

THE MEDIANET PROJECT

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ABSTRACT

MEDIANET is an EC funded R&D project from the 6th Framework Program [1]. MEDIANET is about media content exchanges in digital networks. Targeting multimedia communications and A/V content distribution services for residential markets, it addresses new possible supply chain architectures and cooperation schemes between content owners, service providers, network service providers, and personal computer (PC) and consumer electronics (CE) equipment manufacturers. In the first 2-year phase, MEDIANET will produce the prerequisite environment for a full deployment of open end-to-end multimedia communications over broadband access and home networks. After identification of the main blocking points along the whole media chain, it will develop, assess and promote enabling technologies, protocols, equipment, architectures, services as well as related standards, business models and good practices.

1. INTRODUCTION

MEDIANET is an EC funded R&D integrated project from the 6th Framework Program in the Networked Audiovisual systems & Home Platforms IST domain. The first 2-year phase started on December 2003.

2. PROJECT OBJECTIVES

MEDIANET addresses the domain of digital multimedia communication and content distribution. By gathering major European industries and research institutes active in the multimedia domain within an Integrated Project, MEDIANET will produce a set of application solutions, and key enabling technologies and interfaces, capable of reinforcing mutually dependent consumer electronics, telecommunication and audio-visual business areas.

It will cover the three different but complementary domains :

1. **Media networking** (broadband access services, home networking)
2. **Multimedia Services** (on-line media content delivery, personal multimedia communications)
3. **Content “engineering”** (audio and video coding, DRM and content protection, storage, media packaging).

MEDIANET will contribute to the abolition of obstacles in Europe to easy exchange of digital contents and audio-visual goods from creators and providers to customers and between citizens, and will promote technologies, infrastructure and service solutions protecting at the same time suppliers’ and customers’ investments, content owners’ rights, and assuring fair revenues sharing to the stakeholders of the value chain and possible regulation when necessary.

In order to produce the prerequisite environment for a full deployment of the networked multimedia information society, the Project addresses:

- Management services and development platforms for broadband access networks, easily accessible to many content/service providers, allowing the deployment of numerous value-added applications at minimum initial cost.
- Home networking and open storage solutions, agreed upon by major European CE industries, opening to new customer usage of digital multimedia contents between A/V, PC and telephony domains.
- End-to-end service provisioning over shared public and private infrastructures, and related platforms mixing video broadcast over broadband access, content on demand, on-line interactive applications such as gaming, Programme Guide/ Programme on-demand, ...
- Personal multimedia communications supported by portable terminals and person-to-person communication services over IP.
- Key technologies such as powerful audio-video encoders and decoders leading to higher rendering

quality and lower bandwidth costs in wired and wireless networks .

3. THE MEDIANET CONSORTIUM

The Integrated Project MEDIANET brings together a large part of the European A/V constituency, including the telecom and the components sector. Major industries contributing to the multimedia distribution and application domains have joined MEDIANET, which is made of a fairly representative “sampling” of the business chain:

- Consumer Electronics: Thomson (acting as project coordinator), Philips
- Equipment for operators and service provision : Alcatel, Italtel, EADS Telecom, Nextream, NDS Technologies France
- Operators: Belgacom, Telekom Austria, Telefonica

- Components: ST Microelectronics, Philips, Stepmind, DitoCom
- Content aggregators : Canal+, VRT
- Universities and Research Institutes: Fraunhofer Institut für Nachrichtentechnik - Heinrich-Hertz-Institut, CERN/École des Mines de Paris, IMEC, Ghent University, Université Catholique de Louvain, Valladolid University, Consorzio Pisa Ricerche, Bristol University, Politecnico Milano, ISCTE/ADETTI
- Software House: Trialog
- Project Support: L-up, WhiteBalance.

