CEA Standards and Device Connectivity Initiatives

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R7 Home Networking
Overview

• About CEA…
• CEA & the Consumer Electronics Industry
• CEA & OSGi
• Industry Standards & Technology Policy
• Other Connectivity Initiatives
• Technology Promotion
• Affiliations and Outreach
CEA… and the Consumer Electronics Industry

*CEA’s Mission:*

*Grow* the consumer electronics industry

*Promote* the Industry

*Defend* the Industry

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CEA... and the Consumer Electronics Industry

CEA is a full service trade association

- Standards, Regulations, Technology Policy
- eBrain™Research
- Publications, PR, Education
- Conferences & Events
- CES: the world’s largest consumer electronics show
CEA… and the Consumer Electronics Industry

Global Reach

✓ Over 1000 members
✓ Small Business to Multinational Corporations
✓ Products, Technologies, and Nexus Services

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CEA... and OSGi

- Common goals
- Complimentary means
- Device Connectivity to enable Services
- Consumer awareness to stimulate demand
- Joint promotion opportunities
Device Connectivity

Media Server

1394

100Base-T

STB

DVD

Internet Connection

1394

1000Base-T

Wireless IP & 100Base-T

100Base-T

1000Base-T

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CEA... Standards

- ANSI accredited standards developer (SDO)
- Over 325 companies
- Over 1500 participants
- Over 70 active groups
- So far in 2003:
  - Over 400 meetings
  - A dozen new standards
CEA... Standards

9 main committees

- R1 – Product Safety
- R3 – Audio
- R4 – Video
- R5 – Antennas
- R6 – Mobile
- R7 – Home Networking
- R8 – Cable TV
- R9 – Bar Codes (Auto ID)
Connectivity Standards

- R1 – Product Safety
- R3 – Audio
- R4 – Video
- R5 – Antennas
- R6 – Mobile
- R7 – Home Networking
- R8 – Cable TV
- R9 – Bar Codes (Auto ID)
# Home Networking Standards

## R7 Groups

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<th>Description</th>
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<tr>
<td>R7.1</td>
<td>LonWorks™ (controls)</td>
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<tr>
<td>R7.4</td>
<td>Versatile Home Network® (VHN)</td>
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<td>R7.5</td>
<td>AV Networking (AVN)</td>
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<tr>
<td>R7.6</td>
<td>Digital Entertainment Network (DENi™)</td>
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<tr>
<td>R7.7</td>
<td>Wireless Entertainment Networking</td>
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</tbody>
</table>
Home Networking Standards

R7.4 Versatile Home Network (VHN®)

- A home network *backbone*
- 1394 & IP
- DHCP Server
- Native and interfaced devices
- *Access Gateways* and *Cluster Gateways*
Home Networking Standards

*R7.5 AV Networking (AVN)*

- Architecture – evolving
- User Interface – RCU Commands
- Bandwidth Management – AV QoS
- Power Management – operational modes
- Other AV Issues
  - dissimilar networks (wired & wireless)
  - support for premium content (CP/DRM)
Home Networking Standards

*R7.6 Digital Entertainment Networking (DENi™)*

- IP/UPnP
- Media Formats – Required and Understood
- Physical media
  - Ethernet now – with AV QoS priorities
  - 1394 & wireless future
- Content management likely – CP/DRM
Home Networking Standards

R7.7 Wireless Entertainment Networking

- New – June 2003
- Support for FCC spectrum policy
- Assessing suitability of wireless technologies
- Likely to develop measurement techniques
# Home Networking Standards

## R4 Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
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<tr>
<td>R4</td>
<td>Video Standards</td>
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<tr>
<td>R4.8</td>
<td>DTV Interface Standards</td>
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<tr>
<td>R4.8 wg1</td>
<td>1394 Interface (DTV-Link®)</td>
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<tr>
<td>R4.8 wg9</td>
<td>Redistribution flag</td>
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</tbody>
</table>
# Home Networking Standards

**R4 & R7 published 1992 - 2003**

- CEA-2008: Digital Entertainment Network Initiative (DENi™)
- CEA-2007: Quality of Service for AV on Ethernet
- draft CEA-2005: AVN Adapter
- CEA-2002: Powerline Technology Performance Evaluation
- CEA-931: Remote Control Command Pass-through
- CEA-851: Versatile Home Network (VHN™)
- CEA-775: DTV 1394 Interface
- CEA-775.1: DTV Web-Enhanced 1394 Interface
- CEA-709: Lonworks™
- CEA-600: CEBus

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Home Networking Standards

layering and bundling

• Leverage *industry trends*:
  IP, UPnP, Ethernet, Firewire, wireless, broadband access, high definition content, media formats

