IEEE -1394 & HANA: The Future of our Living Rooms

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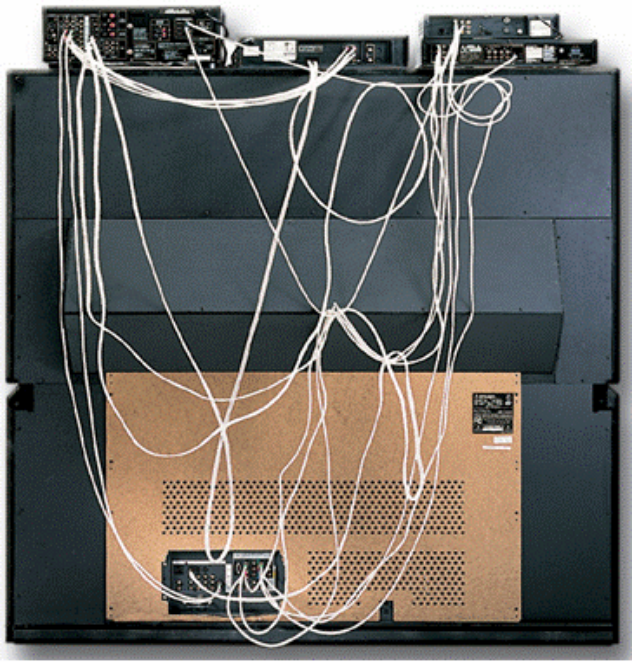
Today's Home Theater

- **Difficult to Install**
  - Too many interface types
  - Too many cables
  - Not enough connections
- **Difficult to Use**
  - Multiple remotes
  - No communication between equipments
- **Costly**
  - Duplication of equipment
  - No sharing



What is HANA?

High Definition

Audio-visual

Network

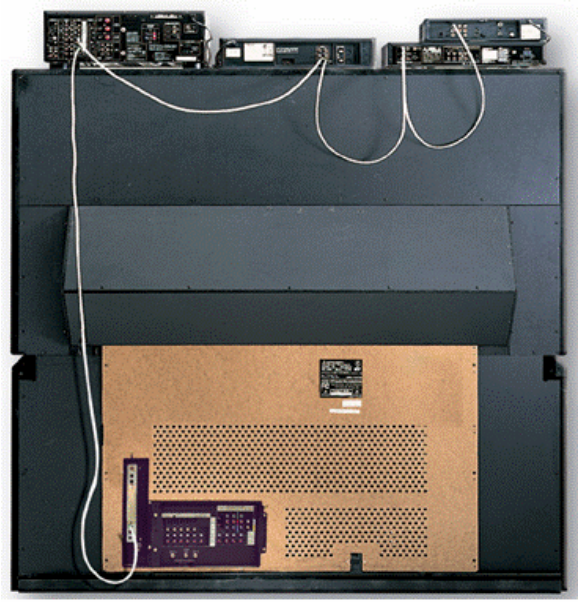
Alliance

- **Cross industry alliance of 40+ companies**
- **Mission: Enhance the consumer HD entertainment experience thru existing standards**

Membership Levels

The Next Generation…

- **Leverage Existing Technology and Infrastructure**
- **Single Interface Capable of Multiple Streams of HD Content**
  - Audio
  - Video
  - Control Commands
- **Simplified User Interface**
- **Networked Architecture with Zero Configuration**