4. THE MEDIANET REFERENCE ARCHITECTURE AND PROJECT APPROACH

4.1. The MEDIANET System Reference Architecture

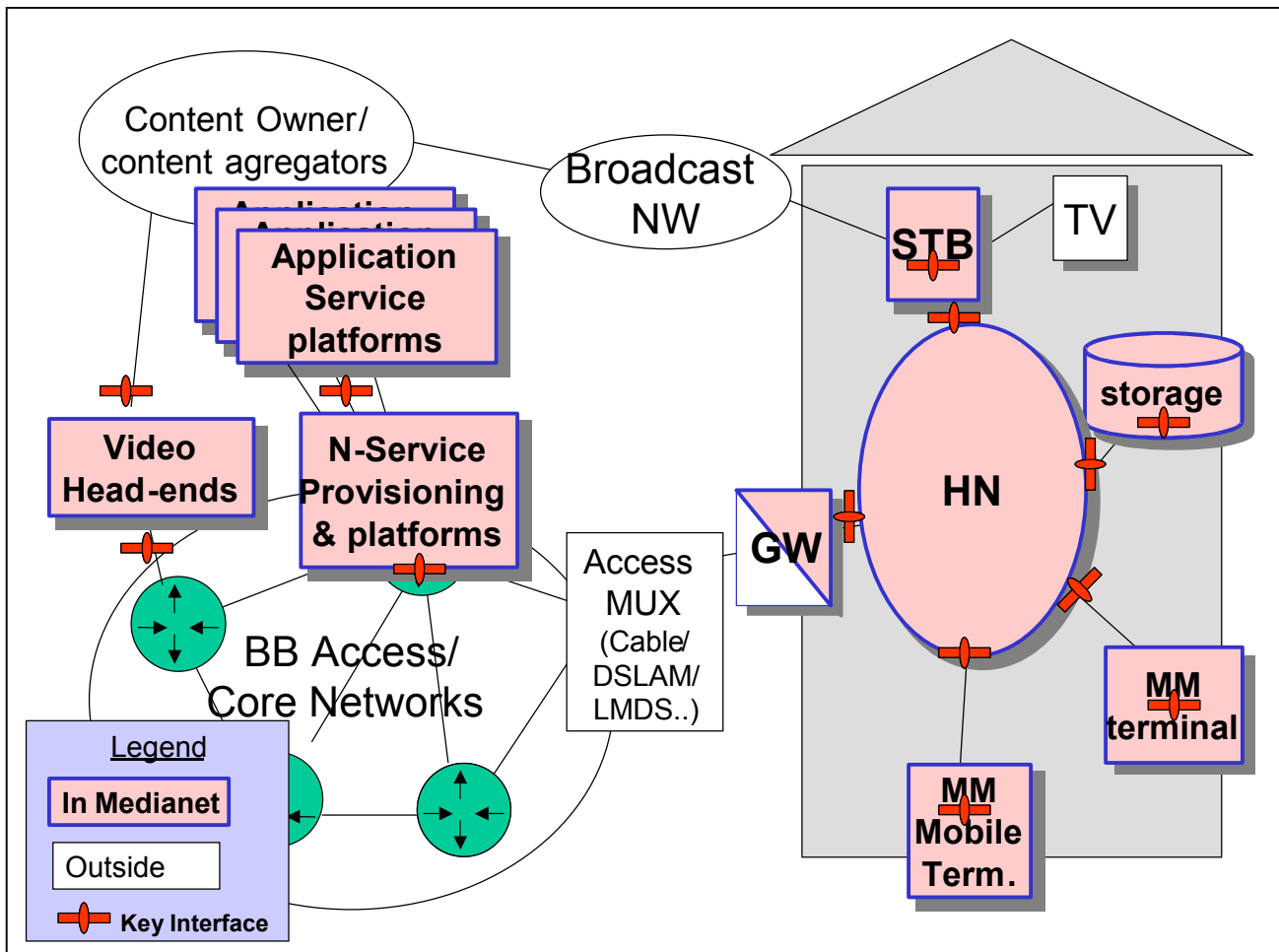


Fig. 1 – The MEDIANET Reference Architecture

The first MEDIANET objective is to define, assess and maintain the basic **MEDIANET System Reference**

Architecture open model and the Common System Specifications, supporting the deployment of a *plethora*

of different multimedia services for different suppliers, that will coexist - and sometimes cooperate, sometimes compete -, on a **common access and home networking environment**.

