

COMMENTS ON CONSULTATION NOTE ON

SET TOP BOX INTER-OPERABILITY

Lt Col VC Khare (Retd), Cable TV Industry Observer

Introduction

1. It is heartening to view the consultation note, which indicates that, perhaps, TRAI themselves are NOT sure of its practicability even after the comments on pre consultation paper were submitted by various stake holders.

2. Present staff, at TRAI, seems to be ignoring the facts that :-

(a) Cable TV networking technology was an entrant in India by stealth. There was no Govt approval, planning training or involvement.

(b) It was an outcome of need of viewers, in terms of QoS being provided by Prasar Bharati/Door Darshan.

(c) There was not a penny of tax payer's money involved in investments.

(d) Cable TV, like Broadcasting in India, was without a law, and hence NOT legal till 1994. All transmissions were 'free to viewer' for content. Charges levied were only for network access. Its growth attracted Broadcasters in terms of advertisement revenue potential.

(e) Cable TV meets dictionary definition of broadcast. In that (i) it is point to point using RF carriers, (ii) is multi channel-multi program digitally addressable (iii) medium is wireline instead of wireless for wireless Broadcasts. Networks are not supposed to radiate and interfere with other Broadcasters/Operators and be culpable for prosecution. Yet Cable TV is not Broadcast (a Central Govt Subject) and hence left to State Govts to administer and tax at their whims and fancies.

(f) MIB seems to be working more for the benefit of Broadcasters who are licensed by them to satellite cast their programs (NOT channels, a word which does not form a part of cable TV Act, Rules or Regulations glossary). Digitization was clearly introduced to facilitate eye balls reach for Broadcasters content by 106 programs (@ one program per channel) capacity enhancement of Coaxial Copper networks depending upon compression ratios varying from 1:10 to 1:24. TRAI, per se, gets activated by letters/instructions from MIB.

(g) The task force did NOT include even one known person with reputation of having established multi-channel, multi-program addressable digital headend, from dot

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on paper to picture on screen, in India. The result was that except for demise of analog transmission and seeding of set top boxes authorized to enable viewing of all content, acting only as a D2A converter is being claimed as DAS completion.

(h) Broadcast engineering, in general, and wireline broadcasting, in particular, are NOT taught in India. Hence there are hardly any broadcast engineers in govt employment by academic qualifications. They are deemed broadcast engineers by virtue of employment and experience accrued in service..

- (i) Indian Standards, in spirit, are drafted on instructions from regulators/government, so that equipment for use in India is manufactured to specifications enshrined in Standards. As far as cable TV is concerned TRAI emphasised that **CAS in STBs shall be embedded and that Common Interface(CI) slot will not be incorporated**, like that for DTH. The reason was that being wire line connected the subscriber's premises would continue to reside on the network and will not move. With business practice of networking peace CATV operators do not service subscriber wanting services from a competitor meaning that mobility of Cable TV subscriber was not envisaged. Had the requirement of embedded CAS and prohibition of CI slot not been mandated all STBs could have been made inter-operable. This lack of foresight indicates indifference.
- (j) Now when over 140 million STBs, not necessarily conforming to Indian Standards, have been seeded, DAS implementation proclaimed completed for phases I to III, cost of STBs paid by viewers in terms of thousands of crores of rupees, this talk of going in for inter- operability implying change of such boxes at private cost does not make sense.
- (k) On the architecture issue of the STB, main functions performed by the circuit are (i) Demux (ii) Entitlement Check (iii) Decrypt (iv) Demodulate and (v) AV output.
- (l) In the flow Demod and Demux can be a discreet stage, ECM and decryption shall have to remain proprietary in the interest of PAY content providers could be SOC, and hence the remaining stages of AV output can remain discreet or even be performed in the TV receivers be limiters and discriminators. The modulation in CATV is QAM 64/256 heading towards 1096 in DOCSIS broadband environment.

