Gigabit Home Networks, OMEGA ICT project

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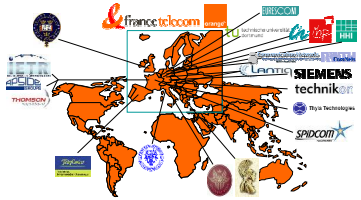
SEVENTH FRAMEWORK PROGRAMME

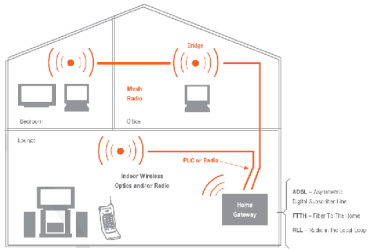
Background

Media richness of the services has had a constant increase rate of about 8% per year over the last century. FTTH access is 100 Mbps symmetric thus implies Gbps indoors. However, as there are no existing solutions to spread this access rate all over the house by the existing technologies, there is a major bottleneck risk in the home network for future services.



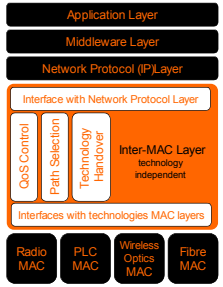
The OMEGA vision

The OMEGA network is centred around the needs of the user: **gigabit RF** and **optical links**, combined with more robust wide-area RF and **power line** communications will provide seamless connectivity within the home and its surroundings.



Inter-MAC, Convergence Layer

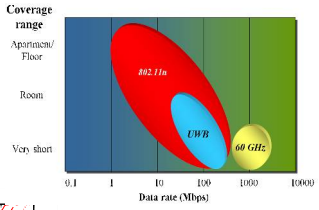
A **technology-independent MAC layer** will control the home network and provide services as well as connectivity to any number of devices the user wishes to connect to the OMEGA network. This Inter-MAC layer will allow the service to "follow the user" from device to device.

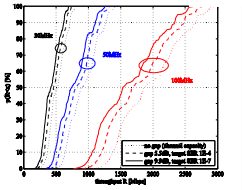


It applies at **layer 2 technology** independent procedures to manage the network resources, interacts with the signalling, the management and the data plane to transparently setup a Home Area Network.

Connectivities

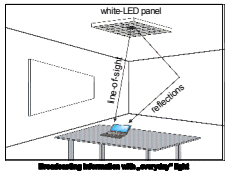
Radio Communications
WLAN at 5 GHz for house coverage
WPAN at 60 GHz for in room multi-Gbps





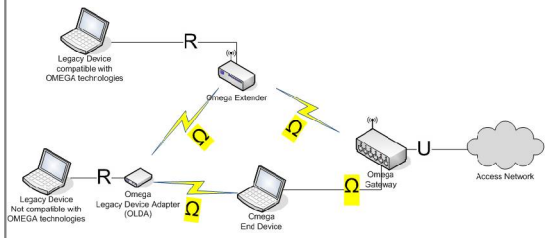
Power Line Communications
Improved PLC with extended bandwidths up to 100 MHZ for Gbps backbone

Wireless Optics
Infrared to provide Gbit/s line-of-sight communications, and Visible Light providing broadcast coverage at lower data rate.



Network Architecture

An OMEGA network can be considered as a set of OMEGA devices **implementing the Inter-MAC layer.**



Interfacing of **legacy devices** (LD) can be achieved thanks to the **R interface**

Conclusion

OMEGA enables the sharing of large-data user-generated content, which will, in turn, raise the expectation for higher data rates. This gives the possibility of delivering new high-bandwidth services to the user throughout the home.

OMEGA project website http://www.ict-omega.eu *Contact OMEGA* info@ict-omega.eu

Acknowledgement
The research leading to these results has received funding from the European Community's Seventh Framework Programme FP7/2007-2013 under grant agreement n° 213311 also referred as OMEGA.

European Commission
Information Society and Media