Interaction with TV in 2003
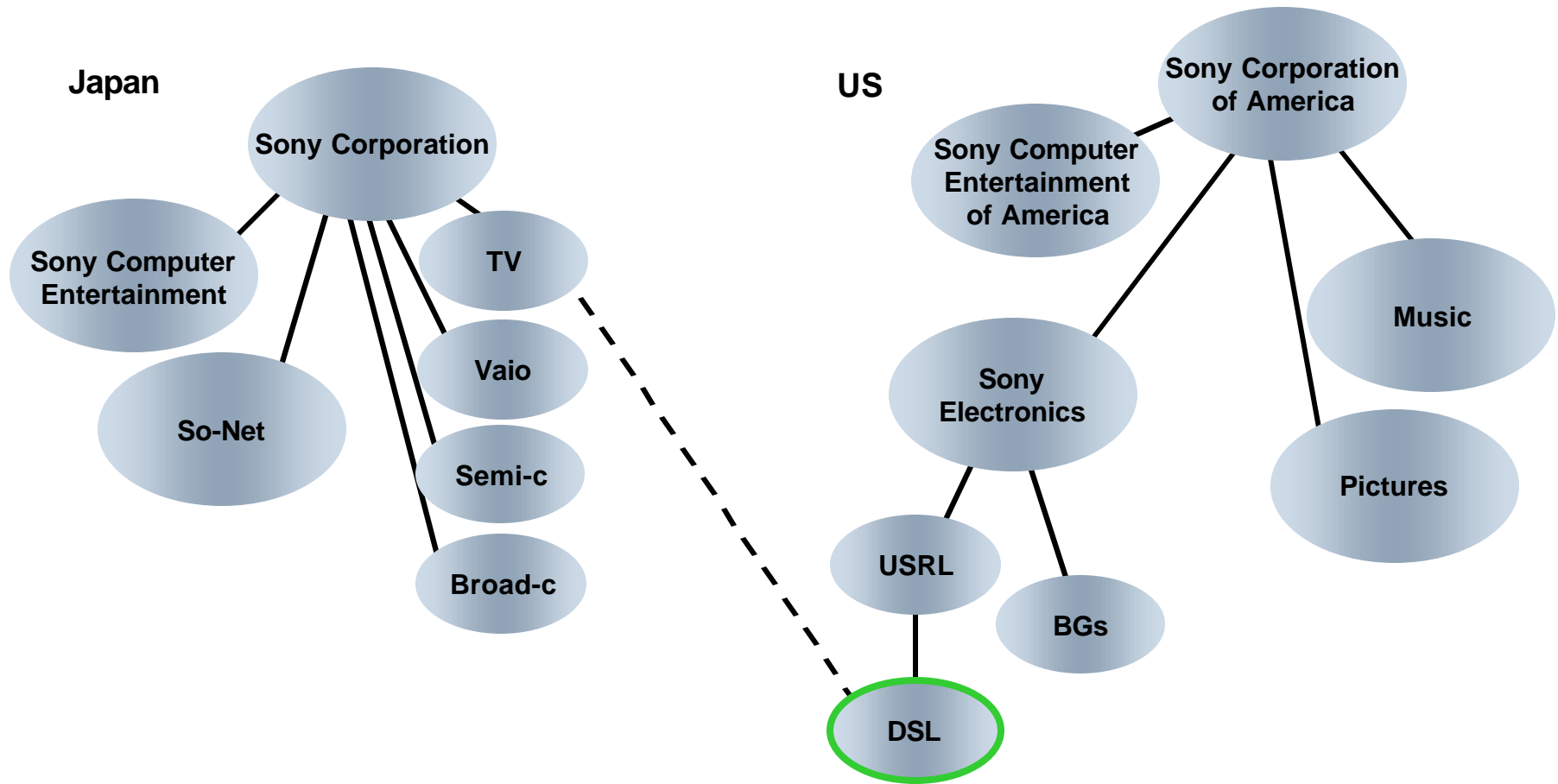
SONY Distributed Systems Lab.