3. Main issue, in Indian context, where DTH or DAS subscriber has to buy the Set Top box, is that STBs provisioned by a service provider do not work with services of another service provider of similar services. Very often one comes across a quote that ' In Mobile

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Telephony, Subscribers obtain a SIM card for themselves to be used in any handset and can change TELCO by changing SIM Card and NOT the handset'. Thus Mobile handsets are deemed to be inter-operable. We forget that in that case too GSM SIM cards do NOT work on CDMA handsets and vice-versa. Further, TELCO services are usage based billing systems, with TELCO owning the customer without an intermediary like a cable operator (NOT in DTH) without any content security/piracy issues since no pay content is to be protected in TELCO services, which are addressable from inception (one point to another point) by way of subscriber specific numbers/IP addresses. TELCO users obtain mobile handsets with features compatible with affordability without any hardware service backup for the CPE (Hand Set) from the TELCO. Keeping in mind this fundamental difference comments were offered for pre-consultation earl

4. Coaxial cable carrying TV content stream connects to domestic TV receivers for 75 Ω impedance cable input to the domestic TV receiver for analog reception. But when digital signal stream is required to watch programs, digital to analog conversion is necessary. This is achieved by using a Set Top Box (STB) which, in Cable TV also, is mandated to be addressable. Addressability in simplistic terms means facility to enable or disable viewing remotely and selectively from the Headend. Thus, in digital content delivery platform(DTH, IPTV, HITS or DAS Cable) STB constitutes the essential CPE at subscriber premises to watch addressable TV content, in restored analog mode, on domestic TV receivers. While digitization enhanced the content transportation capacity, both on coaxial networks and satellite transponders, concern for security of content of PAY TV broadcasters too has been addressed by encryption of the content and viewing authorization controlled by SMS (Subscriber Management System) installed at the Headend/ Earth Stations. Pay TV Broadcasters introduced addressability first at Headends by use of addressable IRDs followed by compelling use of STBs at subscriber premises. It was therefore natural that PAY TV Broadcasters used proprietary encryption themselves and later got HSPs(Headend Service Providers) to follow suit. Hence HSPs encoded, encrypted(changing video and audio.

5. In production scenario, whether on SoC or on Encryption only, the chip foundry gets the algorithm from CAS vendor and bakes the chips. Distribution platform operator and negotiates T&C with CAS vendor. The CAS vendor is then contacted by STB manufacturer. CAS vendor approves shipment of agreed no of chips to STB manufacturer who implants them on the PCB in production and ships the entire lot of Addressable STBs to Distribution Platform Operator's ware house for seeding them with the end viewer through Cable Operator or otherwise. These are financed up front initially by Distribution Platform Provider but ultimately charged from the end viewer, inclusive of cost of finance.

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6 .Comparison with mobile users usage and lose statements like changing service provider by just changing SIM card are not well founded. Even there CDMA and GSM handsets from same service providers are NOT interchangeable and SAFs have to be filled up again with KYC verifications and plan changes. Service providers do provide hand sets too but subscriber can buy the handset from open market and avail warranty from the vendor without any involvement of the service provider..In any case, PAY TV content security and piracy are non-issues in TELCO services.

7. Hence such comparisons are not considered maintainable.

8.It must also be realised the Ministries for TV content distribution and Telecommunications are different and so is the services philosophy. Telecom since inception was never a free service but was backed up by a time proven and rugged usage based billing system. Cable TV remained un-organized with many infirmities like upskilling and corporatization. DTH had a short term advantage in terms of demand in cable lit areas (rather than remote cable dark areas) penetration but is losing subscribers in DAS areas where STBs have been seeded.

9 Looking at DAS implementation, where implementation is being reckoned from number of STBs sent out of HSP's ware houses, without materialization of itemized billing for choice of viewing by subscriber is at best a saga of inabilities. Indian mindset for TV content distribution does NOT seem to be matured for addressability in DAS as legislated.

10.Cable operators seemingly want fixed monthly subscription based un-encrypted but encoded(for more programs) content delivery with a cheap D2A converter of match box size wireline powered and plugged in.

11 .That may usher in the inter-operability being envisaged.

12.Certain extent of sycophancy is inherent in Govt Services but empathy to end viewer cannot be sacrificed.