Leveraging What's There

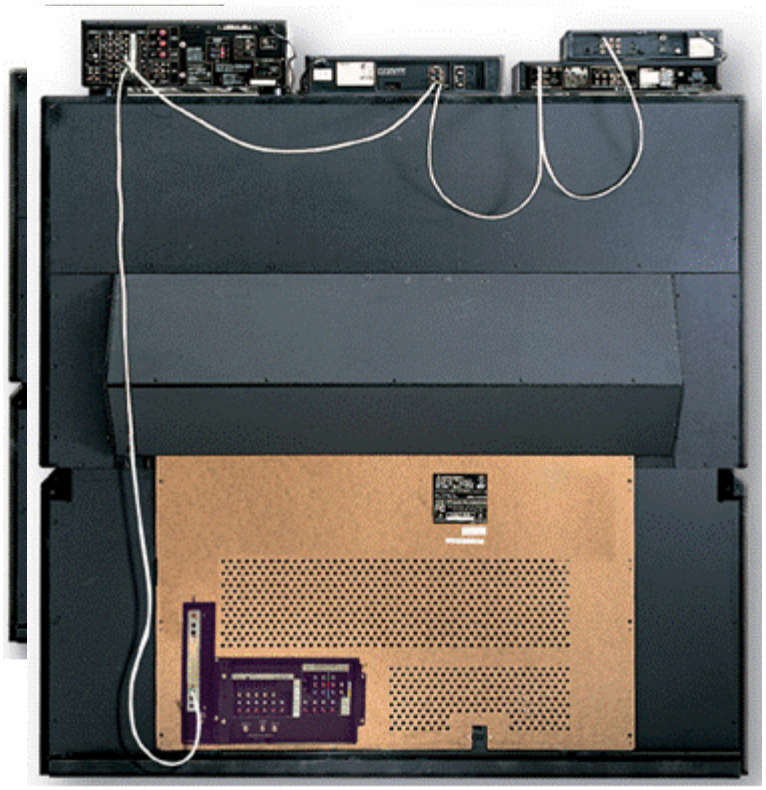
- **Reuse of existing wiring**
  - Coax, CAT5, POF, Power Line
- **Using existing standards**
  - IEEE-1394
  - CEA-2027,CEA-931

Why 1394?

- **Time to market – it's available today**
- **FCC mandate ensures 1394 as part of the CE cluster for HD digital cable**
- **Open cable specification requires 1394**
- **MPAA approved 1394 with encrypted content transfer in digital cable STB**
  - Current TI 1394 silicon supports DTCP Content protection
- **DVDCCA (copy control assoc.) approved DVD transmit over 1394**
  - Provides path for future addition of DVD and HDDVD to CE cluster
- **DVD Forum approved DTCP-IP for AV transfer**
  - 1394 technology can support DTCP-IP
- **1394 based CE products (STB, DVDR, DVC and DTV) are available today**

Single Interface

- Simplifies Installation
- Eliminates Cable Confusion
- Lowers Costs
- Reduces Clutter



