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Technical Report

Media Content Distribution (MCD);
MCD framework;
Part 1: Overview of interest areas

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Media Content Distribution (MCD).

This is a multi-part deliverable identifiable by the same main number and a common part of the title. This set of partial deliverables (parts and sub-parts handled and published independently but treated in a coordinated form) builds a whole deliverable handling the subject identified by the common part of the title.

The common part of the title is **Media Content Distribution framework**. Each part and sub-part of the present set of deliverables covers a specific subject specified in the corresponding scope and referred to in the specific part of the title. To each part and sub-part of the whole deliverable a specific number attached to the common main number of the deliverable will also be assigned.

The present document is part 1 of a multi-part deliverable covering the Media Content Distribution framework, as identified below:

Part 1: "Overview of interest areas";

Part 2: "Views and needs of content providers";

Part 3: "Regulatory issues, social needs and policy matters";

Part 4: "Use cases and needs";

Part 5: "Standardization work";

Part 8: "Audience measurement";

Part 9: "Content Distribution Infrastructure (CDI)".

This list refers to the parts published or close to publication. The successive editions of the present document will update the list. Clause 5 refers to all the possible parts of the set of documents building the TR 102 688 [i.1] series as it is conceived by the date of publication of the present document (part 1 of the series); all the parts referred to in clause 5 and not cited in this foreword may be cancelled or have the title or the scope changed according the evolution of the standardization work.

For a rational maintenance and easy usage of the complete set of the documents, only the present document, i.e. part 1 of the set of the documents, will maintain an updated list of the documents in the series, all the other documents should refer to the part 1. The present document works therefore as the central point of the series.

Introduction

ETSI Board#69 minutes [i.8] register the following text:

6.6 Creation of a TC MCD (Media Content Distribution)

Margot Dor (ETSI Secretariat - Director Strategic Projects) presented documents:

[ETSI/B69(08)58] - Creation of TC Media Content Distribution.

[ETSI/B69(08)42 rev.2] - Proposal for the creation of TC (MCD) Media Content Distribution.

After some comments and overnight drafting group resulted in [ETSI/B69(08)42 rev.3] which was approved.

D-B69/11	*The Board approved the creation of a new Technical Committee for Media Content Distribution (MCD) and appointed Mr. Truls Langeggen (Telenor ASA) as convenor for the first meeting [ETSI/B69(08)42 rev.3].*

Further to the discussion above, the Secretariat was requested to provide a more detailed background information package.

A-B69/3	*ETSI Director-General (MDS)*	*to provide a more detailed background information package on the issue related to Media Content Distribution [ETSI/B69(08)42 rev.3].*

Background

Today multimedia content is delivered via broadcast networks, the Internet, IPTV, and mobile. Delivery methods include broadcast, unicast (e.g. 3G streaming services), multicast and peer-to-peer, but the experience is seldom homogeneous and seamless for the customers. Content delivery by its very nature also includes a number of restrictions and rules regarding rights.

The worlds of broadcast and telecom traditionally have had their own standards track, based on different commercial requirements. Convergence between both worlds for content delivery results in a proliferation of technical options and specifications, which result in a "standards maze" and a lack of clear business models supported by an accepted technology. This does not serve business and customers' interests, as broadcasters, telecom operators and internet players are offering what could be seen as similar services from a consumer perspective.

In addition commercial solutions developed by different market players do not interoperate across platforms. The crux of the matter is that at one end, content providers face the challenge to provide different content formats to the various distribution pipes, which in turn generates unbearable costs, whilst at the other end, customers' buy-in remains well below expectations.

In general, there are a number of already deployed technologies addressing each of these different services in different markets and addressing various combinations. Arguably the most significant issue is that typically once a market has selected a technology, it most likely sticks to that choice. Although replacing one technology with another is possible in theory, in practice the barriers, often related to economical reasons, are substantial. Even where new functional requirements arise, existing solutions can in most cases be extended to address them. This will normally be easier than replacing the technology with a newer one. This underlines the need to promote correct interoperation of equivalent services based on different technologies.

