitor, measure, test and predict the security status of a system; reputation and similar mechanisms and not forgetting to link the physical/real world. Laurent Ciavaglia supported the

network-centric point of view dealing with trust in decentralized and autonomously controlled systems. Five requirements and the UniverSelf project [3] approach to meet them have been detailed: 1. Trust must be measurable, 2. Trust must be domain-specific, 3. Trust must be model-driven, 4. Trust must be propagated end-to-end, 5. Trust must be certified. The UniverSelf project has developed a model based on trust predicates that are defined at the design phase as abstract behaviours, and verified at run-time as fully qualified ones, and prove to have the power of policies – check them once and re-use many times; rewrite them to cater for new behaviours. Finally, Henning Arendt highlighted the user perspective based on the use of protection goals together with "Privacy by Design" and "Privacy by Default" paradigms. Privacy by Design needs to be explicitly included as a general binding principle into the existing data protection legal framework. This would compel its implementation by data controllers and ICT designers and manufacturers while offering more legitimacy to enforcement authorities to require its effective application in practice. A panel debate concentrating on the 5 motivating questions concluded the session: What needs to be protected? What is the end-to-end trust model? What are the metrics? How to enable end-to-end trust? Is trust an element to consider only at the design-time or run-time? What actions should be taken towards research and standardization? What is changed by the introduction of software and autonomic systems? A sequel of the session as part of the next FIA meeting in Aalborg, Denmark (10-11 May 2012) is envisaged based on the feedback received.

Main outcome

The main outcome of the session, initiated and coordinated by the UniverSelf project, is a **high visibility** of the topic of *Building a Trust Framework for Future Internet Services and Infrastructures*. It contributes to our objective to raise a higher **awareness** on the issue(s) and technologies of Trust in Autonomics, although the topic of the session and presentations were larger that this project thematic/scope (which is also good).

Several **contacts** have been established or reinforced during and after the session such as FP7-NoE NESSOS, ERCIM Working group in Security and Trust Management, and several organizations (industrials and universities).

As part of the outcome and follow-up of the session it is plan **to issue a short, common document/report on with speakers/co-organizers highlighting the main messages and feedback received**. This report will be uploaded to the FIA website, the respective projects/organizations websites, and communicated to the EC and session participants.

As a proposal under discussion, there is the opportunity to have a **sequel of the session as part of the next FIA meeting in Aalborg, Denmark (10-11 May 2012) or to extend it to a full-day workshop**. This remains to be discussed, agreed and organized with the interested parties.

Links to FIA Poznan website and session

http://www.event.fi-poznan.eu/online/
http://www.event.fi-poznan.eu/online/?view=session&session_id=146

Links to presentation on the wiki

http://wiki.univerself-project.eu/events/2236

4. Session 2.4 on Architectures

Rapporteur: Alex Galis (University College London, U.K.)

Other contributors: Theodore Zahariadis (Synelixis, Greece), Dimitri Papadimitriou (Alcatel-Lucent, Belgium), Bernhard Plattner (ETH, Switzerland), Paul Smith (University of Lancaster, U.K.), Laurent Ciavaglia (Alcatel-Lucent, France), Gerard Nguengang Thales, France), Panagiotis Demestichas (University of Piraeus, Greece), Miguel Ponce de Leon (TSSG, Ireland)

