August 29, 2016

Ministry of Internal Affairs and Communications, Japan

Masayuki Ito
Total Sales of Broadcasters (FY2014): 3.8 Trillion JPY (38 billion USD)
Broadcast Market in Japan showed steady growth until Lehman Shock in 2008. Thereafter, the market growth levels off.
- Shift from Terrestrial to Satellite, CATV and Recorded
- Substantial growth of PC and Mobile
出典：NHK「月全国個人視聴率調査」から作成
出典：メディア定点調査 2020（情報堂 ほか
メディアパートナーズメディア環境研究所）
How often do you use smartphones while watching TV?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyday</td>
<td>51.9</td>
<td>54.0</td>
</tr>
<tr>
<td>2-3 Days a Month</td>
<td>53.8</td>
<td>50.0</td>
</tr>
<tr>
<td>3-5 Days a Month</td>
<td>45.3</td>
<td>45.5</td>
</tr>
<tr>
<td>1-2 Days a Month</td>
<td>27.5</td>
<td>34.5</td>
</tr>
<tr>
<td>Less than a Day/Mo</td>
<td>11.3</td>
<td>9.1</td>
</tr>
<tr>
<td>Used to / Not recently</td>
<td>7.7</td>
<td>12.7</td>
</tr>
<tr>
<td>Unknown</td>
<td>11.5</td>
<td>35.8</td>
</tr>
</tbody>
</table>

Total: (N=1844)
TV penetration ratio of younger household (Under age 29) decreased to 85% in 2015.

Total remains stable as senior household increases.

**TV Penetration Ratio in Age of Household Owners**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Share</th>
<th>Penetration Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>総世帯</td>
<td>98.9%</td>
<td>98.6%</td>
</tr>
<tr>
<td>Under age 29</td>
<td>5.1%</td>
<td>97.1%</td>
</tr>
<tr>
<td>Age 30 - 59</td>
<td>44.7%</td>
<td>99.0%</td>
</tr>
<tr>
<td>Age 60 -</td>
<td>50.2%</td>
<td>98.9%</td>
</tr>
</tbody>
</table>

*Note: Values in the table are percentages.*
NHK – Rio Olympics Playback Service
(Highlights of swimming, Judo, Short Track, etc.)
Fuji TV – 4K VOD trial (MPEG DASH)
Online Video Svc.

**Netflix**
- **Launch**: Sep. 2011
- **Charge**: 702 JPY/Mo.
- **Contents**: Dom./Intl. Movies / Dramas – a few thousand titles

**dTV**
- **Launch**: Jan. 2011
- **Charge**: 540 JPY/Mo.
- **Contracts**: 4.70 million (March 2015)
- **Contents**: Dom./Intl. Movies / Dramas – 120,000 titles

**Video Path**
- **Launch**: May 2012
- **Charge**: 606 JPY/Mo.
- **Contracts**: 1.00 million (Aug. 2015)
- **Contents**: Dom. and Intl. Movies / Dramas – 16,000 titles

**AbemaTV**
- **Launch**: April 2016
- **Charge**: Free/Premium
- **Contents**: 24/365 Live Streaming – News, Sports, Comedies, Fishing, etc.

**hulu**
- **Launch**: Sep. 2011
- **Charge**: 1007 JPY/Mo.
- **Contracts**: 1.00 million (Aug. 2015)
- **Contents**: Dom. and Intl. Movies / Dramas – 20,000 titles

**bonobo**
- **Launch**: Sep. 2015
- **Charge**: Pay Per Contents
- **Contents**: Dom. and Intl. Movies / Dramas – 300 titles

**TVer**
- **Launch**: Oct. 2015
- **Charge**: Free
- **Contents**: Free Playback of TV Contents

**Softbank (Telco)**
- **Owner**

**NTT DoCoMo (Telco)**
- **Owner**

**KDDI (Telco)**
- **Owner**

**Cyber Agent (IT Developer)**
- **Joint Funding**

**Japan Movie Makers’ Association**
- **Operation Participation**

**Dentsu (Ad Agent)**
- **Joint Funding**
Is your TV connected to the Internet?

- Television: 23.9%
- IPTV STBs: 6.4%
- DVD/Blu-ray Recorders: 5.4%
- Digital STBs: 2.1%

How often do you use the Internet connection on TV?