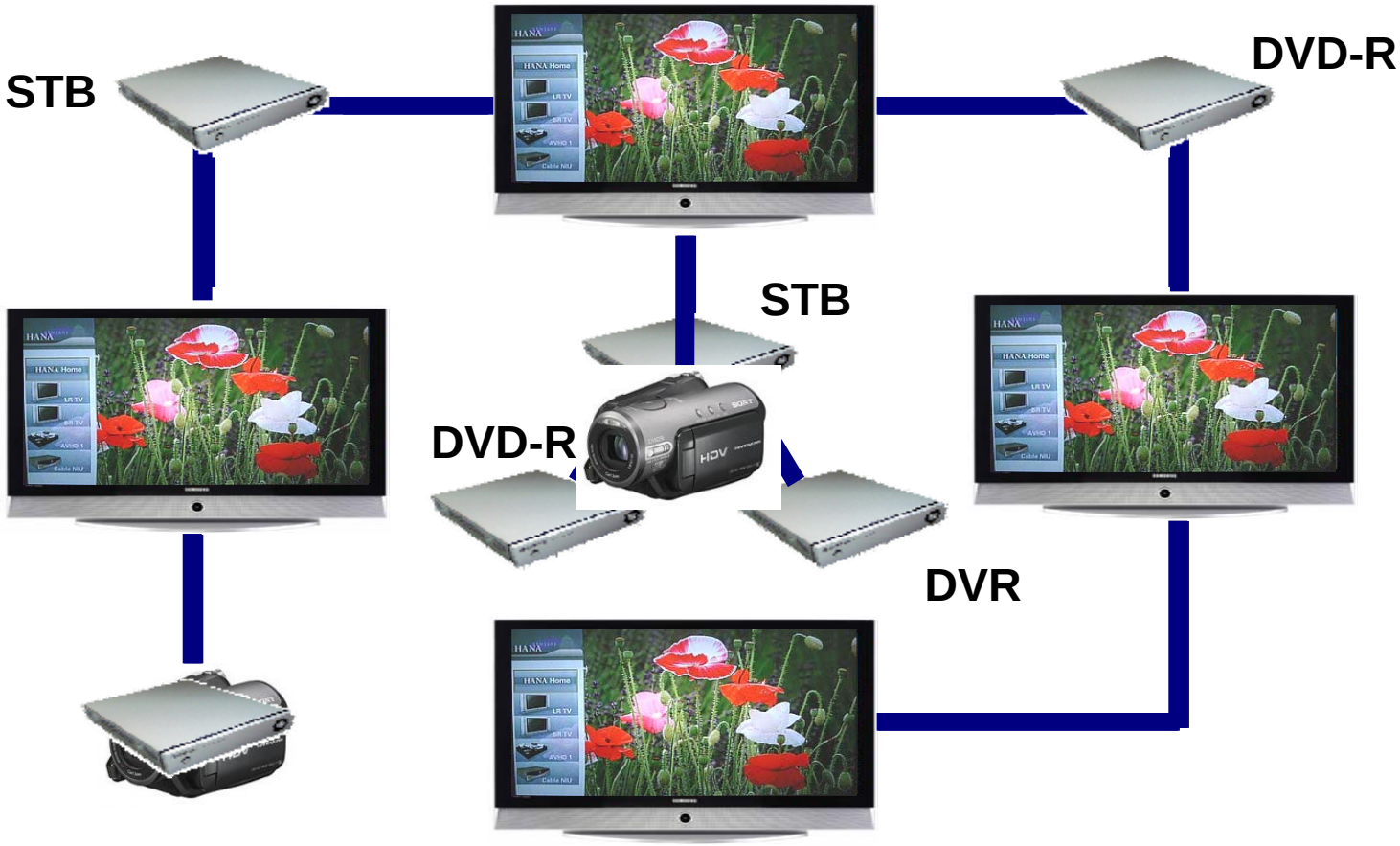
Simplified User Interface

Ease of Use

- Control all AV devices with a single remote per room
- Access Contents via a rich TV GUI and EPG

