



Inspiring a billion imaginations

**TRAI'S PRE CONSULTATION PAPER ON PRE-CONSULTATION PAPER ON SET
TOP BOX INTEROPERABILITY**

Submissions for and on behalf of STAR India (P) Ltd.

V.SHYAMALA (shyamala.v@startv.com) OR PULAK BAGCHI

(pulak.bagchi@startv.com)

Pre-Consultation Paper on Set Top Box Interoperability

Preamble:

We wish to thank the Authority for initiating this pre-consultation process in respect of “Interoperability of STBs” and as such, providing us the opportunity to present our views in this context. Further, we feel that this consultation comes at a crucial time when Phase- III & IV of Digitalization is on the way and thus issues related to STBs become even more relevant in the Indian Cable and Satellite Pay TV market.

Question 1: In your opinion, what are the concerns that should be taken care of at the time of development of framework of interoperable of STBs?

Response 1:

In Star’s opinion, the Authority may take into account certain concerns while considering introduction of standards for interoperability, some of which have been presented below:

1. **Last mile Issues:** The main objective of the instant pre-consultation exercise appears to empower the TV consumer to flexibly change from one service provider to another, provided the alternate service provider’s signals are available at the respective location. For the cable industry in India, usually only one cable operator is active in an area, hence cable STB interoperability may not contribute in the achievement of said objective. Same applies for HITS as the last mile delivery is through the local cable operator.
2. **Tech Specifications:** The STB operating system (OS)/software heavily depends on the equipment/ hardware and the amount of Random Access Memory (RAM) built within the STB. Hence to ensure that the interoperable STB is able to function with all platforms, the base specification of such a box has to be of the highest possible specification presently available. This may pose a challenge to increase features & performance of such STBs in the future as better specifications may be required to implement such features & performance.
3. **Lack of Standards:** The manufacturing of interoperable STBs can be initiated only once a standard is specified by the BIS, which meet the above Tech

Specifications. Till such time, the entire process of implementing interoperability would continue to be a distant reality.

4. **Technical Support:** The ownership for any technical support of such an interoperable STB will remain unclear. Since in all probability, for such boxes hardware and basic software will be manufactured by a third party, who may not be part of any of the platform owners which may lead to the consumer unable to get his interoperable STB problems resolved. Another situation could be that the customer on his own will may migrate from one platform to another, which would in effect terminate any contract with the original platform and such customer may be unaware of the support status of his interoperable STB and how to resolve his complaints.
5. **Redundant DTH STBs:** Assuming that interoperability is implemented and new STBs become available by 2018, the estimated 90 million DTH STBs would not be compatible with the interoperability standards and there would not be any path to migrate to such interoperability. In effect, both types of STBs, namely the existing as well as new boxes will have to be supported in terms of operations, upgrades, feature additions and support which may in itself turn out to be a huge challenge, given the mammoth cost burden involved, which would eventually have to be borne by the consumers. Even if all the present STBs are replaced by the new boxes, much more than 90 million STBs would become redundant & require disposal.
6. **Platform migration issues:** The following activities would have to be carried out when a consumer is swapping platforms:
 - a. Receiver antenna re-alignment;
 - b. Replacement of LNB (if the present one is not compatible with the other platform); and
 - c. Setting the STB to the new frequency parameters of the new platform.

The above steps in most cases would require technical support. Only after conducting the above steps can the interoperable STB be accessed by the new platform to initiate it and may be download software required to be used in that platform.

7. **Rapid Technological Evolution:** The encoding and decoding technologies are evolving at a very fast pace and newer codec standards such as HEVC (High

Efficiency Video Coding)/H.265 is almost on the verge of getting introduced in the STBs. HEVC is supposed to provide greater efficiency in the use of satellite bandwidth, thus, the interoperable STBs would need to adapt to such changes in technology. Moreover, interoperable STB should be able to support Standard Definition (SD) as well as High definition (HD) programming.

8. **VAS related Concerns:** Certain platforms might decide to introduce Value Added Services (VAS) and a consumer may want to change platforms just to enjoy such VAS. Hence, interoperability standards would have to be designed in a manner to support such VAS both from hardware and software perspective.
9. **Additional licensing costs:** The interoperable STBs should have all the licenses such as various output copy protection, such as HDCP, Dolby decode license etc. All the licenses add additional cost to the overall cost of the STB.
10. **CAS compatibility & selection:** Any shift in platform would require change in CAS and compatibility of the interoperable box to support such CAS system. This may restrict the selection of the CAS and also, platforms may require download of some security code. The interoperable STB has to be built to ensure “zero” compromise of the platforms’ security components.
11. **Testing Issues:** Since the interoperable STB has to operate across all platforms, they would need to be tested for all DPOs and the responsibility of doing such tests in its entirety may be difficult to achieve since a partner may not share all their specification & latest or under development features with other platforms.

Question 2: What are the techno-commercial reasons for non-interoperability of STBs other than those mentioned above? Please provide reasons with full details.

