

Standards that ease exchange of digital and audio-video content

Introduction

MediaNet, a consortium uniting many companies from various segments of the European audio-visual industry, set out to develop open architectures for the delivery of digital content and easing cooperation between the players in the delivery chain such as content owners, service providers, network operators and consumer equipment manufacturers. The project's aim has been to take away the obstacles currently complicating the exchange of digital media and audio-visual goods while at the same time protecting investments made by providers and consumers.

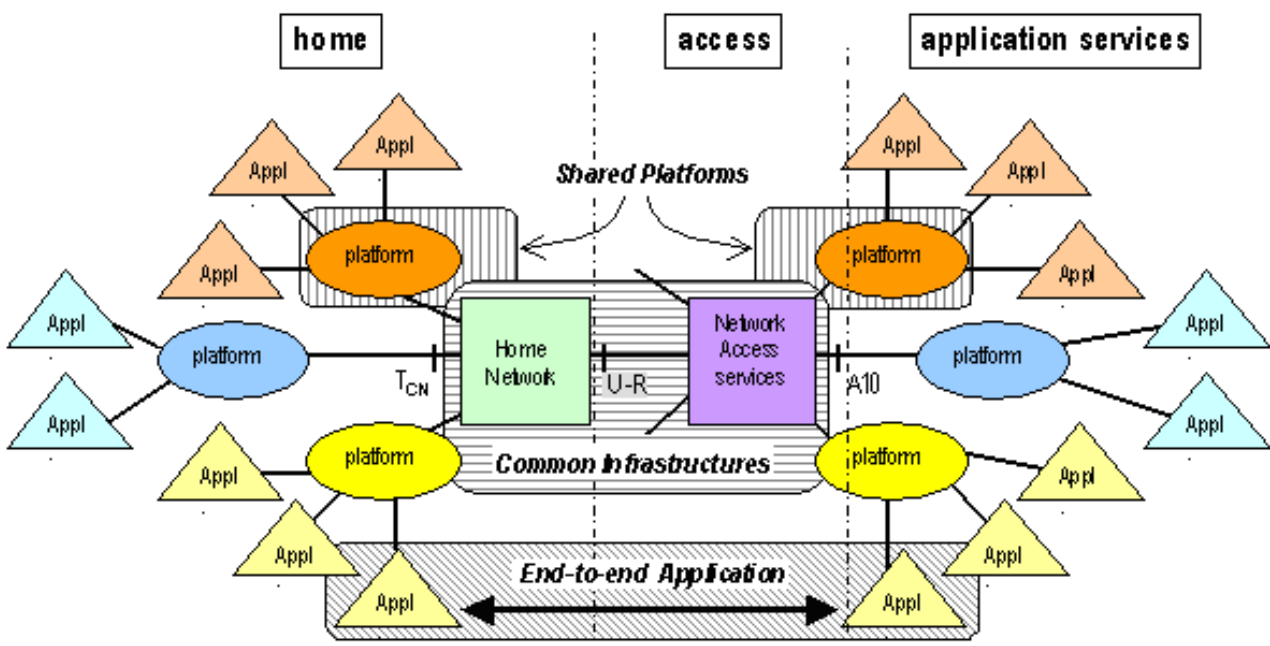
MediaNet developed an open architecture model enabling the deployment of a myriad of multimedia applications from various providers and coexisting across common access and home networking infrastructures and platforms. This architecture model, shown in the figure below, allowed the project to identify the key architecture reference points as well as the main blocking points along the delivery chain enabling MediaNet and its consortium partners to develop technologies and deploy related standards activities addressing these challenges. In doing so, the project covers access as well as home networks, storage as well as distribution of digital media, and middleware as well as content protection issues.

