IPTV Overview

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TV Platforms Group

IPTV Overview

Chapters:

1. What is IPTV (as opposed to internet TV) ?

2. What is VOD (as opposed to IPTV)

3. Middleware and Video

4. Common IPTV Models

5. Other factors

6. Questions

What is IPTV

(and what is

internet TV)

BBC Future Media & Technology
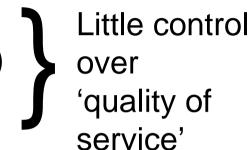Keeping the BBC relevant in the digital world

1b - What is Internet TV

- Digital TV delivered using technologies used for computer network. Internet Protocols (http, rtsp, igcmp)
- No guaranteed 'quality of service'
- Usually delivered via open-internet / un-managed network

Eg. YouTube, BBC iPlayer on browser/PC

1d – Open Internet (Unmanaged networks)

– Variable bandwidth

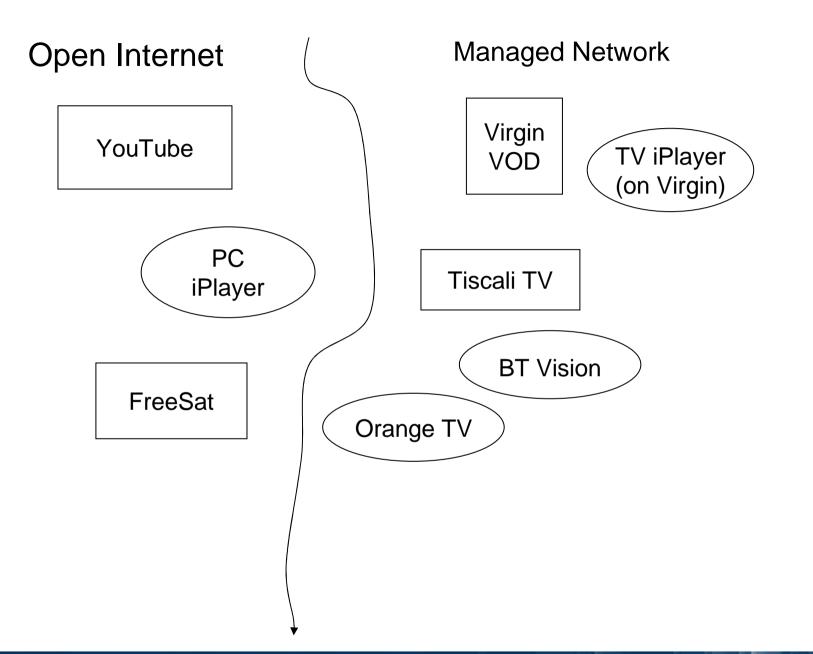– Higher contention ratio (20:1)

– Less control over content

} Little control over 'quality of service'
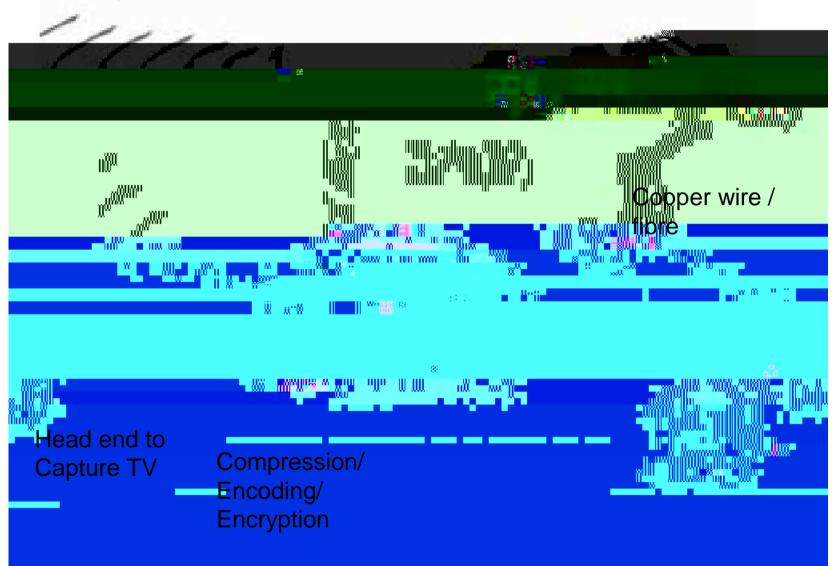
1e – Open Internet (Unmanaged networks)