Many in the industry point to the fact that without interoperability and cross-platform solutions for media distribution that really meet content providers and end users' needs, market figures for digital media distribution may stay what they are today and investments may well exceed profits by far.

In the early 2008 ETSI Secretariat initiated consultations with industry to assess potential interest and support for an initiative aiming at addressing some of these technical barriers. Following a number of preliminary meetings with a large representation from the industry, particularly including content providers and broadcast related representatives, the Board approved the creation of a TC-MCD (Media Content Distribution) in the decision B69/11 and assigned the action B69/3 as stated above.

The present evolution of the communications market strongly influenced by convergence effects requires an extremely wide analysis to understand the specific needs in the communications sector.

The growth of transmission rates supported by new technologies and offered by network operators determined convergence phenomena between the broadcasting and the telecommunications businesses. The increasing capabilities of new developed codexes, the digital transmission technologies together with fibre infrastructures and new radiotransmission technologies are facilitating convergence between mobile and fixed services. The popularity of internet, the penetration of PC and mobile phones and other smart terminals and systems accelerates the process of evolution determining an overall convergence in the ICT sector (telecom-broadcast-informatics, radio-fixed lines).

This evolution forces infrastructures initially not intended for some services to be used to support them. What initially can be considered a problem appeared to be an additional stimulus on the market to overcome the identified difficulties and the result is that e.g. VoIP initial tentatives quickly took a relevant place on the market and the recent evolution on IPTV and other IP based transmission systems are offering better performances and more functionalities at a surprising evolution rate.

To support this evolution and enhance the industry performance in this context the standardization has a central role and studies like the present one can bring together market players around the best solutions in order to deliver products and services to consumers with shortest possible delays and highest performance at reasonable prices.

Risks and opportunities

Although classical Broadcast, IPTV, WebTV and MobileTV systems are operated independently from each other, many digital TV components are shared, e.g. Content Providers infrastructure, some parts of public Networks, e.g. Internet, CDIs (independent or operator), advertising insertion devices (SCTE), home devices and gateways (UPnP/DLNA), terminals and probably many others. Excessive fragmentation and non-interoperability of solutions for content distribution across platforms may:

- Generate prohibitive development costs for many market players (content provision and/or content distribution).
- Impair the virtuous circle usage ←→ service ←→ content ←→ usage.
- Engender misgivings at both end of the line, i.e. for content providers (e.g. too many interfaces of different types) and for end users (e.g. too many, too expensive devices and adaptors often with limited choice).

There are already activities relating to media distribution taking place in and outside ETSI. Particular care should be taken not to duplicate work or overlap the scope of existing standards making bodies and organizations. In this context the set of documents will be essentially informative and will reach the detail necessary to achieve the purposes of TC MCD building strong cooperation relationships with the most relevant standards making bodies in the area.

The work TC-MCD is undertaking should be based on a 'neutral, objective, independent approach' in order to ensure technology neutral consideration to facilitate for markets to make their own choices.

The way ahead

The objectives of this Technical Body are therefore:

- Understand current and future requirements and technical solutions of content delivery to improve interoperability.
- Consider Broadcast, Hybrid, Broadband/Mobile and other MCD offers based on both managed & unmanaged networks.
- Consider content distribution from content providers to end consumers.
- Improve coordination of standards efforts in content delivery in order to facilitate cooperation and information flow between standards development organizations.
- Propose architectures, authoring formats, content trans-coding, protocol and metadata translations.
- Build on existing core specifications, where appropriate.

In line with the above, TC MCD adopted the decision to produce the present document in order to create a structure of technical reports covering the whole scope of the technical body where the main contents is the result of the study identified in the Terms of Reference of TC MCD.

