Technical Implication and Aspects of DAS

Regulatory Framework and Dispute Resolution in Telecom, Broadcasting and Cable Services Sector in Goa

A BRIEF OVERVIEW

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PREPARATION BEFORE IMPLEMENTATION OF DAS

A MSO should set up or procure the following before implementing DAS:

- Call center to redress consumer complaints
- Subscriber Management System (SMS)
- Conditional Access System (CAS)
- Set Top Box (STB) of BIS Standard

MSO should provide training to associated Local Cable Operators (LCOs) for installation of STB and activate STB only after receipt of Know-Your-Customer documents from LCOs.

DO'S FOR MSO

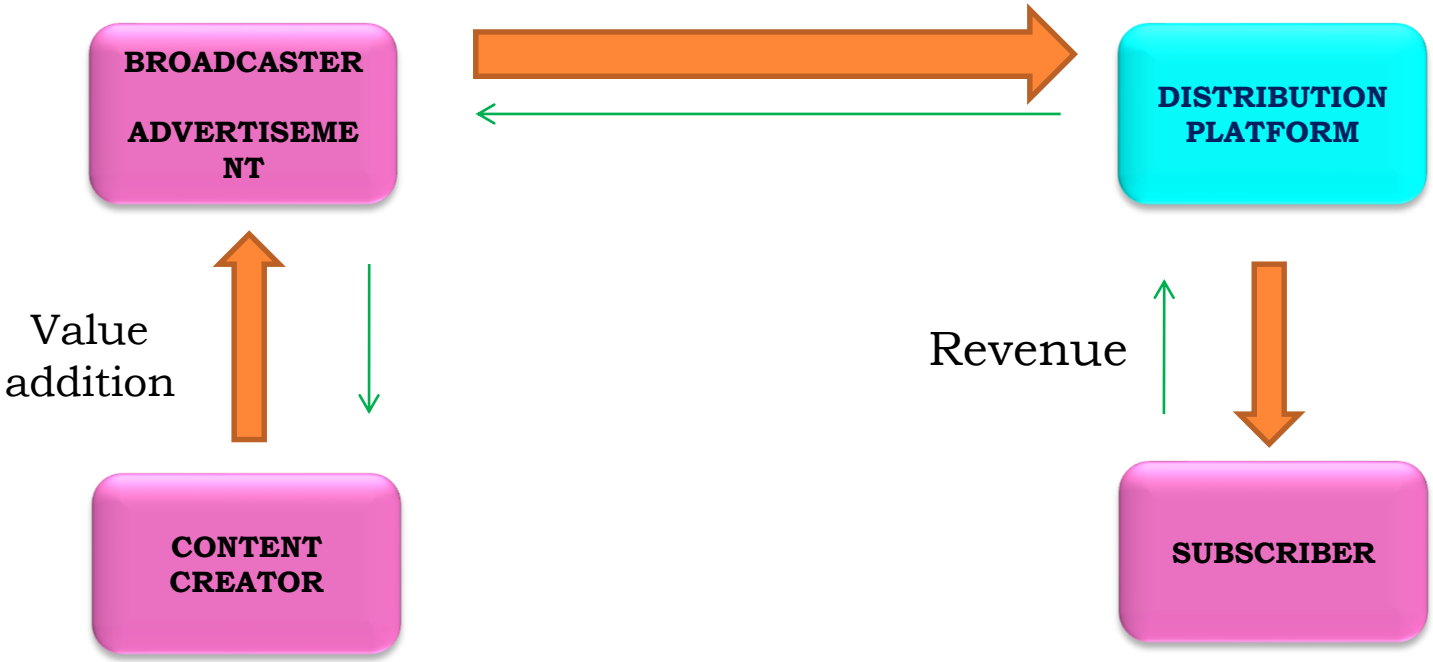
- Register with Ministry of Information Broadcasting as a MSO
- Execute a written agreement with each LCO
- Provide a copy of executed agreement to LCOs within 15 days
- Ensure that the agreement conforms to TRAI Regulations and explicitly mentions role, revenue sharing arrangement, dispute settlement etc between parties
- Provide a copy of User Manual to consumers and upload Consumer Charter on website
- Educate LCOs about various schemes of STB and bouquets available on cable network

