



IPTV Overview

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IPTV Overview

- What is IPTV?
- How IPTV works
- IPTV key protocols/technologies
- Common IPTV models
- IPTV in the future

What Is IPTV (Internet Protocol Television)

- Still evolving
- Official definition approved by the International Telecommunication Union
- *"IPTV is defined as multimedia services such as television/video/audio/text/graphics/data delivered over IP based networks managed to provide the required level of quality of service and experience, security, interactivity and reliability."*

What Is IPTV (Internet Protocol Television)

- Technologies for computer network
 - HTTP, RTSP, IGMP
- Guaranteed QoS
- Enhanced user experience
 - better program guide
 - interactive services etc.
- Usually over a managed/closed network

Advantages

(Compared with Cable TV/Satellite TV)

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- User centric
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- Full interactivity
- Flexible: broadcast / multicast / unicast



Distinction from Internet TV

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IPTV	Internet TV
Local	International
TV oriented (Real time)	PC oriented (File transfer)
Guaranteed QoS	No guaranteed QoS
Authorized users	Any users
Usually over a managed/closed network	Usually over an unmanaged/open network
Safe Tiscali TV, BT Vision, BesTV ,Now TV	Unsafe YouTube, PC iPlayer Youku

IPTV Launches Around the World

- Europe

- FastWeb (Italy)
- TPSL (FT & TPS, France)
- DreamTV (TF1 & LDcom, France)
- Imagenio (Telefonica, Spain)
- HomeChoice (UK)
- Kingston Interactive (UK)
- B2 (Sweden)
- France Telecom (FR)

- Asia

- PCCW (Hong Kong)
- Chunghwa Telecom (Taiwan)
- BB TV (of Yahoo BB, Japan)

