

Editorial

Dear reader,

The OMEGA project has entered its final phase. Preparations for the 3rd OMEGA Open Event in Rennes in February are ongoing. An important part of these preparations is the work on the demonstrators. One of the core elements will be a demonstration of OMEGA's InterMAC solution. Read the report by Marcin Brzozowski from IHP on the latest status of the InterMAC software implementation.

Directly related to this work are standardisation activities by Orange Labs that have culminated in the creation of a new IEEE standard group on Convergent Digital Home Networks, which is presented by Jean-Philippe Javaudin from Orange Labs.

I hope the information presented in this issue is of interest to you, and I would appreciate your feedback.

Milon Gupta, editor

Project results & activities

InterMAC implementation for Linux

In the last weeks OMEGA finished the InterMAC implementation for a PC platform based on the Linux operating system. Moreover, we integrated three technologies into the demonstrator: Gigabit Ethernet, Wireless LAN IEEE 802.11n and Power Line Communication.



Upon setting up a new connection, like a movie stream, the InterMAC selects the best path that may contain different technologies, wired or wireless, according to the remaining capacity. In this way the InterMAC forwards various streams over different paths/media and avoids network congestion.

Moreover, if the InterMAC detects that a technology used suffers from communication problems, e.g. interferences in the wireless medium, it routes data over another medium, referred to as handover. In the worst case, i.e. switching from Gigabit Ethernet to wireless IEEE 802.11n, the multi-technology handover takes approx. 70 ms.

Although we implemented the InterMAC in software only, it achieves the forwarding speed of approximately 1 Gbit/s. The InterMAC nodes we used were common desktop PCs, with Intel Core2Duo and Intel Core i5 processors, and not dedicated powerful servers. It shows that the InterMAC can be used on typical home PCs and still achieve very good performance.

However, we found out that the PCI interface, and not the processing power, is the bottleneck in gigabit speed forwarding. With PCI network cards we achieved the maximum forwarding speed of about 350 Mbit/s. Only when using cards based on PCI Express interface the InterMAC supports the gigabit speed.

In the next steps we intend to integrate the 60 Ghz wireless technology into the InterMAC demonstrator. Then, we will have four different media integrated into the final demonstrator.

Marcin Brzozowski, IHP

New IEEE standard group on Convergent Digital Home Networks

IEEE Standards Association

On 8 November 2010, the IEEE Standard Board approved the creation of a new group labeled P1905.1 "Convergent Digital Home Networks (CDHN)". The group is chaired by Paul Houzé from Orange Labs, France Télécom.

In the next months, this group will start the standardisation of an abstraction layer for multiple home networking technologies. Similarly to the inter-MAC convergence-layer approach developed in the OMEGA project, this abstraction layer aims to provide a common data and control Service Access Point to heterogeneous home networking technologies. Such a convergent specification will be beneficial to the industry, operators and for the public as it will:

- enable a faster growth home network technologies market,
- increase competition among home network suppliers, leading to lower prices for the final user,
- provide improved performance for the applications supported by the home network.

Expected benefits of the standard comprise the facilitation of installation as well the operation and management of multi-technology devices in home networks. It will improve the quality of experience (QoE) and quality of service (QoS) for even more demanding applications over a multi-technology home network.

Jean-Philippe Javaudin, Orange Labs

Past events

OMEGA at the 5th International Next Generation Access Network Forum - FTTx

Berlin, Germany, 13 – 15 December 2010



On the first day of the 5th International Next Generation Access Network Forum, Adam Kapovits from Eurescom (photo) presented results from OMEGA and their relevance for Fibre To The Home (FTTH). He pointed out how to harness the potential of FTTH through sound in-house connectivity, using technologies to deliver large bandwidth in every room, and how OMEGA contributes to this with its Inter-MAC.

[Conference website](#)

Upcoming events

3rd OMEGA Open Event

Rennes, France, 23 – 24 February 2011

The 3rd 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. At the event, OMEGA will demonstrate some of its final results.

Programme and registration are available on the [Open Event page](#). Participation is free of charge. The registration deadline is **31 January 2011**.

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 20 European partners from industry and academia.



The screenshot shows the OMEGA website homepage. At the top, there is a navigation menu with links for Home, About us, Publications, News, Events, and Contact. Below the menu, the main content area is divided into several sections. On the left, there is a sidebar with a 'Home' section and a 'Pictures from the 2nd OMEGA Open Event in Rennes, 2010' section. The main content area features a 'Welcome to the website of OMEGA, the Home Gigabit Access project.' section, followed by a detailed description of the project's goals and consortium. Below this is a diagram illustrating the home network architecture, showing a 'Home Gateway' connected to various rooms (Bedroom, Office, Lounge) via 'Mesh Radio' and 'PLC or Radio' technologies. On the right side, there are sections for 'Events' (listing the 3rd OMEGA Open Event 2011) and 'NEWS' (listing recent newsletters from September 2010 and March 2010).