DO'S FOR MSO

- Provide adequate STB to LCOs to avoid disruptions in service
- Publish requisite notice in newspapers and through TV scrolls before disconnecting signals
- Provide sufficient application forms to LCOs for distribution
- Ensure compliance with technical standards as prescribed under TRAI Regulations

DON'TS FOR MSO

- Provide cable TV services without valid registration as MSO
- Provide cable TV signals to LCOs without a written agreement
- Give pre-activated STB to any LCO or to any customer
- Disconnect signals of TV channels to LCOs without giving notice


BROADCASTER
ADVERTISEMENT
DISTRIBUTION PLATFORM
Value addition
Revenue
CONTENT CREATOR
SUBSCRIBER

- Acquire content from various Broadcasters vide Satellite / Content Delivery Networks
- Decrypt the content (remove Broadcaster's CA)
- Create packages with different mix of channels
- Encrypt the content (with the platform CA)
- Distribute the secured content

MAINSTREAM

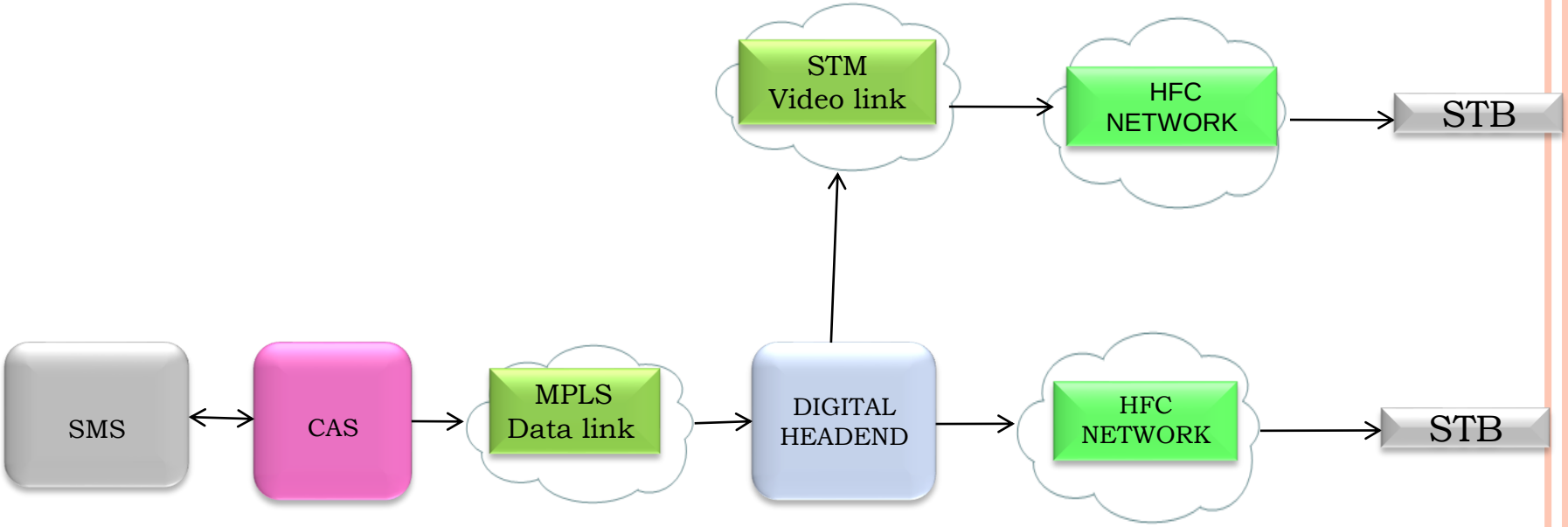
- CABLE
- DTH
- IPTV
- DTT (Terrestrial)

