



Date: November 04, 2022

To,

Shri Anil Kumar Bharadwaj,
Advisor (B&CS)-II,
Telecom Regulatory Authority of India (TRAI)
Mahanagar Doorsanchar Bhawan
JLN Marg, Old Minto Road,
New Delhi – 110002, India

Subject: Comments on behalf of Hathway Digital Limited (**'HATHWAY'**) on the Consultation Paper on "Telecommunication (Broadcasting and Cable) Services Interconnection (Addressable Systems) (Fourth Amendment) Regulations, 2022 (**'CP'**).

Dear Sir,

We, HATHWAY, would like to thank the Telecom Regulatory Authority of India (*hereinafter referred as 'Authority'*) for providing us with the opportunity to share our comments on the CP.

At the outset, we would like to put on record our sincere appreciation and gratitude for all the endeavours and measures that the Authority has been putting forth in the recent past to improve the functioning of the broadcasting and telecommunication sector by periodically introducing diverse regulations and processes with deep involvement of the concerned stakeholders. The captioned CP is likewise a welcome step towards establishing a robust framework for Digital Management Rights for providing IPTV Services by proposing to include 'System Requirement for Digital Right Management (DRM)' as a new Schedule i.e. Schedule X in the Interconnection Regulations.

As the Authority is aware that currently technology is progressing fast and we must frame the regulations such that it can accommodate the future march of technology to provide maximum customer benefit. Hence it becomes important that while framing the framework for the Digital Right Management, special care is taken to make it future-proof.

Accordingly, we would like the authority to take note of below submission, before we provide the details of changes in the proposed Schedule X in the format desired by the Authority.

The CP proposes to limit IPTV transmission to multicast. IP technology is moving fast and lines between broadcast, multicast and unicast are blurring fast. Hence technology for delivery

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of IPTV services should not be limited to a particular mode, whether owned and/or under DPO's control, as long as DRM is able to ensure all main objectives of the authority which are:

- i. Preventing Piracy
- ii. Consumer Interest with respect to Quality of Experience (QoE)
- iii. Seamless Technology (Network) aspect to deliver IPTV Service

In most countries particularly US & Europe IPTV is not limited to Multicast transmission and we request India also adopt such forward looking practices for Consumer Benefit as also for prevention of piracy, as multicast and unicast transmission have the same security features.

To understand this in a more detail, it is important to decipher the definition of IPTV Services as provided by TRAI in its Regulation's:

"internet protocol television service" or "IPTV service" means (i) **delivery of multi-channel television programmes;** (ii) in **addressable mode;** (iii) by **using Internet Protocol over a closed network of one or more service providers**

Hence to provide IPTV services the DPO must ensure the following:

- i. **Delivery of multi-channel television programmes**
- ii. **addressable mode**
- iii. **using Internet Protocol over a closed network of one or more service providers**

Let us now understand as to how unicast method meets the above requirement stipulated by the Regulator for provisioning of IPTV Services:

i. **Delivery of Multi-Channel Television Programmes**

Compliance: Like Multicast, Unicast also serves this functionality in the following way:

- (1) Both Unicast & Multicast are transport layer protocols for delivery of Audio Video Streams (Channels) for providing a Multi-Channel Television Programmes experience
- (2) From Headend, DPOs can transmit each Channel over a unique URL/ IP Address for providing multi-channel television programmes either through Unicast or Multicast.

- (3) These URLs/ IP Address would not be accessible in Public Internet even in case of Unicast transmission so this meets the Closed Network criteria fully

ii. **Addressable Mode**

Compliance: Like Multicast, Unicast also delivers Channel in an addressable mode so that only authorized channels can be viewed by end-users in the following way:

- (1) All Unicast Streams gets encrypted at Headend/Packager through DRM and Keys get delivered on request to the authorized Set Top Box ('STB') post successful validation of subscription package of the user.
- (2) DRM protection shall ensure that only authorized STBs get the key to decrypt the Audio Video Channels, which is part of user IPTV Subscription package
- (3) DRM shall control the authorization/ entitlement of each and every IPTV STB individually based on subscription package and Unique Subscriber ID
- (4) IPTV Headend shall also have functionality to send Fingerprint and B-Mail individually to intended Set Top Boxes in an addressable mode

iii. **Using Internet Protocol Over A Closed Network of One or More Service Providers**

Compliance: Like Multicast, Unicast can also be used for providing IPTV in a closed network only, in the following way:

- (1) Unicast Channel URL (IP Address) shall be accessible over a closed network only, which is fully managed by Service Provider(s). In case of Unicast, this can be controlled using DNS/ CDN/ Firewall Network Configuration so a request coming from external network or device would get blocked.
- (2) IPTV shall not be accessible from any external Network, same can be identified using IP address pool of devices outside of closed network
- (3) IPTV shall not be accessible through any external device or 3rd party STB, same can be identified using User-Agent that gets further validated through Token Exchange for authentication purpose before the stream URL/ IP Address gets entertained

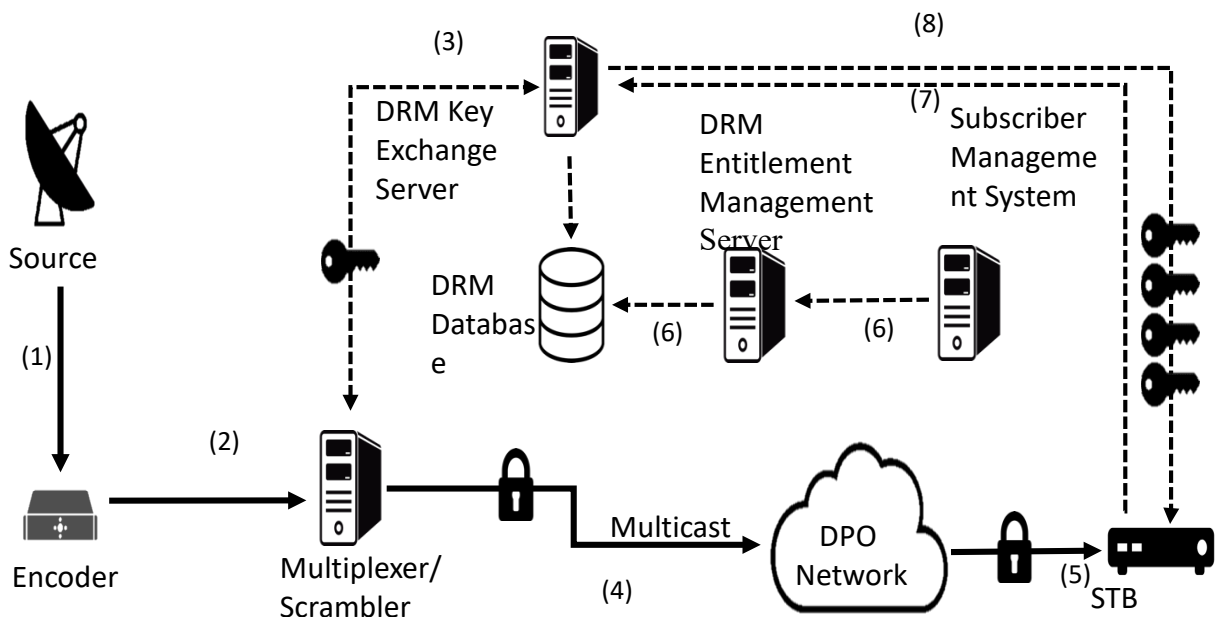
Most importantly, it is to be acknowledged that IPTV services, inherently is an interactive service with controlled QoS. For this IPTV as defined by ITU1 may also be referred to

“IPTV is defined as Multimedia services, such as. Television; Video; Audio; Text; Graphics; Data, delivered over IP based networks. managed **to provide the required level of QoS/QoE, security, interactivity** and reliability.”

From this it is evident that IPTV service is offering on the networking using IP network- with controlled QoS and with interactivity. All such feature are the basic features of unicast instead of multicast. Multi-cast is actually a one-way communication exercise like cable TV. As submitted earlier, IPTV is two way/interactive service, but as a special case it can be made to work only in one direction or as multi-cast – that would render the IPTV service equivalent to cable TV services.