- The BBC is working to ensure quality of service with ISPs. This will possibly change the definition of IPTV through the consensus that the quality of service is good over the open internet
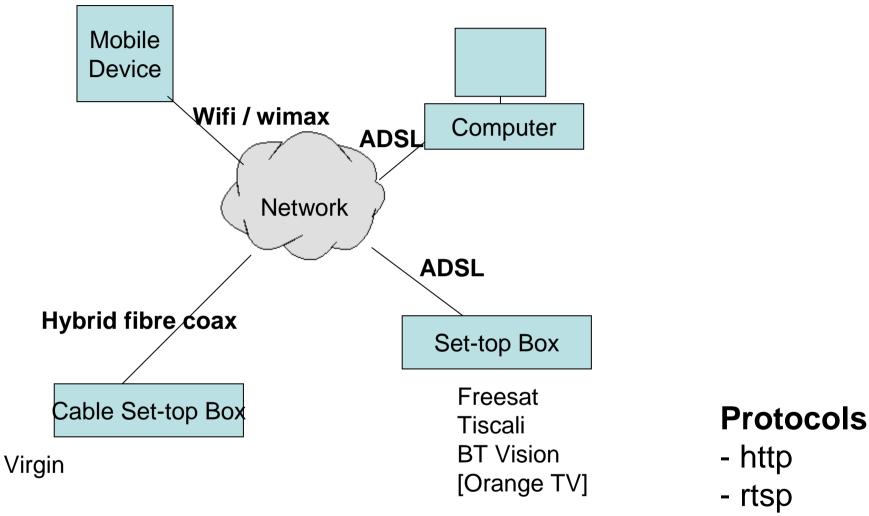
Open Internet

Managed Network

YouTube

Virgin VOD

TV iPlayer (on Virgin)

PC iPlayer

Tiscali TV

BT Vision

FreeSat

Orange TV

How to capture/create IPTV

Copper wire / fibre

Head end to Capture TV

Compression/ Encoding/ Encryption

IPTV over the network cloud

Mobile Device

Wifi / wimax

Network

ADSL Computer

ADSL

Hybrid fibre coax

Set-top Box

Cable Set-top Box

Freesat
Tiscali
BT Vision
[Orange TV]

Protocols
- http
- rtsp
- igmp

Virgin

Why IPTV and not Broadcast

- Two-way data flow (video on demand)

What is
VOD

2a - What is VOD

- Select and watch video content (usually over a network)

2b - What is VOD

- Not necessarily over IP. Eg. Push VOD

Middleware
And
Video Codecs

3a – Middleware

- Set-top box software that allows us to write applications
- Affect application capabilities

3b – Middleware

- Middleware
  - MHEG – (Freeview / Freesat)
  - Liberate – (Virgin)
  - ICTV/other – (once trialled by Tiscali; used by US web sites)
  - HTML/JavaScript (KIT/Proprietary operators)
  - Mediaroom (BT Vision)

3c – Codecs

- Compression/Decompression
- File extension specifies codec used to compress/decompress
- Lossy/Lossless

3d – Codecs

- Codecs
  - H.264
  - MPEG4
  - MPEG2
  - WMV9

H.264

- 1. Up to 50% in bit rate savings: Compared to H.263v2 (H.263+) or MPEG-4 Simple Profile, **H.264** permits a reduction in bit rate by up to 50% for a similar degree of encoder optimization at most bit rates.

- 2. High quality video: **H.264** offers consistently good video quality at high and low bit rates.

