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IST-2001-37613	6POWER	IPv6, QoS & Power Line Integration

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Abstract:

This document is a summary of the more relevant information of the project, including the objectives, technical approach, key issues, and expected impact.

Includes also the list of participants.

Keywords:

Objectives, Technical Approach, Key Issues, Expected Impact

Revision History

The following table describes the main changes done in the document since started.

Revision	Date	Description	Author (Organization)
v1.0	20/07/2002	Document creation	Jordi Palet (Consulintel)
v1.1	20/08/2002	PSC Review	Pedro Ruiz (ASSA)
v1.2	20/08/2002	Minor corrections	Chano Gómez (DS2)

Executive Summary

This document is a summary of the 6POWER project more relevant information, including the objectives, technical approach, key issues, and expected impact.

Includes also the list of participants.

Table of Contents

Table of Figures

1. RELEVANT DATA

Project acronym:	6POWER
Project name:	IPv6, QoS & Power Line Integration
Contract no.:	IST-2001-37613
Project duration:	24 months
IST Action Lines:	IV.2.3, IV.7.2, I, VII.1.2
Clusters:	IPv6, Mobile Services and App.
Total Cost:	4.817.599 €
EC Funding:	2.133.974 €

Figure 1-1: Relevant Project Data

2. MAIN OBJECTIVES

The main goal of the project is to contribute to ensuring affordable broadband access and the deployment of IPv6 in Europe, as stated in the conclusion of the Presidency from the Barcelona European Summit.

In order to achieve this goal, the project will research the native support and deployment of IPv6, QoS and other advanced services over Power Line Communication networks.

The project has defined the following objectives:

- Research native IPv6/IPv4 and related protocols or advanced network services (QoS, security, multicast, mobility and so on) support over broadband Power Line, in several platforms/devices, including the necessary standardization activities mainly on the IETF, but not limited to.
- Adaptation of several next generation applications and services required for a correct evaluation of this technology and the actual support of the advanced network services, including VoIP, multi-conferencing and audio/video streaming.
- Field Trial and Evaluation of several devices, services and network prototypes, interconnected with other major IPv6 network trials, like Euro6IX and 6NET.

Other key features of this project with respect to other projects that may be related in any way to PLC, IPv6 or QoS (among other advanced services) are:

- For the first time, a large-scale deployment of very high speed broadband PLC will be performed in Europe. Currently deployed technologies in Germany and other European countries only provide data rates up to 2 Mbps and do not have QoS support. The PLC technology deployed in this project will provide up to 45 Mbps and will support QoS features to the upper layers (IPv6) through well-defined and standardized interfaces.
- The project will provide the support for emerging technologies and will make possible their actual evaluation and assessment. These technologies, like VoIPv6, and advanced “next generation” digital set-top-boxes, will have the right scenario to benchmark the next generation services as high-speed interactive TV, secure e-commerce, virtual shopping, infotainment and related applications.
- The project will be active in dissemination and linkage activities, with other related Foras and Projects, including IPv6 Forum, 6Link, IPv6 Cluster, and other events related to IPv6, PLC, and related technologies, in order to publicize the project results.

3. TECHNICAL APPROACH

In order to meet the objectives of the project, the following work packages have been defined:

- WP1: Coordination, Interconnection & Dissemination
- WP2: Integration of IPv6 Advanced Services over PL
- WP3: Network Architecture Design and Implementation
- WP4: PLC Devices
- WP5: Next Generation Applications
- WP6: Trials and Evaluation

WP1 offers to the rest of Work Packages both, administrative and technical management skills. This WP is also responsible for the dissemination and exploitation of the results, and the coordination/liaison with other related networks and projects.

WP2 and WP4 are closely related because WP4 is going to use very directly the PLC functionalities provided by WP2 low layers research.

In addition, WP3 and WP4 need also to be closely coupled as long as WP3 will design and implement a network using the equipment provided by WP3.

- WP3 will provide the network that will be used by the rest of the WP.
- WP4 includes the development of the different pieces of equipment to deploy an end-to-end IP over PLC architecture. These developments include the Head End, the Home Gateway, a Set-Top Box and some adaptations for end devices. Also will link the “home appliances” to offer home automation.
- WP5 will heavily exercise the network running Next Generation Applications and even VoIPv6 over PLC.

WP6 will offer feedback to the different WP about the results of the trials. In order to be effective, WP6 will receive support for performing the trials from the other WPs, creating a bi-directional communications channel, finalizing with the evaluation process.

