

A hand holding a silver remote control with blue and black buttons. In the background, a television screen displays a blurred image of a building with a striped awning. The scene is dimly lit, suggesting an indoor setting.

Content Management for IPTV

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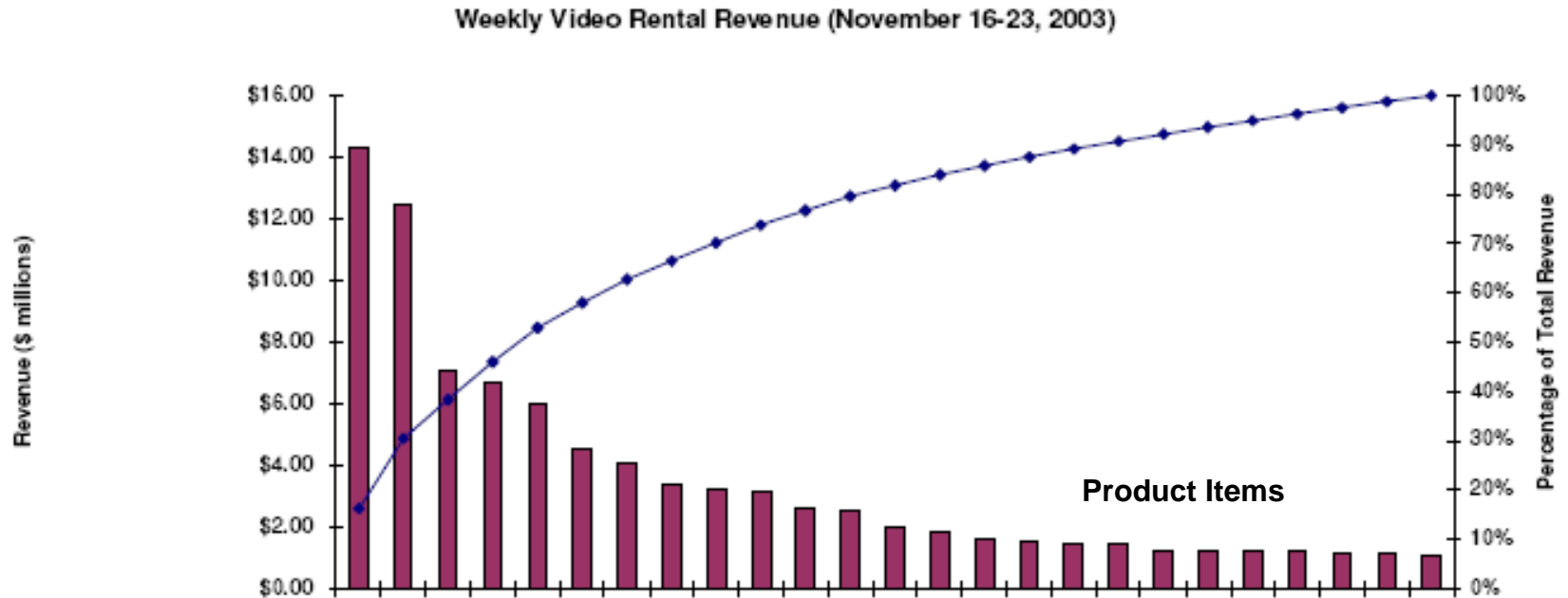
Outline

- What is IPTV
- CHT MOD service
- MOD content management architecture
- Cross platform content delivery

What is IPTV?










- **On it's own:**
 - IPTV is about delivering high quality multi-channel television and streamed/downloadable video, via IP protocols, to the TV set in your living room.
 - IPTV free consumers from watching TV programs at scheduled time
 - Freedom over What and When to watch any program
 - IPTV offers **interactivity and personalization** that are far beyond the capability of the traditional Cable TV.
 - Advanced features:
 - Time-shift TV
 - Interactive functions
 - On demand search
 - TV portal (TV vs. PC)
 - Network based Personal Video Recorder
 - Content related advertisement insertion

