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Supplement 5

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SERIES Y: GLOBAL INFORMATION
INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS
AND NEXT-GENERATION NETWORKS

ITU-T Y.1900-series – Supplement on IPTV service use cases

ITU-T Y-series Recommendations – Supplement 5

ITU-T Y-SERIES RECOMMENDATIONS
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Supplement 5 to ITU-T Y-series Recommendations

ITU-T Y.1900-series – Supplement on IPTV service use cases

Summary

This IPTV service use cases supplement provides a list of IPTV use cases that are informative illustrations of how IPTV services can be designed, deployed and operated. From the end-user's perspective, use cases have been categorized by distributed content services, interactive services, communication services, etc.

Source

Supplement 5 to ITU-T Y-series Recommendations was agreed on 22 May 2008 by ITU-T Study Group 13 (2005-2008).

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

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Supplement 5 to ITU-T Y-series Recommendations

ITU-T Y.1900-series – Supplement on IPTV service use cases

1 Scope

This IPTV service use cases supplement provides a list of IPTV use cases that are informative illustrations of how IPTV services can be designed, deployed and operated. From the end-user's perspective, use cases have been categorized by distributed content services, interactive services, communication services, etc.

2 References

None.

3 Definitions

3.1 Terms defined elsewhere

This supplement uses the following terms defined elsewhere:

3.1.1 network provider [b-ITU-T Q.1290]: The organization that maintains and operates the network components required for IN functionality. A network provider may also take more than one role, e.g., also acting as Service Provider.

3.1.2 service provider [b-ITU-T M.1400]: A general reference to an operator that provides telecommunication services to Customers and other users either on a tariff or contract basis. A Service Provider may or may not operate a network. A Service Provider can optionally be a Customer of another Service Provider.

3.2 Terms defined in this supplement

This supplement defines the following terms:

3.2.1 application provider: The entity providing IPTV-related user applications.

3.2.2 content aggregator: A player in the IPTV service delivery chain whose role is to aggregate content, e.g., forming a TV bouquet composed of several TV channels.

3.2.3 content provider: The entity owning content or being licensed to sell content assets whose role is content delivery.

3.2.4 electronic program guide (EPG): A structured set of data that provides information on available content accessed by end-users.

4 Abbreviations and acronyms

This supplement uses the following abbreviations and acronyms:

A/V	Audio/Video
DVD	Digital Versatile Disk
DVR	Digital Video Recorder
EAN	Emergency Alert Notification
ECG	Electronic Content Guide
ECI	Emergency Communications Information

ECN	Emergency Communications Notification
ECR	Emergency Communications Report
EPG	Electronic Program Guide
FTP	File Transfer Protocol
IM	Instant Messaging
IPPV	Impulse PPV
MoD	Music on Demand
NVoD	Near VoD
OPPV	Order-ahead PPV
PDA	Personal Digital Assistant
PPU	Pay Per Use
PPV	Pay Per View
PVR	Personal Video Recorder
QoS	Quality of Service
SMS	Short Message Service
UCC	User Created Content
VCR	Video Cassette Recorder
VoD	Video on Demand
VoIP	Voice over IP

NOTE – In the context of this supplement, the abbreviation VoD includes video, audio and associated metadata.

5 Conventions

In this supplement, there are no specific conventions.

6 IPTV service descriptions and use cases

This clause provides descriptions and use cases of various IPTV services, which are not exhaustive. It is categorized by their service characteristics from the end-user's perspective.

6.1 Distributed content services

6.1.1 Broadcast services

Broadcast services comprise a one-way transmission of content from one point (the source) to two or more points (the receivers). The end-user has no control over the content or timing of what he or she receives, apart from the ability to select a particular channel.

6.1.1.1 Linear TV

Linear TV is a broadcast service that is the same as the conventional form of television services that are provided by cable, terrestrial and direct-to-the-home satellite operators, where the programme content is transmitted according to a defined schedule and is intended for real-time consumption by the end-user. The service, therefore, provides an essentially continuous stream flowing from the content provider to the terminal device located in the end-user network.

Linear TV includes (but is not necessarily limited to) the following approaches:

- **Linear TV with audio and video:** Audio and video (A/V) signals are broadcasted and distributed to the downlink without end-user control of the broadcast.
- **Audio only:** Audio signals are broadcasted and distributed to the downlink without end-user control of the broadcast.
- **Linear TV with audio, video, and data:** These A/V services are combined with interactive data for the related or supplementary information of A/V programs using bi-directional links. The end-user can watch the downlink A/V stream and can simultaneously access more detailed or value-added information via the uplink.

Figure 6-1 shows an example of a linear TV service with client PVR.

