

Service Discovery

~ from IPTV Standards

NTT Cyber Solutions Laboratories

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◆ Activities

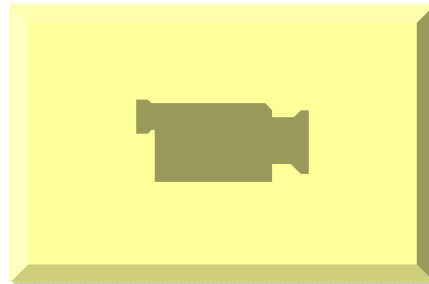
1. To develop technical specifications related to IPTV services
2. To maintain and update technical specifications related to IPTV services
3. To disseminate technical specifications related to IPTV services
4. To cooperate in testing, etc. for the commercial application of technical specifications related to IPTV services
5. To promote the use of IPTV services and conduct public relations



◆ Members

- 54 member companies
- NTT, KDDI, Softbank, TV-Asahi, TV-Tokyo, Tokyo Broadcasting System, Nippon Television Network Corp., NHK (Japan Broadcasting Corp.), Fuji Television Network, Inc., Sony Corp., Panasonic, Hitachi, Ltd., etc.

◆ Watch the video clip of IPTV Forum Japan!

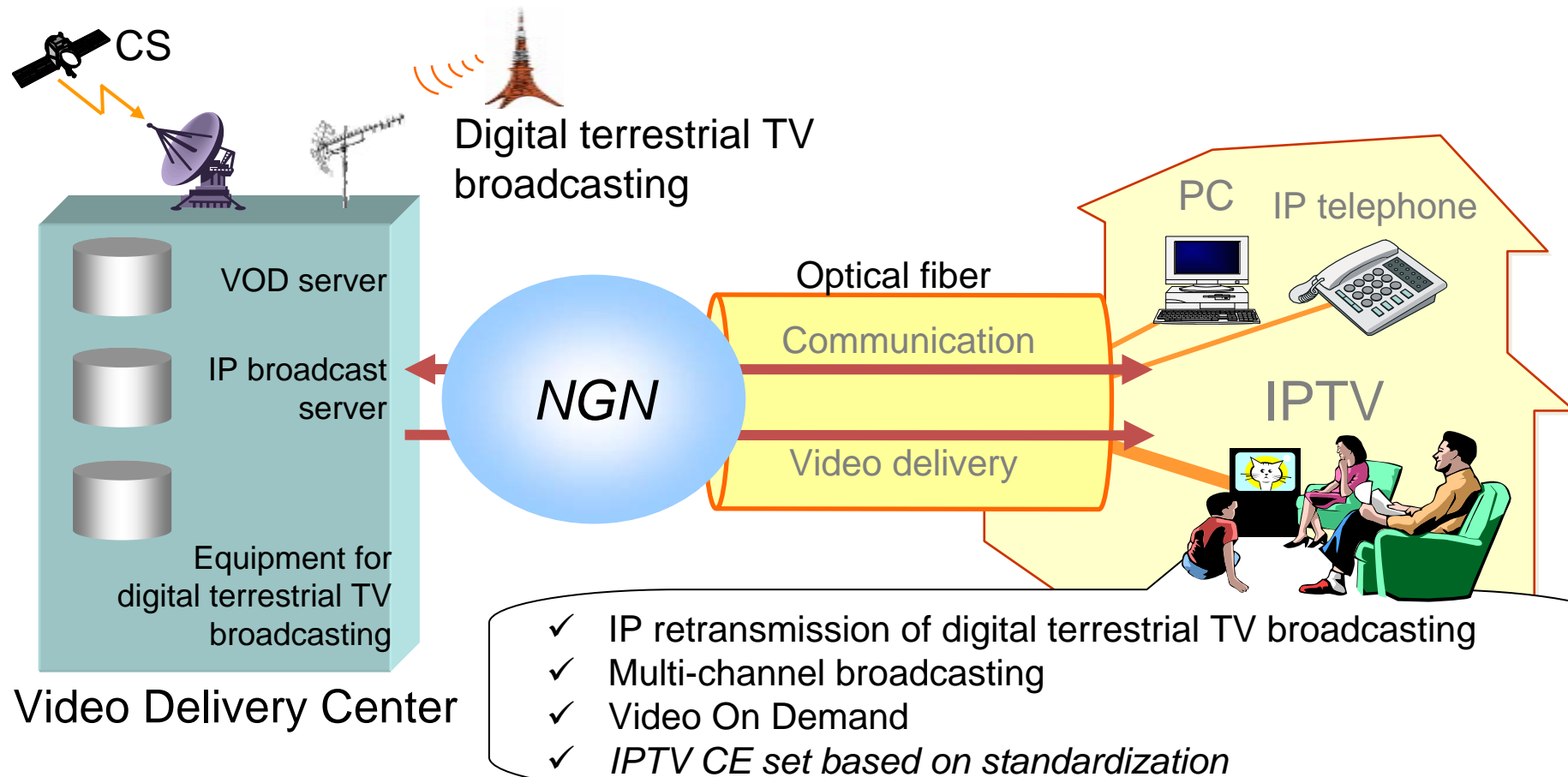


- ◆ IPTV Service provided by NTT Plala
- ◆ IPTV Forum Standard-based, open platform
- ◆ Attractive content (HD content, FTA, etc.) taking advantage of FTTH/NGN
- ◆ Managed Service for proper Security and QoE