Long Tail Thinking

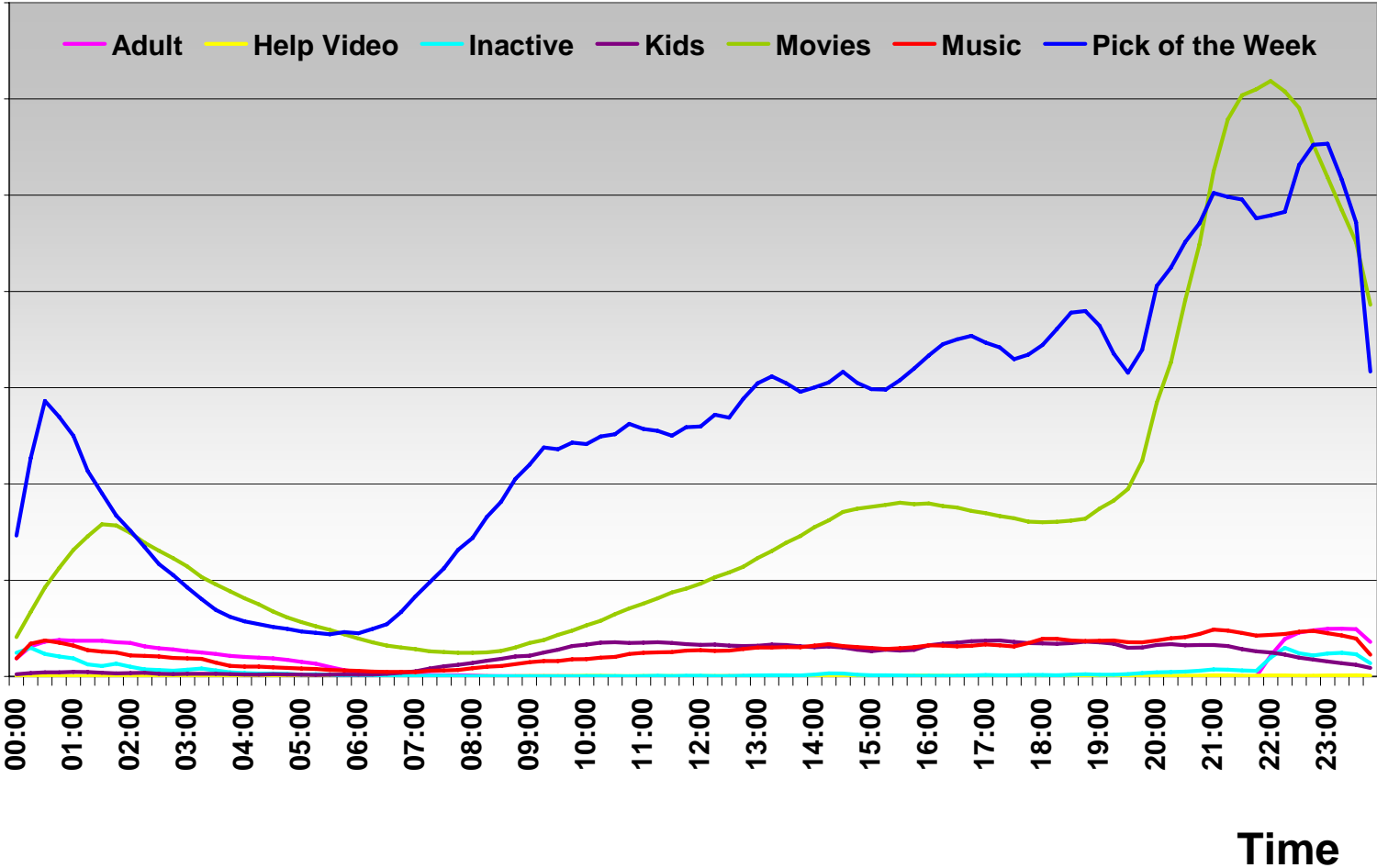


- The idea of distributing large numbers of obscure items can be as profitable as delivering only the hits.
- Everywhere can access
- Every kind of content finding easily

