Multimedia Whole-Home Networking: Solving the IPTV Distribution Dilemma

EXECUTIVE SUMMARY

The emphasis for IPTV deployment to date has been on the telecom network itself. The big iron needed to appropriately switch, route, and transport IP video – not to mention the complex service infrastructure software responsible for intelligent, distributed VOD services and other differentiating video-service variants – has gotten all the attention. Telecom service providers now have a good handle on the pipe requirements (access to core) and the middleware needed to fill those pipes with video.

The big unsolved problem now centers on the last 100 feet – not just delivery of IPTV and other multimedia services to the customer premises, but also its distribution throughout the premises via home networking. Evidence is mounting that the home will be the next key battleground for IPTV. Cisco's acquisition of Scientific-Atlanta and Alcatel's significant investment in 2Wire, both within the last six months, foreshadow what's to come.

Heavy Reading expects 2006 to be a critical year for multimedia home networking, resulting in additional industry consolidation and intense service provider focus. The ultimate goal is to provide intelligent, ultra-reliable, high-throughput networking that connects the home gateway, multiple IP set-top boxes (STBs), the whole-home digital video recorder (DVR), the PC, the media server, the dual-mode handset, and any other digital device in the home.

While early home networking initiatives were driven by end users, the whole-home networking model envisioned by most service providers puts control of home network resources firmly in the hands of the network operators themselves. This dramatic shift in perception will have massive and permanent ramifications for the entire home networking supply chain.

Multimedia Whole-Home Networking: Solving the IPTV Distribution Dilemma assesses the many competing technologies and vendors entering the home networking market. Based on direct interviews with more than 30 service providers and technology suppliers, the report delivers a comprehensive and compelling view into the emerging whole-home networking sector, pinpointing the advantages and potential pitfalls that IPTV service providers will face in their quest to control the customer premises network.

Given the number of service providers worldwide, their different home network technology preferences, and the vast matrix of existing home wiring options for subscribers around the globe, several multimedia home networking technologies will continue to evolve in parallel for the foresee-
able future. The bottom line is that the home network transformation driven by IPTV opens doors for vendor competition inside the home that will lead to opportunities for companies large and small, silicon and systems vendors alike. There is also plenty of room for industry consolidation, as larger vendors are looking at the next-gen home network as a market segment to fill out end-to-end triple-play solutions and provide product differentiation as service providers set their sights on the residential customer premises as an area for investment and service differentiation.

The vision of the new multimedia home network is starting to come into focus. While there are still many questions and unknowns, telecom service providers and technology vendors alike are coming to better understand the requirements to reliably complete the delivery of IPTV services for the last 100 feet.

For a list of vendors profiled and evaluated in this report, click here.

For a list of IPTV service providers interviewed for this report, click here.

In addition to exclusive interviews with key industry participants and decision-makers, Multimedia Whole-Home Networking: Solving the IPTV Distribution Dilemma provides a complete road-map to the key issues and challenges facing network operators and their technology suppliers as they look to establish home networking as a key component of service delivery. The report delivers deep analysis and insight into the entire range of home networking deployment issues, including a granular comparison of various technologies and strategies available to network operators.

Excerpt 1: Next-Gen Home Networking Capital Costs

<table>
<thead>
<tr>
<th>TECHNOLOGY</th>
<th>CURRENT COSTS</th>
<th>FUTURE COST TARGETS</th>
<th>NOTES</th>
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<tbody>
<tr>
<td>IP over Coax (MoCA)</td>
<td>$15-$20 chipsets; additional RF component and software costs</td>
<td>&lt;$10 for integrated solution in home gateways and IP STBs</td>
<td>Additional required RF components increase solution cost; additional processor may be required for IP STB to support MoCA</td>
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<tr>
<td>IP over Coax/Phoneline (HPNAv3)</td>
<td>Chipsets circa $8-$10; two required (analog front-end, digital) for a total cost of $16-$20</td>
<td>&lt;$10 combo chipset for integration with home gateways and IP STBs</td>
<td>Multiple chipsets required (analog front-end, digital)</td>
</tr>
<tr>
<td>IP over Powerline (HomePlug AV)</td>
<td>$80-$100 per adapter (2 per connection: 1 at HG, 1 at IP STB)</td>
<td>&lt;$10 chipset for integration with home gateways and IP STBs</td>
<td>HomePlug AV chipset availability lags MoCA and HPNAv3; chipsets from Intellon will be generally available around May/June 2006</td>
</tr>
<tr>
<td>Next-Gen WiFi (Video-Optimized 802.11g)</td>
<td>$150 for AP (1 per home); $100 for IP STB adapter (1 per IP STB, not required but recommended for optimal performance)</td>
<td>TBD, but will likely remain higher than wired alternatives; cost is offset by the ease of installation and flexibility of CPE placement</td>
<td>Long-term next-gen WiFi costs points will be impacted by the availability of 802.11n technology; further cost differentiation should also be realized between standard 802.11b/g technology integrated into home gateways for laptop connectivity versus 802.11x technology purpose-built for IPTV distribution</td>
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Source: Heavy Reading
The report also includes *Heavy Reading’s* new taxonomy for the evolving multimedia whole-home network, including critical details for the elements in the taxonomy.

