Project Information

Scalable Video Coding impact on Networks

Scalnet focuses on the impacts and needed adaptations on core, access and home networks, wired and wireless, fixed and mobile, in order to efficiently deploy the SVC (Scalable Video Coding) technology. Scalnet addresses missing studies on SVC and will set up a test & demonstration laboratory to help the deployment of this technology, for the benefit of major key players in this area.

Main focus

Scalnet is focused on the impacts of SVC techniques on:

- Core, access and home networks,
- Related management and Quality of Service and Experience tools,
- Distributed video processing (transcoding, trans-rating, filtering) and video storage equipments,

Related management, control and provisioning tools for multimedia services.

The main target of this project is to demonstrate the interest and potential of using SVC technology over networks, in particular heterogeneous ones.

Scalnet also aims at helping the deployment of the SVC technology inside the networks.

These studies will be done for the benefit of:

- The network operators and content providers, in terms of bandwidth optimization, downsizing of storage servers and lower computational needs for video processing within the networks.
- The final users, with the ability to get seamlessly new multimedia services, tailored to their personal usage, access and devices, with a potential to switch between different networks and terminals while seamlessly watching the same content.

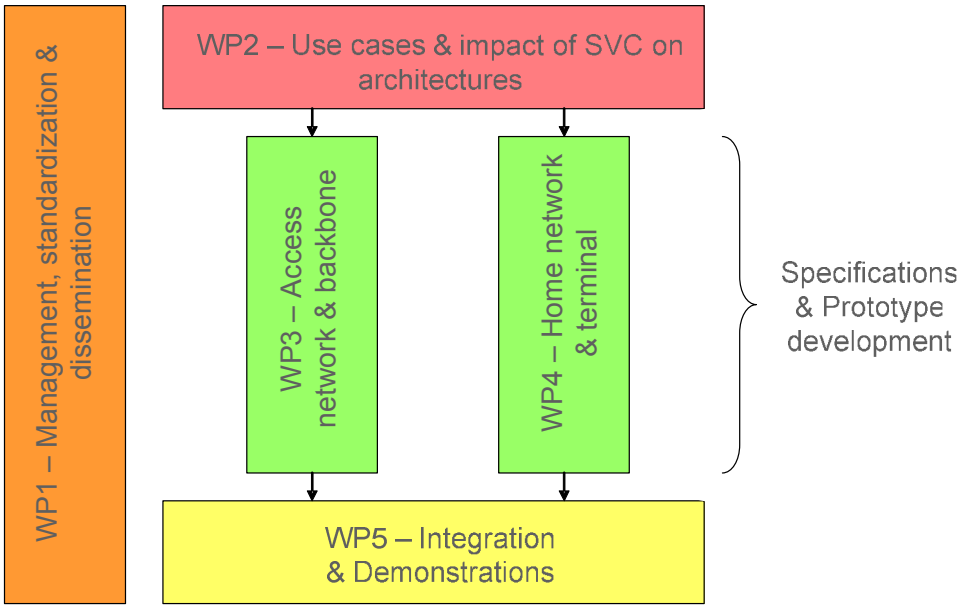
Approach

The approach followed by Scalnet is summarized by the figure below.

WP1 is in charge of the global project coordination, management, dissemination and standardization.

WP2 is the core task of the project, dealing with case study definition, network architecture design and SVC impact analysis.