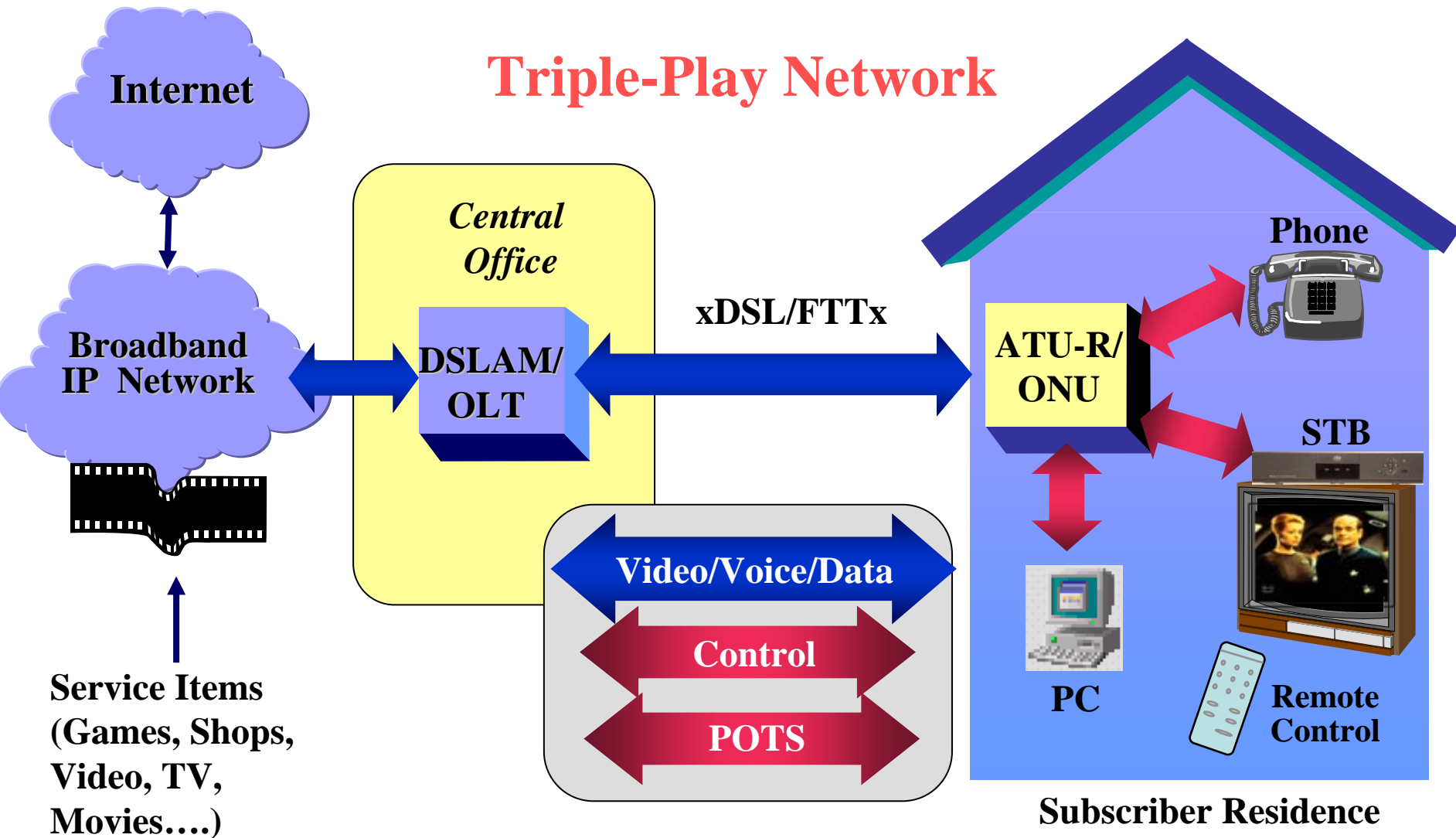
No “One-Size-Fits-All” TV Market

| | Canada | China | France | Germany | India | Italy | Japan | UK | US |
|--|--------|-------|--------|---------|-------|-------|-------|-----|-----|
|  Trendsetters | 11% | 73% | 6% | 2% | 57% | 11% | 5% | 12% | 14% |
|  TV Technologists | 13% | | 7% | 7% | 10% | 15% | 3% | 14% | 12% |
|  Individualists | 11% | | | 7% | | 21% | 5% | 14% | 11% |
|  Moderates | 14% | 22% | 15% | 6% | 8% | | 49% | 14% | 12% |
|  Simply TV | | | | | 16% | | | 12% | 14% |
|  Value Maximizers | | | 16% | 5% | | | | | |
|  Show Me | | | 11% | 34%* | | | | | |
|  Otherwise Occupied | | | | | | | | | |
|  Satisfied Status Quo | 10% | | | | 9% | | | | |

