Bharti Telemedia Limited (BTL)'s Response to TRAI Pre-Consultation Paper on "Set Top Box Interoperability" dated 4th April 2016

Q1: In your opinion, what are the concerns that should be taken care of at the time of development of framework of interoperable of STBs?

Q2. What are the techno-commercial reasons for non-interoperability of STBs other than those mentioned above? Please provide reasons with full details.

Q3. What are the plausible solutions for technical interoperability of STBs and their impact on the sector growth?

Q4. Any other issue which you feel will be relevant for development of technical interoperability of the set top boxes.

BTL's Response:

1. At the outset, we wish to place our sincere thanks for providing an opportunity to submit our response on the practicability of enforcing technical interoperability of DTH set top boxes and policy initiatives concerning the same, with an aim to further the growth of DTH industry and individual DTH operators in a fair and equitable manner.

2. We are of the firm opinion that technical interoperability of DTH set top boxes is not viable for the reasons outlined herein below.

   a. All existing DTH operators are using different combinations of technology in set top boxes. The existing options in technology available are as given below:
      (a) Compression technology: MPEG 2 and MPEG 4;
      (b) Transmission technology: DVB-S and DVB-S2;
      (c) Different encryption technologies: NDS, Nagra, Irdeto, Conax, Verimatrix, and
      (d) Different EPG software.

   b. Use of different Conditional Access System (CAS), compression, encryption, middleware and EPG make the set top box of a DTH operator proprietary and hence such set top boxes cannot be 100% inter-operable with the same services/features.

   c. Our company in an attempt to ensure effective utilization of scarce satellite bandwidth and to provide superior quality of transmission to its subscribers is using compression technology of MPEG 4 and transmission technology of DVB-S2, which is

the most advanced technology presently available in the market and the same is backward compatible. However, some DTH operators are also using a lower specification of compression and/or transmission technology. Therefore, subscribers of DTH operators using latest technology shall be able to purchase the CAM card sold by DTH operators using old technology and view their DTH services, but there is no possibility of subscribers of DTH operators (using old technology) receiving signals of DTH operators (using latest technology) in their old technology set top box without replacement of the same.

Given the size and scale of DTH operations today the cost of this replacement would be enormous and would not be borne by other DTH operators. This would lead to a high degree of churn among operators using latest technology, but would not permit the vice-versa, thereby creating a non-level playing field among DTH operators in the market. This would be a retrograde step as this would result in movement of STB from a new technology to old technology.

d. Also, majority of set top boxes provided by most DTH operators are under the rental scheme, wherein set top boxes are provided free of cost coupled with several subscription schemes and the ownership of set top box is retained by the DTH operator. Under these circumstances, if the subscriber who has obtained a set top box on a rental basis from a DTH operator inserts a CAM card into the set top box and begins to view the services of another DTH operator, this would result in misuse of set top box owned by DTH operator.

e. Operators differentiated features and competitive edge lies in the development of STB. Service delivery and product differentiation capability are inbuilt in the STB, which drives value proposition for the end customer. Further, these are all propriety IPR of DPOs. Ideally, interoperability should work across different levels of technologies/software, if the same experience has to be made available for the migrated customers. However, in the event of interoperability, all these differentiated features will not be available on migrated platform for the same customers. Thus, pursuant to migration, customer will have inferior service experience despite having a superior STBs due to non-compatibility of STB versus the service delivery.

f. Currently, all DPOs offer exclusive contents/value added services like CLM & Red bug, EPG, Interactive applications, games, add insertion to their customers. In the case of open architecture, additional revenue stream from these sources will go away as the same is dependent on the software of the propriety STBs. Also the unique proposition of individual DPO is content information with rich metadata filtered under genre and

sub-genre of channels and programs, multi lingual EPG language which will get lost with open architecture.

g. Presently, the cost of CAM module is almost equal to the cost of STB. As a result, even if the STB of all DPOs are interoperable, the cost of migration from one DPO to another DPO will be as good as buying a new STB. Thus, there is no cost advantage to end customer in the case of interoperability.

h. Boot loaders are specific to operator's frequency of operation & chip vendors, which enables the updating of STB software by specific operators after proper verification. These STBs cannot be upgraded (OTA) by any other operator in the case of migration. **As a result, post migration, STB of migrated customer will become outdated for latest technologies.**

i. Security of STB is tightly coupled with the hardware and software design of STB, which is unique to operators, thus making operator more reliable and trust worthy from content provider as well operators. In case of inter-operability, the Network becomes more vulnerable and will compromise the integrity and security of the platform of all DPOs. As the number of subscriber increase on a particular platform, hackers will have all business interest to hack the system and create clones. This will severely impact DPOs' revenue and business and resultant loss of revenue to the government in the form of lower licence fee and other taxes as well as less revenue to Broadcasters.

j. In the case of open architecture, there will be no assured QoS for end consumer. It will be completely dependent on the quality of CPE (both ODU and IDU) that the customer purchases from open market. **The customer will complaint about the issues such as no signal due to low quality of CPE and installation wherein DPO will have no control.** Since QoS is dependent on STB software compatibility with transmitting signal of operators, an open architecture will lead to huge complaints and customer dissatisfaction.

k. In CATV the signal is modulated using DVB-C/C2 standard whereas in case of DTH, the signal is modulated using DVB-S/S2 standard. Thus, interoperability between CATV and DTH will lead to unnecessary cost burden due to additional component of front end like tuners and other component which are exclusive for DVB satellite and DVB cable for receiving the transmitted signal. For a STB to be able to receive signal both from DTH and cable, there will be a requirement of switchable demodulator unit, which will further increase the complexity and cost of STB to the end customer.