4. KEY ISSUES

The success of the 6Power project will be measured against the achievement level of:

- Good management of project activities to meet the milestones according to agreed plans, on top of the rest of the activities, including the dissemination and awareness of the project results (WP1).
- Integration of IPv6 protocols and advanced services over Power Line Communications Technologies, and the related standardization activities (WP2).
- Design, Procurement and Deployment of 6Power networks and the interconnection with major IPv6 test beds, based on other technologies, according to defined specifications (WP3).
- Development of the software and hardware for the devices to be integrated with IPv6 and PLC (WP4).
- Adaptation and/or integration of several next generation applications, mainly related to audio and video, to be used over the PLC/IPv6 implemented network (WP5).
- Trial and evaluation activities, involving users, in order to use the network, advanced services and applications (WP6).

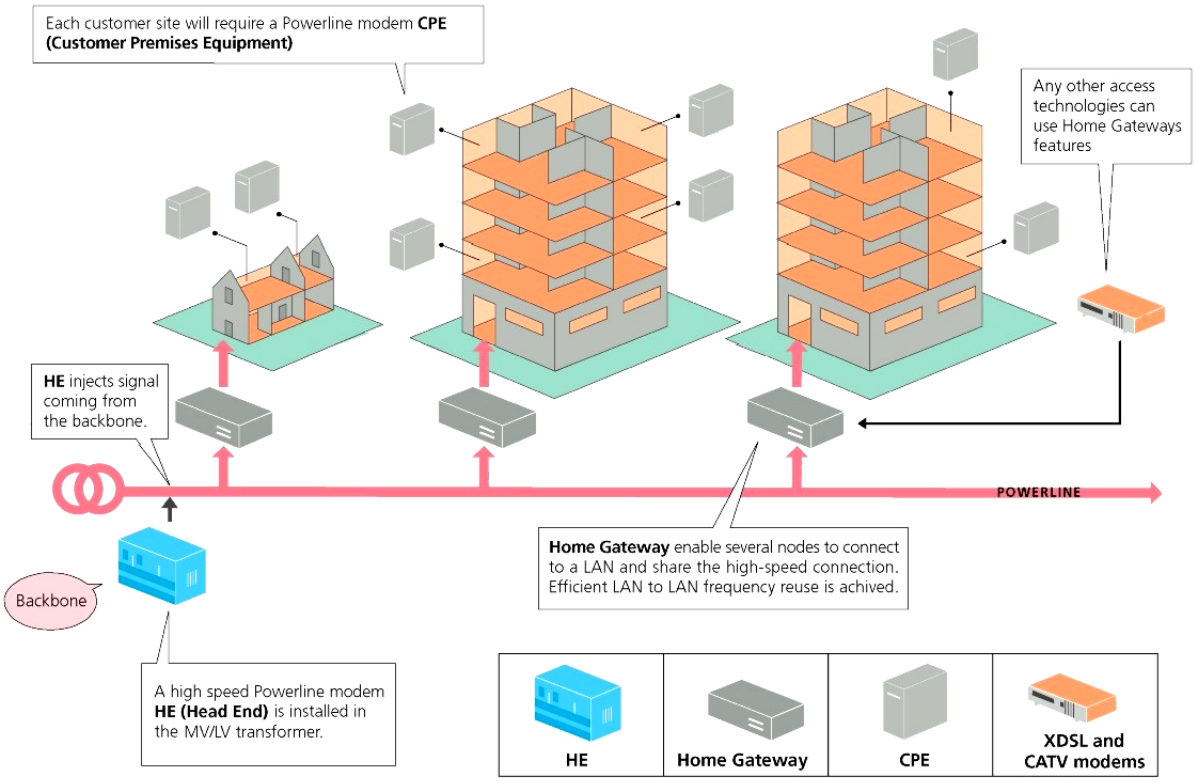

Figure 4-1: Typical PLC Network Topology

5. EXPECTED IMPACT

The expected impact of the project is to ensure affordable broadband access with PLC, offering QoS and the deployment of IPv6 in Europe.

6. LIST OF PROJECT PARTICIPANTS

List of Participants		Coordinators Contact Details
Diseño de Sistemas en Silicio (DS2) Consulintel Agora Systems (ASSA) 6Wind MultiComLab (MCL) University of Murcia (UMU) Endesa Netfactory Pace Micro Technology	E E E F CH E E UK	Jordi Palet – Consulintel San José Artesano, 1 28108 – Alcobendas (Madrid – Spain) Tel: 34 91 151 81 99 / Fax: 34 91 151 81 98 Email: jordi.palet@consulintel.es Alfonso Rubio – DS2 Charles Robert Darwin, 2 46980 – Paterna (Valencia – Spain) Tel: 34 96 136 60 04 / Fax: 34 96 136 62 50 Email: alfonso.rubio@ds2.es

Figure 6-1: List of Project Participants

7. SUMMARY AND CONCLUSIONS

The main goal of the project is to contribute to ensuring affordable broadband access and the deployment of IPv6 in Europe, as stated in the conclusion of the Presidency from the Barcelona European Summit.

In order to achieve this goal, the project will research the native support and deployment of IPv6, QoS and other advanced services over Power Line Communication networks.