VOD Usage Example



Platform of CHT MOD Service



MOD Content and Applications

- **Channel**
 - Pay channels and free channels
 - EPG
- **Video on demand (VOD)**
 - More than 4,000 hours programs
 - Content Category : Hollywood hot movies, TV series, NGC etc.
- **Interactive applications**
 - Karaoke on demand
 - Stock/Futures Information
 - Home banking
 - Games



Video on Demand



Karaoke on demand



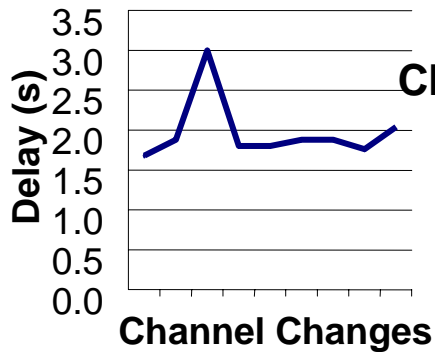
Home Banking

- **HD Programs launched in March 2008**
 - Olympic Baseball Qualification tournament
 - Major League Baseball
 - BBC and NHK programs
 - HD NBA and Beijing 2008 Olympic Games in the near future



Four Potential Showstoppers for a High QoE

1. Channel Change Delay



Channel Change delay for IPTV >1.5s

Up to 10 times worse than today's user experience (analog BTV)

