Dynamically Adaptive FI Applications: Beyond Adaptive Services

Future Internet Assembly Budapest, 2011

Organizers:

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- Aim and expected outcomes
- Introduction and Motivation (15 min)
- Application Scenarios (35 min)
- Panel Discussion (1 hour)
- Wrap Up (10 min)

Aim and Outcomes



• Aim:

 To identify and discuss key challenges towards dynamically adaptive Future Internet applications

• Expected outcomes:

- Summary in FIA written report
- Details on dedicated on S-Cube web portal

http://www.s-cube-network.eu/fia







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Adaptive Services: Why?

The Ruhr Institute for Software Technology



• Service-oriented systems face highly dynamic changes due to



- use of globally distributed 3rd party services;
- changing requirements and user types;
- varying end-user devices & network connectivity
- Difference from traditional software systems
 - unprecedented level of changes;
 - no guarantee that service providers fulfil SLAs;
 - difficult to assess ICT infrastructure at design time

→ Adaptation to changes during run-time



Figure 1: Important characteristics of future Software and Services



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Adaptive Services: Why?

NESSI Membership Survey

Adaptive Services: How?

Software Services & Systems Network (S-Cube)

Goal: Integration of research communities to address service engineering, monitoring & adaptation

> Service Engineering





HCI

Cloud Computing





NIVERSITE



Software

Engineering





Adaptive FI Apps: Why?

- IoS: Internet of Services
 - 3rd party services
 - Changing context
 & requirements
- IoT: Internet of Things
 - Connected objects & sensors
 - Identification & measurement
- IoC: Internet of Content
 - Content creation & delivery
- NoF: Networks of the Future
 - Ubiquitous connectivity



resource limitations (battery, memory, CPU)

e.g., addressing diversity of delivery requirements (age, religion, country);

> changes in content availability

e.g., switching and routing between heterogeneous technologies (optical, wireless, sensor, satellite, etc.);

changes in bandwidth and quality of connectivity

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Adaptive FI Apps: How? Relevant Characteristics (tbd)







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[Source: FP7 project S-Cube, FI-ware, Dutch Freeband AWARENESS project] **10**



Cross-Layer





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FI Application Scenarios

eHealth

 Katarzyna Wac & (Univ. of Geneva)
 David Hausheer (TU Darmstadt)

Transport & Logistics

 Clarissa Marquezan (Paluno, Univ. of Duisburg-Essen)

Media

Michael Boniface

(IT Innovation, Univ. of Southampton)











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Panel Discussion



- Nuria De-Lama Sanchez (Atos Origin)
 - Health applications: paradigmatic application scenarios for adaptive services
- Michael Boniface (IT Innovation)
 - Adaptability for collective experiences within the digital and real-world

- Yagil Engel (IBM Haifa Research Labs)
 - Proactive and Adaptive Event-Driven Monitoring





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Acknowledgments



Funded by the EC's 7th FP under Objective 1.2 'Services & Software Architectures, Infrastructures & Engineering' http://www.s-cube-network.eu/



fi-ware







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Socio-Economic Services for European Research Projects Funded by the EC's 7th FP under Objective 1.8 'Future Internet PPP' http://www.finest-ppp.eu/

Funded by the EC's 7th FP under Objective 1.7 'Future Internet PPP' http://www.fi-ware.eu/

> The Ruhr Institute for Software Technology University of Duisburg-Essen http://www.paluno.eu/

Quality of Life Research Area University of Geneva http://www.unige.ch/

KOM - Multimedia Communications Lab Technische Universität Darmstadt http://www.kom.tu-darmstadt.de/

Funded by the EC's 7th FP under Objective 1.1: 'The Network of the Future' http://www.seserv.org/