FOR MORE INFORMATION

simon @arch.sel.sony.com

Sony Distributed Systems Lab (DSL)

Japan

US

Sony Corporation

Sony Computer Entertainment

So-Net

TV

Vaio

Semi-c

Broad-c

Sony Corporation of America

Sony Computer Entertainment of America

Music
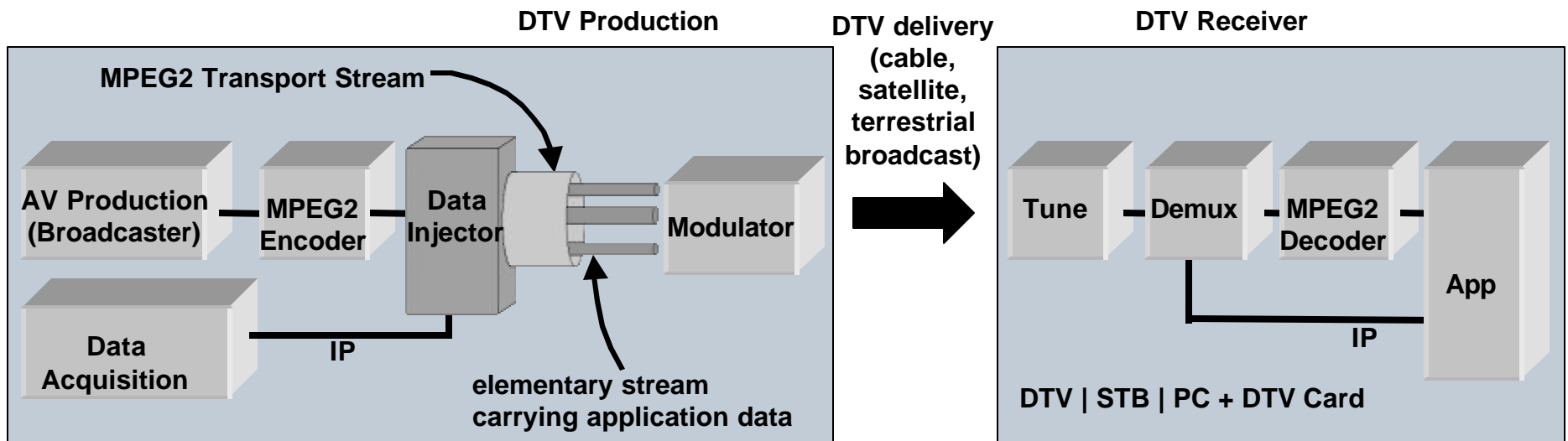
Sony Electronics

Pictures

USRL

BGs

DSL

DTV Trends

- broadcast content: AV ⇨ AV+data

- channels: increasing

- receivers: standalone ⇨ networked

- processing: upstream ⇨ downstream

- viewing experience:
  passive ⇨ interactive

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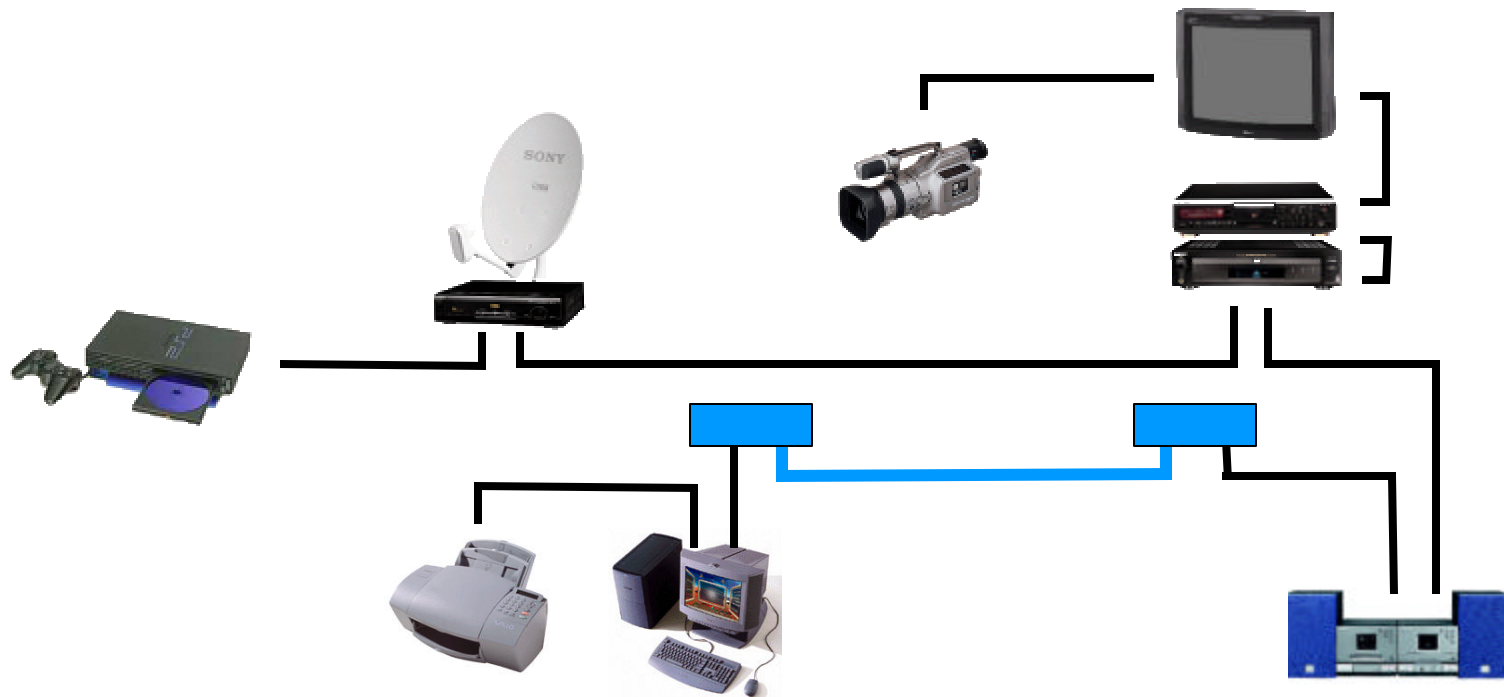- viewing experience:
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DTV Delivery Chain

