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Part 2: Views and needs of content providers

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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) build 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, the only one providing a collection of the concerns and needs expressed by Content Providers, **is part 2** of the multi-part deliverable covering the *Media Content Distribution framework*, as identified in part 1 of this multi-part deliverable.

For a rational maintenance and easy usage of the complete set of the documents, only 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 part 1, working therefore as the central point of the series.

Introduction

In the context of MCD work, as explained in part 1 of this multi-part deliverable, the collection of Content Providers views and needs were early identified as a major step to proceed to the necessary analysis in this sector.

Content Providers have clear ideas on the consumers's needs, they understand the environment of MCD and start to take advantage of the different MCD means offered by the convergence of technologies and systems. Their opinion is therefore a central tool for the identification of MCD requirements and the specification of a roadmap for the standardization work to be developed.

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.

If some particular standards are centred in the Contents Providers needs and views, reference should be made to them. E.g. some discussions on H4TV, a standard for the authoring and interoperable delivery over broadcast and on line media of interactive services authored in a web technologies-based format, should be included since this standard is very much Content Providers' needs oriented.

Most important requests for MCD platforms and systems, like interoperability, Quality of Service (QoS) and Quality of Experience (QoE), Security and content owner rights, and many others are reflected in the structure of the present document in order to facilitate its usage and to help further discussions for the establishment of MCD requirements and roadmap. The conclusions achieved for each one of the areas of the identified needs may result later in new parts of this multi-part deliverable, where each one of the most relevant subjects will be handled in depth, beneficiating from conclusions obtained in other parts of this multi-part deliverable.

The work TC-MCD is undertaking intends to be based on a 'neutral, objective, independent approach' in order to prevent cooperation difficulties with relevant players and, most of all, to ensure that no biaising effect is introduced in the market own choices. No preference should be demonstrated for any solution or system on the market, but the objective advantages of some systems when satisfying some particular requirements should be noted.

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 needs not covered or not correctly covered at the present stage of development. This set of documents will cover at least the activities and areas better specified in part 1 of this set of documents.

The present document is part 2 of the set of documents and collects, lists and discusses the Content Providers needs and opinions falling within the wide scope of this set of documents.

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.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

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]   IETF RFC 959: "File Transfer Protocol".

[i.2]   Secure File Transfer Protocol, Internet-Draft, Secsh working group of the IETF.

[i.3]   IETF RFC 2616: "HyperText Transfer Protocol".

[i.4]   IETF RFC 2818: "HyperText Transfer Protocol Secure".

[i.5]   W3C, eXtensible Markup Language, XML 1.0.

[i.6]   SMPTE 0377: "Material Exchange Format (MXF) - File Format Specification".

NOTE: For SMPTE documents see http://store.smpte.org/category-s/1.htm and use the Search engine.

[i.7]   EBU Tech 3264: "Subtitling data exchange format" (EBU-STL).

NOTE: See http://tech.ebu.ch/webdav/site/tech/shared/tech/tech3264.pdf.

[i.8]   ETSI TS 102 796: "Hybrid Broadcast Broadband TV".

[i.9]   SMPTE 0259M : "Television - SDTI Digital Signal/Data - Serial Digital Interface".

[i.10]   SMPTE 292: "1.5 Gb/s Signal/Data Serial Interface".

[i.11]   Open Mobile Alliance, OMA DRM 1.0.

[i.12]   OpenCable, OCAP 2.0.

[i.13]   Electronic Industries Alliance, EIA-608/CEA-708.

[i.14]   W3C, Distribution Format Exchange Profile.

[i.15]   SMPTE Metadata Dictionary: SMPTE RP 0210 ("Metadata Dictionary Registry of Metadata
                 Element Descriptions") and SMPTE RP 0224 ("SMPTE Labels Register").

[i.16]   ITU-T Recommendation Q.6/SG16, H263.

[i.17]   ISO/IEC 14496-2: "MPEG-4".

[i.18]   ISO/IEC 14496-10: "MPEG-4 AVC".

[i.19]   ETSI TS 102 825: "Digital Video Broadcasting (DVB); Content Protection and Copy Management
                 (DVB-CPCM)".

[i.20]   Marlin, Marlin Developer Community.

[i.21]   SMPTE 0421M : "Standard for Television - VC-1 Compressed Video Bitstream Format and
                 Decoding Process".