Strongly backed by WP2, WP3 and WP4 focus on the specification and development of the demonstrator prototypes. The first is devoted to access networks & backbones and the second to home net



SCALNET

Scalnet

Project ID: CP5-022

Start Date: 1 August 2008

Closure date: 31 July 2010

Partners:

APIF MOVIQUITY SA, Spain

Digita Oy, Finland

Design of Systems on Silicon, Spain

Klagenfurt University, Austria

Maxisat, Finland

RIS GmbH Internet- Solutions and Services, Austria

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www.celtic-initiative.org/projects/scalnet

www.scalnet.info

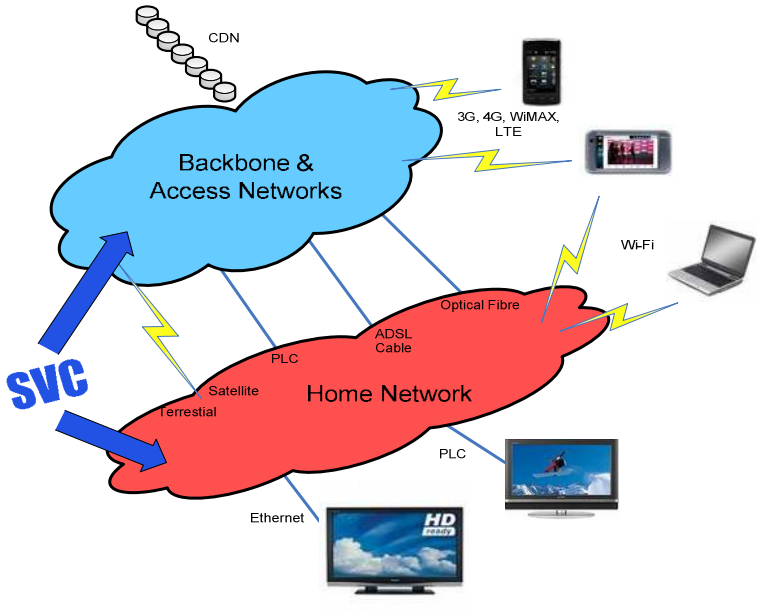
works and terminals. They will deliver to WP5 the main pieces of equipment for integration into the demonstration platform. WP5 will also validate the concepts and usages.

Main results

The major results of Scalnet will be an architecture that is optimised for the transport and the storage of SVC content, along with mechanisms to fully exploit the advantages of SVC when dealing with network issues and session mobility and continuity.

A major visible output will of course be the demonstrators. Among the planned demonstration scenarios are:

- **Session Mobility with Adaptation**: A consumer returns to home while looking at a VoD content on his mobile phone. When arriving in his living room, he swaps watching the content from his mobile phone to the TV set with no disruption, getting enhanced resolution and quality which are suitable for the TV display.



- Technical and visual advantages of SVC within congested access and home networks: Several use cases fall under this demonstrator, in particular:
  - **Adaptation to Network QoS**: A user is watching an SVC high-definition stream over IP, when his son starts a P2P file transfer which congests the home's DSL line. When congestion is detected, the SVC stream can gracefully degrade to a lower resolution, whereas a normal AVC (Advanced Video Coding) stream would have unacceptable quality.
  - **Adaptation in Network Mobility**: When a user moves physically from one point to another, she passes through different access networks, possibly using different technologies (such as WiFi, WiMAX and 3G). The use of SVC allows for the stream to adapt to the access network as needed, providing acceptable user quality throughout the whole time the user is in movement.

These demonstrators will be used to promote the project and its results in major international exhibitions.

Contribution to the standardisation bodies is also an important aspect of the project, in addition to publications and patenting activities when areas of investigations are discovered.

Impact

SVC is beginning to be considered as a good solution to optimize the required bandwidth and storage capacity inside a network (see DVB Scene # 28). However, until now, studies were limited mainly to coding/decoding issues. Network operators and content providers are waiting for studies and demonstrations dealing with network aspects of the problem. Scalnet's results will be a trigger for their decision to invest in SVC technology.

Dissemination work done inside the project both by industrial partners (exhibitions) and academic partners (publications) as well as the standardization work planned by most of the partners will help the operators to take the decision to go to SVC.

Thanks to Scalnet, industrial partners will be in a better position to design and manufacture terminals or network equipment fully compliant with SVC content delivery and able to exploit its benefits. Operators and other media industry players will thus be able to confidently deploy SVC-enabled networks and to develop the services linking fixed and mobile networks.

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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