Project Achievements

GenesisX: Next Generation Services Extended

The objective of the project was to add mobility enablers on top of the service and deployment platform obtained in project Genesis (Celtic Call4), following IMS/NGN architectures capable of serving advanced Web-integrated multimedia services. GenesisX has explored alternative access through technologies such as ad hoc networking or P2P, in situations where it was not possible to access the GenesisX network.

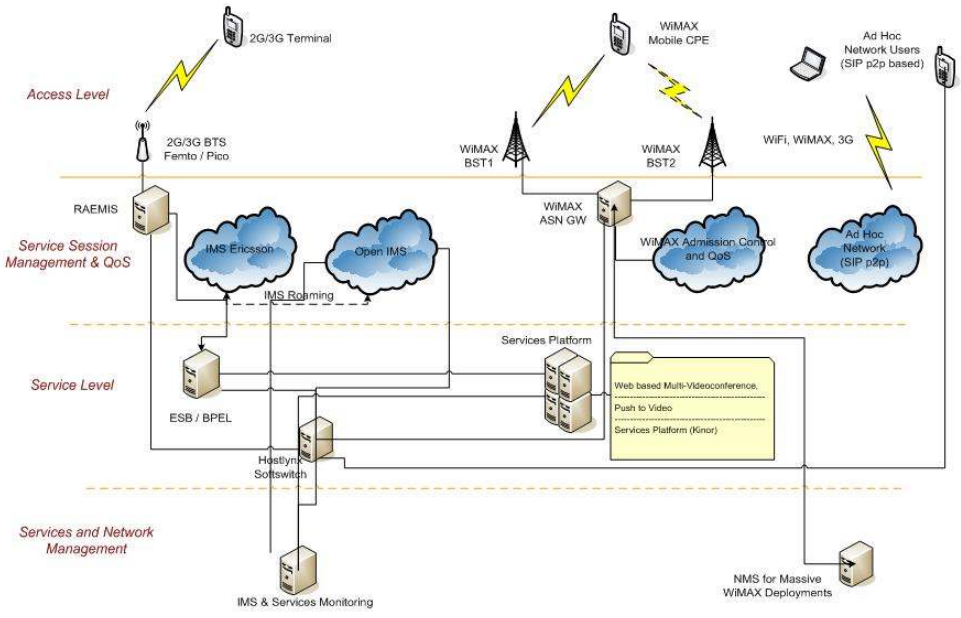
Main focus

The main focus of the GenesisX project was to build on the work undertaken on the previous project by adding mobility enablers on top of the service and deployment platform. In addition, the project made this platform capable of serving advanced Web-integrated multimedia services over an all IP network with fixed and wireless access lines.

The platform deployed uses two Open IMS Cores (one deployed in Spain and another one in Ireland) supporting IMS Core roaming, an IMS-adapter (RAEMIS) that allows 2G/3G terminals to connect to IMS core and to use the IMS Services. A notable new service is Push2Video, which enables the final users to send short Video Messages to a group of contacts in a rapid way. GenesisX provides as well SIP clients which are able to work without the connection to a SIP Proxy using a SIP P2P cloud. Finally, a Network Monitoring System evaluates in real time the status of the network and the services. WiMAX CPEs based on IEEE 802.16e standard have been used in the wireless access network supporting such VoIP P2P SIP clients and video streaming.

Approach

New tools for quick development of IMS Services based on BPEL have been developed. This was the basis for implementing mobile services (Next Generation Services) over an all IP network, like Push to Video. GenesisX project has re-



GenesisX

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Project Websites

www.celticplus.eu/Projects/Celtic-projects/Call6/GENESISX/genesisx-default.asp

projects.celtic-initiative.org/GenesisX/

searched on alternative access through technologies such as ad hoc networking based on SIP P2P for scenarios where the connectivity to a softswitch is not available and on IMS internconnection & roaming scenarios.

