

Technical Implication and Aspects of DAS

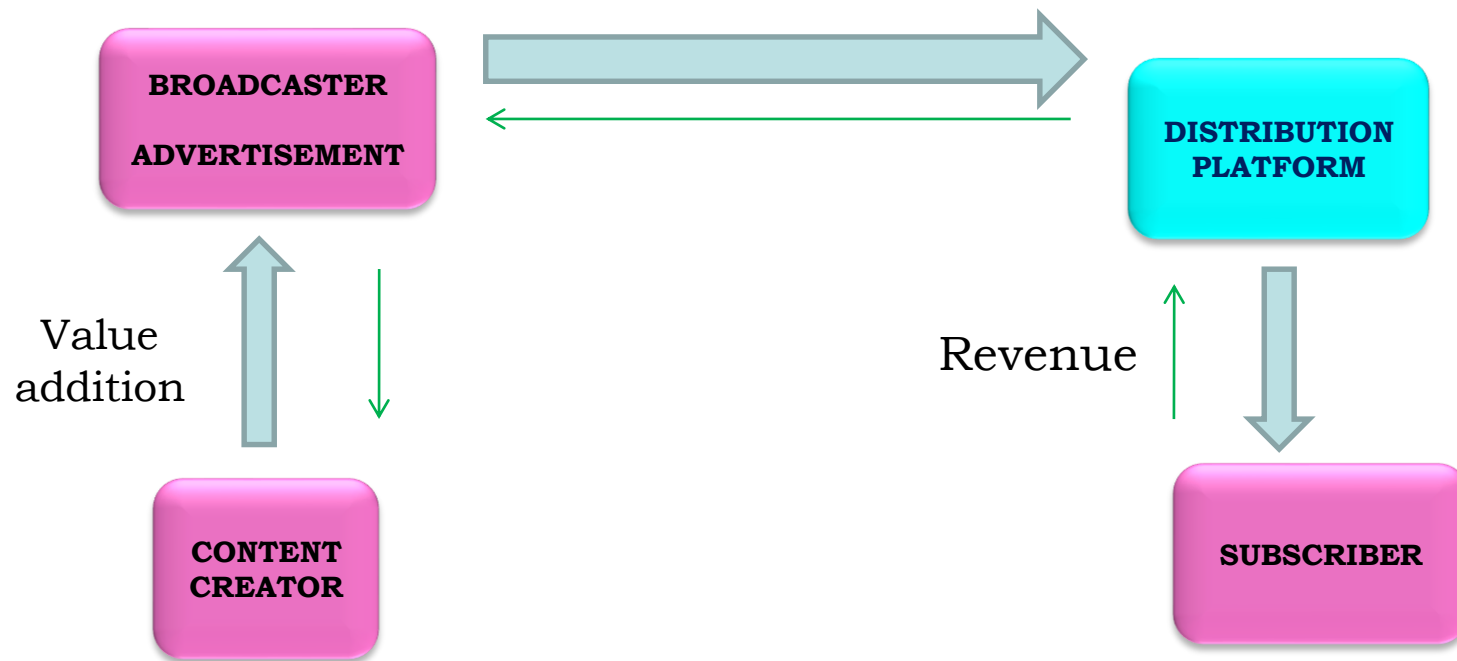
Regulatory Framework and Dispute Resolution in Telecom,
Broadcasting and Cable Services Sector” in Nainital, Uttrakhand

A BRIEF OVERVIEW

Presented by : Vibhav Srivastava

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CONTENT DISTRIBUTION CHAIN



WHAT DO DISTRIBUTION PLATFORMS DO ?

- ❑ Acquire content from various Broadcasters via 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

DISTRIBUTION PLATFORMS

MAINSTREAM

- CABLE
- DTH
- IPTV
- DTT (Terrestrial)