DTV Production

DTV delivery (cable, satellite, terrestrial broadcast)

DTV Receiver

MPEG2 Transport Stream

AV Production (Broadcaster)

MPEG2 Encoder

Data Injector

Modulator

Data Acquisition

IP

elementary stream carrying application data

Tune

Demux

MPEG2 Decoder

App

IP

DTV | STB | PC + DTV Card

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Home Networking

IEEE 1394 – Present

1394-1995

- 100, 200, 400 Mbps

- 64 "isochronous" channels (guaranteed bandwidth, bounded jitter)

- True plug-and-play (network is self-configuring)

- Protocols for transport of MPEG2, DV etc.

- Available products: DV camcorders, DVD/MD/DVCR, PC cards, printers, disks...

- OSD, high-def pass-through from STB to DTV receiver (EIA-775)

IEEE 1394 – Future

P1394a

- Improved reset
- Power management
- Asynchronous streams

P1394b

- 800 Mbps, 1.6, 3.2 Gbps
- Bridging, plastic fiber
- Backwards compatible with 1394a
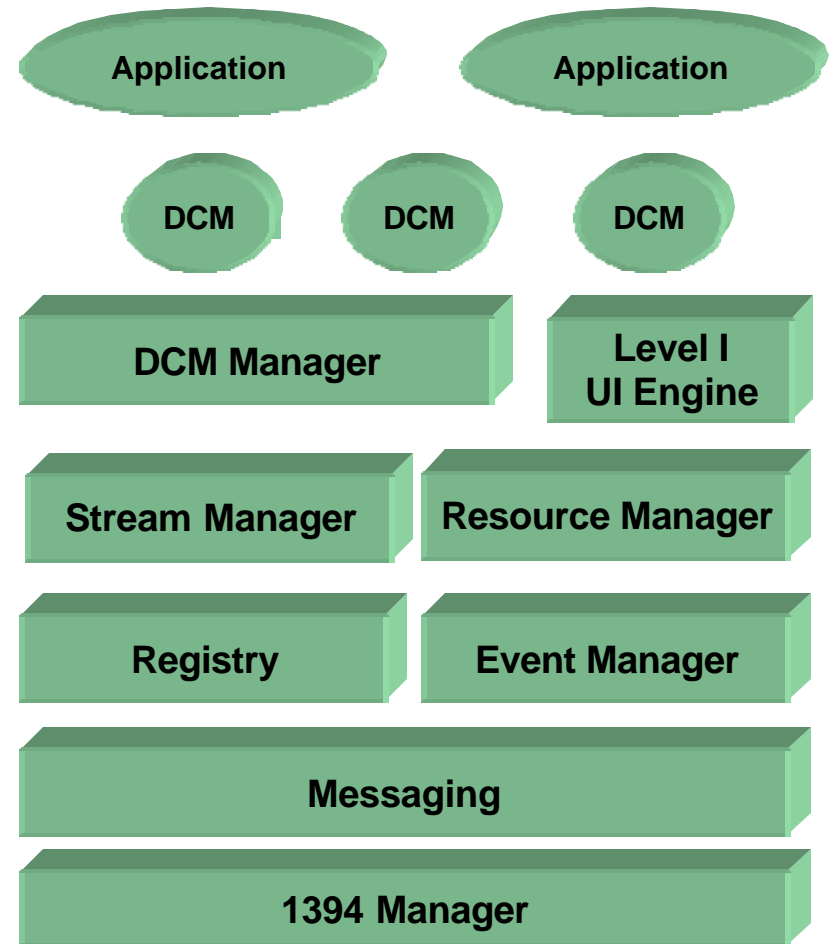
1394 over IR and RF