**Excerpt 2: IPTV Whole-Home Network Taxonomy**

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<tbody>
<tr>
<td>User Interface</td>
<td>Multimedia CPE UI Technologies: IPTV Browser, EPG, TV/PC Web Browser, Video Search, and Navigation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Devices</td>
<td>Network-Connected Multimedia CPE: IP STB, DVR, Home Gateway, Media Bridges, PC/Laptop, Media Server, Gaming Console, etc. (Other Critical Technologies: MPEG-4 Decoders, DRM Software)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard/Technology</td>
<td>IEEE 802.3</td>
<td>HPNAv3 MoCA Proprietary</td>
<td>HPNAv3</td>
<td>HomePlug AV Proprietary (UPA)</td>
</tr>
<tr>
<td>Physical Medium</td>
<td>Ethernet Cable (Cat5/6)</td>
<td>Coaxial Cable (RG6, RG59)</td>
<td>Twisted-Pair Phonenline</td>
<td>Electrical Powerline</td>
</tr>
<tr>
<td>Access Network</td>
<td>Copper and/or Fiber Infrastructure: ADSL2+, VDSL2, FTTx (Home Networking WAN Interfaces Integrated Into NID and/or ONT)</td>
<td></td>
<td></td>
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*Source: Heavy Reading*

**Report Scope and Structure**

**Multimedia Whole-Home Networking: Solving the IPTV Distribution Dilemma** is structured as follows:

**Section I** is an introduction to the report, with complete report key findings.

**Section II** introduces the market drivers for next-gen multimedia whole-home networking. It also provides a high-level understanding of the core business and technical requirements for multimedia home networks built to distribute and network IPTV services throughout the residential customer premises, in addition to introducing the applications and services.

**Section III** defines and analyzes the five primary multimedia whole-home networking technology/architecture approaches that service providers are adopting in support of IPTV service rollouts to their residential subscriber base. In addition, it identifies the primary standards initiatives and industry alliances promoting various multimedia whole-home networking solutions. It also offers *Heavy Reading’s* first attempt at establishing a taxonomy for the new multimedia whole-home networking market as it evolves to fit the various architectural models.

**Section IV** presents ten significant telecom service providers’ strategies for multimedia whole-home networking in support of their IPTV service rollouts. It also identifies the top five consistent multimedia home networking trends among these service providers, representative of a worldwide market.

**Section V** profiles the market strategies and product offerings of each of the vendors identified in this report. It also offers *Heavy Reading’s* vendor/product/technology matrix for multimedia whole-home networking equipment.
The report is essential reading for a wide range of industry participants, including:

- **Home networking technology suppliers**: How will the push by network operators to establish control over home networking affect your business? Where are the new opportunities for sales and revenue growth? Are your products and marketing messages in line with customer plans and expectations? Are there significant gaps in your product portfolio that need to be addressed to meet future demand for this emerging sector?

- **Other telecom equipment suppliers**: How does home networking fit into your overall product strategy? How will recent moves by major suppliers such as Cisco and Alcatel affect network operator buying decisions as they seek to roll out end-to-end IPTV network solutions? Which specialist companies in this sector are the most attractive potential partners?

- **Consumer electronics manufacturers**: How will the network operator move into home networking affect the end-user market for your products? What opportunities are available to tap into carriers’ need for home networking products? Which standards will emerge as the most critical for carrier deployment of home networking to deliver IPTV?

- **Telecom service providers**: What are the best options available to make whole-home networking a critical component of your IPTV and multimedia service delivery plan? Which technologies are available now, and which are likely to reach maturity soon? What are the real costs to deploy the different home networking options? Which vendors are best positioned to deliver the products and solutions that meet your specific needs?

- **Cable/MSO network operators**: How can you leverage whole-home networking to your advantage? How will the arrival of home networking affect demand and use of the set-top boxes now deployed in your networks? How will specific elements of IPTV delivery affect the competitive balance for multiservice delivery?

- **Investors**: Which technologies are emerging as the winning solutions for IPTV whole-home networking, and which companies are the leading providers of those solutions? How will IPTV and home networking affect profitability for multimedia services in the coming months and years?

*Multimedia Whole-Home Networking: Solving the IPTV Distribution Dilemma* is published in PDF format.