[i.22]   ISO/IEC 13818-2: "MPEG-2".

[i.23]   ATSC A/52B.

[i.24]   ISO/IEC 11172-3: "MPEG-1 layer II".

[i.25]   ISO/IEC 13818-7: "Advanced Audio Coding".

[i.26]   ETSI EN 300 472: "Digital Video Broadcasting (DVB); Specification for conveying ITU-R
                 System B Teletext in DVB bitstreams".

[i.27]   ETSI EN 300 743: "Digital Video Broadcasting (DVB); Subtitling systems".

[i.28]   Adobe, Real-Time Messaging Protocol.

[i.29]   IETF RFC 3550: "Real-time Transport Protocol".

[i.30]   IETF RFC 2326: "Real-Time Streaming Protocol".

[i.31]   IETF RFC 768: "User Datagram Protocol".

[i.32]   ISO/IEC 13818-1: "MPEG-2 Transport Stream".

[i.33]   W3C, Scalable Vector Graphics.

[i.34]   ISO/IEC 13522-5: "Multimedia and Hypermedia Experts Group, MHEG-5".

[i.35]   ETSI TS 102 590: "Multimedia Home Platform".

[i.36]   Cineform.

NOTE: See http://www.cineform.com/technology.php.

[i.37]   Microsoft, Microsoft Media Server.

[i.38]   ETSI EN 300 468: "Digital Video Broadcasting (DVB); Specification for Service Information (SI) in DVB systems".

[i.39]   ISO/IEC14496-3: "Advanced Audio Coding".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the following terms and definitions apply:

adaptive streaming: process that adjusts the quality of a video based on changing network conditions to ensure the best possible viewer experience

advertising agency: service business dedicated to creating, planning and handling advertising

catchup TV: video on demand service delivering content for a short period after its broadcasting on a television channel

content: information and experiences that may provide value for a viewer

content delivery network: system of computers containing copies of a content, placed at various nodes of the Internet so as to shorten the path and lower the network congestion between the server and the client

content provider: any actor distributing content through a content delivery network

digital rights management: access control technology imposing limitations on the usage of digital content

mezzanine file: high-quality file acting as the reference file from which lower-quality copies are derived

operator: organization that provides network services through wired or wireless connections

peer to peer: distributed system of end-user computers providing content delivery services

progressive download: method for transmitting non-live video to the user for immediate playback, using buffers to avoid network congestion

streaming: process of transmitting content in real-time over the Internet without local buffering

trick play: functionality allowing to pause, change the speed of playing and seek in a given content

watermarking: process of embedding unperceivable information in a video or audio signal, for instance in order to identify the source of the content

3.2   Abbreviations

For the purposes of the present document, the following abbreviations apply:

API	Application Program Interface
CDN	Content Delivery Network
CP	Content Provider
DRM	Digital Rights Management
DTD	Document Type Definition (XML)
DTT	Digital Terrestrial TV
EITp/f	Event Information Table, present and following (DVB)
EPG	Electronic Programme Guide
HD	High Definition
IP	Internet Protocol
IPTV	Internet Protocol TeleVision

NOTE: Based on ITU definition and TISPAN work.

MCD	Media Content Distribution
MMS	Microsoft Media Services
QoS	Quality of Service
RTP	Real-time Transport Protocol
RTSP	Real Time Streaming Protocol
SDO	Standards Development Organization
STB	Set-Top Box
TDF	Télédiffusion de France (company)
TMP	Télévision Mobile Personnelle (DVB-H project in France)
TS	MPEG-2 Transport Stream
VOD	Video On Demand

4   Methodology

Content providers are traditionally under-represented in standard organizations. Nevertheless they regularly submit presentations and templates to the governments, regulators, or local industry forums. At first we have gathered a number of them, and tried to draw common lines of actions. This has proved an uneasy task. Furthermore, it also hides a lot of smaller issues, which content providers do not necessarily think of bringing to the public attention.

We have therefore decided to take a proactive approach, and organize series of interviews with selected content providers. We have thought important that:

- Though a questionnaire has been developed in the MCD group, the questions were not closed. The questionnaire was designed to make sure no topic was forgotten during the discussion, but the interviewees had full liberty to talk about what comes to mind first.

- The interviews had to be done one at a time, to make sure that a CP would not influence the others. It has put into focus a lot of drifts or full disagreements between interviewees, but it has also taken an awful lot of time, which explains the limited number of interviews.

