On the first day at FOKUS, Dr. Nikola Serbedzija gave a summary of the EU-funded REFLECT Project (2008-2011) and the ASCENS Projects (2010-2014), and their main results. Of these two projects, the ASCENS Project, aroused most of my interest since the research done in this project targets issues and general applications aligned with the ones of the ContextNet [1] project run by my group at LAC/PUC-Rio1. The main goal of the ASCENS project is to investigate issues on modeling, knowledge representation, verification and software engineering of large-scale ensembles of self-adaptive, self-aware and self-expressive systems, and to apply them to domains such as robot swarms, e-mobility, and cloud computing. Among the several outcomes of the ASCENS projects, I became specially tuned to the Service Component Ensemble Language (SCEL), as it provides a formal framework for expressing and reasoning about such types of self-adaptive systems.

Dr. Nikola Serbedzija and I also discussed about the best ways to include PUC-Rio, and more specifically, the Laboratory for Advanced Collaboration into future EU projects. Since in September 2012 the EU and Brazil have already published a ICT EU-Brazil Coordinated Call related to FP7, in Information and Communication Technologies, it is expected that a similar call will happen for the Horizon 2010 Research and Innovation initiative, which will run from 2014 to 2020. In order to prepare for this call Dr. Serbedzija suggested that we identify and express our general research interests, so that they can be announced as a basis of our partnership to the other European project partners, in the preparatory meetings. And I will check which are the rules and procedures for participation that apply on the Brazilian side.

Dr. Serbedzija also mentioned plans to make me an Associate Researcher of ASCENS project, so that I get closer contact with the other research partners and stay more in synch with the latest developments in this project. On my side, I aim to use JRESP (a Java implementation of SCEL) for programming global coordination constraints and adaptation knowledge for ensembles (groups) of ContextNet mobile node.

Due to our common background and longstanding experience of research in Distributed Systems, we identified two major lines of common research interest and of possible cooperation in future projects:

- Investigation into biology-inspired self-aware and self-adaptive distributed systems, where analysis of the behavior of individual entities, as well as of the system as a whole, is essential for improving efficiency, safety or reliability of such autonomic systems.
- Software tools and middleware that support the development of such distributed and complex systems, including support for sensor data

1 Laboratory for Advanced Collaboration – www.lac-rio.com
aggregation and interpretation, reliable mobile communication and coordination, as well as support for parallel data mining.

In either lines, participation of LAC/ PUC-Rio within a future project could be focused on integration of some of the frameworks/tools or methods developed by other project partners with ContextNet’s middleware layers for communication, adaptation and data stream processing. Yet another possibility is to develop at LAC some application prototypes intended as a proof of concept of the tools and methods to be developed in the projects.

On the second day, I also talked with Dr. Friedrich Schön (Leader of the Embedded Systems Quality Management Group). He explained me FhG FOKUS activities in software quality assurance, automated testing and formal verification and some of the projects in the aerospace, avionics and automotive industries. He also asked me to give a short presentation about my research on Friday 27th.

As Dr. Serbedzija is also interested in ethical aspects related to Information Technology, he also came up with a proposal to offer a two-week course or student seminar about this topic at PUC-Rio, during his planned visit to Brazil in early 2014. I found this a great idea, and I will ascertain if, and in which format, such a course can be offered in the Department of Informatics’ Graduate Program in PUC-Rio.

On the last day, I participated in meeting with Dr. Schön, Dr. Fabiunke, Dr. Ralf-Detlef Kutsche, Daminda, and Dr. Serbedzija, where Dr. Serbedzija presented an overview of the ASCENS project and its main results. In this meeting I also delivered a short presentation about the ContextNet project, the SDDL middleware[2] from LAC/ PUC-Rio, and also my general research interests.

References:
