Counter Comments on Draft - The Telecommunication (Broadcasting and Cable) Services Interconnection (Addressable Systems) (Fourth Amendment) Regulations, 2022 (___ of 2022).

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INTRODUCTION

At the Outset we would like to thank the authority for publishing the Consultation Paper on Draft - The Telecommunication (Broadcasting And Cable) Services Interconnection (Addressable Systems) (Fourth Amendment) Regulations, 2022 (___ Of 2022). In this regard we have given our submissions in the tables given below along with our comments, we are also of a firm view that these regulations will pave the way for formulating regulations to enable IPTV service providers to provide better quality service to their subscribers.

The Consultation paper proposes to limit IPTV transmission to multicast. Whereas IP technology is evolving thereby making the lines of difference between broadcast, multicast and unicast very thin. We are of the opinion that technology for delivery of IPTV services should not be limited to a particular mode in this context, limiting IPTV technology to be only multicast is detrimental to industry and for technology convergence as customers will not have choice to select and have benefits under the technology convergence thereby not being able to avail the best of services. So, as long as DRM is able to ensure all main objectives as envisaged by the authority which are:

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

The Authority should take into consideration that as multicast and unicast transmission have the same security features. Hence in the interest of customer benefit, we hereby request the authority for a reconsideration of mandating only multicast requirement to deliver IPTV services in India and consider all technology platform including Unicast to be allowed and customers to derive maximum benefit out of technology convergence.

Table 2: Response on issues related to 'System Requirement for Digital Right Management (DRM)' on issues other than those proposed in this CP				
Sr No	**New Clause number proposed in the Draft Regulations 2022**	**Proposed DRM Requirements for conditional access by subscribers and encryption**	**Suggested Amendment (additional clause)**	**Reasons/ full justification for the proposed amendment**
1	7	The DRM deployed should be able to generate, record, maintain independent reports and logs for verification purpose during audits corresponding to each command executed in the DRM issued by the SMS integrated with the DRM for last two (2) years	The DRM deployed should be able to generate, record, maintain independent reports and logs for verification purpose during audits corresponding to each command executed in the DRM issued by the SMS integrated with the DRM for last two (2) years minimum. The reports must have date	Maintaining two years of the millions of transactions in the same server impacts its performance. The clause should be modified as - " The raw logs should be archived in a protected storage and should be available to access during any audit.

		minimum. The reports must have date and time stamp.	and time stamp. **The MSO can have these transactional logs exported to an external storage system ensuring that it is available in raw format without any change for the period of at least immediately preceding two (2) consecutive years, corresponding to each command executed in the SMS including but not limited to activation and deactivation commands.**	
2	17	DRM should support content protection and usage rules enforcement for B2C model		The regulation has to give clarity regarding the usage rules.

3	18	DRM should be capable of handling at least 3 million license transactions per minute.	DRM should be capable of handling at least **% of license transactions per minute.**	3 million transactions per Minute needs super computing systems and storage. Ideally it should be in terms of % of users for the DPO.
4	19	DRM should support encryption of individual tracks of a content stream with individual keys, i.e., track level protection	DRM should support encryption of **individual services including all the pids comprising of that service with individual key for each service.**	Track level encryption is generally not preferred in the Industry and done at service level. The elementary pid level encryption leads to a lot issues like async between A/V, loss of packets, additional load on DRM and SMS system for transactions.
5	21	In case DPO has deployed hybrid STBs, DRM shall ensure that the over-the-top (OTT) App and any browser does not get access to the linear television channels offered by the DPO from its own	In case DPO has deployed hybrid STBs, **if the MSO is providing the linear television channel on IP delivery also either Unicast or Multicast, the DRM shall ensure that all the mandatory requirements**	The Hybrid STB's have an added advantage to deliver content over IP Network seamlessly. The DPO should have an option to choose content delivery between either Coaxial or IP.

		system, and similarly, DRM for IPTV service should not get access to channels delivered through OTT platform. Provided that, all the mandatory requirements for DRM shall be complied by hybrid STBs.	**are compiled by hybrid STBs.** **DRM shall also ensure that Any browser does not get access to the linear television channels offered by the DPO. The IPTV channels should be accessible only in the specified STB and not in any other handheld device or computer.**	
6	30	There shall be unique license key required for viewing every 10 minutes in DRM deployed by DPO.	There shall be unique license key required for viewing, the crypto period should be configurable to change at periodic interval in DRM deployed by DPO	Unique license key should be a configurable parameter as per the DPO business model.