- Every Day: 4.0%
- Every Week: 3.2%
- Every Month: 4.0%
- Every Year: 85.7%
- Not at all: 8.7%

Do you want to use the Internet connection on TV?

- Yes: 58.1%
- No: 41.9%

How do you use the Internet connection on TV?

- Web: 37.5%
- VOD: 34.4%
- Viewer Participation: 32.4%
- Games: 18.4%
- Smartphone’s Screen: 17.9%
- Skype: 16.3%
- Other: 17.9%

(出典: 総務省平成26年通信利用動向調査)
<table>
<thead>
<tr>
<th>種類</th>
<th>BS (East 110)</th>
<th>CS (East 110)</th>
<th>CS (East 124/128)</th>
</tr>
</thead>
<tbody>
<tr>
<td>特性</td>
<td>Most of the TVs in the market equip satellite tuners</td>
<td>Additional STBs/Antennas required</td>
<td></td>
</tr>
<tr>
<td>Programs May2016</td>
<td>HD 28 / SD 1</td>
<td>HD 21 / SD 33</td>
<td>4K 3 / HD 157</td>
</tr>
<tr>
<td>Viewers May2016</td>
<td>NHK–BS 1.99 million (March 2016)</td>
<td>Sky Perfect 2.20 million</td>
<td>Sky Perfect Premium 1.20 million</td>
</tr>
<tr>
<td>Contract</td>
<td>WOWWOW: PayTV (Scrambled) NHK: Non–Scrambled but have to pay</td>
<td>PayTV (Scrambled)</td>
<td>PayTV (Scrambled)</td>
</tr>
</tbody>
</table>
Contracts have grown along with the sales of Digital TV
- Digital TV generally equips Terrestrial and BS/CS110 tuner
- ASO 2011-2012
CATVs in Japan, which started as shared reception systems in 60 years ago, are now grown as a comprehensive service platform – providing community channels of local contents, Internet connection service / IP telephony, and premium contents.

Contracts counts as 29.48 million (Re–Transmission of Terrestrial TVs) and 9.55 million (Other Svc. Than Re–Transmission). House hold penetration ratio is 52.3% (March 2016)
1953  • First Terrestrial Broadcast in Japan
1955  • First CATV in Japan
1963  • First Original Content Distribution by a CATV
1984  • Inauguration of Satellite Broadcasting
1996  • First Internet Connection Service from CATV
1997  • First CATV Telephone Service
1998  • First Digital CATV Service
2000  • Digital Satellite Broadcasting
2003  • IP Multicast Broadcast
       • Digital Terrestrial Broadcast
2011  • Analog Satellite Broadcast Switch–Off
2012  • Analog Terrestrial Broadcast Switch–Off
2014  • 4K Trial Broadcast
2015  • 4K Broadcast

Service Development
Start
Original Contents
Scalability
Multi Channel
Full Service
Digital
ASO Support
Further Development
<table>
<thead>
<tr>
<th></th>
<th>Operators</th>
<th>Networks</th>
<th>Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Private</strong></td>
<td>296 (14.5%)</td>
<td>438 (23.1%)</td>
<td>28,559,748 (37.1%)</td>
</tr>
<tr>
<td></td>
<td>74</td>
<td>155</td>
<td>10,923,087</td>
</tr>
<tr>
<td><strong>Government Owned</strong></td>
<td>222 (58.0%)</td>
<td>283 (42.2%)</td>
<td>17,636,661 (59.8%)</td>
</tr>
<tr>
<td></td>
<td>438 (65.3%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Local Government</strong></td>
<td>188 (36.9%)</td>
<td>207 (30.8%)</td>
<td>756,239 (2.6%)</td>
</tr>
<tr>
<td></td>
<td>207</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-Profit</strong></td>
<td>3 (0.6%)</td>
<td>3 (0.6%)</td>
<td>105,915 (0.4%)</td>
</tr>
<tr>
<td></td>
<td>(0.6%)</td>
<td>(0.6%)</td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>23 (4.5%)</td>
<td>23 (4.5%)</td>
<td>59,590 (0.2%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>510 (100.0%)</td>
<td>671 (100.0%)</td>
<td>29,481,492 (100.0%)</td>
</tr>
</tbody>
</table>
※平成28年3月末現在。
※最新の普及率は、平成27年1月1日現在の住民基本台帳世帯数から算出。
※上記の統計値については、IPマルチキャスト方式による放送に係るものを含む。
Total Sales of CATV operators in Japan (only for the CATV service) is 497 billion JPY. (4.97 billion USD)
Contents Production Ability