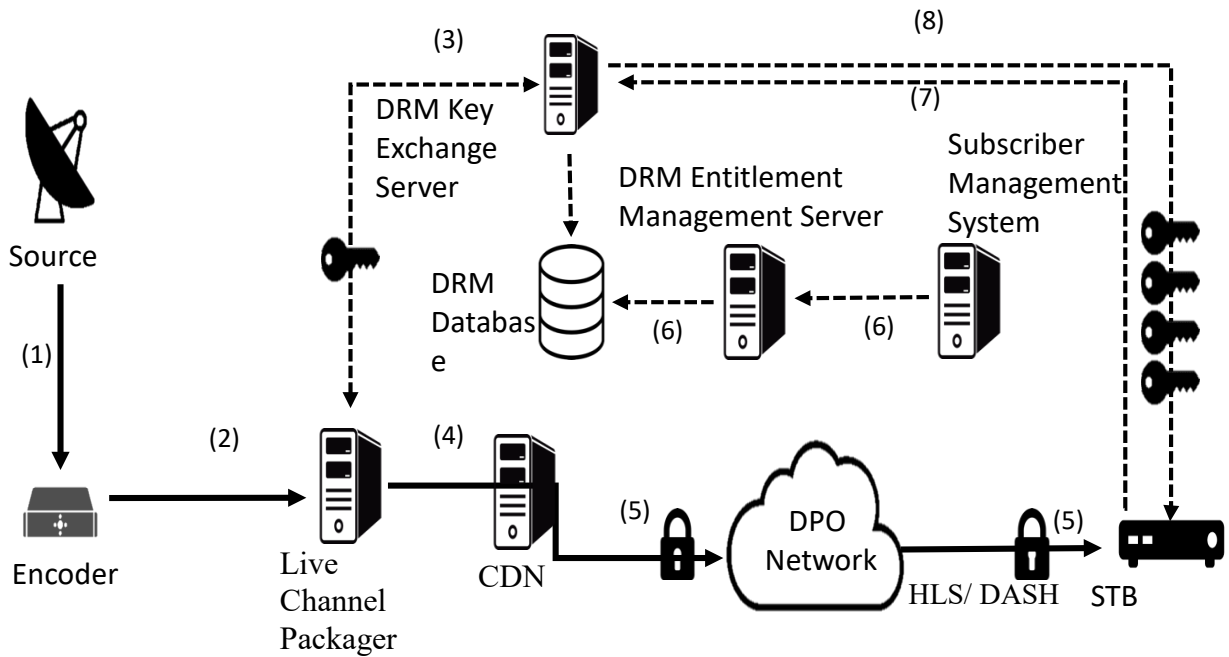
For ease of understanding the Multicast and Unicast solution Architectures are depicted below:

Typical IPTV Solution (Multicast)



¹ <https://www.itu.int/en/ITU-T/jca/iptv/Pages/tor.aspx>

Unicast IPTV Solution



From the above detailed explanation it is evident that IPTV as per definition can be achieved through both Multicast and Unicast. We therefore strongly request for a reconsideration of Multicast mandatory requirement to deliver IPTV.

In view of the above and other equally important considerations detailed in the CP, we propose the following changes in the proposed **Draft Schedule X** for kind consideration of the Authority:

Sl.no.	Clause no. of Draft Regulation	Do you agree with the Draft Regulation proposed in this CP (Yes/No)	If you do not agree with the amendment proposed in this CP, then provide amended Clause proposed by you	Reasons with full justification for your response
1	C (a)	No	Retransmission of channels shall be over a closed network owned and/or controlled by DPO for electronic delivery of audio video stream of linear channels using Internet Protocol through an encrypted, point-to-point system architecture to set top boxes located	As in case of MSOs, the IPTV Provider should also be allowed to share infrastructure of the other service provider (whether TSP or other MSO) for provision of IPTV services. Any ownership requirement would be restrictive only for IPTV services and will also

