PROJECT RESULTS

Interactive broadband services

for European users

The world of cable broadcasting is changing dramatically, from the mere distribution of audio and video services to offering complex interactive multimedia services. Providers and customers alike are demanding new kinds of Internet-based services and applications in addition to traditional TV services. Digital cable technology is the best tool to support these demands.
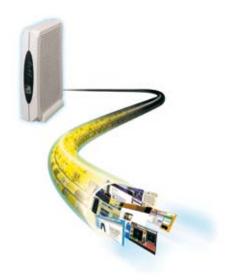
Bridging the datacom and video broadcasting worlds

At least 45 million European households have cable TV in their homes. The coaxial cables used can cope with much higher bandwidths than telephone lines, making them a perfect candidate for an all-purpose transportation media for multimedia content. The network 'headend' is the interface between a cable TV network and other networks, such as satellite transmissions over the Internet. To be able to provide multimedia content and advanced services to their customers, new digital headends must be developed.

Key features of the new digital cable environment:
- Digital compression technology multiplies the number of services

a cable operator can offer. The digital signal makes access control, protection and security of applications possible and opens the way for data and interactive multimedia applications.
- The notion of interactivity requires a suitable return path. Headend management implies a shift from a rather static broadcast system to a complex, dynamic system.
- This leading-edge technology presents both an opportunity and a challenge: many new multimedia applications will become possible, but there is as yet little agreement on what they will be.
- Standards for multimedia services are still emerging; they do not cover all aspects and sometimes impose conflicting demands.

DIGITAL HEADEND has provided European industry with a new digital headend solution, demonstrating the excellence of Europe's digital video broadcasting standards (DVB based on MPEG). A new concept developed within the

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project provides a bridge between the data communications world and the video broadcasting world, supporting new interactive broadband services to the home.

An architecture for interactive multimedia applications

Digitalization represents a major revolution in cable television making additional multimedia services feasible with high revenue opportunities for operators and service providers. Within the project, various solutions have been developed for digital TV and interactive multimedia-based applications over cable networks, including:

- a digital headend architecture, including in-band remote management
- advanced information processing that complies with all global standards and user-friendly integrated models

- data broadcasting - with conditional scheduling access and IP encapsulation - has been integrated within MPEG-based video streaming
- a virtual channel concept for complex multimedia data broadcasting has been developed and integrated into a fully digital headend management system.
- a complete return channel concept has been developed - using network management software based on DVB-RC-compliant MIB files - and

integrated with data broadcasting into the digital headend architecture, allowing support for interactive services
- multimedia components have been synchronised within a digital headend environment and validated with a distance-learning application.

Since the project partners work closely with European standardisation bodies, European industry will benefit from the results via common digital video broadcasting standards. The project team has also actively contributed to the standardisation of DVB and MPEG.

Solutions for providing multimedia content and advanced services

DIGITAL HEADEND secures the competitive position of the following European industry sectors:

- network operators and service providers (by reducing operational costs and creating extra revenues through additional multimedia services)
- business electronics (by creating enabling headend technology and systems for DTV and multimedia service distribution)
- consumer electronics (by extending the market for digital TVs, PC add-ons, and enhanced set-top boxes)
- content creators and application software developers (by increasing standardisation and creating a platform for new digital services).

Examples of partners' use of project results in commercial products:

- in-band remote control system and capabilities are being integrated into Thomson's Nextream commercial offers
- data broadcast architecture has been adopted by Philips (DTS and CryptoTec)
- Screenpeaks is creating a marketable product based on work done in the project
- BarcoNet is implementing the project results in its commercial products and has sales contracts for delivery of digital headends.