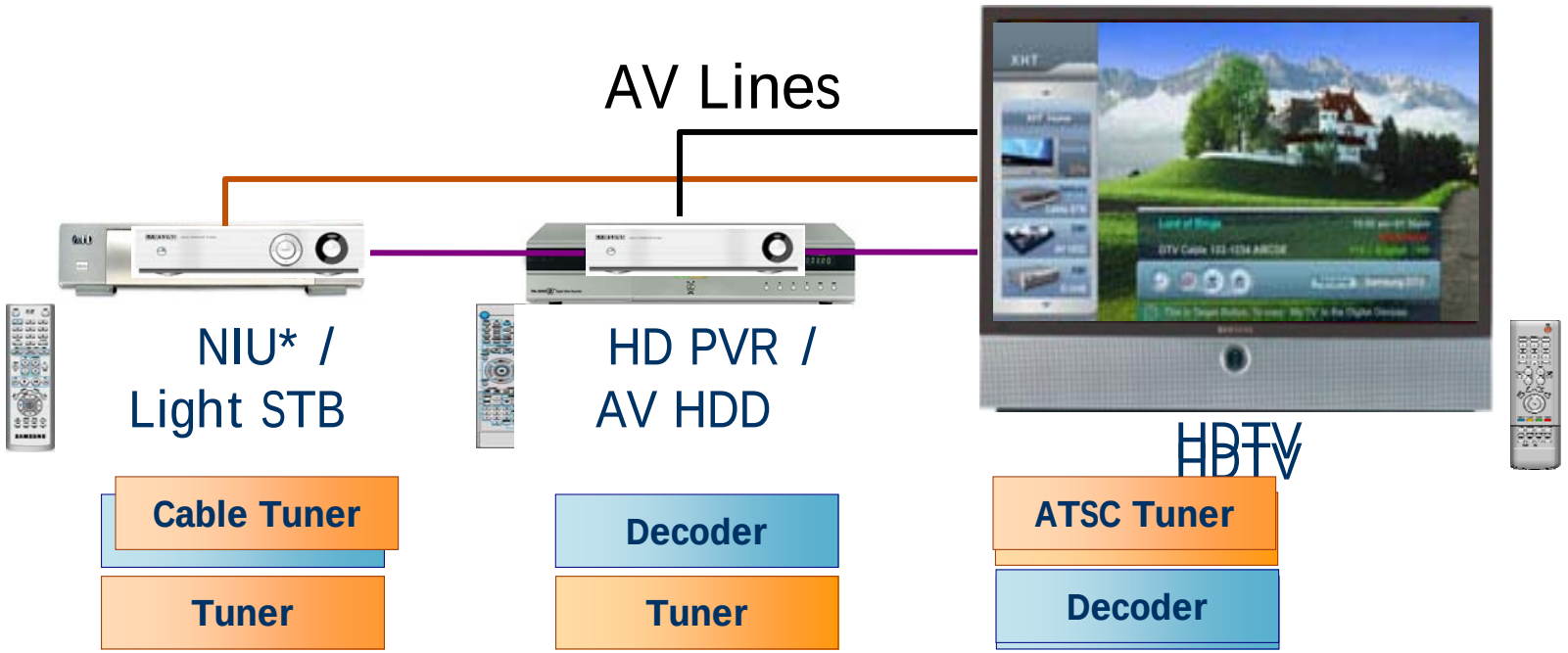
Networked Architecture

***Supports any topology**



Shared Content

Cost Benefits of Networked Architecture



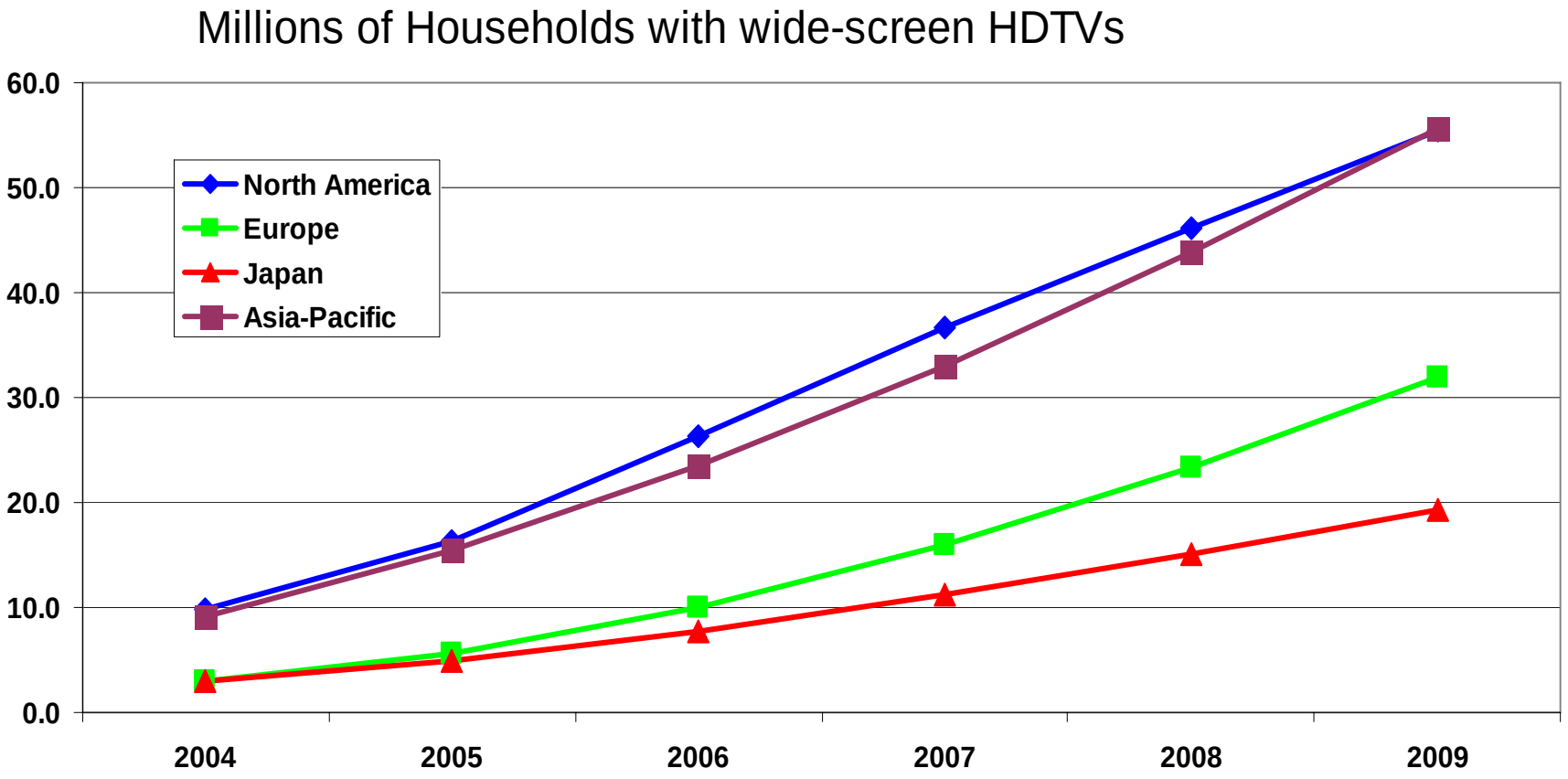
Benefits Summary

- Consumers:
  - Simplified setup and control
  - Share content throughout the home
  - Bridge between IT and CE networks
- Service Providers:
  - Reduced capital expenditures
  - New services and easier access to premium services
  - Built in content protection
- CE Manufacturers:
