

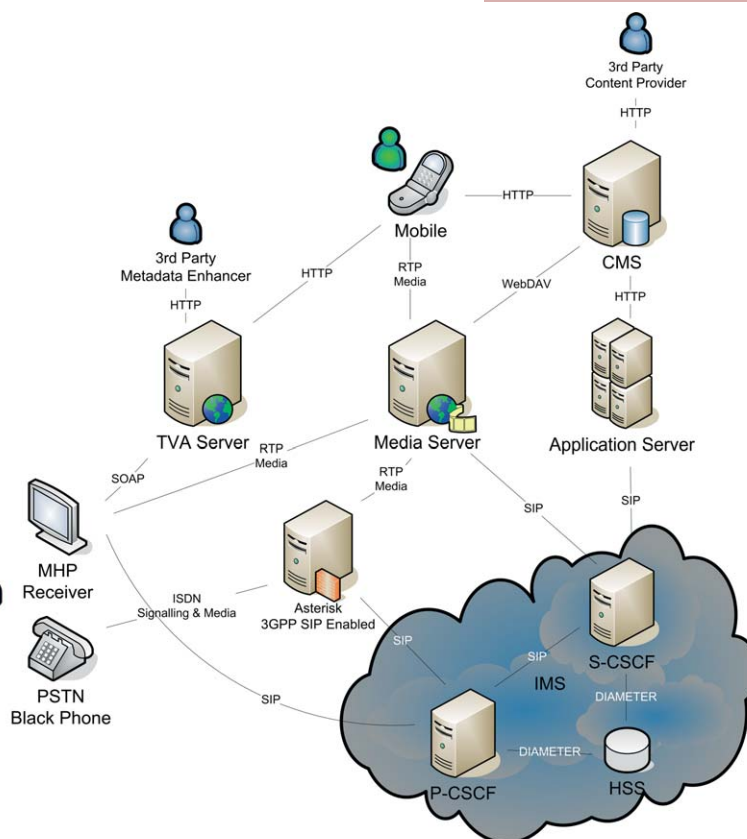
## Integrated Multimodal Platform for Ubiquitous multimedia Service Execution

**Mobile users demand innovative multimedia applications traditionally associated with the Internet. A new network architecture is required that allows these new services to be developed and deployed quickly, efficiently and by different independent actors. The IMPULSE platform aims to solve these particular requirements.**

### Main focus

The project aimed at the definition and implementation of a distributed platform that provides an effective framework for easy development, deployment and integration of innovative multimedia services on the Internet with traditional services coming from the world of mobile telecommunications. At the heart of this new architecture is the SIP/IMS Application Server, conceived as a container of IP Multimedia services. Other major elements of this server side solution other than the core IMS infrastructure are the Content Management System

(CMS), covering the necessary stages for content acquisition and description, the Media Server, providing a customized delivery of content adapted to customer's devices, the 3GPP SIP enabled Asterisk gateway, which performs both signalling and media transcoding back and forth between the IMS and PSTN realms. Last but not least, a TV Anytime media server provides access to EPG data throughout the world. On the client side, three different clients were deployed, a 3GPP SIP/ MHP enabled Set-top Box, a HTTP/Flash enabled mobile phone and a traditional "black" PSTN phone.



## Impulse

Project ID: CP1-039  
Start Date: 1 September 2004  
Completion date: 31 December 2006

### Partners

Akumiitti, Finland  
France Télécom R&D, United Kingdom  
InAccess Networks, Greece  
Nethawk Oyj, Finland  
Qprojets Ltd, Finland  
Telefónica I+D, Spain  
TVC NetMedia, Spain  
University of Piraeus Research Center, Greece  
VTT Electronics, Finland

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### Project web site


<http://projects.celtic-initiative.org/impulse>

## Approach

A complex network of VPN, WebDAB, SOAP, HTTP and SIP connections interconnecting together servers and client terminals alike, spanning along 4 different European countries was deployed to support the IMPULSE platform.

A long and somewhat difficult fine-tuning process ensued to make sure every single interface between elements worked properly. Once deployed, different services were accessed by various terminals using various access networks:

 **DAS** – Digital Assistant Service. Stuck in a traffic jam? Bored while commuting to work? IMPULSE Digital Assistant Service will send you the most updated breaking news or a hilarious video snippet on the terminal of your choice.

 **UEPG** – Ubiquitous Electronic Program Guide. Getting home late after a hard day at work? Never miss a series or TV show again, thanks to IMPULSE ubiquitous Electronic Programming Guide.

## About CELTIC

Celtic is a European research and development programme, established as Eureka cluster, 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. Launched in November 2003, Celtic (Cooperation for a sustained European Leadership in Telecommunications) was founded and has been supported by major European telecommunication players, both vendors and operators. Celtic fills the gap between public R&D programmes not specifically focused on telecoms and short-term R&D efforts by the telecoms industry

**Timeframe:** 8 years, from 2004 to 2011

Retrieve content at will and watch it either on your mobile handset or on TV through a set-top box.

Alongside the development, deployment integration and system testing, customized traffic analysis utilities were developed, tested and extensively used facilitating considerably the whole process.

## Achieved results

The IMPULSE project has shown the right path towards converged communications. The access to the same service through different devices, whether it may be a mobile phone, a set-top box or a PSTN phone has proven to be not only possible, but fairly straightforward, thanks to developed IMS user agents present in the different devices (i.e. STB) or to the adoption of intermediate gateways (i.e. ASTERISK GW). Further to this, the adoption of a standardized IP core network and its fully specified connection/interface to the application/service layer has accelerated the development and, most importantly, the

deployment process. On the other hand, the distributed infrastructure of the platform has proved to be difficult to maintain during the research phase, being prone to connectivity issues. However, this need not be the case in a production set-up, whether distributed or centralised.

## Impact

IMPULSE is expected to have a manifold follow-up in industry, standardization, research, and Open Source. On the industrial side, several of the prototypes such as the IMS Application Server, the Content Management Server, the Media Server, the 3GPP enabled Asterisk Gateway and the new M5 Analyser applications have/will find its way to market in the next few months. In the Open Source area, the ASTERISK gateway will hit in the short-term the Open Source shores while the IP Multimedia Subsystem has been opened up to third party developer community. On the standardization side, some submissions were made to the DVB-MHP, DVB-IPi & HGI forums among others. Last but not least, several Celtic Projects such as Celtic MOVIES project and Celtic HERMES project will benefit from some of the outcomes of the IMPULSE project.

**Total budget:** in the range of 1 billion euro, shared between governments and private participants

**Participants:** companies from the telecommunications industry (small, medium and large), universities, research institutes, and local authorities from all 35 Eureka countries may participate in Celtic projects.

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