NEW

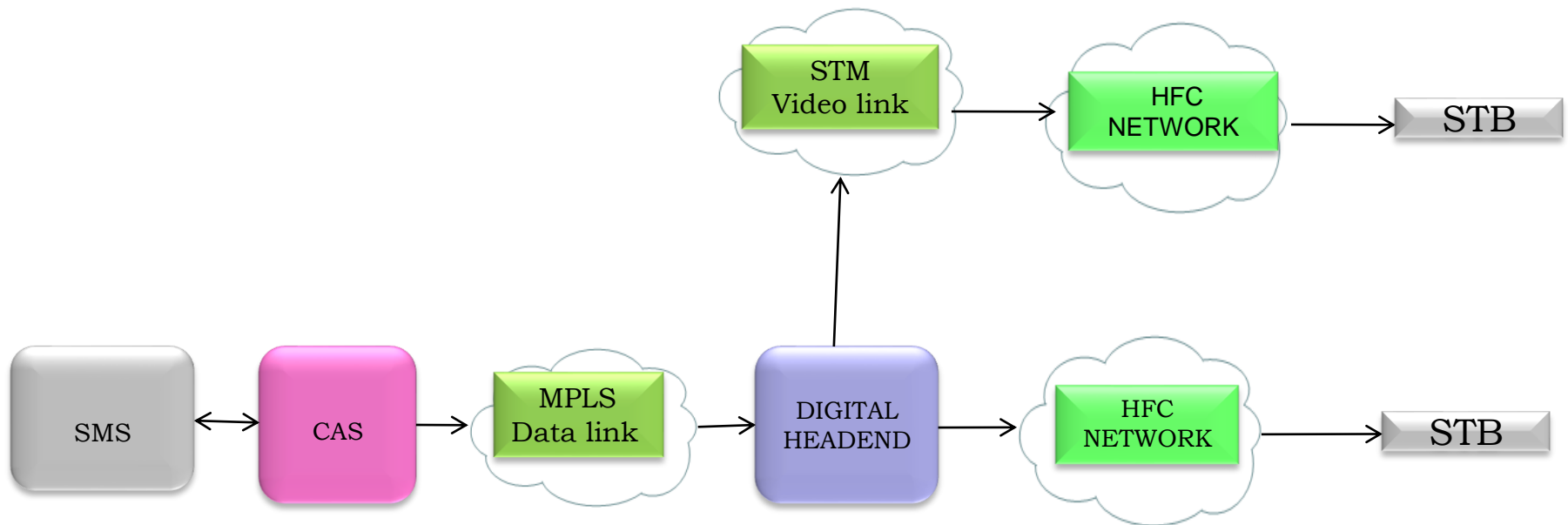
- Telcos (DVB – H)
- Handheld devices

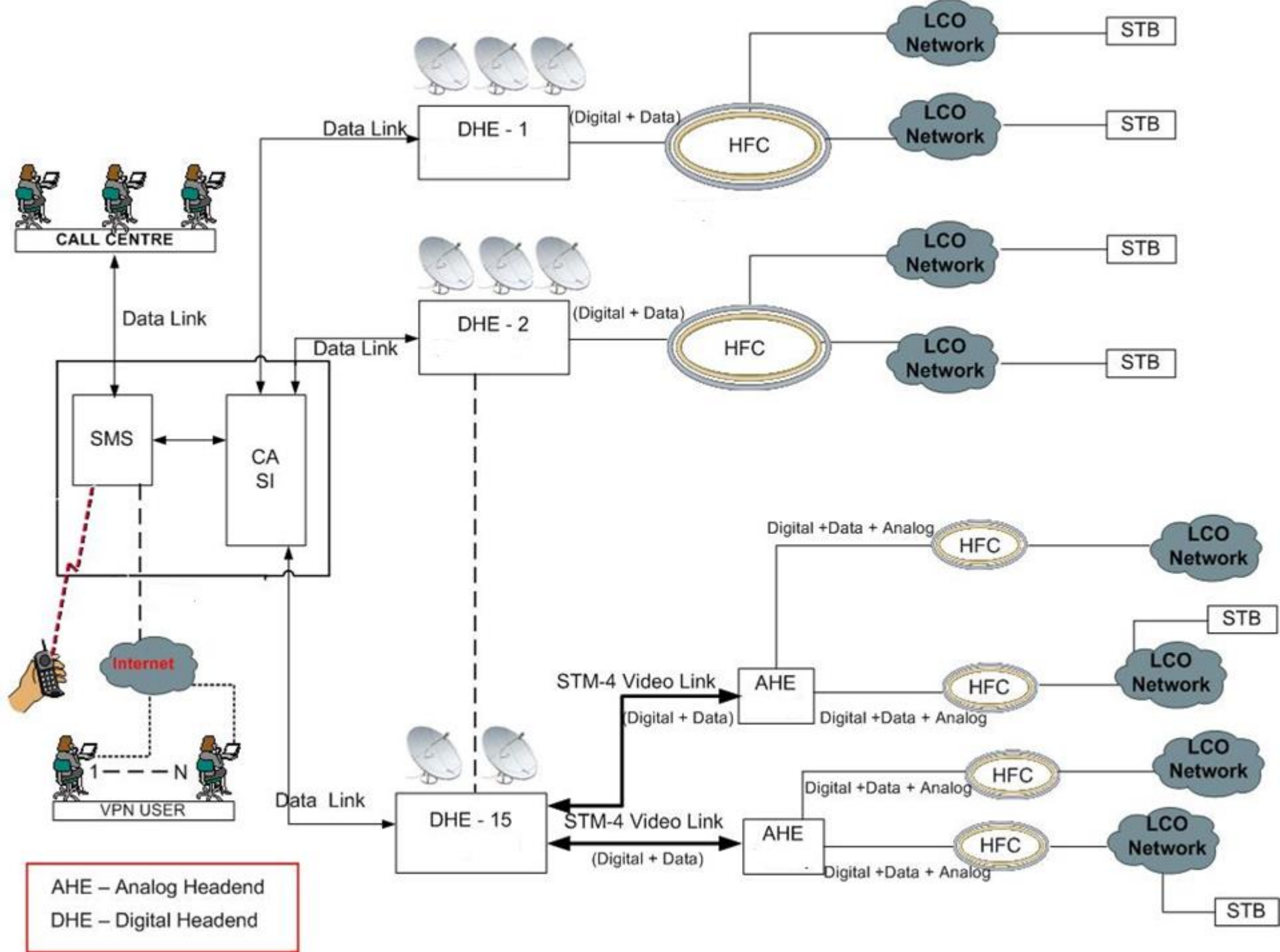
DIGITAL CABLE PLATFORM

MAIN SUB SYSTEMS

- Subscriber Management System (SMS)
- Conditional Access System (CAS)
- Digital Head end / Compression
- Distribution Networks – HFC / WAN
- Set Top Box (STB)

DIGITAL PLATFORM - COMPONENTS





DIGITAL CABLE PLATFORM

SUBSCRIBER MANAGEMENT SYSTEM

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

DIGITAL CABLE PLATFORM

SUBSCRIBER MANAGEMENT SYSTEM

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

DIGITAL CABLE PLATFORM

SUBSCRIBER MANAGEMENT SYSTEM

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

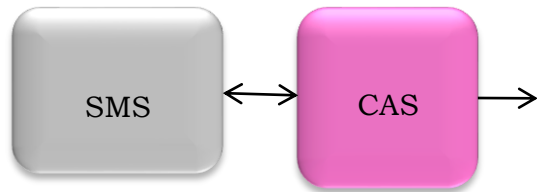
For any Distribution platform, the SMS is the sole customer interface and hence the SMS is often called the heart & soul of a Platform.

DIGITAL CABLE PLATFORM

CONDITIONAL ACCESS SYSTEM

- ✓ The CAS does the critical task of Content protection by controlling access via 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 subsystem and needs a user friendly interface to be able to interact with it.