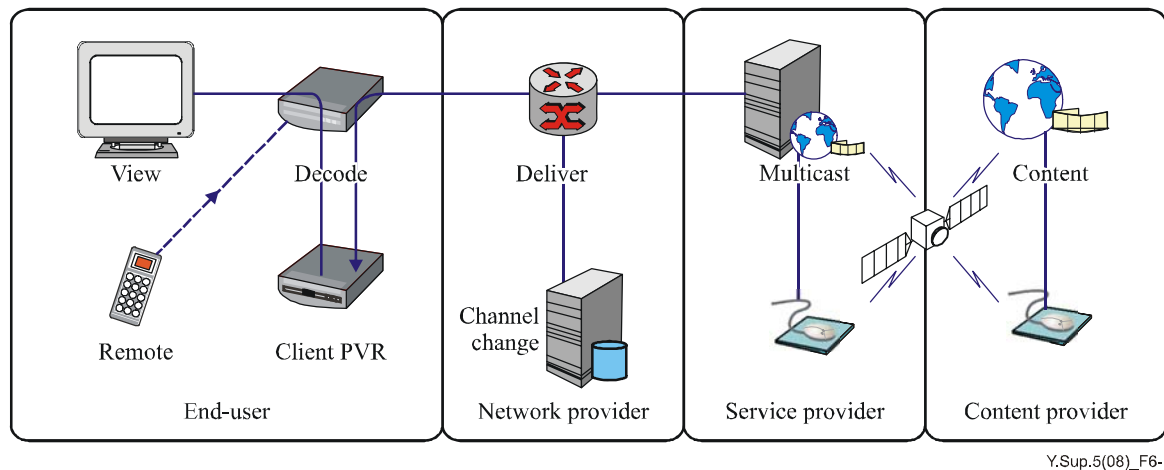


Figure 6-1 – Example of linear TV with client PVR

Figure 6-2 shows a use case of linear TV service.