Response 2:

We believe in offering maximum choice and diversity of content to the consumer and are happy to note that the Authority has also embarked on achieving the same objective. As a stakeholder within the cable and satellite TV value chain, we wish to highlight certain issues in addition to the techno-commercial points already raised in response to Question1. To enhance the ease of understanding, these issues have been broadly categorized under the following two main heads:

A. Commercials and Economics of interoperability of STBs:

There are a number of commercial/economic factors which affect the interoperability of set top boxes in the Indian scenario. Some of these factors are enumerated as under:

1. **Operating System:** Due to increased complexity required to support interchangeable conditional access (CAS), a more complex software support possessing superior superset capabilities is needed.
2. **Equipment:** DVB processor chipsets required to enable effective interoperability would entail increased costs due to higher intellectual property licensing fees.
3. **Testing and QS costs:** additional costs would be entailed in testing equipment model /operating system (OS) configuration against all six licensed DTH platforms and DD Direct Plus.
4. **Absence of Volume Discounts:** In the present market scenario, STB value chain relies on certainty of orders from DPOs which allows manufacturers to operate on slim profit margins. In the proposed scenario, individually lower-volume orders and shipments emanating from multiple distributors with greater forecasting uncertainties would be costlier to fulfill, than few higher volume orders and shipments with higher forecasting certainties.
5. **Proportional increase in Cost:** In a low cost market even a small addition in input costs such as a few hundred rupees on a chipset would cause a substantial percentage increase in cost to platform owner.
6. **Cable related Cost Issues:** The ARPUs for cable are even lower than that of the DTH, thus lower absolute costs of STBs mean that the contribution of interoperability costs are higher for cable than DTH.
7. **Impact on on-going Digitalization Process:** Presently, the phased process of digitalization of Cable and Satellite TV Distribution Network is being implemented across the country, requiring the availability of large numbers of cost-effective/affordable STBs. Thus, any regulatory mandate of interoperability at this juncture would hamper the on-going digitalization process in four ways:
 - a. High possibility of existing STBs becoming redundant & as such contributing to the ever piling electronic waste which would adversely impact country's environment;

- b. Ensuring the availability of interoperable STBs in large numbers in such a short duration would be a massive challenge for the industry to overcome;
- c. Consumers would be forced to purchase the newly introduced 'interoperable' STBs across all platforms; and
- d. In the absence of adequate domestic capacity building, there would be a huge outflow of foreign exchange in order to procure new STBs.

Technical elements affecting interoperability of STBs:

There are several technical factors influencing interoperability of STBs in the Indian Cable and Satellite TV industry which merit discussion. Some of the key issues are mentioned below:

1. **Challenge to signal security:** Over the past few years, there have been thousands of instances where DTH STBs have been used to source channels for unauthorized distribution in cable networks. The primary tool that broadcasters use to detect such STBs used in piracy, is "fingerprinting".

Technical interoperability of STBs has potential to jeopardize the fingerprinting feature and it would be a tough task to ensure that such feature would be available in all combinations of STBs and CAS.

2. **Interoperability issues in DTH:** In case of DTH, STB interoperability is not sufficient in itself to ensure complete technical interoperability of services, as the subscriber's overhead satellite dish may require repointing or replacing with the one having larger curvature and low noise block down converter (LNB) for a different frequency band.
3. **Cable STB Issues:** Base level cable set top boxes have less memory and lower chipset processing power to handle higher feature and performance OS. This curtails their flexibility to migrate to alternative service provider.
4. **Mobile telephony vis-à-vis Digital TV:** TRAI's argument in respect of mobile phone interoperability is not applicable to Cable & Satellite TV. This can be explained by the lack of highly differentiable service or user interfaces in mobile telephony, which even the most basic pay TV services offer.

Star India Pvt Ltd. is of the view that in the Indian scenario, rather than a regulator mandated interoperable STB system, market should be given a chance to evolve at its own pace and independently respond to customer demands.

Question 3: What are the plausible solutions for technical interoperability of STBs and their impact on the sector growth?

Response 3:

Though, there are multiple techno-commercial issues in respect of interoperability of STBs, however, certain solutions to ameliorate these have been suggested both by the Authority and other stakeholders. Also, in our response to Question 1 above, we have highlighted many techno-commercial concerns that merit deliberation prior to the implementation of interoperability.

However, at this juncture we must state that all technologies mentioned in the Pre-Consultation paper, either remained only on the drawing board or were never adopted in real markets. It should be noted that given the highly competitive economic conditions prevalent in the Indian Cable and Satellite TV market, consumers have the choice and ability to shift from one service provider to another at little or negligible cost, even in the current market conditions.

Also, compulsory interoperability would increase costs for DPOs and this would be even more acute in case of DTH operators, whose STBs are more expensive and many of the service providers subsidize them for the consumers. Also, the phased ongoing process of digitalization demands that prices of STBs be kept low so that there is an effective implementation of the same in all parts of the country.

Question 4: Any other issue which you feel will be relevant for development of technical interoperability of the set top boxes.

Response 4:

Star India Pvt. Ltd. believes that the Authority with the help of all the stakeholders should work towards spreading awareness amongst the customers, so that they can understand the differences between service offerings and ensure that service providers' own claims are honored in practice.