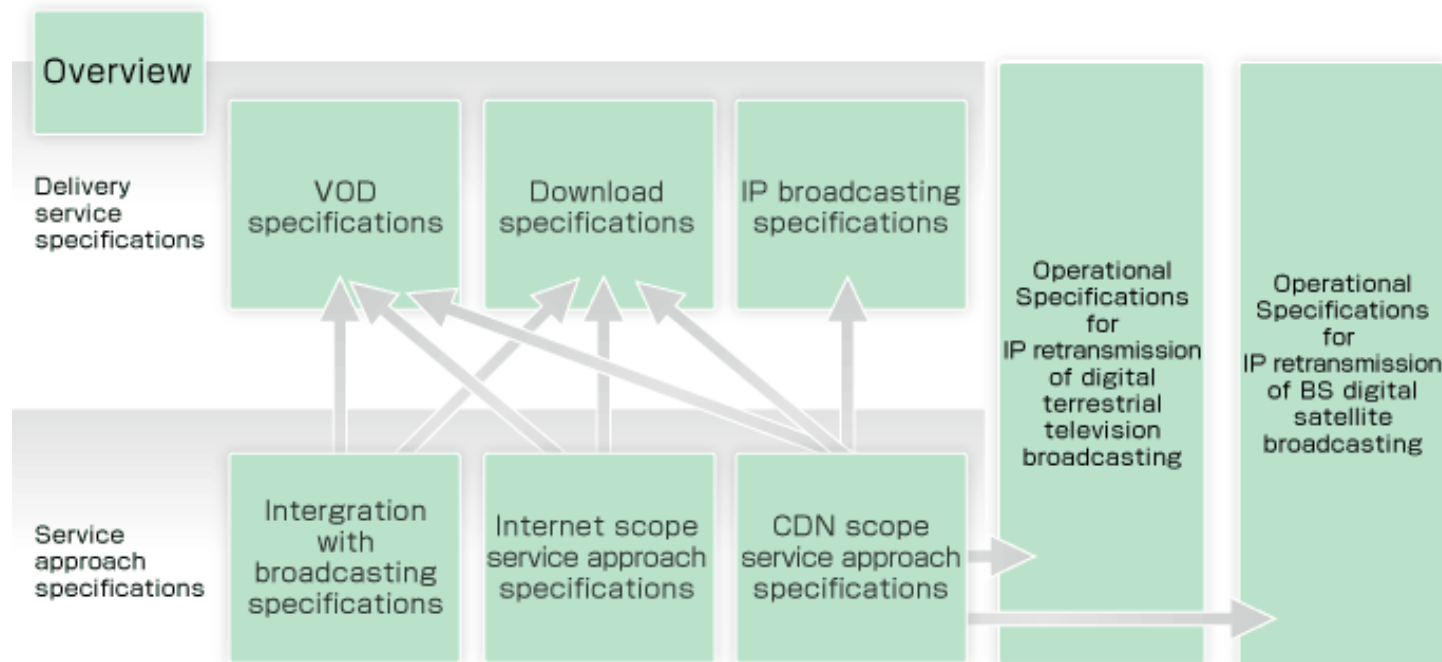


HIKARI TV Service with IPTV standards

1. Delivers high-definition video content
2. IP retransmission of digital terrestrial and BS TV broadcasting



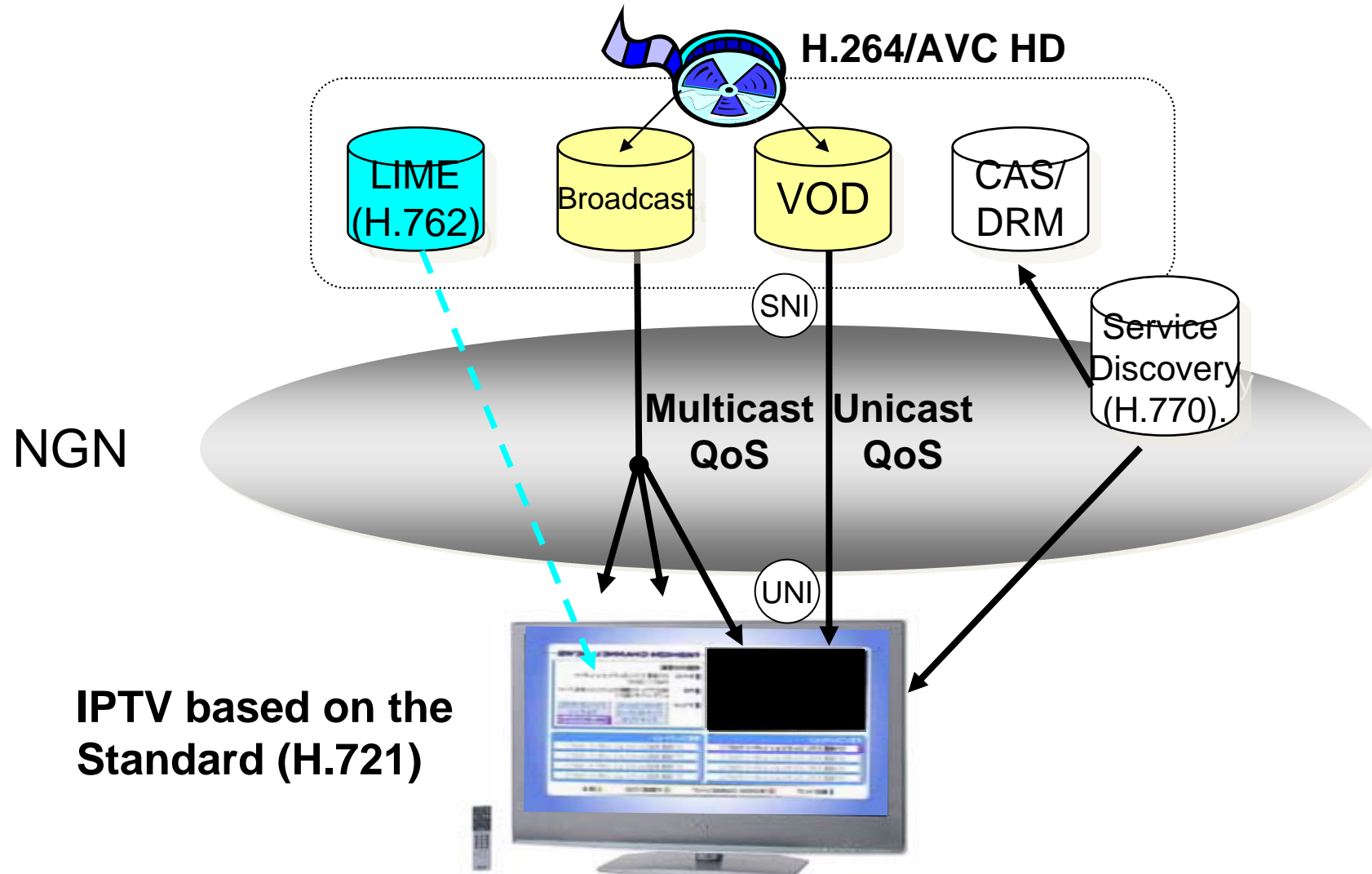
- ◆ Standards for implementing **open** IPTV services as well as technical specifications for receivers
- ◆ IPTV Forum Specifications are harmonized with Digital TV Broadcasting Service Spec.
 - i.e. manufacturing Common TV sets for DTV and IPTV
 - e.g. Data Broadcasting Markup Language



