Internet Protocol Television (IPTV)

Television is changing..............

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What is IPTV, exactly?

- Digital television services delivered over IP-based broadband networks in a controlled manner.
- Using dedicated devices like Set-Top Boxes and TV sets in a closed distribution network.
- Linear or non-linear = “live” or “on-demand”
- It should be called broadband TV. But as Internet Protocol networking is used, it is often known as IPTV.
How does it work?

DSLAM = Digital Subscriber Line Access Multiplexer
PSTN = Public Switch Telephone Nodes
STB = Set-Top Box
How does it work?

All content constantly flows downstream to each customer, and the customer switches channels to watch the desired contents.

Content remains in the network and only the content the customer selects is sent to the customer’s home.
<table>
<thead>
<tr>
<th>Feature</th>
<th>Broadband TV</th>
<th>Internet Video Streaming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage</td>
<td>Local</td>
<td>Potentially worldwide</td>
</tr>
<tr>
<td>Users</td>
<td>Known IP-addresses</td>
<td>Any users</td>
</tr>
<tr>
<td>Quality</td>
<td>Controlled QoS</td>
<td>Best effort quality</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>1~4Mbit/s</td>
<td>Generally below 1Mbit/s</td>
</tr>
<tr>
<td>Format</td>
<td>MPEG-2, MPEG-4 Part1, MPEG-4 Part 10, Microsoft VC1</td>
<td>Windows Media, RealNetworks, QuickTime, Flash and others</td>
</tr>
<tr>
<td>Receiver</td>
<td>Set-top box with television display</td>
<td>Personal Computers</td>
</tr>
<tr>
<td>Resolution</td>
<td>Full TV display</td>
<td>Common Intermediate Format</td>
</tr>
<tr>
<td>Reliability</td>
<td>Stable</td>
<td>Subject to contention</td>
</tr>
<tr>
<td>Security</td>
<td>Authenticated</td>
<td>Unsafe</td>
</tr>
<tr>
<td>Copyright</td>
<td>Media are protected</td>
<td>Generally not protected</td>
</tr>
<tr>
<td>Other services</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Customer service</td>
<td>Onsite support</td>
<td>Generally no support</td>
</tr>
<tr>
<td>Complementarities with cable, terrestrial and satellite broadcasting</td>
<td>Potentially common STB, complementary coverage, common metadata</td>
<td>Pre-view and low-quality on-demand services</td>
</tr>
</tbody>
</table>
Global IPTV Subscribers Forecast

Source: Multimedia Research Group
Why

- Television is still the centre of home entertainment device
- In built-up urban areas: bad satellite reception, poor Digital Terrestrial Television coverage or high interference level
- Triple (or more) Play: communication, Internet and Broadband TV
- Capable of delivering High Definition TV
- A variety of content:
  - Interactive services and Interactive television (iTV)
  - Video-on-demand (VoD)
  - Video podcasting - personalization
... and why not?

- Service coverage is inversely proportional to the bit-rate of signal distribution.
- DSL networks are often limited to 1Mbit/s or below.
- Minimum TV quality = 2~4Mbit/s (MPEG-2).
- Coverage can be increased by lowering the quality of service (potential customer loss) or introducing more efficient transmission technologies such as ADSL2+ or VDSL (May incur additional investment).
Where?

- Switzerland
- Bluewin by Swisscom, in April 2005
- 30 channels
- VoD, PVR
- Dedicated DVD/HDD recorder
Where?

- Italy
- Fastweb
- Live television channels and video phone and visual medical consulting services
- A library of VoD

Fastweb TV

- Both FTTH and ADSL are used

Video communication
Where?

- France
- Freebox was introduced in 2004
- ADSL, voice and television services
- Freeplayer, a free software that can transform the box into a multimedia platform, and a DVD player
Where?

- NOW TV, Hong Kong
- Launched in September 2003 by PCCW
- “A la carte” subscription, Triple-Play
- 16 free channels and 102 pay channels
- Reached 550,000 subscribers by the end of 2005
Who else? – The Competitors

- Cable television network
- Digital terrestrial television
- Satellite technology
- Improved Internet video streaming technologies
When? Now or later?

- **Challenges for the telcos**
  
  - Build a holistic business case and strong customer proposition
    
    - The investment is significant
    
    - New value-added services, e.g. web-advertising
  
  - Know how to integrate and implement
    
    - Relatively new technologies from various vendors
    
    - Process-based telecom industry and creative and investment-based content industry
  
  - Differentiate through content
    
    - Creating or gaining access to a large variety of contents
  
  - A new approach to operations
    
    - New skills and talents required in entertainment business
When? Now or later?

- Challenges to regulators
  - Copyright, Digital Rights Management (DRM)
  - Conditional Access (CA), privacy, parental control
- In the U.S., the cable companies and broadcast satellite companies have been lobbying the FCC to put more stringent requirement around IPTV
- In China, the authorities are trying to spur more investments in technology and encourage competition, making sure that they do not create a monopoly
Conclusions

- IPTV represents an exciting opportunity for telcos to grow their broadband market and develop new revenue streams.
- There are few large-scale IPTV deployments today for the regulators to learn lessons from. However, experience from regulating the cable industry may serve to help.
References

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4. Fastweb official website available at www.fastweb.it/web/famiglia/
5. Free official website available at www.free.fr/
6. Now Broadband TV official website available at www.nowbroadbandtv.com