

Project Achievements



High Definition Videoconferencing over IP Environment



The mission of HDVIPER is to open up the traditional videoconferencing market and to establish European players as leading technological partners in videoconferencing. The HDVIPER consortium has designed and developed an open and scalable High Definition (HD) videoconferencing platform over an IP environment.

Main focus

Collaboration over distance has increased during the last decade thanks to the improvement of IP networks and broadband access to the Internet. Video-mediated technology plays an important role in such collaboration, with the possibility to save a large amount of time spent on travelling and to increase the knowledge dissemination.

Furthermore, today's commonly used Standard Definition (SD) picture is not detailed enough for many applications, especially in healthcare where details may be crucial. This motivates the introduction of High Definition (HD) picture into videoconferencing.

Our survey over commercial solutions

available nowadays showed that currently there are no HD videoconferencing platforms with open architecture available on the market. Commercial solutions are mostly closed platforms with limited functionality. Interoperability between products of different manufacturers often faces problems in fields like session signalling, media and codec negotiations, network and quality of service parameters reservation.

In our project we developed an open HD videoconferencing platform focused on interoperability.

Approach

The first phase of the HDVIPER project was to gather requirements from the potential end users classified into four different groups: home, office, healthcare and school scenarios. This delivered a specification of requirements that were the input for phase two: the design of the platform and implementation of the media, control and network services for the HD videoconferencing platform.

Within the context of the media services,

HDVIPER

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Partners:

Alcatel-Lucent España, Spain

Alkit Communications, Sweden

Androme Ibérica, Spain

Borderlight, Sweden

i2CAT, Spain

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Two pictures from the HDVIPER Final Workshop in Barcelona (October 2009), where a live demo was done using 3 end-points. In the left image the camera located in PSNC premises in Poznań is focusing through the window to a panoramic view of the city, while in the right picture two scenes from our colleagues in Sweden and Poznań appear.

different video resolutions, codecs and formats were considered. The control services provide tools that are responsible for management of the conference in a secure and flexible way. The network services facilitate the transmission of the media content providing the desired quality of service (QoS).

The third phase of the HDVIPER project consisted of demonstration activities using the developed platform in the selected scenarios.

Throughout the project duration, we have carried out dissemination activities and a continuous competition analysis was also performed.

Achieved results

The HDVIPER project has developed an open HD videoconferencing platform over the Internet Protocol (IP).

The overall architecture is based on the Session Initiation Protocol (SIP) for synchronous signalling, the Real-time Transport Protocol (RTP) protocol for media stream delivery and a Service Oriented Architecture (SOA) paradigm compliant architecture based on Web Services.

The platform consists of three classes of services: control plane service, network services and media services.

The Control and Network services are divided in SIP services, fo-

cus on establishing and negotiating multimedia communication sessions, and SOAP services providing value-added services as presence or bandwidth management. An Enterprise Service Bus (ESB) implementation has been used for the deployment of Control and Network Services, including a Presence Agent, a Call-back Service, a Services Manager and a Bandwidth On Demand Service.

The Media Services also contain functionality for audio and video capture and RTP packetization. The H.264 and Speex were the chosen codecs for video and audio. Moreover, it has been implemented a high performance H.264 codec based on the Open Source x264. This new implementation takes advantage of parallelization to achieve high performance on multicore processors.

An additional advantage of The HDVIPER platform is that it is open-source, thus, it allows third-party companies to deploy and add new services to the platform.

A number of dissemination and demonstration activities have been performed, among them: the Final Workshop in Barcelona (October 2009), participation in the CELTIC Event in Paris (February 2009), and the Eureka Innovation Days in Lisbon (June 2009).

Throughout the project, a competition analysis and business plan has been performed.

Impact

The HDVIPER project has created an open platform architecture where any endpoint can easily be part from it. The soft phones from Alkit, KTH and Androme, as well as the MCU from i2CAT have been adapted to this new platform, thus making it possible to interoperate within an HD videoconference.

The release of the platform as open source and the use of web services, enable that any product, independently of used technology could take benefit from the HDVIPER platform. To wide it up, we created the HDVIPER Seal, which certifies the interoperability of the product with any other HDVIPER Seal compliant product.

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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