DIGITAL PLATFORM - COMPONENTS



DIGITAL CABLE PLATFORM

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 CABLE PLATFORM

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 CABLE PLATFORM

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 CABLE PLATFORM

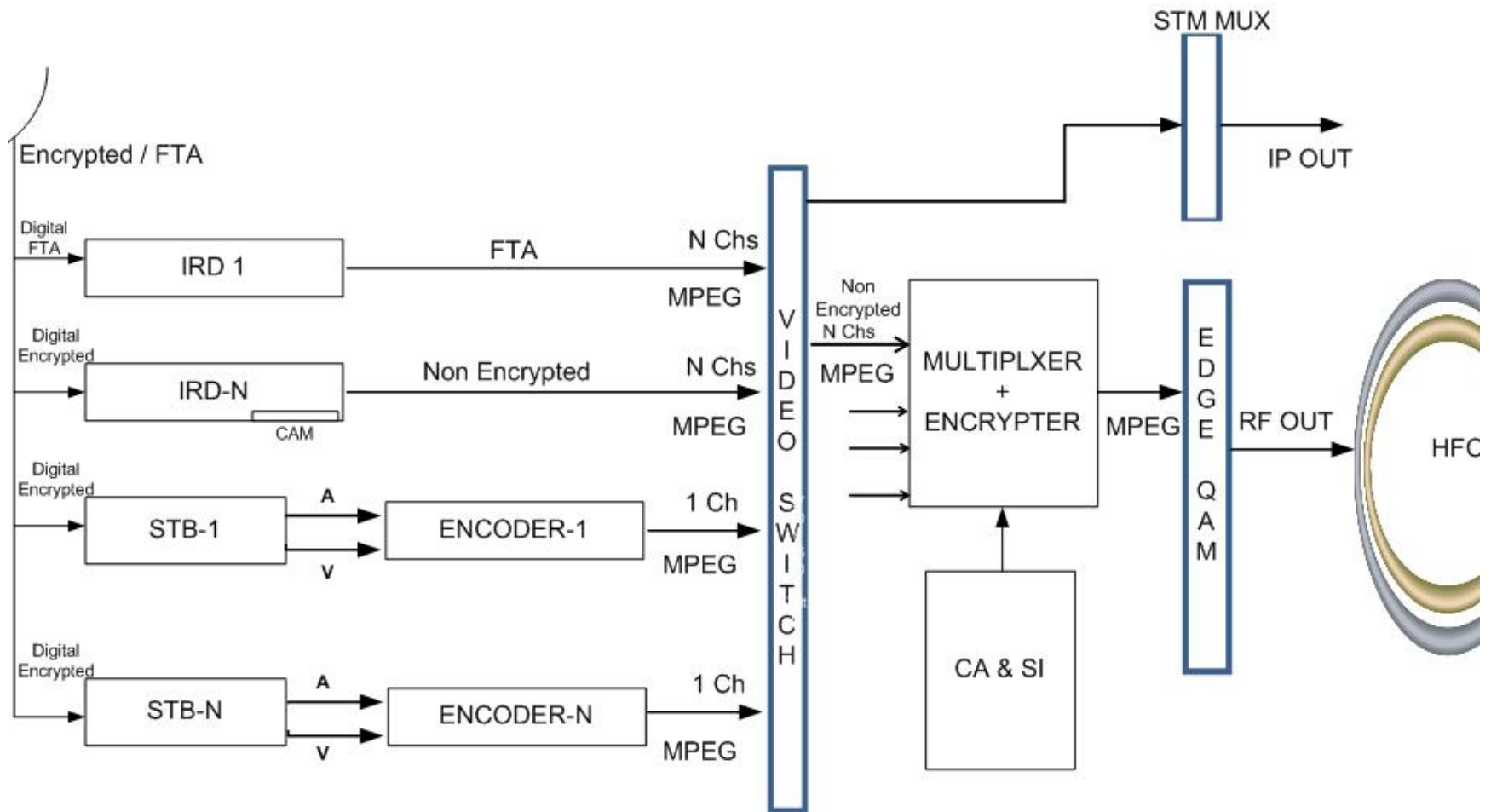
DIGITAL HEAD END EQUIPMENTS

- 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

COMPRESSION SYSTEM – SIGNAL FLOW ILLUS.