- NA

- Sasktel (Canada)
- > 100s of small operators in the US
- SBC Communications



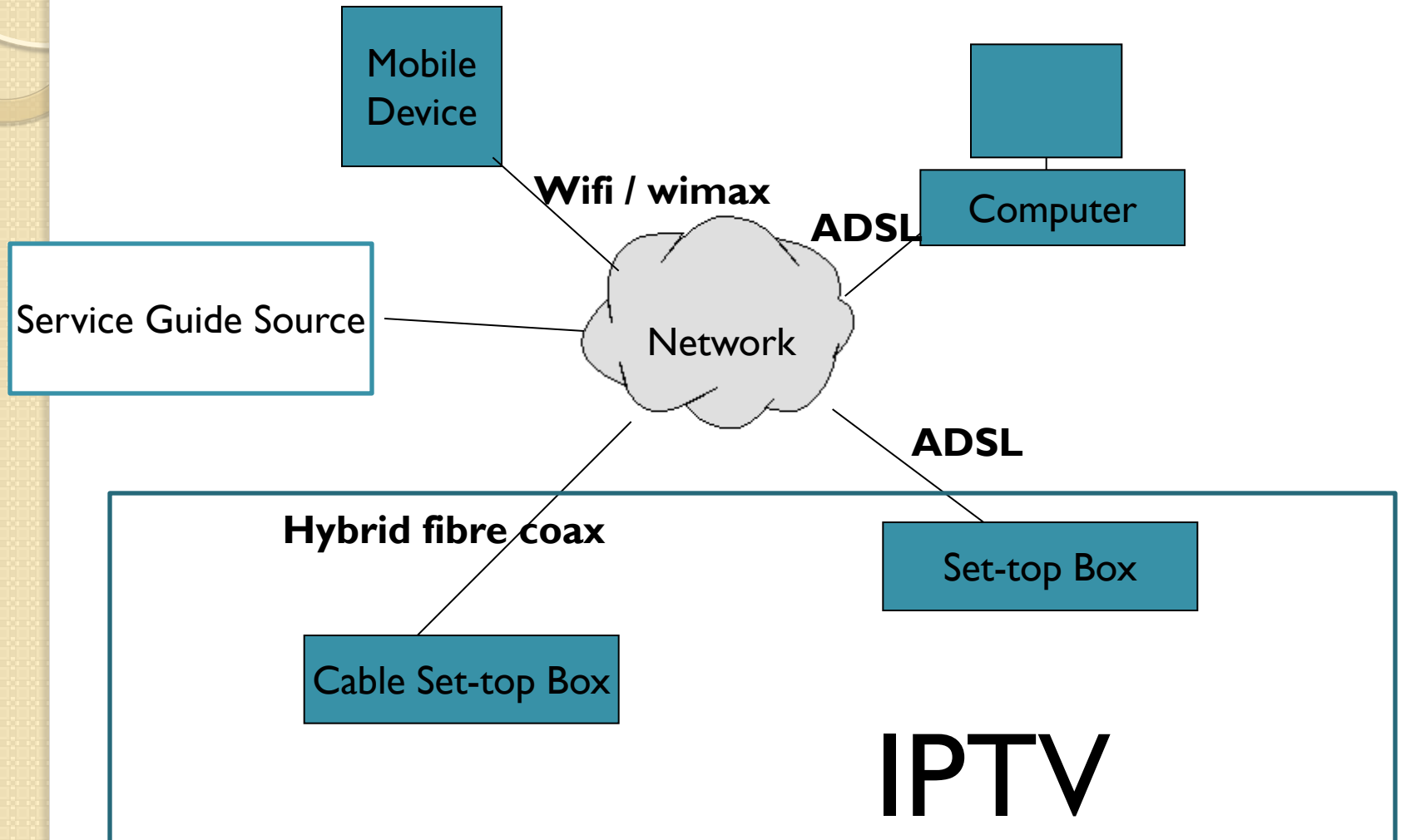
- Recent Trials announcements

- SwissCom (Bluewin)
- Telecom Italia
- Bell Canada
- Reliance Infocom
- BT
- Telus
- Telstra



How IPTV Works

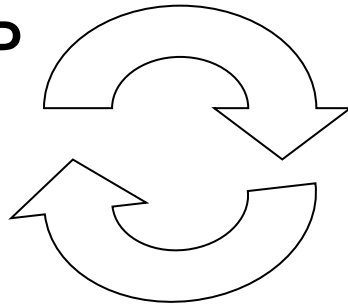
How IPTV Works



IPTV- Key Protocols

- **HTTP**

(hyper-text-transfer-protocol)



Request

Response

- **RTSP**

(real time streaming protocol)

play →

pause →

record →

Real Player, Windows Media Player
(streamed video)

- **IGMP**

(internet group management protocol)

- connecting to multicast stream (TV channel)
- changing from one channel to another



IPTV Key Technologies

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- Codec: Compression/Decompression
 - H.264 MPEG4 MPEG2 WMV9

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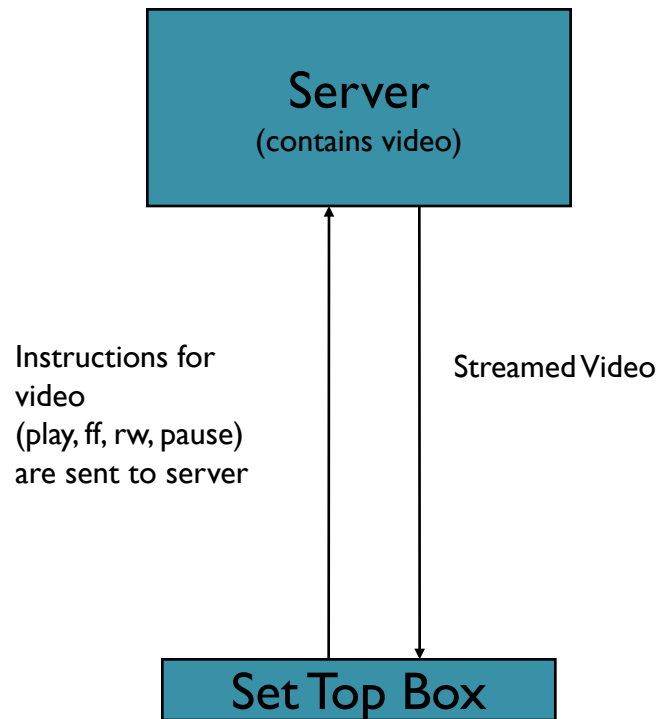
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 - H.264 MPEG4 MPEG2 WMV9
- Streaming Media:
 - Constantly received by, and normally presented to, an end-user while being delivered by a streaming provider

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- Streaming Media:
 - Constantly received by, and normally presented to, an end-user while being delivered by a streaming provider
- Middleware:
 - Set-top box software that allows us to write applications
 - Affect application capabilities

Common model I

Server Side Video / Client Side Application



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

Streamed Video

Disadvantages

-Slow to load video

Advantages

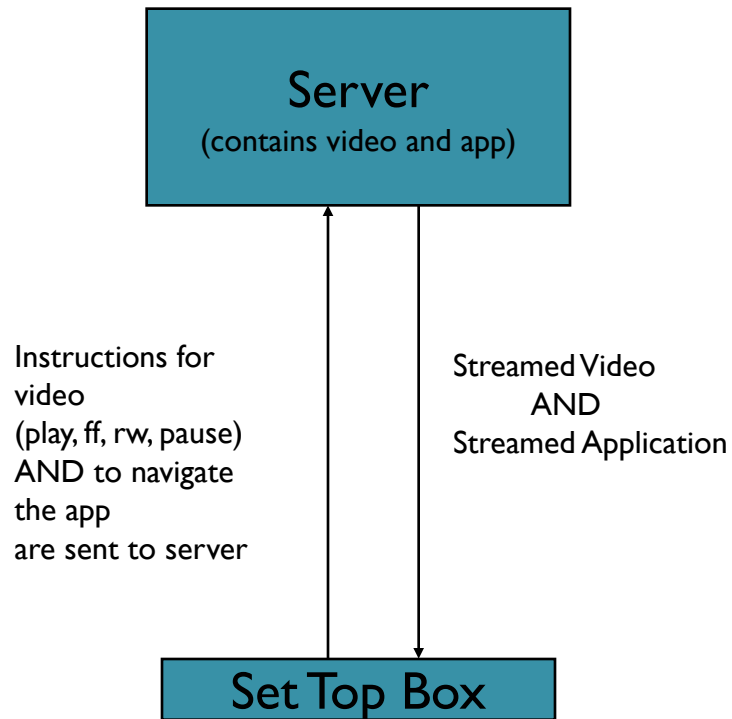
-Greater capacity for video
on servers than set-top/pc