Standardization Challenge

There are still many technical issues to be addressed with respect to the delivery of digital content. Among these are:

- Improving resource & device management
- Achieving end-to-end quality of service
- Addressing the possibility of security leakages
- Providing transparency of responsibility of Stakeholders along the service provisioning chain

These issues however have to be addressed against the background of increased convergence between broadcasting and IP based delivery of digital content and as a consequence these issues require effort in several standardization areas. The prime challenge MediaNet identified in this respect was the delivery of a complete service provider agnostic reference architecture for digital services deliver since such a framework was missing in the digital media industry and standards environment. Such an architecture could be certified by implementing reference scenarios, matching it with the Digital Video Broadcasting (DVB) project's concepts for digital content delivery, applying these scenarios in a traditional broadcast environment as well as in a content on demand environment, and using broadband IP networks.



Standardization Path

MediaNet developed a Standardization Action Plan which outlined its intention to develop a reference architecture as well as reference use cases demonstrating the need to define standard solutions for key interface points in the digital audio-visual delivery chain. In this perspective, MediaNet envisaged submitting its results – or parts thereof – to standards processes in the DSL Forum, ETSI, UPnP, the IETF, and DLNA. In addition, possibilities for making submissions to DVB, OMA and ISO were also identified.

Following the work completed on the reference architecture, MediaNet contributed directly as a project to IETF, focusing on the standardization and management of interfaces between different layers of the architecture. MediaNet also contributed to the work in the DSL Forum, specifically focusing on Video over IP. Further to the standards activity deployed directly by the project, MediaNet's consortium partners individually contributed to processes in UPnP, DLNA and IEEE.

MediaNet has demonstrated that an IP project is capable of making a relatively large number of substantial contributions to standardization within a relatively short time frame. However, as not all opportunities could be foreseen during the first months of project activities, additional standardization activity beyond MediaNet's own 27-month horizon was also deployed in the ETSI TISPAN committee.

The activities MediaNet deployed in ETSI addressed IPTV functionality planned for the second release of the TISPAN architecture, a process scheduled for the 2006-2007 time frame. The overlap between this period and MediaNet operations was short (only 3 months), but nevertheless enough to begin studying the utilization of MediaNet's results in the TISPAN specifications.

MediaNet presented its IPTV related concepts during the first quarter of 2006, initiating further and deeper involvement of some of its consortium partners, studying more deeply the interactions between on the one hand the MediaNet vision and results (typically DVB-IP related work), and on the other hand the emerging TISPAN IPTV specification work.

Key Learning Points

During the course of its activities and experiences in progressing standardization objectives, MediaNet encountered the following issues that may help future

projects planning their activities, or may improve the overall research/standards interfacing process:

- The outcome of standardization activities can sometimes be considerably improved through projects sharing their research results, or even when project work together to jointly target specific standardization processes. Exchanging information between projects can however be complicated sometimes due to the result of the confidential nature of some project work. Consequently, projects' individual and combined standardization results could be upgraded through specific arrangements addressing the exchange of information and results for the purpose of making coordinated submissions to standardization processes.
- Embedding standardization targets more firmly into a project's work plan helps to safeguard standardization activity from falling apart when a project's lifespan ends and increases the likelihood that standardization success will be achieved. Lack of financial and human resources after the project contract complicates completing all the standardization activity originally planned.
- Convergent processes challenge the relationship between standards organizations and industry bodies, and potentially complicate the definition of frameworks, architectures and concepts that bridge traditionally separate areas of technology. Synchronizing agendas between research and standardization, as well as a timely start to building constituencies is specifically important to the success of research/standards interfacing processes under these circumstances.
- Having a clear framework for standardization activities, specifically within larger projects, allows for better internal project coordination of standardization activities between the project itself and the individual consortium partners, consequently allowing for a more effective use of standardization resources, and better use of the projects results.
- Within a project's objectives, next to those aspects that match the standardization targets of individual consortium partners, there are also elements that are more easily pursued by the project as an entity itself. Consequently, interfacing between IST research and standards organizations could be improved by creating facilities allowing projects to participate directly in standardization activity, in addition to participating through their consortium partners.