- 3. Error resilience: **H.264** provides the tools necessary to deal with packet loss in packet networks and bit errors in error-prone wireless networks.

- 4. Network friendliness: Through the Network Adaptation Layer, **H.264** bit streams can be easily transported over different networks.

IPTV/Internet TV Platforms/Operators

(client-side
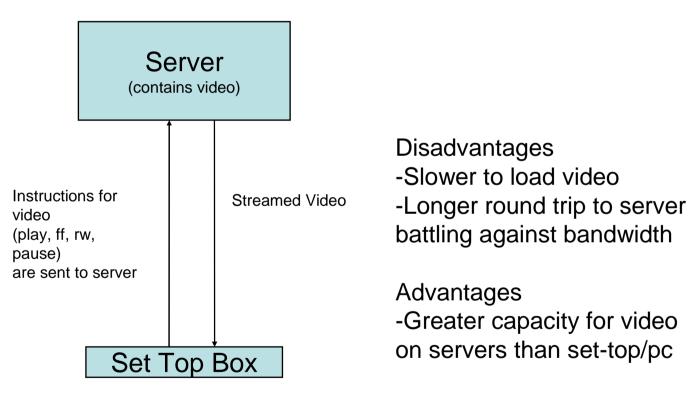Java)

Mediaroom

Liberate
(Seac-change)

MHEG 1.06
turbo

MHEG

Common IPTV/VOD models

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4a – Common models

Server Side Video / Client Side Application

Server
(contains video)

Instructions for
video
(play, ff, rw,
pause)
are sent to server

Streamed Video

Set Top Box

Contains:
- application code previously downloaded

Disadvantages
-Slower to load video
-Longer round trip to server
battling against bandwidth

Advantages
-Greater capacity for video
on servers than set-top/pc

4c – Common models

Client Side App / Client Side Video

Set Top Box/PVR

contains:
- application code previously downloaded
- video previously downloaded

Disadvantages
-Inability to leverage server for capacity.

Advantages
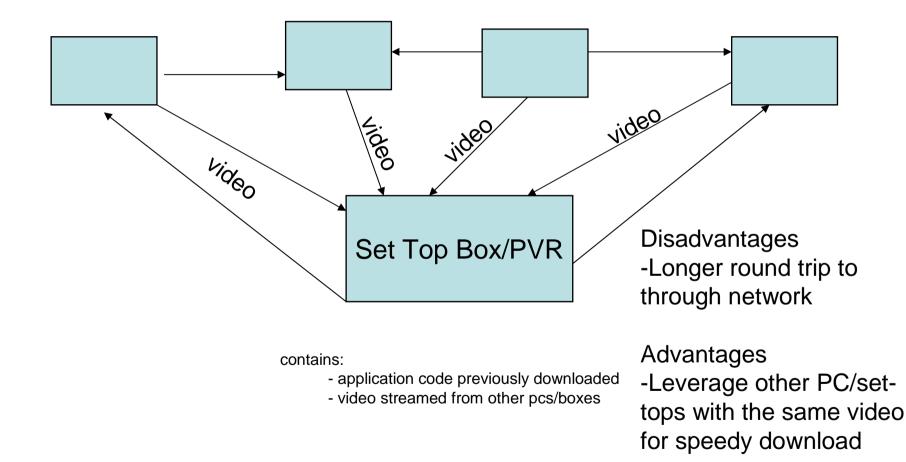-Quick seamless transitions between video and scenes.
-Store app locally and take box from a to b (i.e. to a friends house)

4d – Common models

Peer-to- Peer Video / Client Side Application

video
video
video
video

Set Top Box/PVR

Disadvantages
-Longer round trip to through network

contains:
- application code previously downloaded
- video streamed from other pcs/boxes

Advantages
-Leverage other PC/set-tops with the same video for speedy download

Middlewares on devices

Other Factors

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5 – Other Factors

- Digital Rights Management (DRM)
- Security (logging in / privacy)
- Messaging
- Mobile Devices
- Authoring
- Video Delivery
- Games consoles
- User experience & design

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