- The choice of interviewees should include personalities well known among CP for their insight, but representing very different types of content providers. For instance:

    - Large public broadcaster;

    - Large commercial broadcaster;

    - Small commercial broadcaster;

    - Large VOD provider;

    - Small VOD provider;

    - And lots of hybrid models.

The present document is the abstract of the series of interviews we have done. For confidentiality reasons, the names of the interviewees and companies have been removed.

5   Ecosystem

5.1   The "content provider" cloud

When first trying to define with the CP the ecosystem they imagine, we have stumbled across major divergences between the interviewees. These can be traced back to the fact that the "content provider" term is much harder to define than we imagined, and may regroup - or not - different roles such as:

- broadcast channels;

- aggregators (live or on-demand);

- distributors;

- content producers;

- advertising agencies.

All the broadcast channels we have talked to view themselves as "aggregators"; for some of their contents, they can also be distributors or content producers. Also they can have an internal advertising agency, competing with the agencies of the Internet or of telecom operators.

VOD portals are also, in a more obvious way, "aggregators". At some point there can be several levels of aggregation. Many companies have a hybrid business model.

We have long considered whether and how to include those roles in an analytical view of the CP ecosystem. In the end, one question prevailed: if we chose to make those roles appear, would TC-MCD have anything to do in these areas? From the discussions with the interviewees, it appeared very clear that the interfaces between those "roles" or actors (in case they are born by different companies) had a strong link with the contractual side of the relationship; implying that how the content is distributed is very much dictated by the terms of the contracts that bound the actors, or internal processes (for that matter, juxtaposing several roles in the same company does not seem to simplify the processes). Also in most cases the number of actors is fairly small. Practically content providers do not automatize any task in that area, and though it would sometimes be needed, they fail to see how it could be feasible.

As a conclusion, we have decided to promote a very simple definition of the term "Content Provider":

content provider: any actor distributing content through a content delivery network.

5.2 Relationships with other actors

We have proposed the following schematic to interviewees, as a basis for discussion.
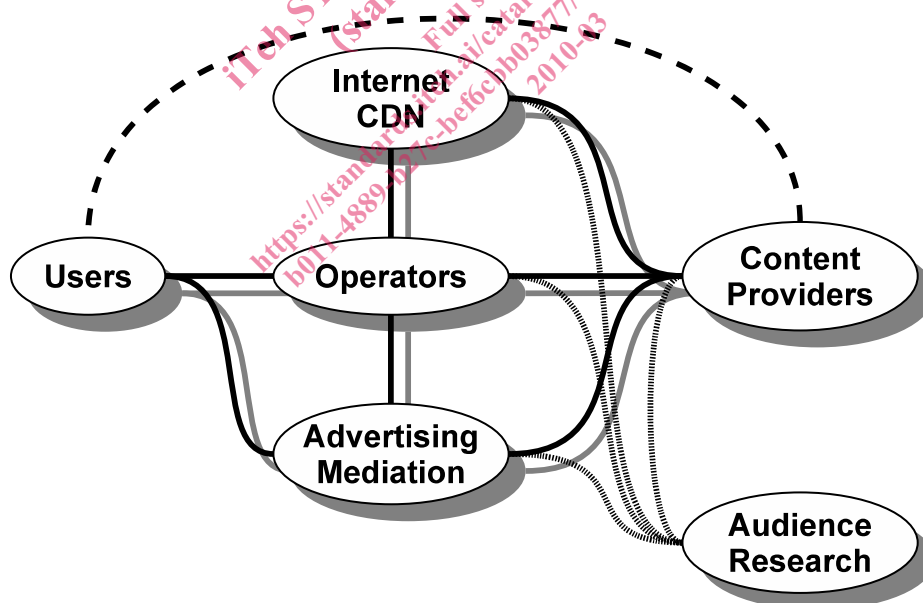
Figure 5.1: The Content Provider Ecosystem

Some interviewees would like to add the traditional broadcast operators in the schematic, in a symmetrical position with the network operators. We believe that the interfaces and roles between CPs and broadcast operators are already well-defined elsewhere and out of the scope of TC-MCD.

Some want to draw a link between the users and the content providers. They argue that CPs are represented as a brand to the users, and take responsibility for the selection and presentation of contents. As such, they get user feedback and recognition. However these are not technical relationships and are out of the scope of TC-MCD.