Response to the Telecom Regulatory Authority of India Pre-Consultation Paper on "Set Top Box Interoperability"

April 29, 2016

CASBAA (formerly the Cable and Satellite Broadcasting Association of Asia) thanks the TRAI for its Pre-consultation Paper on the above topic. We are pleased to provide the TRAI with our preliminary thinking on these issues.

CASBAA, as the TRAI knows well, is a non-profit trade association of 110 companies dedicated to the promotion of multi-channel television via cable, satellite, broadband and wireless video networks across the Asia-Pacific region. Our member companies operate and invest in 17 different Asian markets, and many of them are substantial cross-border investors; those that are not international investors themselves are the business partners of foreign investors. They have extensive experience in building and creating television infrastructure and quality programming to meet the needs of this region's more than 500 million multichannel TV households.

 Specifically, CASBAA member companies include prominent content providers, DTH operators, conditional access and middleware technology providers, and other technology providers active in the Indian market.

CASBAA believes that the Pre-Consultation Paper is based on a number of untested, unproven presuppositions concerning the practice of technical interoperability.

CASBAA also believes that regulator-imposed technical interoperability requirements will impose very large burdens on Indian consumers and industry players and risk stifling innovation in development of new features of interest to consumers. We would request the TRAI to fully and carefully consider these costs of regulation, and avoid mandates which lock in current practices in a way that will have a long-term ossifying effect on the entire market.

The primary reasons are that such measures increase cost, complexity and time to market of new features and functionality to **all** subscribers to **all** pay TV services to which they apply, while only potentially benefitting a small subset of subscribers – those who change service provider during the useful lifetime of their set top boxes – and providing them only subset of their new service provider's full features and functionality offered via that service provider's dedicated set top boxes.

In the case where subscribers do change service provider, none of the technical interoperability measures considered in the Pre-Consultation Paper can ensure an equivalent quality of service, and feature and functionality set, across different pay TV platforms unless all set top boxes across all platforms (or even all DTH platforms, for example) are mandated to be technically identical.

This response will now set out in more detail CASBAA's reasoning for these assertions.

1. **Technical interoperability measures raise the absolute costs of set top boxes to subscribers**

As the Pre-Consultation Paper acknowledges, the average capital cost of set top boxes in the Indian market may be close to $25 – though this would not include set top boxes with high definition or digital video recorder capabilities. Because of volume purchases and good negotiation, these are among the very cheapest set top boxes worldwide. Significantly cheaper ones are only available in markets that do not require the stringent safety requirements of the Indian market, or where there is minimal checking of compliance of imported or locally manufactured set top boxes.

There are a number of factors which contribute to higher costs of interoperable set top boxes.

a. Software – due to increased complexity required to support interchangeable conditional access and/or middleware, or to support a middleware that has superior superset capabilities to all of those currently in the market
b. Hardware – whether increased cost of DVB processor chipsets, additional memory and / or increased intellectual property licensing fees due to increased functionality to support technical interoperability.
c. Trust Authority / Trusted Third Party funding requirements – as described in two of the TRAI provided examples in Chapter 3 (DSTAC in 3.6 and ECI in 3.10 to 3.13),
d. Testing and Validation – as each set top box model / software configuration would need to be tested against all six licensed DTH platforms and DD Direct Plus, as opposed to one licensed DTH platform and perhaps DD Direct Plus at present, not only adding cost, but also delay in time to market of new models, features and functionality

e. Retail margins (and possibly also distribution margins) – in the case of a retail distribution model of box sales.   (The need for a retail margin is currently negated / obviated by the operator-subsidized supply model.)

f. Elimination of economies of scale – many individually lower-volume orders and shipments emanating from multiple distributors with lower forecasting certainties are costlier to fulfil than fewer higher volume orders and shipments with greater forecasting certainties. In reality, many set top box manufacturers require minimum order sizes that can only be met by the DTH operators and largest MSOs. It is difficult to see how third party distributors and retailers would relish the prospect of stepping into a very slim-margin business with very low price expectations and high forecasting risks.

g. Proportional increase in cost – given the low cost market even a low cost addition such as a couple of US dollars on a chipset can make a substantial percentage increase in cost. This is especially the case compared to the other markets mentioned in the Pre-Consultation Paper which, (except perhaps Singapore) achieve much higher average revenue per user and generally use correspondingly more expensive set top boxes that reduce the percentage impact of several of the costs listed above.

