SAVANT - Synchronised and Scalable AV content Across NeTworks

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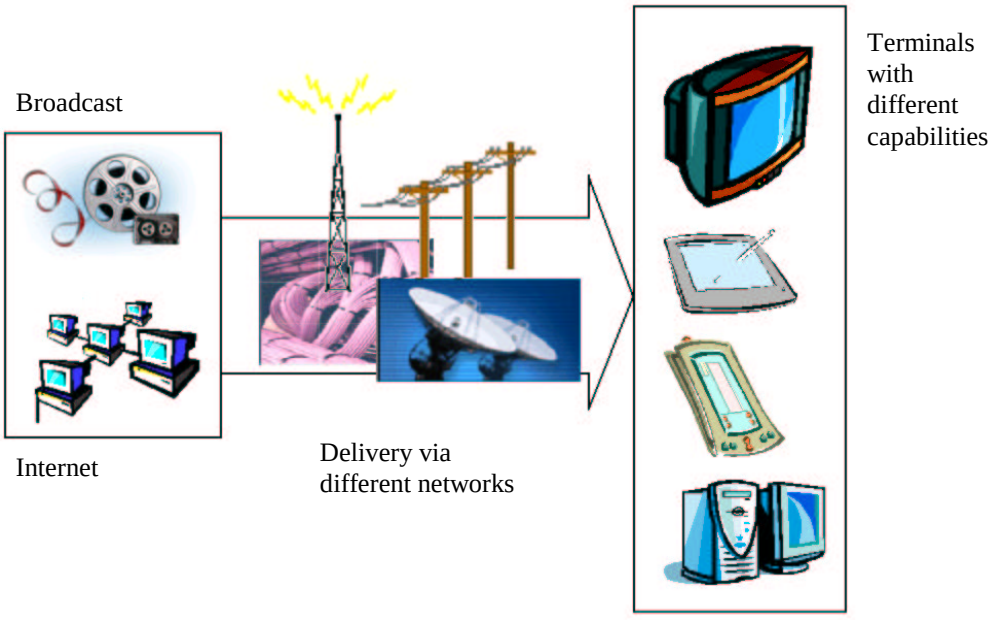
Queen Mary University of London (QMUL) is a partner in the recently launched European IST[1] project, SAVANT[2], which brings together key broadcasters, researchers, academics and industrialists across Europe, to advance the convergence of broadcasting and the Internet. SAVANT is developing integrated broadcast and Internet technologies simultaneously employing broadcast and telecom networks to deliver interrelated and synchronised multimedia content in an intelligent and transparent manner to end-users in order to achieve added-value services to conventional digital and interactive television. The project will provide scalable content and scalable services allowing end users to access and retrieve multimedia content under varying network conditions as well as to display such content on stationary and mobile terminals with different capabilities.



The SAVANT system has three key components: content producer, delivery and user terminal. With regards to the user terminal, the main goals of the project are to provide increased functionality for the end user as follows:

- **Service scenarios.** New types of interactive scenarios will be created including traditional digital TV together with enhanced services, consisting of rich media streamed via different networks, supporting scalability, QoS and synchronisation.
- **Scalable Content and Services.** Techniques will be developed for creating different types of content and services in a way that facilitates transmission over various delivery channels to multimedia terminals with various capabilities (from small hand-helds up to high definition displays), where they are reconstructed and displayed. Service components will typically consist of scalable content, 3D motion analysis and animation, messages from service agents, databases for betting and results, purchasing, games, search and retrieval, watermarking and conditional access, and scalable user interfaces.
- **User-transparent Content Access System.** A new system architecture supporting user-transparent seamless integrated service will be developed to access multimedia content from different and combined information sources (broadcast, Internet etc.) using a variety of user terminals.

[1] IST (Information Society Technology) is part of the 5th Framework Programme of the EU to promote the development of Information Technology across Europe
[2] www.ist-savant.org

- **Personalised Interactive Services:** Personalised interactive services will be developed supporting user preferences, user profiles, presentation quality requirements, and technical terminal capabilities. Interactivity for information access, search and retrieval, and participation in information exchange will also be supported. Mechanisms and user interfaces to support interactivity and user profiling will be implemented. Assistance will be provided for navigating through the information that is available either in local storage, through several networks, in streams, or on different servers. Standardised meta-data based on MPEG-7, MPEG-21 and specifications from the TV Anytime forum will be used to develop these services.

QMUL – having previously participated in the SAMBITS (System for Advanced Multimedia Broadcast and IT Services)[3] project, which has demonstrated a fully functional prototype of an integrated broadcast and Internet concept for interactive audio/visual (AV) services based on open-standards (MPEG-2, MPEG-4 and MPEG-7) at the International Broadcasting Convention (IBC) in Amsterdam, September 2001 – will play a major role in the development of the SAVANT user terminal implementing transparent, scalable access of services and multimedia content from different information sources delivered through different channels, and personalised interactive services.

As part of the personalised interactive services we will develop a metadata-based Search and Retrieval Engine that will be responsible for the querying, filtering, searching, retrieval and presentation of scalable and synchronised AV and multimedia content arriving (in push or pull mode) via the different delivery channels. The metadata will be based on broadcast relevant metadata approaches (e.g. MPEG-7, SMPTE, TV Anytime). We will design and implement query formulation mechanisms and scalable and transparent access methods that take into account the distributed nature of the information, user profiles, user preferences, terminal characteristics and capabilities (e.g. types of media players, storage capacity), presentation quality requirements, availability and cost efficiency of delivery channels, and the required form and type of content (full content, abstract, media type). User interfaces and mechanisms that support the navigation of the retrieved information with the use of a remote control and/or external devices such as a PDA will also be implemented, along with services and user interfaces for manual and automatic user profile updating.

To provide transparent and scalable access to multimedia content, the user terminal will also define and implement an access manager that provides an interface to the delivery channels, and support tools that adapt multimedia content and services to terminal characteristics. The architecture and implementation of the content access system will be verified by installing it on terminals with different technical capabilities. The terminal will also support the storage and management of content and access information and provision for the synchronisation and adequate presentation of scalable content on scalable user interfaces.

The completed SAVANT system, which will be the result of the two-and-a-half-year project that has started on 1 April 2002, will demonstrate novel type of services, which can be achieved when cross-linking different networks in the Internet as well as in the broadcast domain. System demonstrations are planned for IFA'2003 (Berlin, August 2003) and IBC'2004 (Amsterdam, September 2004).

References:

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[3] http://qmir.dcs.qmw.ac.uk/Sambits/index.html