**ITU-Telecommunication Standardization Sector APC**--

**Study Group 16**

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**Source** : Electronics and Telecommunications Research Institute

**Title** : Proposal for broadcast and distribution service capability in H.310 systems

**Purpose** : Proposal

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**1. Introduction**

As telecommunication service providers modernize their schemes, their concerns are increasing in upgrading networks to meet not only the near-term requirement of providing high quality POTS (Plain Old Telephone Service) but also the demand for emerging broadband transport services. The access network providers try to merge current and future broadband services, which leads many users to telecommunication networks. Based on advanced infrastructure of telecommunication, the quality improvement and various applications for multimedia contents in full service network. Draft recommendation I.375.x shows that network capabilities to support multimedia services and applications (including conference services, conversational services, distribution services, retrieval services, collection services, message services) are described by means of reference configurations and corresponding network architectures.



**Figure 4/I.375.**x Reference Configuration for Multimedia Distribution Services Class

Among these services, multimedia distribution services are characterized by point-to-multipoint communication and unidirectional information exchange. Figure 4/I.375.x (from ITU-T SG13) shows the reference configuration for the multimedia distribution services. It presents the functions of multimedia distribution services to be supported by network capabilities as full service access network. The asymmetry of upstream and downstream bandwidth in a full service access network fits well with current services. For example, in digital video broadcast, video-on-demand service, interactive TV, and so on, downstream traffic is a relatively high bandwidth video stream at a few Mbps. On the other hand, the upstream traffic is usually low bandwidth signaling form user’s control such as channel change request.

The functional definitions to be supported are as following:

* Service Provider Selection Functions
* Termination of network control functions
* Selection of service provider
* Navigation functions related to the service provider
* Service Provider Functions
* Distribution (Duplication) functions
* Content selection functions
* Broker functions
* Navigation functions related to the content
* Content Server Functions
* Application preparation and storage
* Termination of application control functions

In case of providing the distribution and on-demand services, the selection mechanism provided to the user to select the information is a two level selection mechanism. Level 1 offers the selection of the service provider (Level 1 Gateway), and level 2 offers the selection of the video program, of the VOD contents, within a service provider’s domain.

**2. Connection flow for broadcast and distribution service using H.310 and relevant systems**

Refer to Figure 4/I.375.x, the actual network configuration using H.310 systems is shown as Figure-1. In Figure-1, L1 Gateway plays a role of service provider selection functions and service provider functions as Figure 4/I.375.x. It may be provided by the network operator in the ATM core network functional area or by a separate service providers’ broker(or service provider). This L1 Gateway is connected to ATM switches and VIP(Video Information Provider)s, it provides service guide and logical connections to users for video broadcast services, H.310 systems need at least 3 virtual channels.



**(Figure-1)** End-to-end logical channel connections between VIPs and STUs

for broadcast and distribution services

A Bi-directional session set-up channel for H.245 (or DSM-CC) between L1 Gateway and STUs.

B Bi-directional session set-up channel for H.245 (or DSM-CC) between L1 Gateway and VIPs.

C Bi-directional control channel for H.245 (or DSM-CC) between VIPs and STUs.

UNI (Q.2931) signaling connection between VIPs and STUs.

D Uni-directional user channel for video streams between VIPs and STUs.

UNI (Q.2931) signaling connection between VIPs and STUs.

**3. Broadcast and distribution service capability into H.310 and H.245**

There is no considerations for ATM based broadcast and distribution service in current H.310 and H.245.

H.310 systems as VIPs need to communicated with L1 Gateway for broadcast and distribution services. For broadcast and distribution services, current connection set-up procedure (end-to-end) is changed. First H.310 systems as VIPs communicate with L1 Gateway, and provide system profiles, such as Program Specific Map/Program Specific Information, system capabilities, to L1 Gateway.

In DSM-CC Switched Digital Broadcast-Channel Change Protocol (13818-6 : SDB-CCP), for example SDB-CCP messages are as follows:

* **SDBProgramSelectionRequest**

Sent from a User to the SDB Server to request that a broadcast program to be provided.

* **SDBProgramSelectionConfirm**

Sent from the SDB Server to a User in response to the SDBProgramSelectRequest.

* **SDBProgramSelectionIndication**

Sent from the SDB Server to a User to indicate that a new broadcast program will be provided.

* **SDBProgramSelectionResponse**

Sent from a User to the SDB Server in response to the SDBProgramSelectIndication message.

**4. Proposal**

As the infrastructure of multimedia distribution service is being built through full service network, H.310 systems as VIP need to provide video distribution capabilities. In order to provide full service related with multimedia in ATM network, this contribution proposes to consider as following:

* Addition for broadcast and distribution service capability to H.310 and H.245.
* Interworking procedure with L1 Gateway for uni-direction and on-demand service using H.310 as VIP.

**[Reference]**

1. Draft Recommendation I.375.x, “Network Capabilities to Support Multimedia Services - General Aspects”, ITU-T SG13, Fab., 1997.
2. ISO/IEC 13818-6, “DSM-CC U-N Switched Digital Broadcast – Channel Change Protocol”, July, 1996.
3. “Full Service Access Networks (FSAN) : Systems Engineering/Architecture”, FSAN SE/A Group , Feb. 25, 1997.