Broadcast Asia
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The Connected Home

Multimedia over Coax Alliance

The standard for Home Entertainment Networking®
Introduction

Who we are:

• International industry technology standard consortium
• Established: January 2004
• 53 members from the global pay TV ecosystem
• 148 certified products

What we do:

• MoCA technology enables the distribution of multiple streams of high definition (HD) video and data over existing, in-home coaxial cabling.
• We make wireless better.
Home Network Environment

Challenge

- Pay TV operators racing to meet consumer demand for HD content and Internet access everywhere and anytime, and on any device.
- Implementation of home network provides seamless connectivity.
- Which home networking technology is most cost-effective?
  - Wireless, coax and power line technologies are established but all have their advantages and disadvantages.

Opportunity

- Provide seamless home network using existing wireless and wired technologies and mediums to accommodate all devices and applications.
Global Pay TV Revenues By Region

Source: Digital TV Research Report Broadband TV News May 2014
North America is The Home Networking Leader

- **North America:** 43% of worldwide home networking revenue in 1H13 revenue
- **EMEA:** 27%
- **APAC:** 22%
- **CALA:** 7%

Source: Infonetics Research Oct 2013
Home Networks By Region

Source: ABI Research Home Network Forecast 2014
Home Network Penetration Rate

Of Total and Fixed Broadband Households

North America
- % of Total Households: 68.1%
- % of Broadband Households: 86.4%
- % of Total Households: 80.8%
- % of Broadband Households: 99.1%

Asia-Pacific
- % of Total Households: 25.2%
- % of Broadband Households: 60.8%
- % of Total Households: 69.2%
- % of Broadband Households: 70.8%

Latin America
- % of Total Households: 30.7%
- % of Broadband Households: 23.0%
- % of Total Households: 75.8%
- % of Broadband Households: 78.1%

Western Europe
- % of Total Households: 61.3%
- % of Broadband Households: 83.6%
- % of Total Households: 78.1%
- % of Broadband Households: 97.9%

Source: ABI Research Home Network Forecast 2014
Home Networks by LAN Type

<table>
<thead>
<tr>
<th>Region</th>
<th>Wi-Fi 2013</th>
<th>Wi-Fi 2018</th>
<th>HomePlug 2013</th>
<th>HomePlug 2018</th>
<th>MoCA 2013</th>
<th>MoCA 2018</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>90.51</td>
<td>118.54</td>
<td>6.56</td>
<td>11%</td>
<td>3.91</td>
<td>13%</td>
<td>25.54</td>
</tr>
<tr>
<td>Asia-Pacific</td>
<td>148.88</td>
<td>263.34</td>
<td>33.05</td>
<td>15%</td>
<td>4.24</td>
<td>56%</td>
<td>16.12</td>
</tr>
<tr>
<td>Latin America</td>
<td>53.40</td>
<td>7%</td>
<td>37.36</td>
<td>42%</td>
<td>8.84</td>
<td>99%</td>
<td>3.03</td>
</tr>
<tr>
<td>Western Europe</td>
<td>91.26</td>
<td>8%</td>
<td>39.46</td>
<td>44%</td>
<td>17.44</td>
<td>44%</td>
<td>2.52</td>
</tr>
</tbody>
</table>

Source: ABI Research Home Network Forecast 2014
Video Will Dominate Internet Traffic

Consumer Internet Traffic Forecast 2011–2016

By 2016
- Internet Video Streaming, Downloads and Video Calling CAGR = 54%
- 76% traffic is on fixed network
- Home networking is the key for in-home video distribution

Source: Cisco VNI 2012.  One Exabyte (EB) = 1 Billion GB
Bandwidth Consuming Applications

Bandwidth (Mbps)

- Remote Management using IP cameras
- File Sharing
- Voice over IP
- Online Gaming
- Social Networking (Facebook)
- Browsing Session
- HD Video Streaming (3 simultaneous sessions)
# The Connected Home Narrative

<table>
<thead>
<tr>
<th>Standard</th>
<th>Value Proposition</th>
<th>Drawbacks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wireless</strong></td>
<td>Mobility Only solution for portable devices</td>
<td>Reliability (QoS) is a challenge Prone to interference. Shared medium Not designed for video.</td>
</tr>
<tr>
<td>(Wi-Fi®)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Powerline</strong></td>
<td>Ubiquity of outlets &amp; ease of use Only proven technology over power line</td>
<td>Prone to interference. Quality of wiring could affect performance</td>
</tr>
<tr>
<td>(HomePlug®)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Coax</strong></td>
<td>Shielded medium. Works over any existing coax. Not prone to hacking or interference with other devices Originally designed for video Proven performance &amp; reliability leader</td>
<td>Dependent on coaxial outlet penetration and wiring scheme in the home.</td>
</tr>
<tr>
<td>(MoCA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cat 5/6</strong></td>
<td>Attaches directly to device Extremely high performance Known and accepted worldwide standard</td>
<td>Not an existing wire. New installation. New wire required every time when upgrading specification. The same as and possibly more costly to install than coax.</td>
</tr>
<tr>
<td>(Ethernet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>The Connected Home</strong></td>
<td>Mobility, ubiquity, ease of use and reliability.</td>
<td>Need a wire for HD video and whole home coverage. No single solution.</td>
</tr>
<tr>
<td><strong>nVoy™</strong></td>
<td>Engineering standard that unites all technologies. Firmware download that identifies and connects existing technologies and devices in network.</td>
<td>No significant drawbacks.</td>
</tr>
</tbody>
</table>
Harmonize the Hybrid Home Network

IEEE 1905.1/ nVoy™ Technology

MAC/PHY 802.11
MAC/PHY 1901
MAC/PHY 802.3
MAC/PHY MoCA

WiFi Alliance
HomePlug Alliance
ETHERNET
MoCA

Multimedia over Coax Alliance

The standard for Home Entertainment Networking®
**Trials in Europe:**
- Liberty Global/UPC
- Telenor, Virgin Media
- Ziggo, Zon, KPN
- FineComm

**Trials in China**
- StarHub

**Trials in Singapore:**
- StarHub

**Trials in Canada:**
- Rogers, Shaw, Cogeco, Videotron

**U.S.:**
- Comcast, Cox, DIRECTV, DISH, TWC, Verizon, Cincinnati Bell, among others

**Trials in Latin America:**
- DIRECTV, DISH
- Net in Brazil
- CableVision in Argentina
- MegaCable in Mexico

**Trials in South Africa:**
- MultiChoice
Summary

- Pay TV increasing worldwide.
- Access to content, including standard TV programming, is watched on devices of every type.
  - Anytime. Anywhere.
- Home networks manage connectivity and provides bandwidth, reliability, ubiquity and mobility.
  - Wired and wireless technologies.
Cox Whole Home Video Network

Coax

MoCA Technology

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