2. Video Quality



Video is very sensitive to errors

1% packet loss may damage up to 40% of the video frames

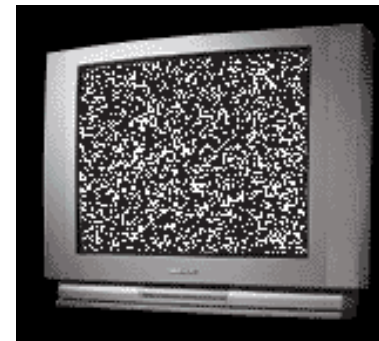
3. Channels per DSL line



2 TV-sets + PVR is average

May be limited to 1-2 concurrent channels per household

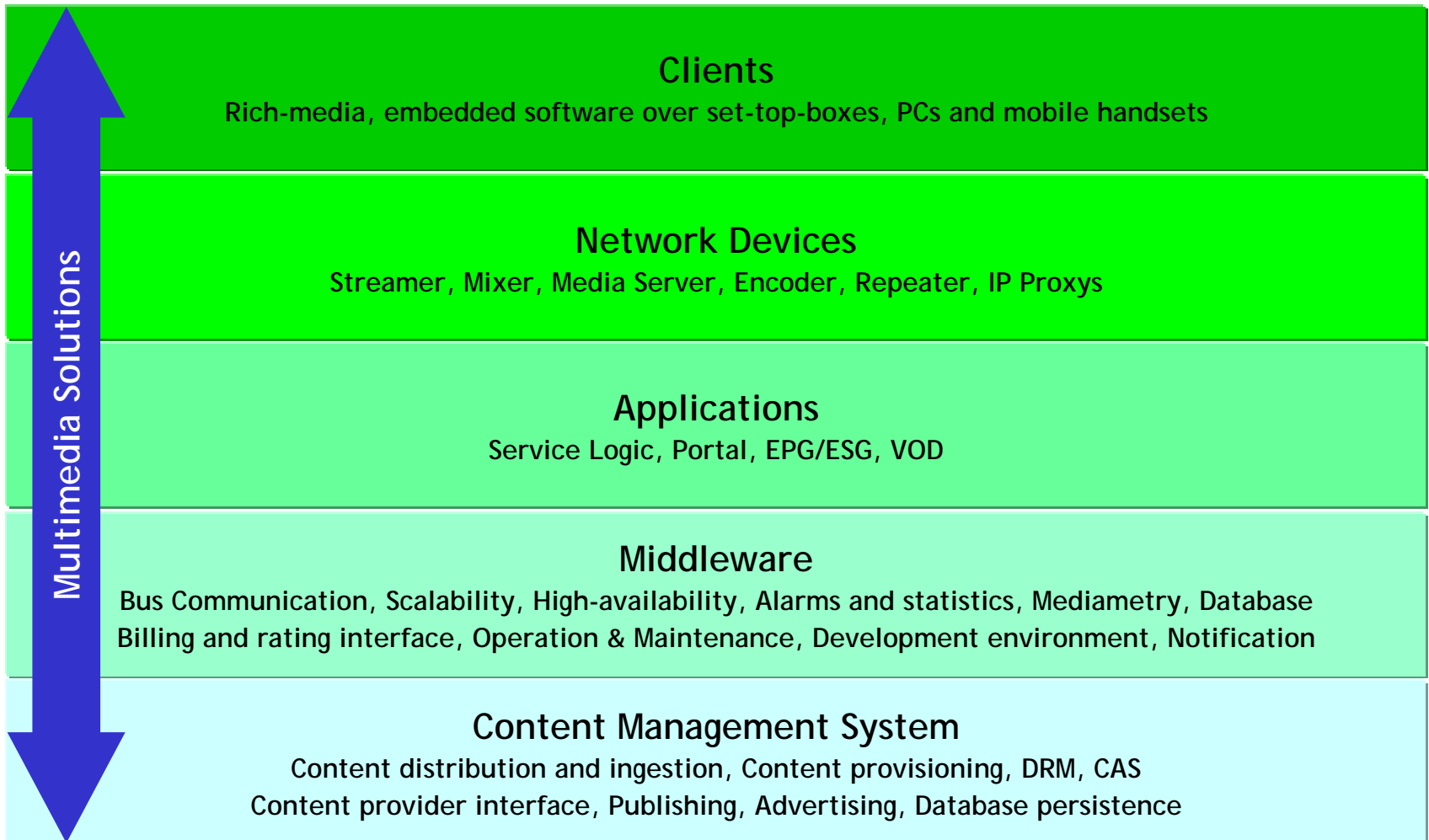
4. DSL Stability



Instability increases when DSL stretched to its limits

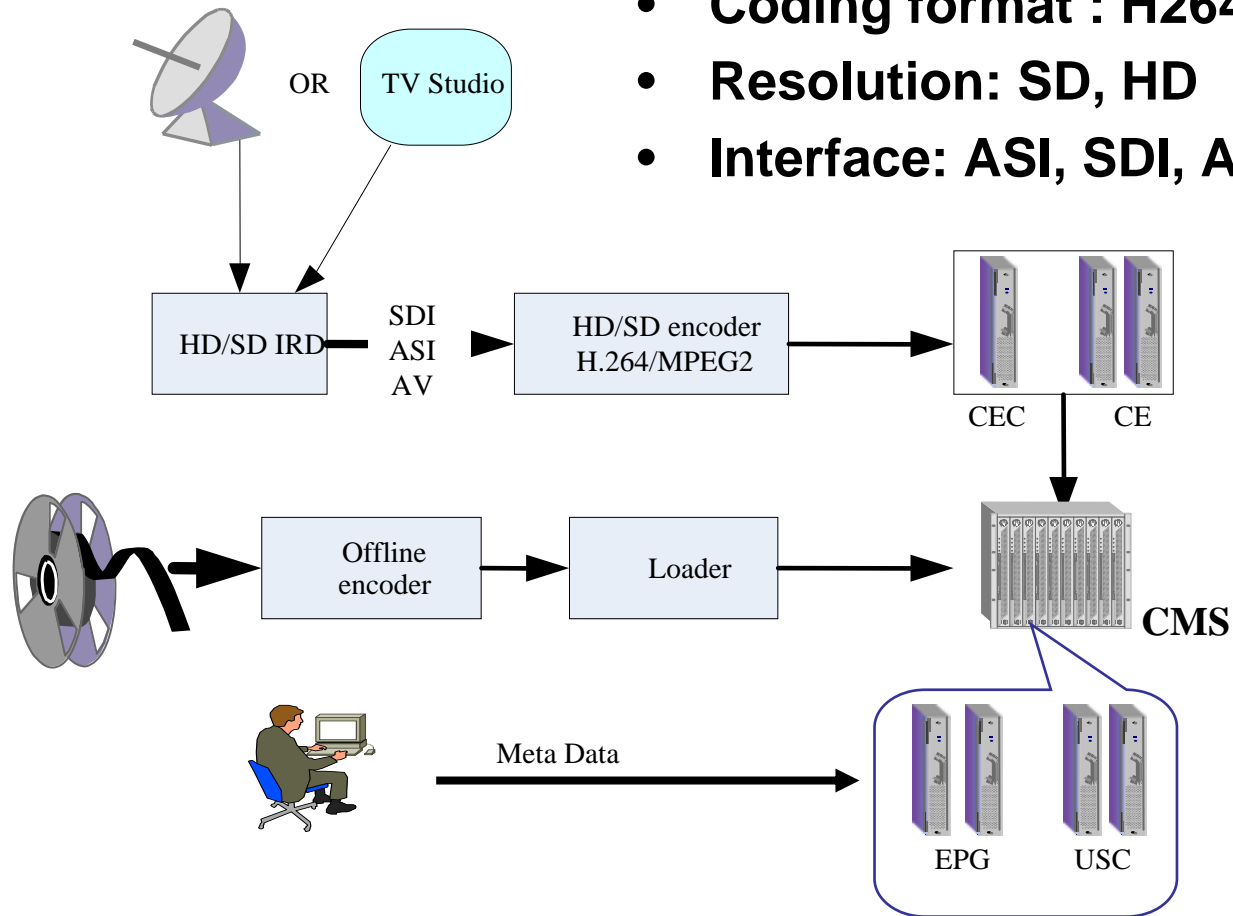
Video signal may be lost for 10s of seconds