  - New products and features
  - Standardized Interoperability requirements
  - Compatibility with newer equipment
- Content Providers:
  - Proven content protection
  - Users have easier access to premium content

IEEE -1394 & HANA:

Why Now?

HDTV Revolution



HDTV Turn It On

[In-Stat, Nov.'05]

HANA & DLNA
Complements not Competitors

HANA
HIGH-DEFINITION AUDIO-VIDEO NETWORK ALLIANCE

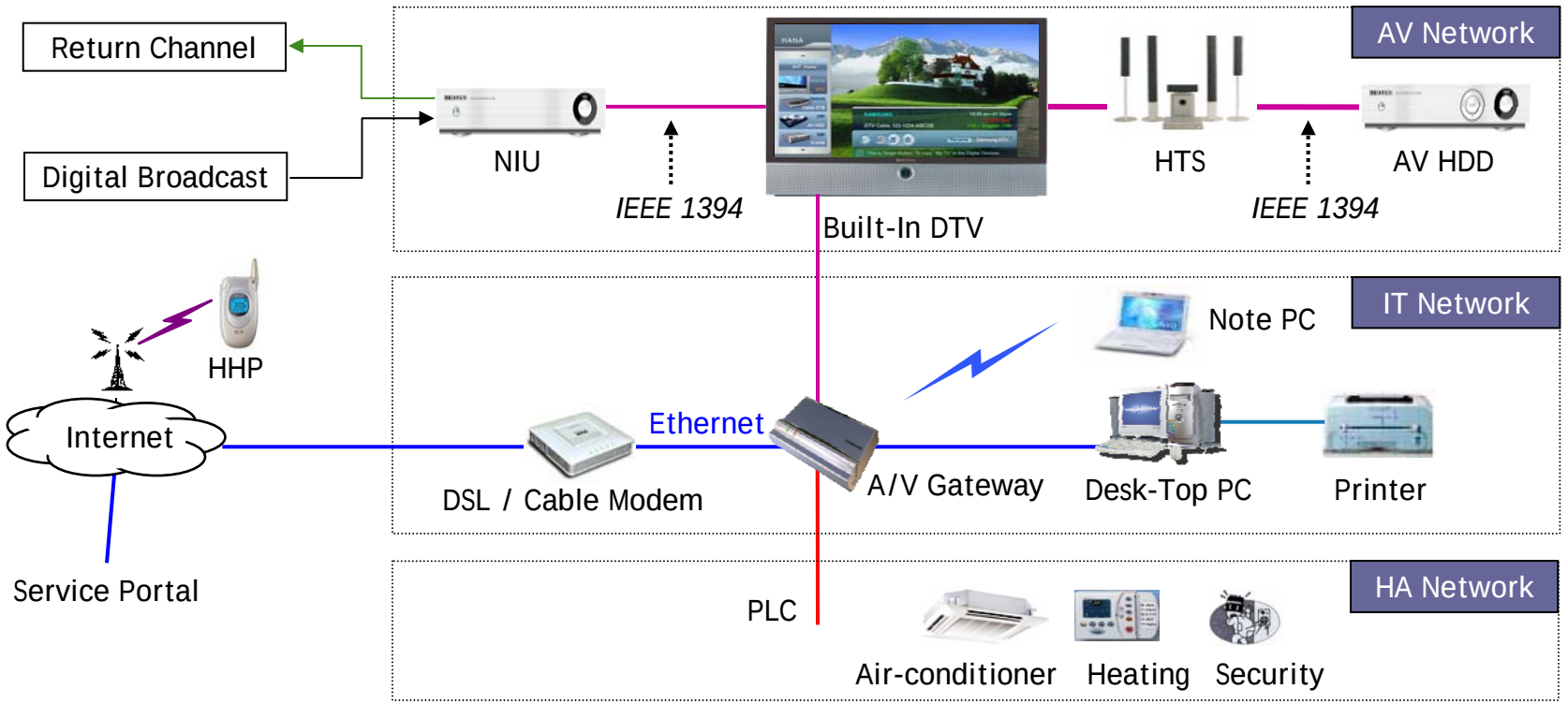
- Entertainment centric
- HD focus
- Streaming real-time entertainment