In the access network, the project developed Mobile Broadband capabilities based on WiMAX technology with support for guaranteed QoS for Next Generation Services as well as tools to deploy and manage massive networks based on WiMAX.

Also in the access side, the integration of 2G/3G access networks into the IMS core enabling access to IMS services from 2G/3G handsets have been researched.

Achieved results

The project produced results at different levels. The platform includes tools for rapid development of IMS Services and support for advanced services through the Hostlynx Class 5 and the Kinor SIP Servlet container. On top of the IMS/NGN platform some advanced services have been developed, including Push2Video service, which uses a multi-video user interface ready to create conversations, or send and receive video files. GenesisXRM application was developed as example of the usage of the MS Services Development Kit. SIP Softphone clients were also developed using Peer-to-Peer based registar modules for cases where connectivity to outside the LAN is lost.

NGN testbed capabilities were enhanced with Femto/Pico infrastructure and with femto/pico location tracking system. A Pico Service Platform was achieved that enables the utilization of IMS Services in 2G/3G terminals. Two IMS cores were interconnected between ITA and TSSG, an roaming scenarios were tested.

The access capabilities were improved adding Management of QoS in WiMAX. The new schema includes creation, deletion of service flows in accordance with the WiMAX Forum's standard QoS profiles, and a classification per QoS classes (USG, eRT-VR, RT-VR, NRT-VR, BE), per flow, per subscriber policing. The, policy marking can be based on DSCP and/or 802.1p. In the connection to the transport network, innovative technologies with QoS capabilities were considered and finally MPLS was selected. A proof on concept that integrates WiMAX and MPLS was implemented. Different QoS parameters were asigned to each kind of traffic (data, voice or IP TV).

The Network Management was also considered and new features were added like the capability for deploying massive WiMAX networks and for monitoring IMS Services.

In terms of dissemination, the partners monitored some Standardization Bodies as IMS 3GPP/NGN TISPAN (TSSG, Druid and ITA), OMA PoC (Telefónica I+D) or WiMAX Forum (Alvarion).

GenesisX was presented at some events as Celtic Event (2010 and 2011) and NEM Summit (2010). Several publications were achieved at different conferences, as IEEE conference 2010, Telecom I+D 2010, IADIS Web Based Communities and Social Media, 7th International Conference on Intelligent Environments (IE'11), INOVARE. Finally an article was published in Eurescom's Celtic News.

Impact

Workability trials of new standards include ITU X.733 Alarm Reporting Function's perceived severity field for at the WiMAX NMS, and Management of WiMAX CPEs through TR-069 & OMA-DM (Alvarion Romania), WiMAX Forum's standard QoS profiles (Alvarion Spain), Open Mobile Alliance Push to Talk over Cellular (Push2Video, TiD), and 3GPP ABIS Session Initiation Protocol.

GenesisX project partners intend to impact the telecommunications market with the new products developed, as Push2Vide Service (Telefónica I+D), SIP P2P Client (Mailvision), XRM web-application&iPhone application (TSSG), a tool to manage WiMAX CPEs and capture, store and display KPIs for WiMAX BTSs and CPEs (Alvarion Romania), a Monitoring System (ITA) and RAEMIS system (Druid).

However, it's important to remark that GenesisX platform is not aimed at being launched as a commercial product as a whole, it intends to be a platform that integrates several proof of concept to demonstrate the goodness of the technologies used along the project, and that in most cases interoperated between them.

About Celtic

Celtic is a European research and development programme, designed to strengthen Europe's competitiveness in telecommunications through short and medium term collaborative R&D projects. Celtic is currently the only European R&D programme fully dedicated to end-to-end telecommunication solutions.

Timeframe: 8 years, from 2004 to 2011

Clusterbudget: in the range of 1 billion euro, shared between governments and private participants

Participants: small, medium and large companies from telecommunications industry, universities, research institutes, and local authorities from all 35 Eureka countries.

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