The System Reference Architecture (see Fig. 1) addresses common core and access network services, home network architectures, protocols and operation, and key open interfaces. Application developers, service providers and equipment manufacturers will use it to implement new media applications compatible with common infrastructures, interfaces and equipment.

Besides major technical issues, the viability of the MEDIANET open interface model against the risk of asset destruction, e.g. through illegal content copy or endless overbidding competition, crucially hinges on **competitive, regulatory, and economic variables**. So far, little empirical and theoretical results are available to the industry and policymakers to validate this model. Economical analysis carried out in parallel will identify the key component of the digital media chain and will measure its **economical and societal impact and value**.

4.2. Development of End-to-end Service Scenarios

MEDIANET will identify and develop a **number of representative and appealing end-to-end application scenarios**, to be deployed over the System Reference Architecture and involving different complementary actors of the media chain: service providers and aggregators, network providers, platform developers, telecommunication and consumer electronics equipment manufacturers and end-users. Application scenarios will be of two types (which can be also be merged in some cross-over high level applications):

- Media Content Delivery services (between a provider and a customer)
- Personal Multimedia Communications (person-to-person).

No single application and no single player is able to pay for the complete chain so the “walled garden” approach is not very attractive. On the opposite, a pure fully open Internet-like approach does not create sufficient trust for content owners and sufficient values for providers and operators. A last issue concerns the possible migration path to full digital communications, where multiple players must be in a position to in a large extend operate independently and where each deployment step must generate its own return.

The major MEDIANET challenge therefore lies in finding **the possible business models and relationships** between all these actors and the suitable compromise between standardisation and openness on one hand, and

differentiation and proprietary approach on the other hand. Both should certainly coexist at different layers.

The end-to-end applications will be demonstrated by using existing technologies as much as possible. **Some key enabling building blocks** are still missing or could be improved, to give the end-user a full experience and allow an easy and fair distribution of revenues between the players. Especially we will pay attention to the Digital Right Management of the end-to-end scenarios and build it into the chain; here again we will use a mix of existing technology and new developed modules. They are the subjects of dedicated MEDIANET subprojects (see section 5).

The selected **end-to-end multimedia content delivery and personal communication services** involving joint operations between terminals, service platforms, core and access network services and home networks will be integrated as proofs-of-concept and assessed in **testbeds** covering the different domains of the Media Chain. This includes the connection of the testbeds of third party content and application providers, as well as the **validation of services by representative users**.

5. PROJECT STRUCTURE AND ACTIVITIES

MEDIANET addresses the whole media supply chain (content delivery, content usage and exchange). As shown in Fig. 2, R&D activities take place in different and complementary domains of the media chain, and are carried out in the frame of **5 subprojects (SP)**:

- SPA: AAM (Architectures, Applications and Management)
- SPB: MCD (Media Content Delivery, Platforms)
- SPC: HN (Home Networking)
- SPD: PMC (Personal Multimedia Communications)
- SPE: AAVS (Advanced Audio-Video Streaming)

SPA-AAM produces for the whole project management and for the definition, the implementation and the assessment of the different end-to-end MEDIANET scenarios and related applications, as well as of underlying infrastructures and protocols in the public and private domains (broadband access and home networks). SPA also provides testbeds environment and supports for them. SPA relies on the other SPs to deliver the different particular constituents to end-to-end applications. Other necessary constituents found outside the project are prepared in either SP.

The 4 other SPs study, specify, develop and integrate the particular constituents of the chain:

- SPB (MCD) for media content delivery platforms, terminals and technologies
- SPC (HN) for home networking elements
- SPD (PMC) for personal multimedia communication terminals and call platforms
- SPE (AAVS) for components for video streaming over digital networks.