At present, in this initial phase, the following specific deliverables of the structure to be created have been identified:

- Collection and prioritization of use cases.
- Views and needs from Content Providers.
- Regulatory issues.
- Standardization work within and outside ETSI.
- Mapping of implementations and "best practice" for service interoperability.
- Framework and roadmap proposal for service interoperability.

The activities covered by the present set of documents in later stages will include all areas identified in the scope.

The goal of this study is therefore to establish the correct framework to initiate the development of and ensure the adequate standardization work to cover all areas. This should lead to a more favourable environment and beneficiate as many devices and systems as possible.

1 Scope

The present document belongs to a set of deliverables proceeding to the widest possible coordinated study on the media content distribution (MCD) matters with the primarily goal of identifying standardization and future work needed. This set of documents will cover at least the following activities:

- Identify MCD overall requirements and provide a representation (e.g. functional diagram, or more) based on a thorough analysis of different use cases and business models; collection and prioritization of use cases; description of value chain and actors.
- Map current standards with the representation and describe the relationships among standards:
  - consideration of work by other SDOs and external bodies;
  - mapping of existing and evolving MCD implementations and "best practices" for service interoperability and components that can further converge.
- Perform a detailed gap analysis highlighting the challenges in the end to end delivery of content including analysis of current and future business dynamics:
  - identification of issues and gaps within existing activities and implementations.
- Provide implementations guidelines (combinations of standards) aimed at enabling a viable scenario and fulfil the basic requirements of a MCD framework.
- Provide the basis for Inter standard profiling to realize this MCD framework vision.
- Provide overall guidelines to ETSI Technical Bodies to foster a co-ordinated development of standards for digital media distribution across unicast, multicast and broadcast networks:
  - propose work areas and activities within TC MCD and other groups of experts for distribution and delivery of content and interactive media over heterogeneous network topologies and implementations.
- Support the liaison with other relevant standard bodies or organizations, reuse their solutions in the general framework and facilitate the adoption of a consistent set of worldwide solutions.
- Facilitate discussions with relevant bodies on regulatory issues and content providers to help in the introduction of new business models, taking into account existing and evolving business relationships:
  - facilitate the liaison and collaboration with the European Union, Member states and International Authorities on regulation, including EC Directives and other aspects, on issues in the MCD area;
  - facilitate the collaboration and co-ordination positions with other SDOs and industry fora, in particular with those that look for a global approach to interoperable solution.
- Contribute to limit overlap of standards covering the same markets and geographical areas by providing matching information for the most relevant market players.

The present document is part 1 of the set of documents, proceeds to a MCD base structuring analysis and establishes an initial roadmap for the studies covering the wide scope of this set of documents. It should be used as a central liaison element among the different deliverables in the series.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

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NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

Not applicable.

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

[i.1] ETSI TR 102 688 (all parts): "Media Content Distribution (MCD); MCD framework".

[i.2] ETSI TS 102 034 (V1.1.1): "Digital Video Broadcasting (DVB); Transport of MPEG-2 Based DVB Services over IP Based Networks".

[i.3] ITU-T Recommendation Y.1901: "Requirements for the support of IPTV services".

[i.4] ITU-T Recommendation Y.1910: "IPTV functional architecture".

[i.5] Open IPTV Forum - Functional Architecture - V 1.2 [Approved Dec 12, 2008].

[i.6] ETSI TR 102 469 (V1.1.1): "Digital Video Broadcasting (DVB); IP Datacast over DVB-H: Architecture".

[i.7] Ultimate Guide to IPTV, a 360-degree view of the IPTV Ecosystem, a special Supplement to Americas Telecommunications in partnership with ATIS.

[i.8] ETSI/B69(08)62 Rev.2: " Minutes, decisions and actions".

[i.9] ETSI/B69(08)58: "Creation of TC Media Content Distribution".

[i.10] ETSI/B69(08)42: "Proposal for the creation of TC (MCD) Media Content Distribution".