NEW

- Telcos (DVB – H)
- Handheld devices

MAIN SUB SYSTEMS

- Subscriber Management System
- Conditional Access System
- Digital Head end / Compression
- Distribution Networks – HFC / WAN
- Set Top Box


STM
Video link
HFC
NETWORK
STB
SMS
CAS
MPLS
Data link
DIGITAL
HEADEND
HFC
NETWORK
STB

SUBSCRIBER MANAGEMENT SYSTEM

- Customer data
- Inventory management
- Order tracking / Field force management
- Provisioning
- CRM

SUBSCRIBER MANAGEMENT SYSTEM

- Subscriber dunning / de-activation
- Creating Bouquets & Packages
- Assigning / changing Channels, Bouquets & packages
- Billing
- Fingerprinting

SUBSCRIBER MANAGEMENT SYSTEM

- Send on-screen messages / B - Mails
- Authorize PPV / VoD
- Etc.

For any Distribution platform, the SMS is the sole customer interface and hence the SMS is often called the heart & soul of a Platform.

CONDITIONAL ACCESS SYSTEM

- The CAS does the critical task of Content protection by controlling access vide use of Smart Card in the STB.
- The CAS decides who can view what, where and when.
- However the CAS is a complex back-end sub-system and needs a user friendly interface to be able to interact with it.

  That interface is none other than the SMS.

DIGITAL HEAD END / COMPRESSION SYSTEM

Enter the content!

The content and encryption signals are mixed at this stage in a multiplexer.

Also the Si data to make the STBs work is mixed at this stage in a multiplexer.

DIGITAL HEAD END / COMPRESSION SYSTEM

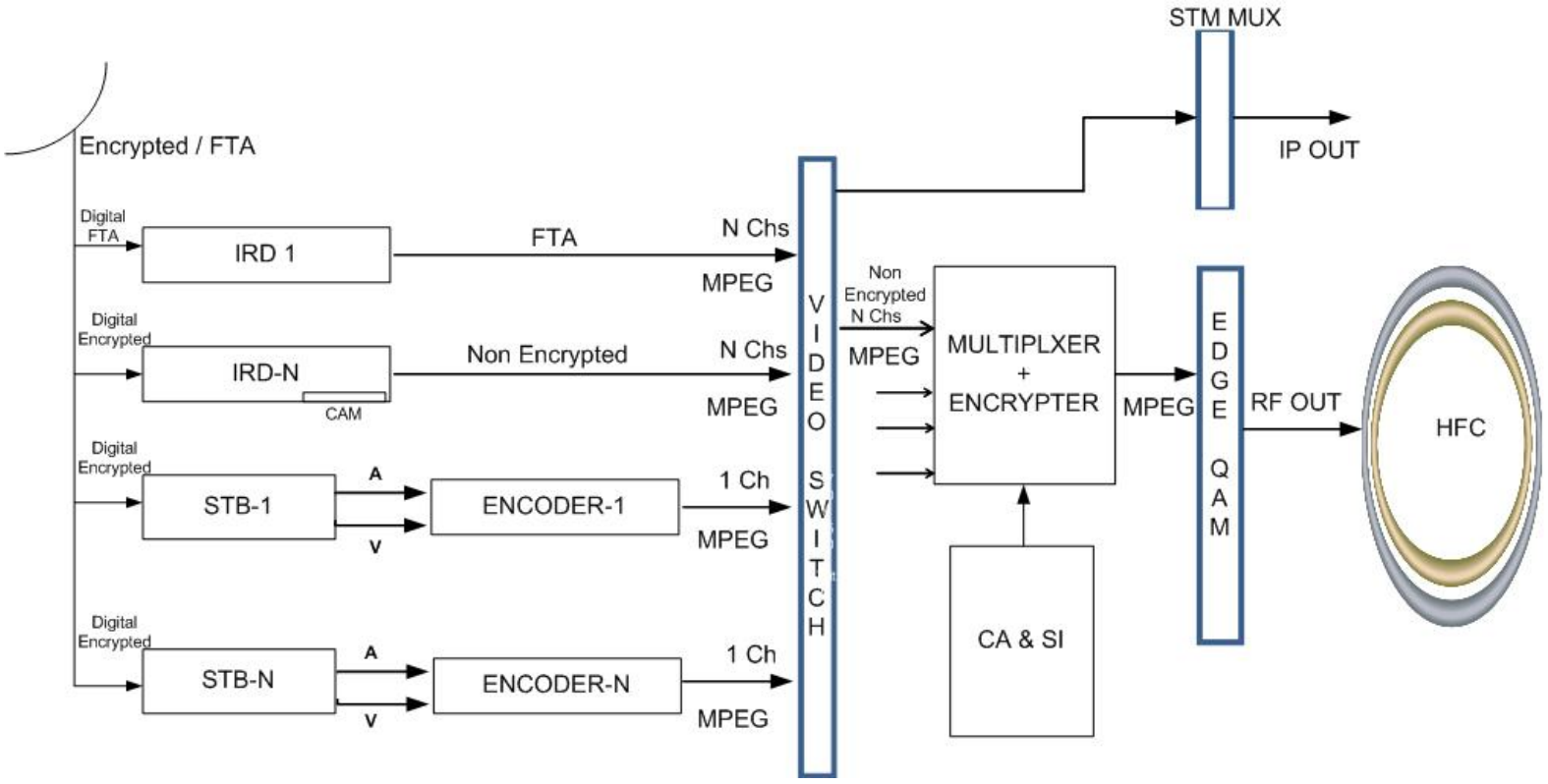
- ✓ Receives channels
- ✓ De-crypts channels and does DTA or De-crypts, de-code and re-encode
- ✓ Multiplexes the channels into Transport Streams
- ✓ Encrypts audio & Video of each channel
- ✓ Modulate to RF