Contains:

- application code previously downloaded

Common model II

Server Side Video / Server Side App



contains:

- no storage in the box

Disadvantages

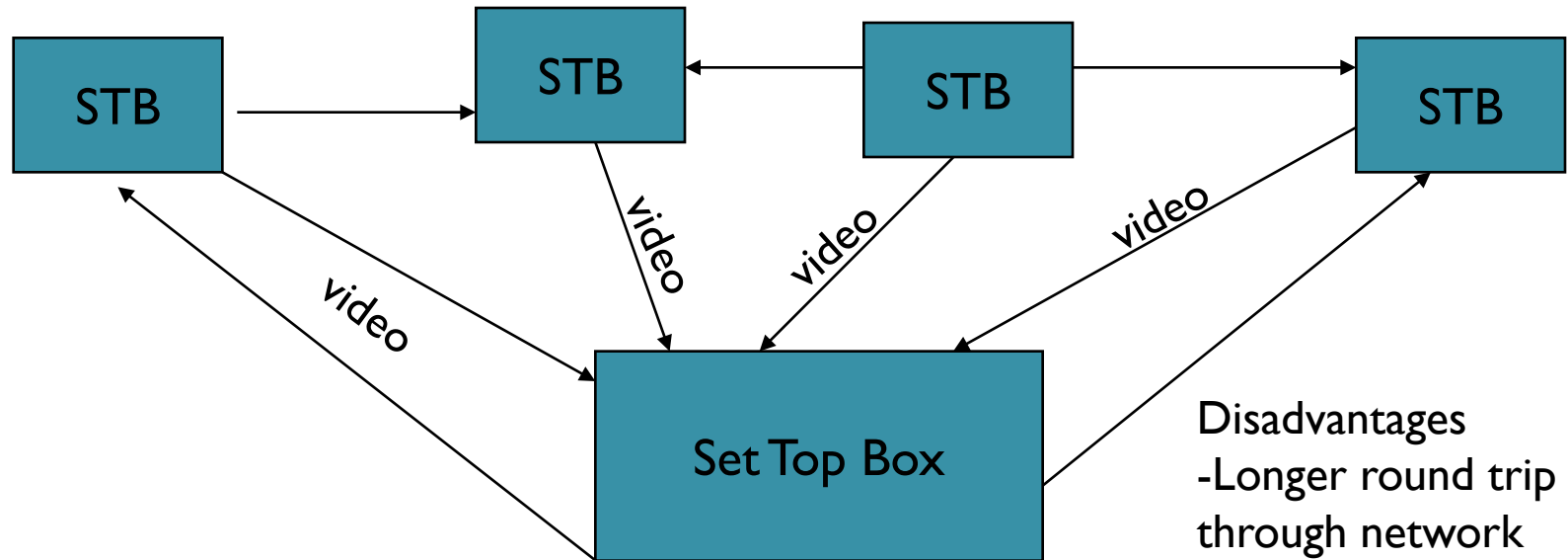
- Slower to load video/app
- Longer round trip to server battling against bandwidth /contention ratio

Advantages

- Greater capacity for video
- Larger app size for more functionality

Common model IV

Peer-to- Peer Video / Client Side Application



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



IPTV in the Future

IPTV in the Future

- Multi-service blending
 - Click-to-speak from within TV experience
 - TV parental control from cell-phone
 - Interactive voting or messaging applications
 - Access to personal picture albums, videos, music library
- Community applications
 - Greeting cards
 - Video-conferencing
 - Alerts and public announcements
- Personalization
 - Personalized advertising
 - Personalization of on-demand TV experience
 - Video content discovery
 - Take content with you (drag and drop)



References

- [1] *Steven Wright, Simon Jones, Chae Sub Lee, “IPTV Systems, Standards, and Architectures: PART I,” IEEE Communications Magazine, February 2008.*
- [2] *Julien Maisonneuve etc., “An Overview of IPTV Standards Development”, IEEE Transactions on Broadcasting, Vol. 55, No. 2, June 2009.*
- [3] *Paul Ashun, “IPTV Overview”, BBC Future Media & Technology, 2008.*



Thank You!

Q & A