2. **Complexity of technical interoperability measures is not customer friendly**

Put simply, who does the subscriber call if (s)he has service issues that (s)he believes may be related to the set top box?

In the case of a set top box provided by the same service provider (s)he is using, then that service provider will be responsible for the entire service: set top box hardware, software, LNB, dish, transmission facilities etc and it is a clear and simple answer.

But who should (s)he call first if (s)he got a set top box from one service provider and is trying to receive services from another service provider, but unable to do so, or the features, functionality or performance are impaired?

There is an added complication compared to the Android smartphone market (for example), in which service provider, hardware vendor and software vendor are different. In the smartphone case, the device can at least "report back" details of its hardware and software specifications to the service provider.

In the Indian pay TV market at present, the vast majority of set top boxes have no "return path" internet protocol connection, so there is no way a second (or third etc) service provider of the subscriber's choice can automatically know what device the subscriber has, its memory, processor and software capabilities and so on. The effect of this limitation is that either the second service provider must work "blind" and assume

the lowest common feature, functionality and performance for all set top boxes provided by all of its competitors, or procedures and processes must be established between service providers to share information about migrating subscribers' set top boxes, which would result in an additional cost not listed above.

3. **Technical interoperability measures for set top boxes fail to ensure service interoperability**

   a. In the case of DTH, even full STB interoperability cannot ensure technical interoperability of services, as the subscriber's satellite dish may need to be repointed or replaced with a larger one and the low noise block downconverter (LNB) may also need replacement for a different frequency band. A proportion of TRAI's claimed 30 million STBs lying idle or unused ought currently to be able to receive DD Direct Plus free-to-air MPEG-2 DTH services, but need the correct dish alignment, size and LNB, which may account for their lack of use. That they are not makes the point rather well that set top box technical measures are insufficient in themselves to ensure service interoperability.

   A significant proportion of the 30 million may also be defective, fully depreciated and/or commercially unsalvageable (e.g. MPEG-2 DTH set top boxes now the DTH market has mostly transitioned to MPEG-4), in which case both the financial and e-waste arguments in the Pre-Consultation Paper are weakened. The claim that $750 million capital is lying unused assumes all of the set top boxes are brand new or that they have not depreciated in value – which is clearly not the case. Using this method of calculation, more expensive "technically interoperable" set top boxes would in practice generate a higher value of e-waste when they become defective, fully depreciated and/or commercially unsalvageable because of their higher initial cost.

   b. Although this is less the case for cable, the even lower ARPU than DTH and lower absolute costs of STBs mean that the contribution of interoperability costs are higher than for DTH (i.e. point (g) above is more acute).

   Base level cable set top boxes for this reason typically have less memory and lower chipset processing power to deal with higher featured and performance middleware, interactive applications etc. This also gives them less flexibility to accept alternative conditional access, middleware and interactive applications from an alternative service provider.

   The Pre-Consultation Paper made a point about mobile phone interoperability. We do not find arguments based on 2G mobile telephony to be relevant to a digital TV industry. Basic mobile phone services are not highly differentiable in such areas as "look and feel" of user interfaces, which even the most basic pay TV services

provide. Moreover, given the increasing prevalence of smart phones, the Pre-Consultation Paper fails to acknowledge that applications written for (say) Samsung smartphones running Android are not usable on Apple smartphones running iOS, nor on Blackberries, nor on Microsoft smartphones. Nevertheless, smartphones are very popular, despite costing many multiples of a typical Indian set top box, yet TRAI has not seen the need to try to regulate access to applications across all smartphone platforms. (Nor should it! We favor less regulation for all.)

