

Editorial

Dear reader,

The December edition of our newsletter offers you current information on the activities and results of the OMEGA project in the home networking area.

In this issue, the focus is on the Inter-MAC demonstrator, which is at the core of OMEGA. Andreas Foglar from Lantiq as the responsible work package leader provides a work report straight from the lab on how the OMEGA team has progressed towards the demonstrator by working in parallel at the labs in Oxford, Munich, Paderborn, Dortmund, Madrid, and Rome.

In addition, Oliver Hoffmann from Dortmund University of Technology reports on the GLOBECOM conference in Honolulu, Hawaii.

I hope you will find the contents of this newsletter interesting, and I would appreciate your comments and suggestions.

On behalf of the OMEGA project team, I wish you a Merry Christmas and a Happy New Year.

Milon Gupta, editor

Project results & activities

OMEGA's Inter-MAC demonstrator

A key part of the OMEGA project is the Inter-MAC sub-layer, a new approach to converge different physical layer technologies such as radio, powerline or wireless optics. The Inter-MAC concept is so revolutionary that everybody who hears from it for the first time says something like: "this can't work!" or: "why don't you use a VLAN instead". Finally, after some explanations people say: "ok, this sounds reasonable, but would it work?"

The same scepticism holds true for colleagues from partner companies not involved in OMEGA, but who may decide later about implementing OMEGA solutions in real products. They have to be convinced to assure the later exploitation of OMEGA in commercial products. The most

promising option to overcome their doubts is to show a working demonstrator, according to the well-known saying: "seeing is believing".

The OMEGA consortium has decided to build a first demonstrator already in the second project year, which will be enhanced in the third and last project year. Two European teams were formed within the OMEGA consortium, a development team and a documentation team. The development team mostly consists of young engineers, all competent in C programming. They split the work into two tasks, data plane and control plane implementation. The documentation team of experienced telecoms experts supervised the implementation to make sure that it would fit the concept.



Figure 1: The LANTIQ team in Munich working on the RAPTOR platform

Data plane

The data plane has been taken care of by the WLC division of chip manufacturer Infineon, which has been recently branched out into a new company called Lantiq. All engineers in the Munich headquarters have continued their work seamlessly (Figure 1) so that OMEGA was not affected by the change. Sub-contractor University of Paderborn as a long-year strategic partner has done the implementation of the data plane with their RAPTOR FPGA platform (Figure 2). In addition, a student in Budapest implements the

data plane in SW on a Linux platform using the Click tool from the MIT.



Figure 2: Data and control plane integration at the University of Paderborn

Control plane

The control plane is far more complex including path selection, bandwidth reservation and management procedures to extract and abstract the information about the status of the physical layers. The main work is done by IHP in Frankfurt/Oder, supported by Dortmund University of Technology (Figure 3) and RWTH Aachen University. Experts in routing protocols from Siemens Corporate Research in Munich have contributed to the path selection algorithm.



Figure 3: Professor Rüdiger Kays (left) and a young researcher at the lab in Dortmund

Collaboration across Europe

Meanwhile, a test lab is being set up by Thomson in Rennes to integrate all the components of the first demonstrator version. The experts for the different physical media are distributed all over Europe as well. For infrared communication it is the University of Oxford (Figure 4), for powerline technology SPIDCOM in Paris, and for WLAN Dortmund University of Technology who also provides experts to the Inter-MAC team. France Telecom in Lannion, the University of Rome, and experts from Telefonica in Madrid are the main contributors to the documentation team.



Figure 4: Checking the infrared demonstrator at the University of Oxford

Currently, many people from the OMEGA consortium are preparing the first public demonstration by end of February 2010. Simultaneously, the second, enhanced demonstrator version is set up. This full featured demonstration will be shown as project conclusion at the 3rd OMEGA Open Event in Q1 2011.

With the first OMEGA demonstrator at the France Telecom premises in Rennes, a circle will be closed. An idea born there three years ago and then spread out over Europe will return as a real implementation.

Andreas Foglar, Lantiq

Past events

OMEGA at IEEE GLOBECOM 2009

From 30 November to 4 December 2009, the IEEE Communications Society's premier flagship conference took place in Honolulu, Hawaii. This year, GLOBECOM's theme – "Riding the Wave to Global Connectivity" – specifically matched to the conference location.

Record number of paper submissions

The programme included 11 technical symposia, 10 workshops and 24 tutorials. Together with a comprehensive list of business forums and special sessions, the conference attracted more than 1500 attendees – way beyond the expected number. With 3,200 symposium paper submissions, GLOBECOM 2009 reached a record high. With the help of more than 5,000 reviewers, 1,207 papers were accepted, yielding an overall acceptance rate of 34.8% and 184 sessions in total.



Six OMEGA papers

OMEGA partners presented six papers in total. For the technical symposia, two papers were contributed by France Telecom on Powerline Communications and one paper was contributed by Dortmund University of Technology on efficiency in wireless home area networks.

In addition, there were two contributions from France Telecom and Dortmund University of Technology, respectively, to the International Workshop on Multi-Gigabit MM-Wave and Tera-Hz Wireless Systems (MTWS2009).

Furthermore, RWTH Aachen University presented a paper on wireless mesh networks at the 5th IEEE Broadband Wireless Access Workshop.

Further information is available on the [GLOBECOM website](#)

Oliver Hoffmann, TU Dortmund

Upcoming events

2nd OMEGA Open Event

Rennes, France, 24 – 25 February 2010

Please register by 29 January 2010 if you wish to participate. Participation is free of charge.

Further information on the programme and how to register is available on the [Open Event page](#)

MobiLight 2010

Barcelona, Spain, 10 – 12 May 2010

OMEGA will organize a special session dedicated to wireless home networking via radio technologies and smart wireless optics and themed "Advanced wireless technologies for a converged ultra-broadband home network." Furthermore, there will also be a tutorial on radio technologies given by OMEGA.

[Conference website](#)

Future Network & Mobile Summit 2010

Florence, Italy, 16 – 18 June 2010

OMEGA is planning to submit and present several papers.

[Conference website](#)

About OMEGA

OMEGA is an Integrating Project in the ICT area funded by the European Commission under the Seventh Research Framework Programme (FP7). The project is running for three years from January 2008 to December 2010.

OMEGA will develop a user-friendly home area network capable of delivering high-bandwidth

services and content at a transmission speed of one Gigabit per second. The interdisciplinary project consortium consists of 21 European partners from industry and academia.

[OMEGA website](#)

2nd OMEGA Open Event 2010

Rennes, France
24–25 February 2010

Purpose of the event

The Open Event will present the state of the art on home networking technologies and make the participants familiar with OMEGA's concepts and technological solutions. For the first time, OMEGA will perform live demonstrations of its leading-edge research results.

Target audience

The target audience of the Open Event includes:

- Experts and decision-makers from network operations
- Experts from other ICT research projects working on related issues
- Representatives from standardisation organizations
- Graduate students



Topics

The Open Event will cover the following topics:

- Radio
- Power Line Communication (PLC)
- Wireless Optics
- Inter-Mac

Registration

The deadline for registrations is **29 January 2010**. The number of participants is limited to 80. Participation in the event is free of charge, but registration via the event web pages is required.

Further information

Further information is available on the Open Event web pages at www.ict-omega.eu/events/open-event-2010.html.