Summary report

Alex Galis introduced the topics of the session. He argued that "Future Internet" would require a new network model moving from just design guidelines and protocols towards a service-aware infrastructure: Software Defined Networks- and moving from the KISS principle ("Keep it Simple, Stupid" - i.e. today optimisation is tomorrow's bottleneck) to KII principle ('Keep it intelligent" - i.e. today fundamental is tomorrow's secondary). He presented the ITU-T Recommendation Y.3001 of April 2011 on Future Networks defined through 4 objectives and 12 design goals. Dimitri Papadimitriou presented the current work in FIAarch [3] on the analysis of current design principles and their taxonomy. He concluded by presenting the next steps in FIA architecture work. Paul Smith of University of Lancaster argued the importance of the network resilience [2] as the ability of the network to provide and maintain an acceptable level of service in the face of various faults and challenges. Panagiotis Demestichas argued for the design and introduction of a new management framework for Future Internet - UMF [1]. He stressed the need for solutions for Autonomics in Future Internet by realizing Autonomics Consolidation, Unification, Federation, Governance, Knowledge and Network Embodiment. Miguel Ponce de Leon presented initial experiences with implementing RINA - Recursive Inter Network Architecture [4], [5]. He concluded by analysing the research opportunities and challenges in for a full RINA implementation and validation. The discussions in this session were concentrated on the four groups of architectural aspects for Future Internet: (I) the key design tasks in FI research and development: FI functional elements; (II) key architectural challenges; (III) main tussles in FI; (IV) how to evaluate an architecture for FI. The results of this session are planed as a research orientation for the FI design. The audience participated in an electronic poll providing their opinions on the above questions as follows:
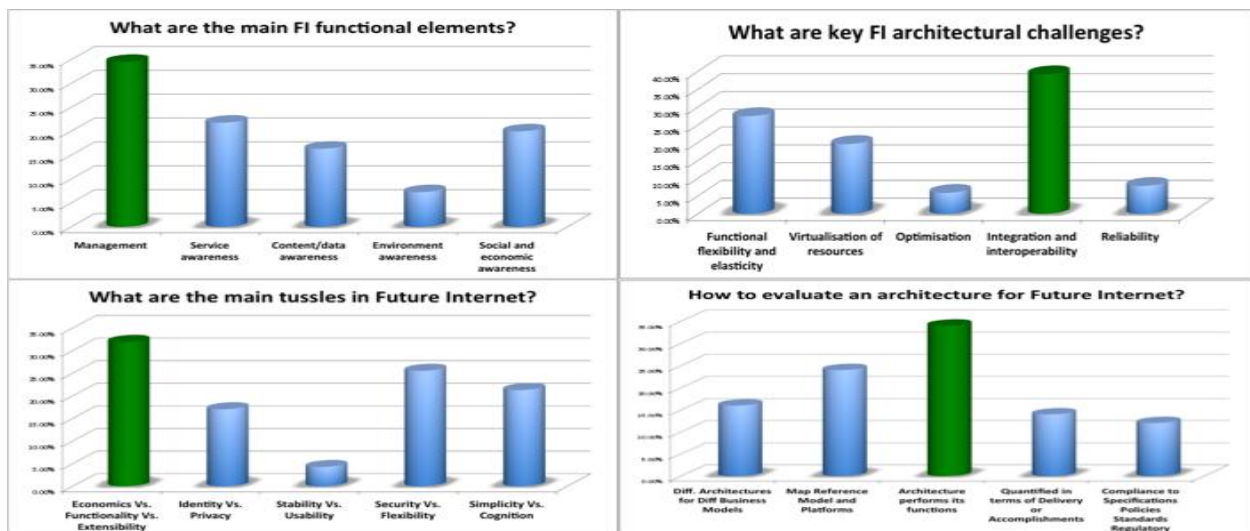
Links and info

FIA programme: http://www.event.fi-poznan.eu/online/?view=session&session_id=145

[1] UniverSelf FP7 Project www.univerself-project.eu/

[2] ResumeNet FP7 Project www.resumenet.eu/project/index

[3] FIArch http://ec.europa.eu/information_society/activities/foi/research/fiarch/index_en.htm

[4] Recursive Internet Architecture (RINA) http://csr.bu.edu/rina/

[5]RINAhttp://ec.europa.eu/information_society/activities/foi/events/fiarch-23052011/8-20110523_design_principles_rina.pdf

FIA Arch S.2.4 Results by Question Oct 24th 2011 Created: 25/10/2011 15:41			
1.) What are the main FI functional elements?	Responses	percent	count
Management		**34,55%**	**19**
Service awareness		21,82%	12
Content/data awareness		16,36%	9
Environment awareness		7,27%	4
Social and economic awareness		20,00%	11
Totals		100,00%	55
2.) What are key architectural challenges?	Responses	percent	count
Functional flexibility and elasticity		27,45%	14
Virtualisation of resources		19,61%	10
Optimisation		5,88%	3
Integration and interoperability		**39,22%**	**20**
Reliability		7,84%	4
Totals		100,00%	51
3.) What are the main tussles in Future Internet?	Responses	percent	count
Economics Vs. Functionality Vs. Extensibility		**31,91%**	**15**
Identity Vs. Privacy		17,02%	8
Stability Vs. Usability		4,26%	2
Security Vs. Flexibility		25,53%	12
Simplicity Vs. Cognition		21,28%	10
Totals		100,00%	47
4.) How to evaluate an architecture for Future Internet?	Responses	percent	count
Diff. Architectures for Diff Business Models		16,00%	8
Map Reference Model and Platforms		24,00%	12
Architecture performs its functions		**34,00%**	**17**
Quantified in terms of Delivery or Accomplishments		14,00%	7
Compliance to Specifications Policies Standards Regulatory		12,00%	6
Totals		100,00%	50

5. Session 1.1 on Value creation, value flows and liability over virtual resources

To be completed.