- ◆ IPTV Forum Specifications are also harmonized with ITU-T international standards.

Recommendation Number	Recommendation Title	SG	Correspondence to Forum specifications
Y.1910 (Y.iptv-arch)	IPTV Architecture	SG13	Chapter 1, Chapter 2 (each spec.)
Y.1901 (Y.iptv-req)	IPTV Requirements	SG13	Chapter 1, Chapter 2 (each spec.)
Y.Sup5 (-)	IPTV service use case	SG13	Chapter 1, Chapter 2 (each spec.)
H.701 (H.IPTV-CDER)	Content Delivery Error Recovery for IPTV services	SG16	FEC comparable portion
H.750 (H.IPTV-MD)	Metadata for IPTV	SG16	Chapter 7 (CDN-scope specification)
H.770 (H.IPTV-SDC)	Mechanisms for service discovery and selection for IPTV services	SG16	Chapter 5 (CDN-scope specification)
H.762 (H.IPTV-MAFR.2)	Lightweight Interactive Multimedia Environment (LIME)	SG16	Chapter 6 (CDN-scope specification)
Q.3030 (Q.iptvsa)	IPTV Related Protocols	SG11	Chapter 4 (each spec.)
X.1191 (X.iptvsec-1)	IPTV security-related function requested items and architecture	SG17	Chapter 6 (IP broadcasting) Chapter 7 (VOD specification)
H.721 (H.IPTV-TDES.2)	IPTV Terminal Device: Basic Model	SG16	Chapter 3 (each spec.)

Standard IPTV System Structure



- ◆ Initiated by Contribution from *IPTV Forum Japan*
- ◆ Many inputs from DVB and ATIS-IIF.
- ◆ Defines Terminal supporting VoD and Linear TV
- ◆ Targeted at Embedded TV sets in the retail market as well as STB
- ◆ Managed network model (agnostic as to IMS)
- ◆ Network attachment and Service Discovery compliant with H.770
- ◆ FEC for Error Recovery, compliant with H.701
- ◆ Supports Portal service as well such as H.762 (LIME)
- ◆ Implemented and deployed

HIKARI TV Terminals with ITU-T H.721



- ◆ NTT's "HIKARI TV" service is delivered to standard-based terminals, compliant to ITU-T H.721 and IPTV Forum Japan's specification.
- ◆ These terminals are available in the retail market in Japan
- ◆ Customer can buy a TV or PC at a shop, connect to NW, and receive an IPTV service