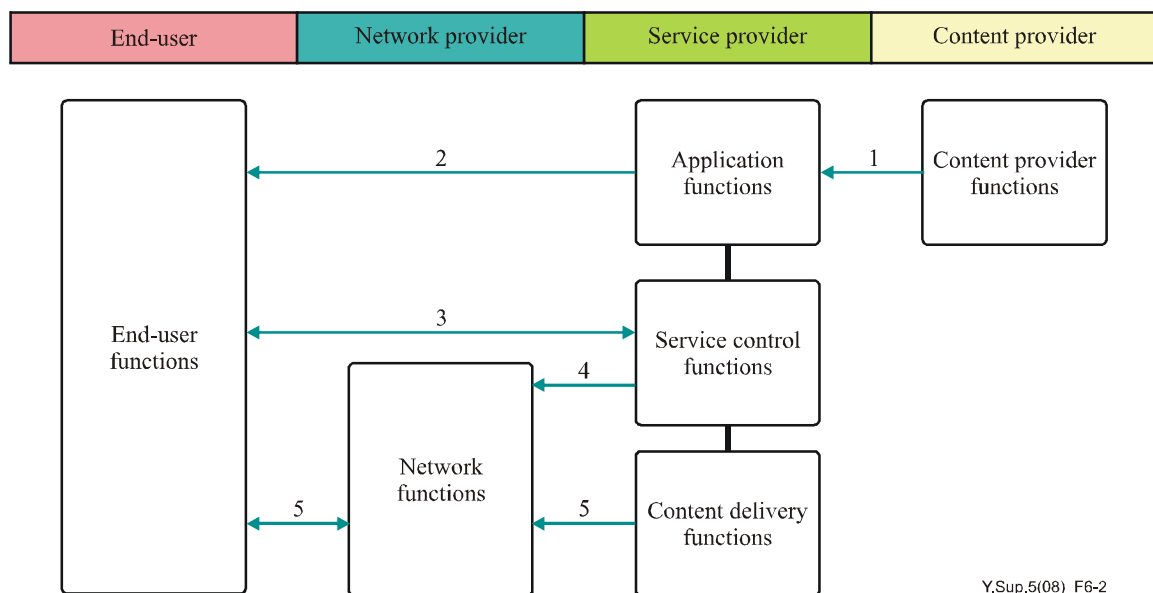


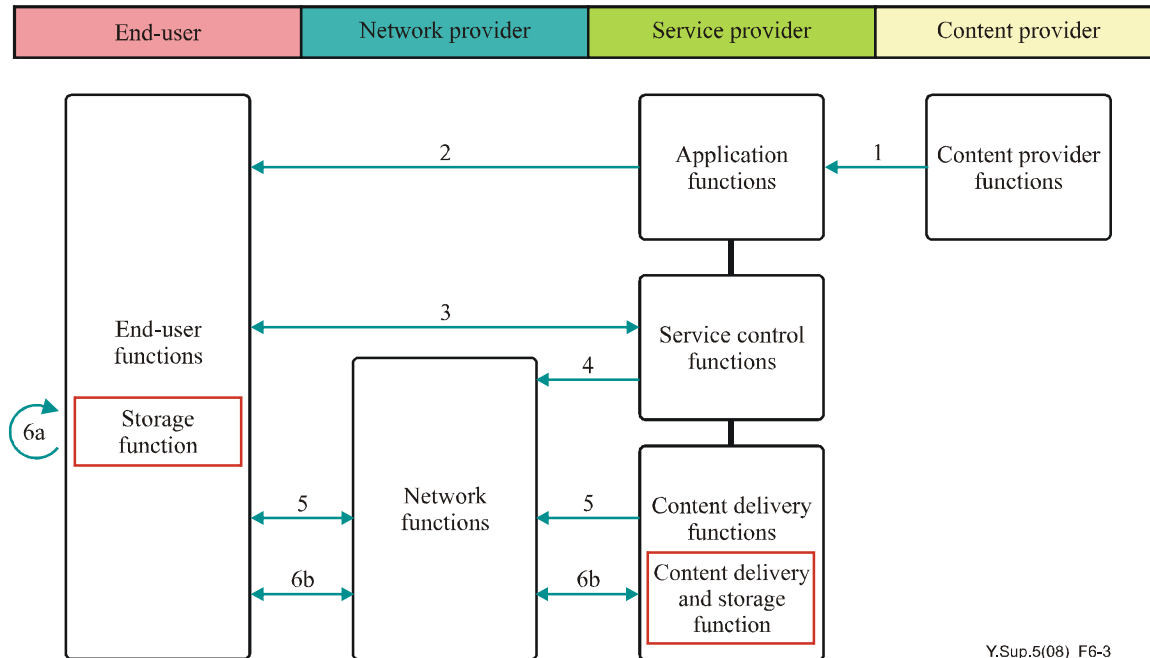
Figure 6-2 – Use case of linear TV

- 1) Contents (video, audio, data, etc.) with related metadata and content protection (CP) data are produced and managed by the content provider, and are delivered to the service provider.
- 2) The service provider then formats the data prepared by the content provider into IP packets, and controls the program schedule and distribution. Then, the scheduled channel information is provided to the end-users, indicating the content is ready for consumption.
- 3) When an end-user wants to access the linear TV service or selects a channel, the request is sent to the service provider. This procedure may include service negotiation (e.g., QoS, price, etc.) and service availability confirmation procedures.
- 4) If the end-user is granted access to the linear TV service, the service provider interacts with the network provider to transmit the requested content. This procedure may include reserving and allocating network resources to guarantee the contracted service level.
- 5) Upon completion of step 4, the service provider supplies channel access information (e.g., the multicast address assigned to the requested channel) to the end-user. Then he or she can access and watch the channel.

6.1.1.2 Linear TV with trick mode

Linear TV with trick mode enables the end-user to pause linear TV. For the ability to skip content and for other capabilities (e.g., instant replay), the use of PVR is required. The personal video recorder (PVR) provides capability of end-user-controlled electronic device that records Linear TV and stores it in a digital storage facility, either in stand-alone set-top boxes or in the network. This capability can support "time-shifting", "trick modes", and complementary convenience functions, such as programming and remote control by PDA, networked PC, or web browser.

Figure 6-3 shows a use case of a linear TV service with trick mode:



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Figure 6-3 – Use case of linear TV with trick mode

Steps 1 to 5 are the same as those depicted in Figure 6-2.

- 6a) When the end-user's IPTV terminal has its own storage capability and the end-user requests any trick mode function, the programmed content is recorded by the storage function and may be displayed later according to the end-user's selection or the constraints provided by the content protection metadata.
- 6b) If the end-user requests the trick mode service without any local storage capability (e.g., embedded in his or her IPTV terminal), then the programmed content is recorded in the storage facility managed by the service provider. The selected content can then be displayed later by the end-user, according to the constraints provided by the content protection metadata.

6.1.1.3 Pay per view

Pay per view (PPV) is a streaming service where end-users can purchase events or programs to be seen on IPTV terminal device. The user can buy the PPV service, e.g., via an on-screen guide, a telephone, or through the Internet, and see the brought events or programs at any time within the expiration date.

- Order-ahead PPV (OPPV): The ability to order PPV programming ahead of time.
- Impulse PPV (IPPV): The ability to order PPV programming impulsively.

6.1.1.4 Electronic program guide (EPG)

An electronic program guide (EPG) is an on-screen guide to scheduled programs. It contains additional descriptive information, and enables a viewer to navigate, select and discover content by time, title, channel, genre, etc., by using a remote control, keyboard, touchpad or even phone keypad. Generally, an EPG can be displayed in several layouts, such as mosaic EPG, box EPG, text EPG, mini EPG, tree EPG, etc., possibly depending on the service provider's business model.

Traditionally, in broadcast services, EPG service has been provided to enable end-users to easily browse television or live video content listings in an effort to easily find and select television content to view and/or record. According to today's typical use of the EPG service, an EPG is an on-screen guide used to display scheduled broadcast television programs, allowing a viewer to navigate, select, and discover content by time, title, channel, genre, etc. In the future, IPTV services will support an EPG that will display all available content. In other service offerings detailed in this supplement, an EPG is not relevant. On-demand services may use some form of content catalogue to enable easy browsing and selection of content, but this is not live content and an EPG would not be used in this "catalogue" type of scenario. Also, an EPG may be an end-user interactive service, but it is not a bidirectional interactive service for end-user interaction with a server or headend.

Figure 6-4 shows a use case of EPG service.