• *Cluster* networks based on
  – user incremental buying patterns
  – specialized uses

• *IP Bridging* between Clusters
• *UPnP Proxies* to migrate legacy
Home Networking Trends

1. The Internet is driving home networking.
2. Platforms inch toward standardization.
3. Major companies invest in home networking and information technology (HNIT) research and development.
4. Low cost and ease of installation are key factors driving growth.
5. Connectivity still is the primary goal.
6. Networked content is king.
Device Connectivity

- Media Server
- 1394
- 100Base-T
- Wireless IP &100Base-T
- Internet Connection
- STB
- DVD
- 1000Base-T
- 100Base-T
- 1394
Connectivity Standards

- R1 – Product Safety
- R3 – Audio
- R4 – Video
- R5 – Antennas
- R6 – Mobile
- R7 – Home Networking
- R8 – Cable TV
- R9 – Bar Codes (Auto ID)
Connectivity Standards

R6 Mobile Electronics

- Portable handheld & automotive
- Installed & carry-on plug-in
- Telematics
- IDB consumer port
- Cellphone carkit
Connectivity Standards

*R8 Cable Compatibility*

- CEA-679  National Renewable Security Standard (NRSS)
- CEA-796  NRSS Copy Protection Systems
- CEA-818  Cable Compatibility Requirements (POD-Host)
- CEA-819  Cable Compatibility Requirements for Two-Way Digital Cable TV Systems
- CEA-542  Cable Television Channel Identification Plan

- Support for OCAP/DASE harmony
- Metadata, encoding, and transport
Technology Policy

Government and Legislative Affairs

- Compliment to voluntary industry standards
- Industry positions to government regulators
- Legislative advocacy – Federal and State
- US focused with international cognizance
Technology Policy

**current projects**

- DTV Transition
- Cable Plug and Play agreement
- Broadband deployment
- Fair Use recording and DRM
- Unlicensed Spectrum Allocation
- Energy efficiency
eBrain™ and Market Research

- Market trend analysis
- Primary Consumer Research: familiarity, preferences, intent
- MARA - member sales data
CE Industry Trends

- Expected Growth:
  - Consumer devices with connectivity
  - IP enabled devices
- Portable Electronic Devices
- Female purchaser
Five Technologies to Watch

1. home operating systems
   (home automation, access gateway, content)
2. Wi-Fi, ultra wideband
3. recordable digital video
4. mobile gaming
5. hi-res audio
Other Support Initiatives

- Home Networking and Information Systems (HNIT) Division
- TechHome Rating System & Media Tour
- Channel Development: Retail Sales Training
- International CES...
TechHome™ Media Tour

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PRODUCER OF International CES®
Retail Sales Training

Meet URL Webspace (aka "Earl")

online certification program

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- Exhibits
- Conferences and Workshops
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- Awards
- International and Government Tours
- TechZones

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TechZones

- Bluetooth
- Broadband to the Home
- CES/NOPI Showcase
- Connected Home Entertainment
- Digital Content Storage
- DVD+RW Alliance
- Energy Efficiency, Electronics Recycling
- Flash Forward: Bringing Digital Imaging Into Focus
- Launch

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Tech Zones

- Memory Stick
- Mobile Computing, Featuring Tablet PC Technologies
- MP3 and Internet Audio
- Portable Power Center
- RWPPI
- SD Card
- TechHome
- Telematics/Digital Car
- USB

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Affiliations & Industry Outreach

... industries

- Telecommunications:
  Broadcast, Cable, Satellite, Cellular & Dial-up
- Structured Wiring
- White goods, brown goods
- Installers
- Interoperability and ease of use forums
Affiliations & Industry Outreach

...organizations

• Formal liaison, informal exchange, cross-populated members
• 1394 TA, UPnP Forum, DHWG
• TIA, IEEE, SAE, SCTE, ATSC, NAB
• IEC, JEITA, ISO, ITU
• CEDIA, WiFi Alliance, Internet Home Alliance, etc.
Technology Promotion

consortia affiliation

• New CEA program
• Alternative to traditional standards setting
• Technology Life Cycle: *Incubation* to *Implementation*:
  Design, Build, Test, Sell
• Advances new technology development
• Builds industry unity and de facto standards
Technology Promotion

*how it works*

- CEA Product Divisions
  - **Assess** new technologies
  - **Endorse** and **Promote**
- CES presence, logos, & more...
- Ongoing reviews and dialog
“Connected Circle”

Broadband and Home Networking
“Connected Circle”
Tying It All Together

• Expanding markets, increased connectivity
• Products that enable services
• CEA’s wide reach
  – Advances technology
  – Accelerates smooth evolution
  – Builds unified consumer awareness
Thank You!

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