dlna™

- PC centric
- No HD in sight
- Time-shifted entertainment

Network Segmentation

- ***Segment AV from IT or Home Appliance Networks***
  - Commercial contents stay within a “Trust Network”.
  - AV Network is a Trust Network. IT Network is not a Trust Network.
  - Personal contents from IT Network flow into AV Network via A/V Gateway



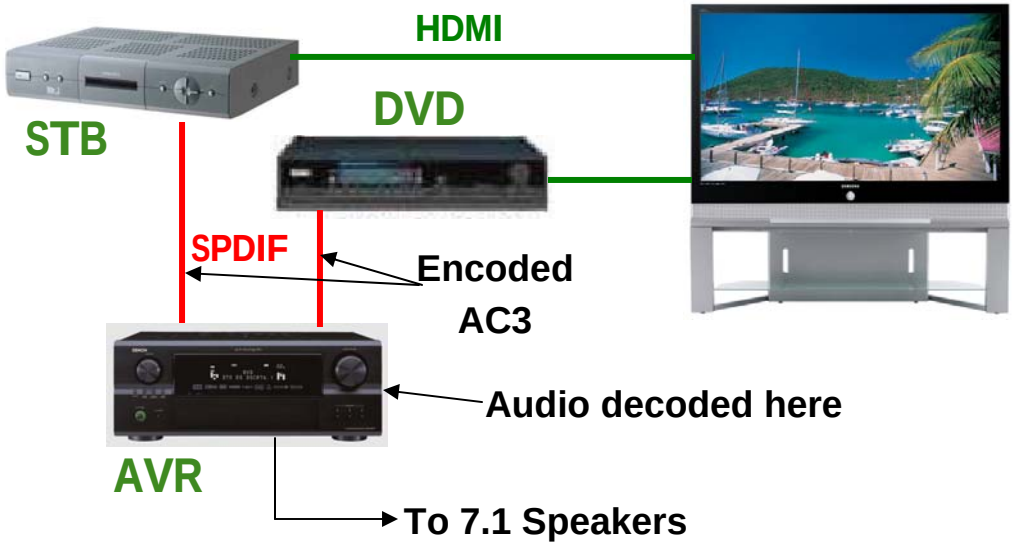
※ NIU : Network Interface Unit

IEEE -1394 & HANA:

New Applications:

Addressing Today's A/V Lip-Sync Problem with 1394

Today's CE Cluster



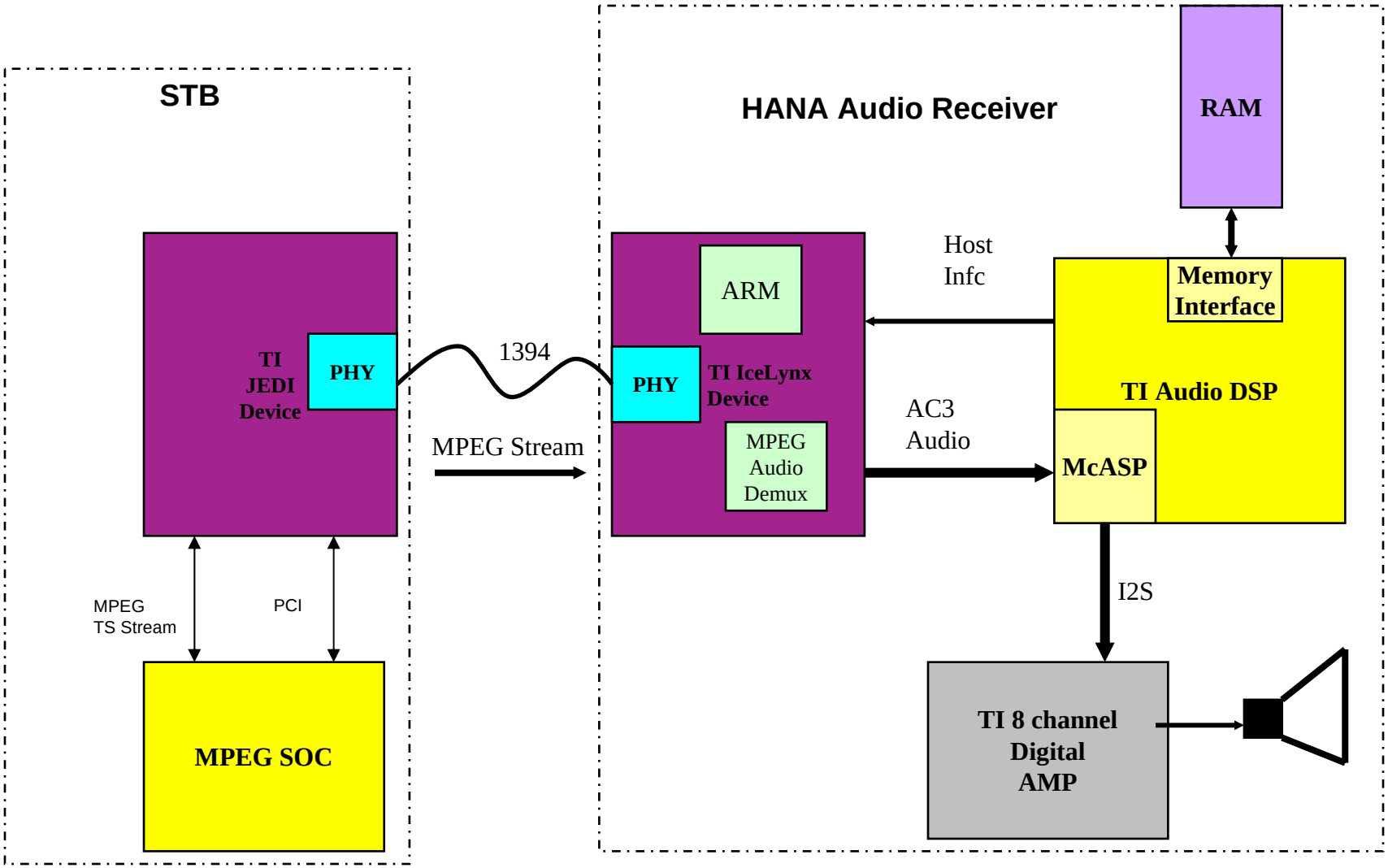
- Lip-Sync issue when audio decoded in separate box from video

1394 CE Cluster

Video decoded here for display via HDMI

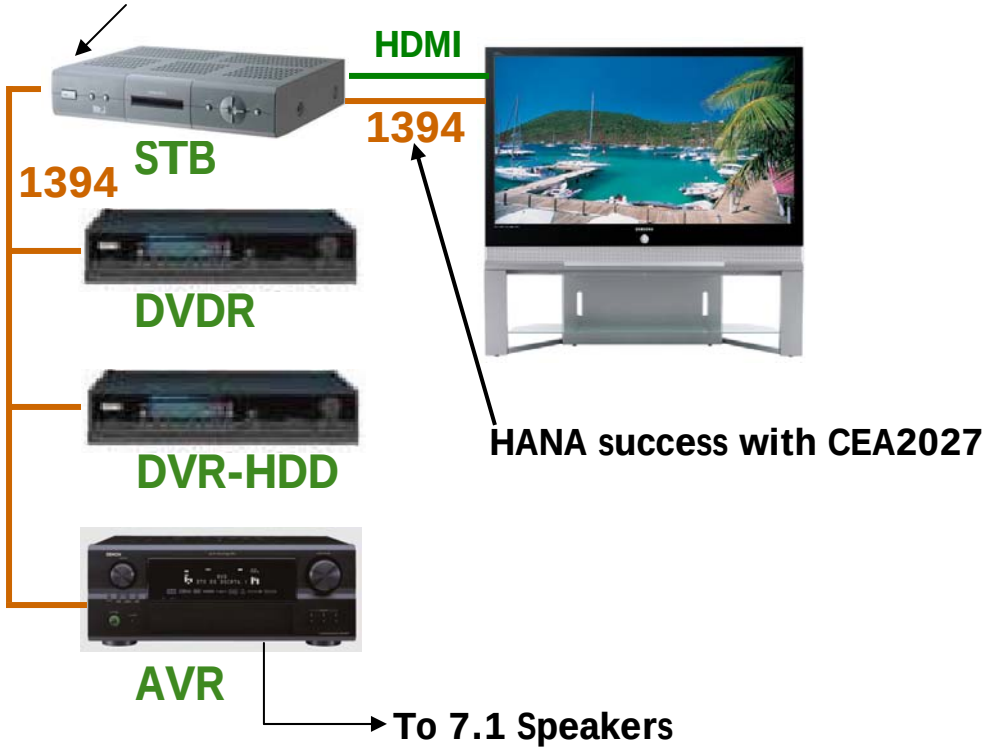
- Network nature of 1394 allows boxes to adjust out decoder delays
- No more lip-sync……