Digital copy-protection

HAVi (Home AV Interoperability)

- **AV-oriented home networking architecture**

- **8 founders:**
  - Grundig, Hitachi, MEI, Philips, Sharp, Sony, Thomson, Toshiba

- **currently ~40 members**

- **language/platform independent APIs**
  - APIs for AV devices and services
  - Java bindings

- **based on IEEE 1394 (aka Firewire, iLink)**

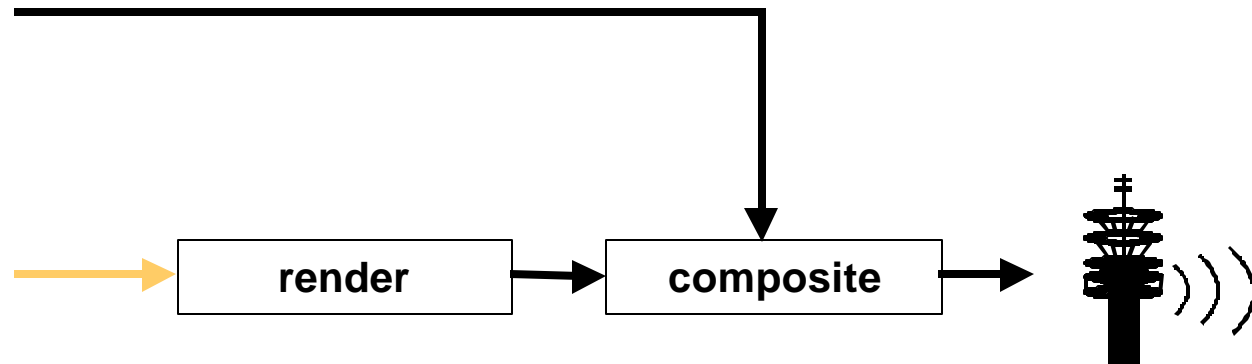- **HAVi 1.0 available (www.havi.org)**

HAVi System Components

- 1394 Manager
- Messaging System
- Event Manager
- Registry
- DCMs
- DCM Manager
- Stream Manager
- Resource Manager
- Level I UI Engine
- Java runtime – optional

Application		Application
DCM	DCM	DCM

DCM Manager	Level I UI Engine
Stream Manager	Resource Manager
Registry	Event Manager

Messaging
1394 Manager

DTV Trends

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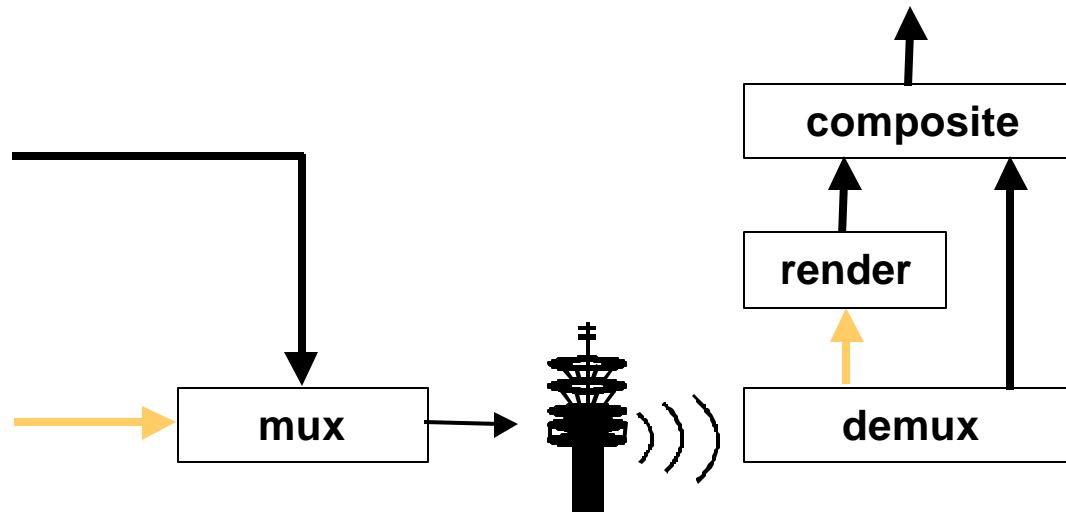- viewing experience:
    passive ⇨ interactive