DIGITAL CABLE PLATFORM

HYBRID FIBER CO-AX (HFC) NETWORK

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

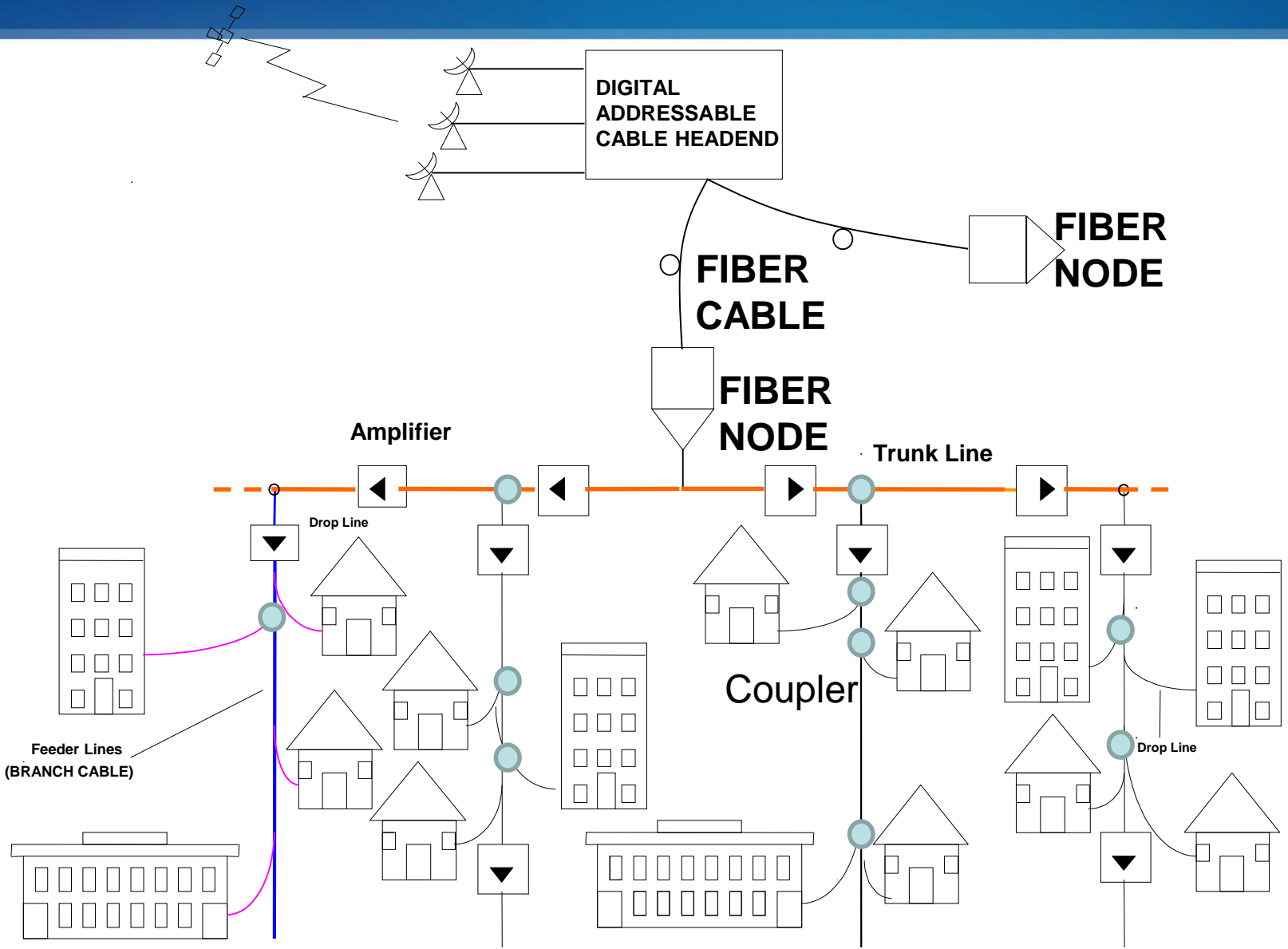
Co-axial Networks

- Co-axial Cable
- RF Amplifiers
- Passives

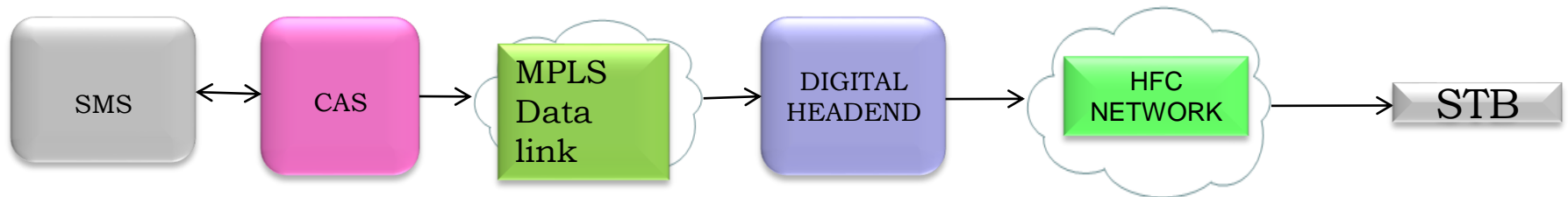
Optical Networks

- Fiber Cable
- Optical Transmitters
- Optical Receivers
- Passives

HFC NETWORK



DIGITAL PLATFORM - OVERVIEW



DIGITAL CABLE PLATFORM

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