1394 Connection Between STB and Audio Receiver



Low Cost 1394 CE Cluster for HD recording and solving lip-sync issues

- **It is not required that STB decodes surround sound audio**



- **MPEG stays compressed for recording and storage.**
- **Eliminates need for decoder in DVDR and DVR-HDD**
- **Audio can either be decoded with video and provided to AVR as 8 discrete channels or 1394 chip within AVR can demux audio from video and provide to audio decoder**

Low Cost 1394 CE Cluster for HD recording and solving lip-sync issues

- **Audio decode and 6 or 8 channel audio DAC/amplification in subwoofer**
- **Sub serves up GUI to TV via CES2027 specification**
- **A/V source switching and audio control performed via TV remote**

External HDD recording with 1394

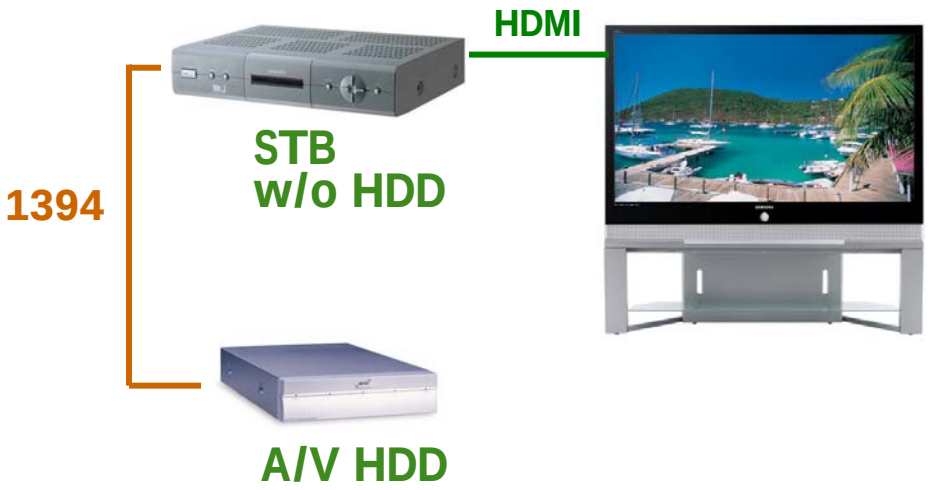
DVD CCA announcement on download to burn solution

http://www.dvdcca.org/data/css/DVDCCArecordrlsFINAL.pdf

Movielink

CINEMANOW WATCH MOVIES AND MORE...

1394 CE Cluster



- **Reduce Capex due to internal HDD removal**
- **Can daisy chain multiple AVHDDs**
- **AVHDD can be securely locked to STB**

Call to Actions

- Come by the demo
- www.hanaalliance.org
- www.1394ta.org
- Expect HANA based products at the end of the year

HD Networking Simplified:
One Cable. One Remote. No new Cables

Where others only promise…

HANA Delivers

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IEEE -1394 & HANA: The Future of our Living Rooms

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SEE THE FUTURE

CREATE YOUR OWN