4. **Regulator mandated technical interoperability hinders innovation in a competitive market**

By all accounts, the Indian pay TV market is recognized to be highly diverse and fiercely competitive at the service provider-to-subscriber level. This is not at all comparable to the US cable market where until relatively recently the market was divided between only two technology providers. (That former duopoly itself is now increasingly irrelevant, not due to FCC's efforts to ensure interoperable set top boxes, but to the arrival of IPTV service providers, OTT providers such as Netflix and consolidation of DTH and IPTV providers – in other words more competition.)

In India, the actual functional level that will be achievable on interoperable STBs will be the lowest and slowest common denominator of the functionalities of all six licensed DTH platforms.

Moreover, regulation moves slower than market participants' technological and service innovations. Creating regulatory obligations will slow innovation and market adjustment to technological progress. For example the technology transition to MPEG-4/DVB-S2 services on the platforms that started with MPEG-2/DVB-S set top boxes was delayed due to the time taken to finalize an "interoperable" DTH standard for MPEG-4/DVB-S2 set top boxes.

Active market participants would prefer to expend management, marketing and engineering effort, investment and time on rolling out new differentiating features, functionality and performance, rather than on ensuring baseline interoperability with their competitors' networks -- and they should be encouraged to do so in a free and competitive market.

5. **Inapplicability of the technologies considered in Chapter 3 of the Pre-Consultation Paper**

Almost all of the technologies considered in Chapter 3 all either were never adopted in real markets, failed in real markets or were never mandated for set top boxes. The

others are as yet unfinished works in progress and thus not currently a viable basis for technical interoperability in the near future.

6. **Belt and braces approach to interoperability**

Given all the above, it is difficult to see why TRAI appears so firmly in favour of regulated interoperability.

It is difficult to see what is provided for a typical subscriber by mandated technical interoperability that is not already offered to the same subscriber and achieved in practice by the mandated commercial interoperability schemes – purchase, rental, hire purchase of STBs and mandated refunds on STBs within warranty period.

7. **Better education and enforcement of service provider claims the better way**

Rather than mandating commercial or technical interoperability measures, CASBAA believes that TRAI's emphasis should be on educating prospective subscribers on the differences between service offerings (what to ask, look out for etc) and ensuring that service providers' own claims are honoured in practice.

This would seem to be a better approach to ensure that more subscribers are better informed when they make their service provider choice and more content after doing so. The interoperability focused approach seems to aim at "socialising the losses" of more "fickle" subscribers across all the loyal subscribers, which does not appear fair to those subscribers who have taken the care and time to choose their service provider carefully and should thus deserve a loyalty bonus rather than a regulator-imposed fee to "bail out" other subscribers.

8. **Thorough cost-benefit analysis required before any mandate**

CASBAA believes that the Pre-Consultation Paper on Set Top Box Interoperability has not established any case for mandated technical interoperability measures. The Pre-Consultation Paper neither addresses the costs, nor the benefits of mandated technical interoperability. CASBAA advises that TRAI conduct a proper cost – benefit analysis with inputs from the industry before assuming that this will bring net gains to Indian pay TV subscribers taken as a whole. In addition to the questions raised in the Pre-Consultation, TRAI would need to consider:

1. What proportion of subscribers to DTH and cable platforms have switched subscriptions from one DTH service provider to another or one cable service provider to another. [CASBAA notes that standardised technical means to ensure DTH to cable or cable to DTH interoperability do not exist and no other country or territory has attempted to mandate this.]

2. What proportion of the new service provider platform's features, functionality and performance can be achieved when a set top box designed for one platform is used on another platform it was not specifically designed for.
3. What the actual cost of re-use of set top boxes on alternative platforms is – including antenna / dish repointing and LNB replacement (if necessary) for DTH platforms and management of the migration process by the two service providers and the subscriber, including down time when neither service can be received
4. What the actual cost of new (or refurbished if appropriate) set top boxes on the new service provider's platform is – including antenna and LNB provision and installation (if necessary) for DTH platforms.
5. What proportion of the subscribers identified in step 1. would prefer to continue with the reduced features, functionality and performance identified in step 2. at the cost identified in step 3. rather than taking a new set top box for the new service provider platform at the cost identified in step 4.