STB

TV set

PC

**PM-700
(HIKARI-TV STB)**

Panasonic VIERA

NEC VALUESTAR

SHARP AQUOS

**PM-1000
(HIKARI-TV PVR)**

TOSHIBA REGZA

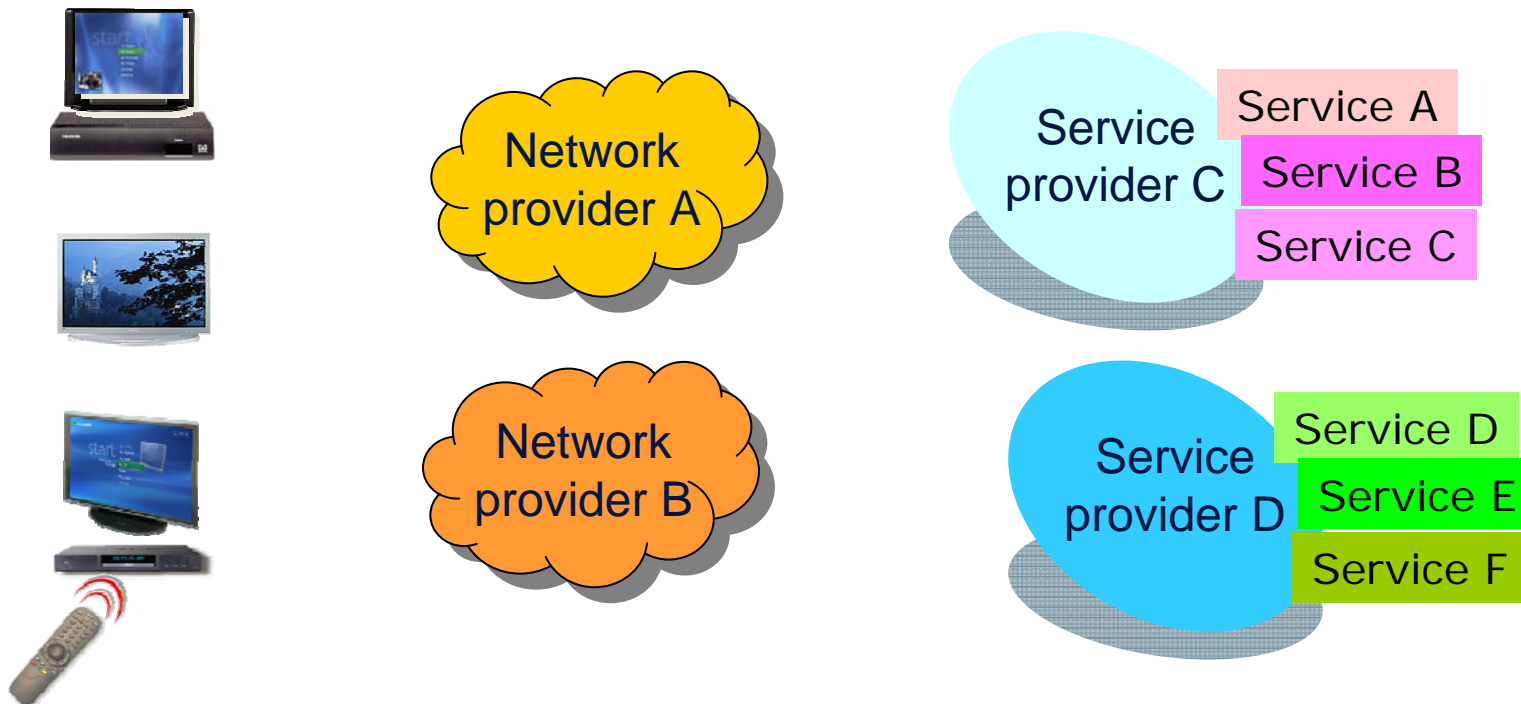
**TOSHIBA Qosimo
dynabook**

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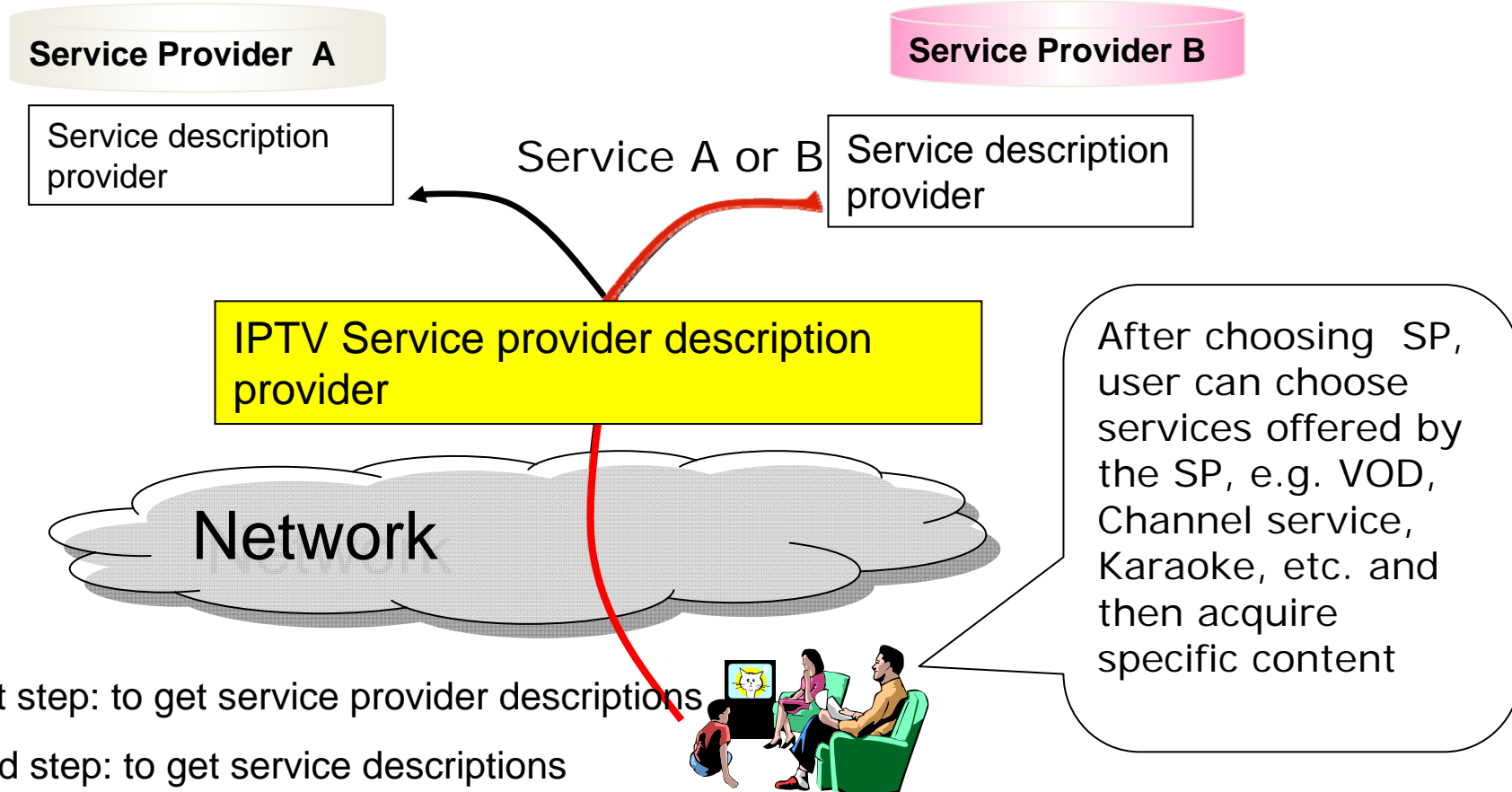
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Why is service discovery needed?

- ◆ In an open environment, there are multiple service providers available over each network.
- ◆ Each service provider provides different services such as Linear TV, Content Guide, etc.
- ◆ How to discover them when you come back home with a new IPTV Terminal device?



- ◆ General Framework for discovering and selecting service providers and services
- ◆ Allows user to enjoy various services and service providers easily



- ✓ 1st step: to get service provider descriptions
- ✓ 2nd step: to get service descriptions

◆ ITU-T H.770 defines:

- service provider description locations & delivery protocols
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- service description

◆ Based and harmonized with DVB and ATIS

◆ With some extensions for:

- delivery protocols (FLUTE)
- Portal URL, Purchase URL



◆ A profile of (retail service provider model) ITU-T H.770 (such as the one specified by IPTV Forum Japan) is already implemented and deployed in “HIKARI TV” IPTV service.

◆ How is a service found on the Web?

Discussion of “Web and TV” must include the mechanism of “service provider discovery” and “service discovery”, which harmonized with the existing standard, such as ITU-T H.770.

- What is the metadata for Service Discovery for the TV on Web?
- How is the metadata processed?
- What are the mechanism for accessing the service and content on the Web after its discovery
- Are the current web protocols sufficient or do we need more?
- How can we manage the web?