Layer Model



Contents Preparation & Storage

- **Coding format : H264, MPEG 2**
- **Resolution: SD, HD**
- **Interface: ASI, SDI, AV**



Video Delivery Concerns

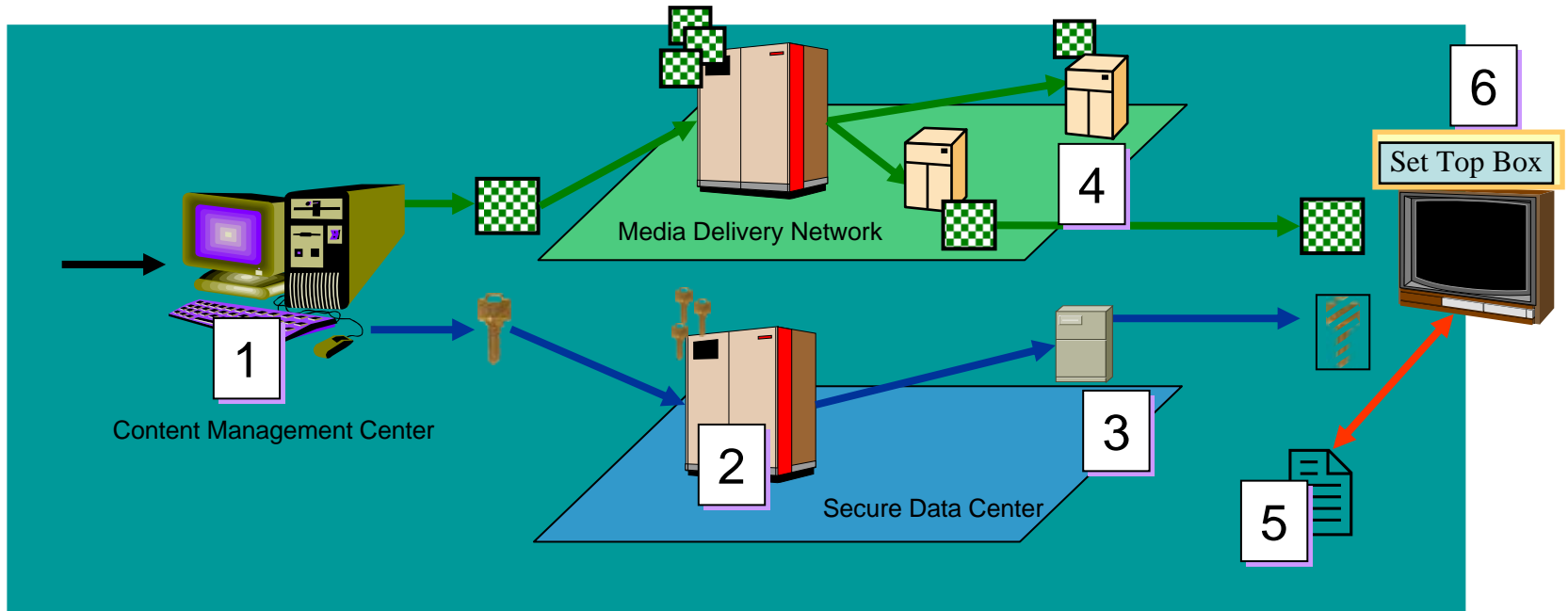
- **Facts**

- More and more content created in HD
- More and more content delivered in multiple formats and resolutions to multiple devices
- How destination networks impact QoE with video

- **What's possible in the future:**

- Dynamic quality management and high transport reliability
- High quality encoding tools to improve low resolution VQ
 - Better quality (QVGA and CIF) on bigger screens
 - More channels per Mhz with statmux
 - To move more to multi window viewing (evolution of PIP/Mosaic)
- Simple solution

DRM Implementation



1. Content Pre-encryption Server
2. Key Storage Server
3. Key Delivery Server
4. Video Server
5. User Authorization Server
6. Secure Client

Two kinds of ad insertion



- **Linear**

- Ads inserted into the broadcast stream
- Insertion by geography for local advertising
- Insertion by profile for personalised advertising

- **Non Linear**

- Ad insertion into VoD content
- Top and Tail high value assets
- Insert ads into long tail assets
- Generates targeted advertising revenue
 - E.g. fishing equipment in fishing videos



Applications making use of profiling

Service personalization examples

TV/Video content
viewed by
all the users



Targeted
advertisement
(based on profile)



Alice

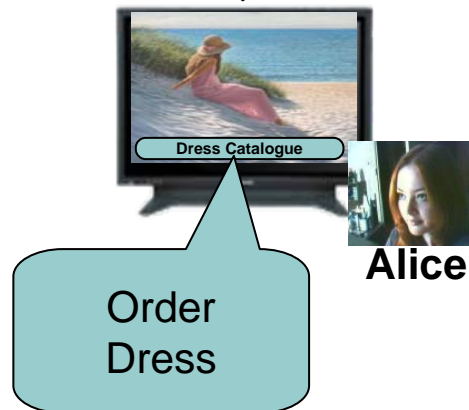


John

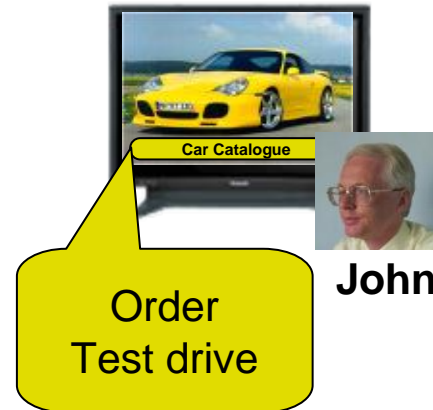


Bob

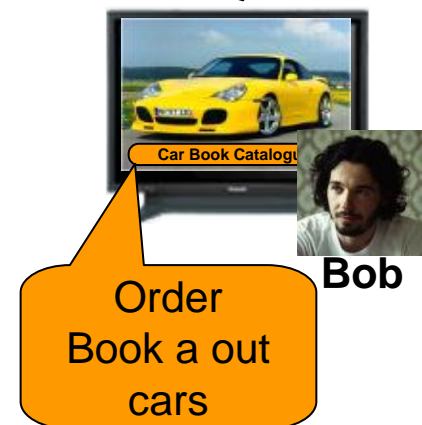
Personalized
interactivity
(based on profile)