DIGITAL HEAD END EQUIPMENTS

- IRDs (Integrated Receiver & Decoder)
  - Pay channel IRD receives channel(s) from Satellite, De-crypts and gives Digital O/P for DTA
  - Pay channel IRD receives channel(s) from Satellite, De-crypts and gives AV O/P or Digital O/P
  - FTA channel IRD receives channel(s) from Satellite and gives Digital O/P for DTA
- Encoders
  - Takes baseband AV input and encodes to MPEG -2 / MPEG-4

DIGITAL HEAD END EQUIPMENTS

- Multiplexers
  - Combines multiple channels (12 – 18) into a single Transport Stream (TS)
  - SI data is added to each TS
- Encryptors
  - Protects the channels by inserting Conditional Access
- RF Modulators (QAM)
  - Modulates the digital stream of channels into RF signal where each QAM carrier carries 12 – 16 channels


STM MUX
IP OUT
Encrypted / FTA
Digital FTA
IRD 1
FTA
N Chs
MPEG
Digital Encrypted
IRD-N
CAM
Non Encrypted
N Chs
MPEG
Digital Encrypted
STB-1
A
V
ENCODER-1
1 Ch
MPEG
Digital Encrypted
STB-N
A
V
ENCODER-N
1 Ch
MPEG
VIDEO SWITCH
Non Encrypted N Chs
MPEG
MULTIPLXER + ENCRYPTER
CA & SI
MPEG
EDGE QAM
RF OUT
HFC

HYBRID FIFER CO-AX (HFC) NETWORK

Optical Fiber Networks for reach and Co-axial Networks for local distribution of signals.

- Co-axial Networks
  - Co-axial Cable
  - RF Amplifiers
  - Passives
- Optical Networks
  - Fiber Cable
  - Optical Transmitters
  - Optical Receivers
  - Passives

SET TOP BOX

The Consumer Premise Equipment (CPE) that does exactly reverse of what a Digital Head end has done so that the end subscriber can view the content.

STBs come in different flavors:

- ✓ Standard Definition / High Definition / Ultra High Definition
- ✓ MPEG-2 / MPEG 4 / HEVC

Thank You