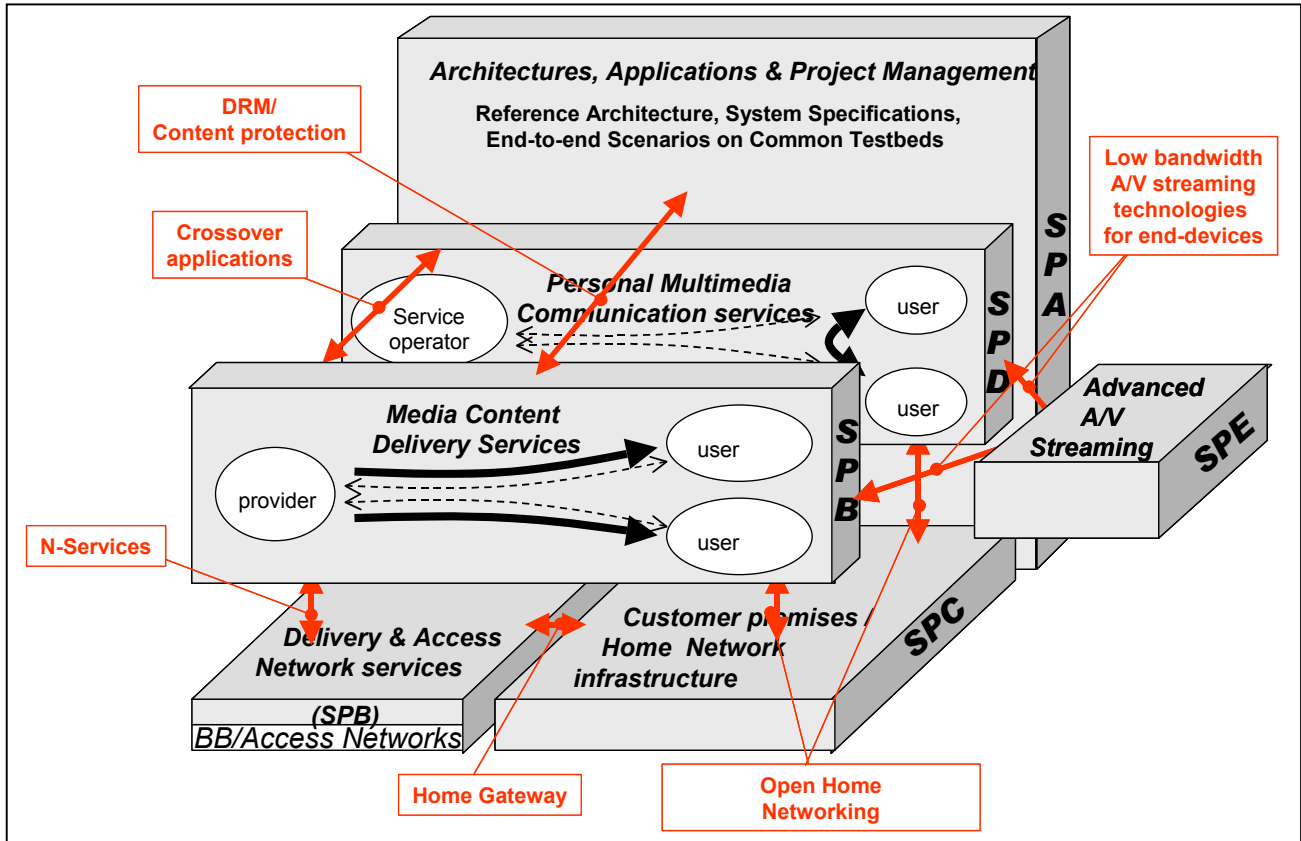


Fig. 2 – The MEDIANET Project Structure

6. CONCLUSIONS

This paper has presented the main objectives of the Medianet project and the Consortium members, and has given an overview of the project system reference architecture, of the project approach, and of the project activities and structure. The project has officially started in December 2003, and the kick-off meeting addressing all activities with the project partners took place in January. Activities in the various Sub-Projects and Work Packages are being deployed, and a first important step will take place in June 2004, when the Medianet project intends to disseminate the first findings and confront the conclusions of its first period of activity to other entities and initiatives, through a Workshop that will be open to various actors of the media supply chain outside the Medianet Consortium.

7. REFERENCES

- [1] European Commission – IST A thematic priority for Research and Development under the Specific Programme “Integrating and strengthening the European Research Area” in the Community sixth Framework Programme - 2003-2004 Workprogramme (www.cordis.lu)