「Cable Nippon」Series
- 新聞、デモ映像の製作
- 各市町村の映像出稿
- 各市町村の映像出稿

Contents Sharing Mechanism

Regional Contents Exchange Mechanism
- 各市町村の映像出稿
- 各市町村の映像出稿

Contests/Production Workshops
- 新聞、デモ映像の製作
- 各市町村の映像出稿
- 各市町村の映像出稿

（日本ケーブルテレビ連盟資料より作成）
### Diagram

- **Contents Server**
- **APC (自動番組制御装置)**
  - **Play Outs**
  - **Matrix SW**
  - **HEVC ENC**
  - **IP Coding**
  - **FEC**
  - **RELAYS**
- **Program Guide**
- **SI**
- **NTT networks**
- **STB 4KTV**

### Table

<table>
<thead>
<tr>
<th>項目</th>
<th>仕様</th>
<th>項目</th>
<th>仕様</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video</td>
<td>H.265/HEVC 60fps 約25Mbps</td>
<td>Protocol</td>
<td>IPv6 Multicast (MLDv2)</td>
</tr>
<tr>
<td>Audio</td>
<td>AAC 192kbps</td>
<td>FEC</td>
<td>ProMPEG</td>
</tr>
<tr>
<td>Format</td>
<td>MPEG2-TS / RTP</td>
<td>Encryption</td>
<td>AES128</td>
</tr>
</tbody>
</table>
Roughly 20% of NTT network provider contracts
4.  [Text in a box]
Expected Situation

Tokyo Olympic and Paralympic Games are televised in 4K / 8K.

Enthusiasm for the Olympic Games are shared nationwide through public viewing.

Many people are enjoying 4K / 8K programs at home.

Reception environment of LHCP are well developed as well as that of RHCP.

RHCP: Right Hand Circular Polarization
LHCP: Left Hand Circular Polarization
LHCP Satellite

Starting: CS110 2017
BS: 2018

New transmission pass

Utilizing of LHCP will greatly increase the number of available channels

LHCP (12GHz)

Current transmission pass

RHCP Satellite (12GHz)

RHCP: Right Hand Circular Polarization
LHCP: Left Hand Circular Polarization

Transponder

11.7GHz 11.727GHz
11.747GHz

BS RHCP

1 3 5 7 9 11 13 15 17 19 21 23
ND 26
ND 2

12.149GHz 12.228GHz 12.291GHz

CS RHCP

25 ND 1 ND

12.310GHz 12.271GHz 12.231GHz

CS LCHP

19 21 23

BS LCHP

2 4 6 8 10 12 14 16 18 20 22
In the year of Tokyo Olympic and Paralympic Games, 4K8K terrestrial test TV broadcasting is expected to be demonstrated.

Research and development on:

- Advanced terrestrial TV broadcasting transmission technology (exploring better parameter values for FFT size, frame structure, modulation, constellation, hierarchical transmission etc.)
- Advanced mobile TV reception technology (partial reception technology, diversity, MMT, FFT size etc.)
- Frequency sharing technology with existing 2K terrestrial TV broadcasting
- Field trial

- R&D Period: FY 2016 – FY 2018
- Budget: about 400 million yen/year
- Target frequency: 470MHz – 710MHz
Thank you! - Obrigado

Keywords for my presentation:
- High Definition – 4K / 8K
- Interactivity