7	31	For every change in channels, fresh license keys should be issued by the DRM. License keys issued by DRM should be secure and encrypted. DRM must ensure that the authorization keys are not received by the STB from any other source other than the one specified by the IPTV system.	For every change in channels, fresh license keys should be issued by the **DRM however the various packages can be created with bouquet of channels with same key**. License keys issued by DRM should be secure and encrypted. DRM must ensure that the authorization keys are not received by the STB from any other source other than the one specified by the IPTV system.	The Licenses assigned by DRM can be for a specific channels or group of channels. The Packages can be created accordingly.

8	33	IPTV transmission has to be in multicast mode only just like cable TV transmission. There cannot be any such case where unicast is allowed. 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	IPTV transmission has to be in a controlled network, the DPO can distribute **either in Unicast or multicast mode**. 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	Since multicast is UDP based used as the transport layer protocol, there is no reliability, possibility of congestion is quite high. The low bandwidth scenario makes quality of service difficult to guarantee when streaming with multicast. However unicast is one-to-one streaming. It allows to receive video based on the available bandwidth. Also, the unicast can address adaptive bitrate (ABR) streaming. A single live video is transcoded into multiple streams with different levels of video quality. This is achieved using Content Distribution Networks (CDNs). Each of these approaches has its uses, and no matter the content or organization. Multicast transmissions do offer the benefit of lower bandwidth consumption but comes with higher network construction cost. Unicast

				provide cost-savings on the construction of Multicast-enabled networks while maintaining real-time, low latency, high-quality video with adequate bandwidth management for all users on the network. So, in our opinion it should be MSO's decision to adopt the technology either between Unicast or Multicast. Current generation technologies allow service providers to offer IPTV and OTT services together on the same network. OTT services are based on Unicast technologies while IPTV services can be offered based on either Unicast or Multicast technologies. IPTV services offered using Unicast technologies provide the additional advantage of using a Network PVR to offer features like watching TV programs from the past, return to the beginning of the audition, pausing, etc. This allows the operators

				to provide these features using a cheaper set top box without recording capabilities. Since the Network Capacity is sized for OTT services, which means that the network will support all the users watching OTT programs simultaneously using Unicast technology, live TV support can also be supported with Unicast, without any additional Network capacity. In case both IPTV and OTT are offered simultaneously, having just one Unicast technology makes the network operations simpler. **In summary, although Multicast technology is optimal if only IPTV services are offered, unicast is more ideal and operationally simpler if both IPTV and OTT services and other VAS are to be offered from the same network. Since current generation networks offer feature rich OTT along with IPTV platform, it is**

				recommended that both Multicast and Unicast technologies be allowed to be used based on the convenience of the operator.

9	34	IPTV transmission should not be allowed to configure any content delivery network (CDN) in their system to deliver linear content to STBs.	**IPTV transmission can be delivered using any of the technologies (with or without CDN) based on the convenience of the operator**.	The IPTV content delivery should not be restricted only with legacy methodologies. The latest technologies with unicast, ABR, CDN and DRM eliminates traffic bottleneck there by connecting user to the server closest to his area. It minimizes latency and buffering time. Such CDN based delivery mechanisms are more secured, fastest, and most reliable to deliver the content in the IPTV domain. Also, these are easily scalable ensuring best quality of service. **In summary using a CDN for streaming videos gives better experience to users while ensuring high scalability and security. It is recommended that both technologies (with or without CDN)be allowed use based on the convenience of the operator.**

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