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			within a subscriber's premises. For the avoidance of doubt, IPTV shall not include any electronic delivery for receipt and viewing via (i.e., directly accessible via) the Internet / world wide web/OTT	unnecessarily put financial burden on the DPO.
2	Table 2 P#33	No	IPTV Transmission shall be agnostic to any network topology for both Multicast & Unicast methods provided it complies with all regulatory requirements. STBs with facilities for recording programs shall have a copy protection system (i.e., a feature which prevents reproduction of content and/or unauthorized copying and distribution of content) and such recorded content should not be transferrable to any other device.	With advent and advancement of new technologies, both Multicast & Unicast offers similar Quality of Service and Content Security so keeping IPTV Service limited to Multicast would limit the Opportunity to Industry Players from growing fast and make IPTV successful in the market. Further, IPTV being interactive service, would be required to have functionality of unicast as well. As long as all the regulatory requirements and spec are complied with, there should not be any artificial technological barrier like Multicast or Unicast to offer IPTV Services
3	Table 2 P#34	No	IPTV transmission should be allowed to configure any content delivery network (CDN) in their system to deliver linear content to STBs provided it complies with all regulatory requirements	CDN is essential to make the IPTV System over Unicast scalable and robust for best in class Quality of Service needed for a mass deployment. As long as all the regulatory requirements and spec are complied with, there should not be any artificial technological barrier like non-usage of

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				CDN to offer IPTV Services
4	Table 2 P#37	No	IPTV system should allow recording of linear channel at headend/network level provided Content is DRM protected and only authorized STB should be able to playback the same in line with Broadcasters Agreements in this regard. It should also be allowed to record at STB/DVR level , without there being any option available to transfer such recorded content to any other device.	In the interest of better user-experience, we should keep both options open for end users to enjoy Live Channel Recording feature as per his choice/ need. Live Channel recording can be enabled over Cloud or Locally through connected Hard-Disk with DRM protection. Some leading DTH players are already offering similar Cloud Recording features on their existing Hybrid STB
5	Table 2 P#48	No	The DRM may allow insertion of any self-promotion and/or any third party and/or paid advertisements (including banners and Aston bands) before, during or after transmission of linear channels subject to requisite agreement with the concerned Broadcasters in this regard.	This should be controlled based on Broadcaster's Agreement with respective DPOs to have more efficient way of delivering Ads for targeted audience. This targeted dynamic Ad-insertion will be strictly in compliance with current TRAI regulations on Quality of Service
6	Table 2 P#49	No	The DRM may permit subscribers to record and/or store channels/content from channels subject to requisite agreement with the concerned Broadcasters in this regard.	Channel Program Recording is an essential and sanity feature for any LiveTv Service. All DTH & Cable TV DPOs are already offering the same. Further, pls refer submission to point #3
7	Table 2 P#51	No	The DPO may sub-license the DRM and/or any rights granted to the DPO by the broadcaster to any entity for re-transmission of	Even under the current regime, MSOs are permitted to provide content to other IPTV Service Provider. In view

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			channels to subscribers subject to requisite agreement with the concerned Broadcasters in this regard.	of that, DRM protected content should be allowed to sub-license to other DPOs after obtaining relevant rights from Broadcasters.
8	Table 4 P#16	No	STB may have feature to download 3rd party App/APK directly from in-built App Store and may also have access to a Browser. However, side Loading of any third-party App should not be allowed on the STB. At the same time, STB having an integrated browser to serve relevant Hybrid STB features, it should not allow any unauthorized access to IPTV through Browser.	App Download through App Store is the need of hour in current time with ever-growing App ecosystem so direct download from DPO controlled App Store should be allowed. IPTV is an inbuilt service of STB while Apps are managed through App-Store so there is a clear demarcation between them. Browser is an integral part of STB and required for many use-cases so having Browser is an important element for a comprehensive product offering to end-user
9	Table 4 P#18	No	Already covered under above Point #16	Same as above point #16
10	Table 4 P#21	No	The DRM may allow delivering linear TV channels on HLS, Smooth Streaming, Dash & HTTP/TCP subject to IPTV service being not accessible on Open Internet, i.e. IPTV Service should strictly be accessible in a managed network with DRM protection	IPTV Service should be agnostic to any technology as far as Solution complying to all regulatory specifications. With advancement in technology now, both Unicast (HLS, Smooth Streaming, Dash & HTTP/TCP) and Multicast offers similar Quality of Service without any compromise on Content Security

At the end we would once again like to thank the Authority for giving us an opportunity for sharing our views on such an important issue and hope that authority would look into our suggestions/comments favourable and incorporate the same in the draft regulation to enable IPTV Service Providers to provide seamless and quality service to its subscribers.

Thanking you,
Yours Faithfully
For Hathway Digital Limited



(Ajay Singh)
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