Virtual Studio: Upstream Composition
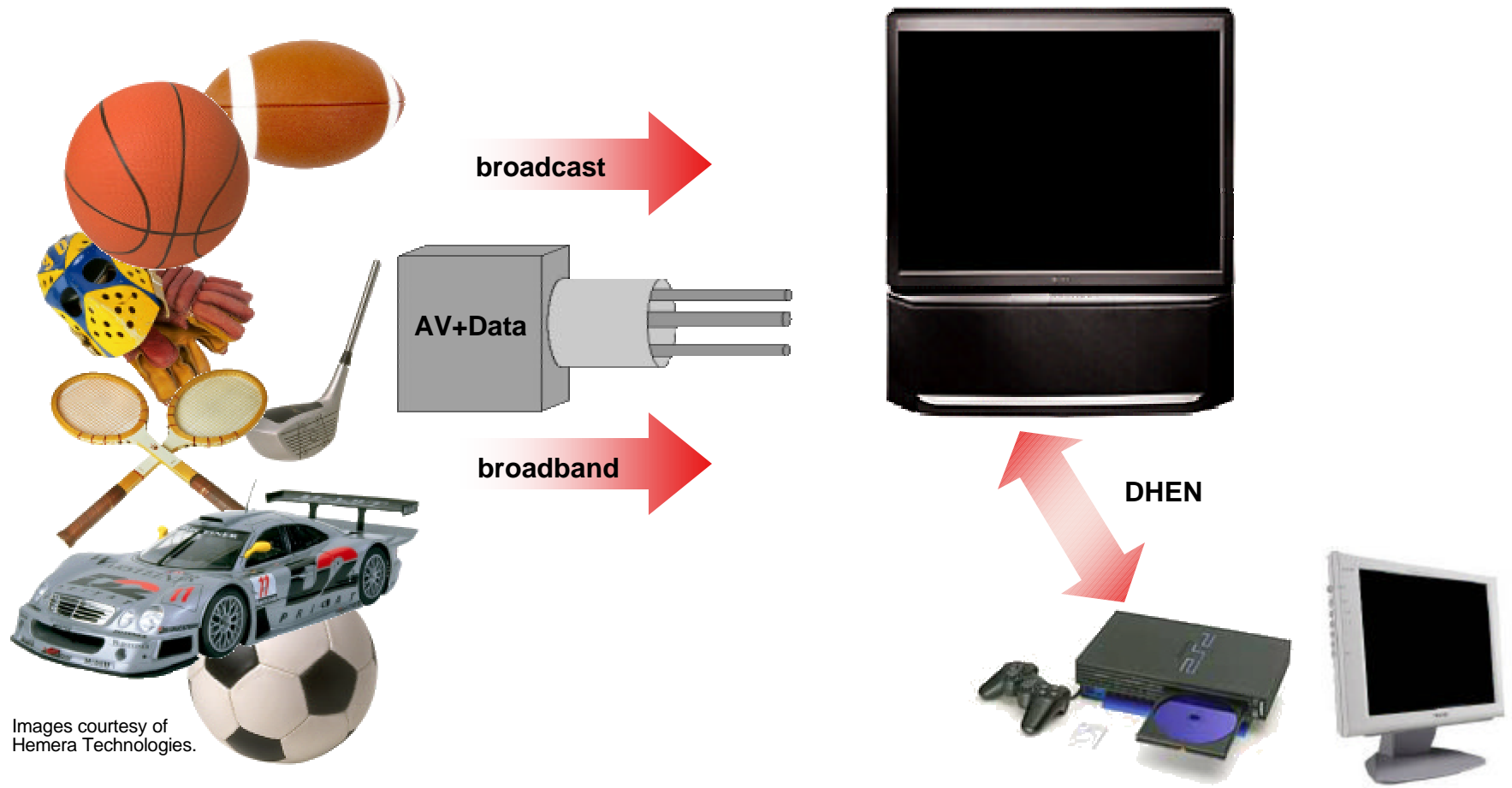

render → composite

Virtual Studio: Downstream Composition

DTV Trends

- broadcast content: AV ⇨ AV+data

- channels: increasing

- receivers: standalone ⇨ networked

- processing: upstream ⇨ downstream

- viewing experience:
  passive ⇨ interactive

Interactive Sports Services

broadcast

AV+Data

broadband

DHEN

Images courtesy of
Hemera Technologies.

Sony DSL

TV in 2003

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