I. Industry adapts fast moving changes in technology with respect to new chipset and compression standards like MPEG2, MPEG4, HEVC, 4K, etc. For example, the new compression standards of HEVC have been adopted by some operators to improve efficiencies. However, these boxes will not be interoperable with non-HEVC boxes, resulting into a huge imbalance in the market.

Any new technology or feature like Transcoding, In home experience for companion app, Home gateway, 4K (UHD) content with advanced audio codec of DD+, Atmos, compression Codec HEVC requires relative end-to-end changes for proper deployment. All these features work in tandem and are integrated as correct configuration in Backend System and aligned development in STB. So it would not be possible to deploy these features without doing the proper optimization and harness in the STB SW as per operators Backend configuration of elements. This may not become possible on standard STB optimized for multi DPO environment. Therefore, any common platform thus prescribed will not be able to keep pace with these changes thereby causing outdated STB models and customer dissatisfaction.

3. If technical interoperability and open architecture was feasible, no DTH operator would have subsidized the cost of set top boxes for end customers and making huge losses on this account. While DTH operators are in the business of offering DTH services and not in the business of selling set top boxes, they are doing so due to failure of a viable technical interoperability.

4. The need for technical interoperability was understandable at a time when the DTH market was in its nascent stage with few operators and the cost of the set top box was extremely high. The situation has undergone a sea change today with the existence of six private DTH operators apart from DD Direct. The cost of the set top box has considerably decreased and has become very affordable to the common man. Market forces have led to all DTH operators deploying substantial subsidies directly to all their subscribers, with the result that the set top box prices have become very competitive. The issue of technical interoperability is hence of no significance in the present day market conditions.

5. As per our estimate, the average churn rate of DTH operators is close to 1% per month and having the CI slot and CAMs in the set top box only to provide the technical inter-operability and flexibility to this small percentage of DTH subscribers' results in rise in the cost of the set top box for all the DTH subscribers. Thus, it is suggested that the set top boxes be manufactured with bare minimum features and without the CI slot and other expensive functions so as to further reduce the cost of the set top box.

6. Hence assessing all these factors, we believe that "commercial interoperability" of DTH set top boxes is more consumer-friendly. The subscribers will have the option to return the set top box back to their DTH operator and to avail the services of another DTH operator by taking a new set top box from that operator. This would be a very viable solution given that the cost of the DTH set top box is no longer prohibitive and that it provides an alternative to the small margin of subscribers who want to move from one DTH operator to another. Further, this ensures that the movement of subscribers between DTH operators is governed by the prevalent market forces and not by limitations imposed as a result of technology specifications adopted by the operators.

7. Currently, all DTH operators are adopting new technologies and are incentivizing their customers to migrate their set top boxes from old technologies to new technologies (say from SD to HD) almost at negligible or zero prices so that their services and end hardware are aligned to one particular technology/software. This has enabled DTH operators to adopt new technologies at a faster pace. This is also viable as no DTH operator can afford to offer their channels on MPEG and MPEG 4 simultaneously as it would result into double usage of satellite bandwidth, which is a scarce resource in nature. However, interoperability will take away all innovation and adoption of new technologies as innovation in end hardware and/or adoption of new hardware may not keep pace with new technologies being adopted by DTH operators. This is already being witnessed in telecom sector where telecom operators have taken liberalized spectrum and can offer LTE services, but are being forced to offer 2G services over such spectrum as a significant portion of their customer base continues to hold 2G handset and have not migrated to LTE handset.

8. We believe that a 'one-size-fits-all' approach would not be practically feasible and viable and would take away or at least slow down all innovations and up-gradation of newer technologies/softwares/features in DTH segment. This will also increase the cost of STB for end customers as they would have to buy new STB compatible with new technologies on their own in the open market. This would push down the adoption of newer technologies at a average level or at lowest level.

9. Considering the adverse impact of interoperability and open architecture on customer experience, level playing field, high cost of set top box, security of network, QoS and revenue of DPOs, the interoperability and open architecture is practically challenging and attracts significant risks. We understand that TRAI has recently constituted a committee where the relevant stakeholders from the Industry are also the members. Since the issue of technical and commercial interoperability and open architecture has significant challenges, as rightly acknowledged by TRAI in its pre-consultation paper and as illustrated above, we propose that

TRAI should hold the process of consultation over this issue till the matter is concluded in the committee.

10. We also recommend that the Government consider a withdrawal of customs duty, excise duty and other taxes currently levied on the import and manufacturing of set top boxes. This would advance the reduction in the overall cost of the set top box and would make it more economical for DTH subscribers to buy a new set top box.