Alice



John

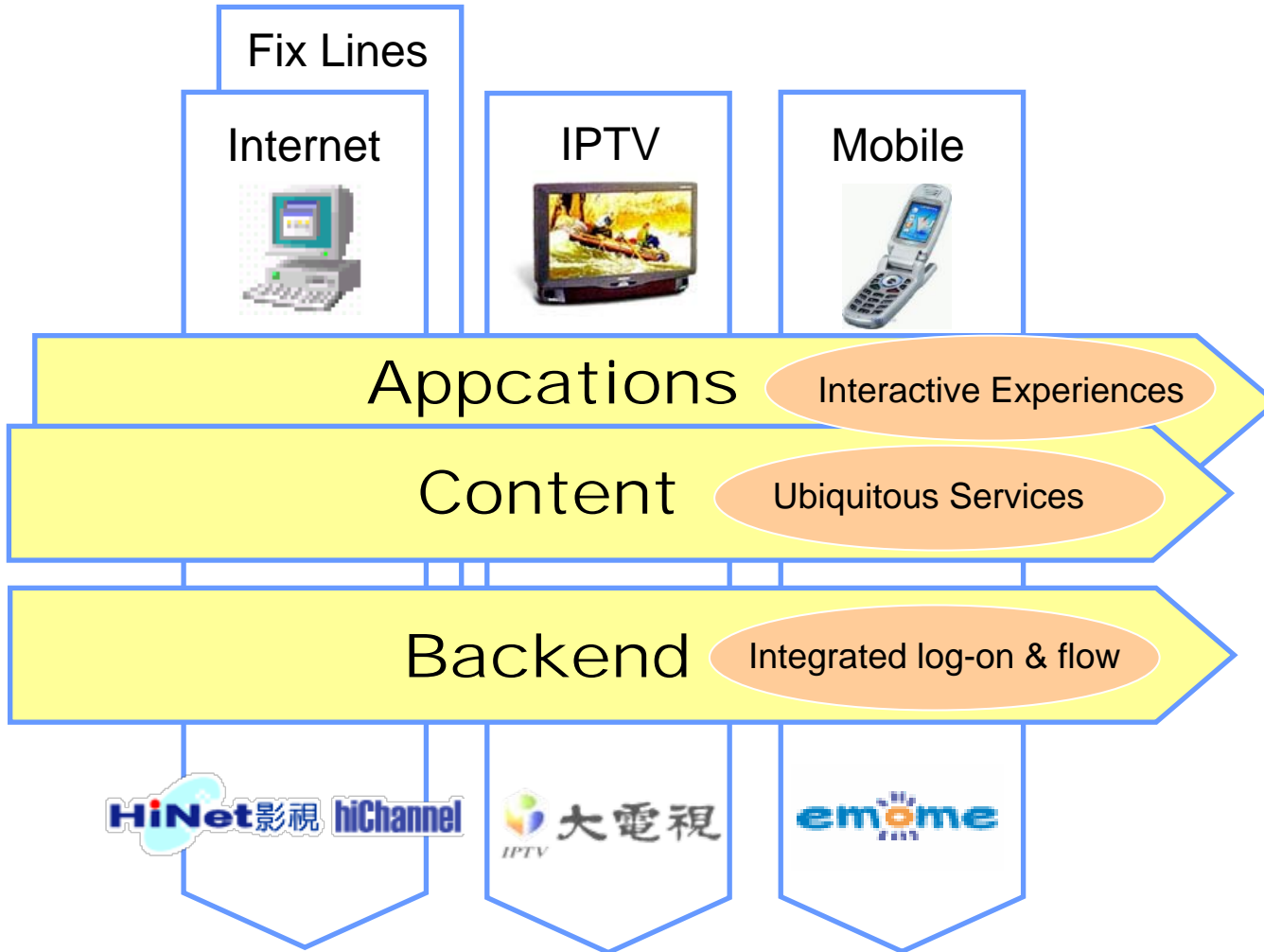


Bob

Next Generation IPTV

- **From a “big picture” point of view:**
 - IPTV is more than just video over IP protocol
 - Convergence of all applications over IP Protocols
 - Voice, Data, Video
 - Convergence of networks
 - One IP network for all, instead of TDM network for Voice, Internet for Data, HFC for Video
 - Convergence of Industries
 - Telco, CATV, ISP

CHT Cross Platform Synergy



Examples

MLB



Voting





Thank You



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