

The Status of Interactive Television in the US

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Worldwide TV Standards & Strategy

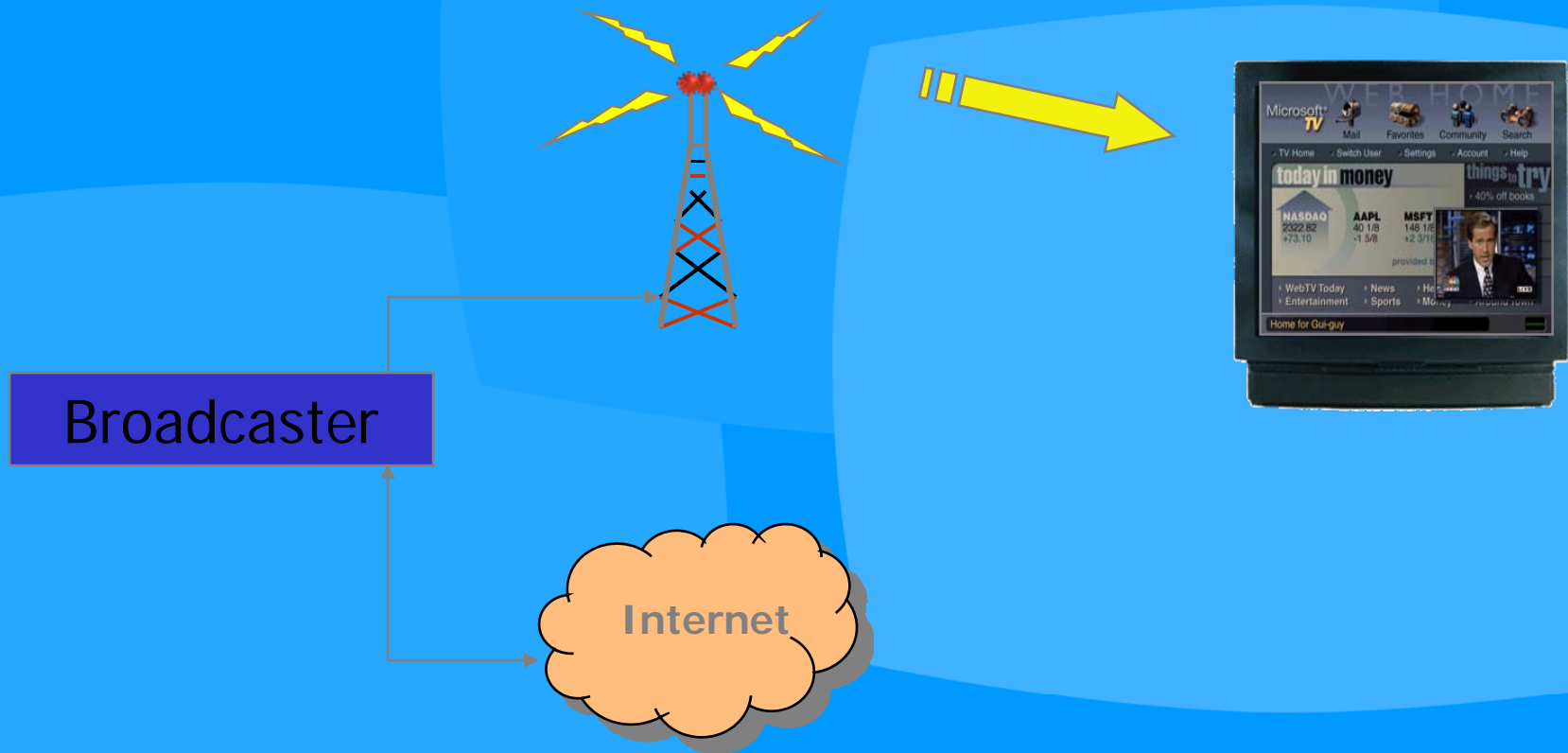
Microsoft Corporation



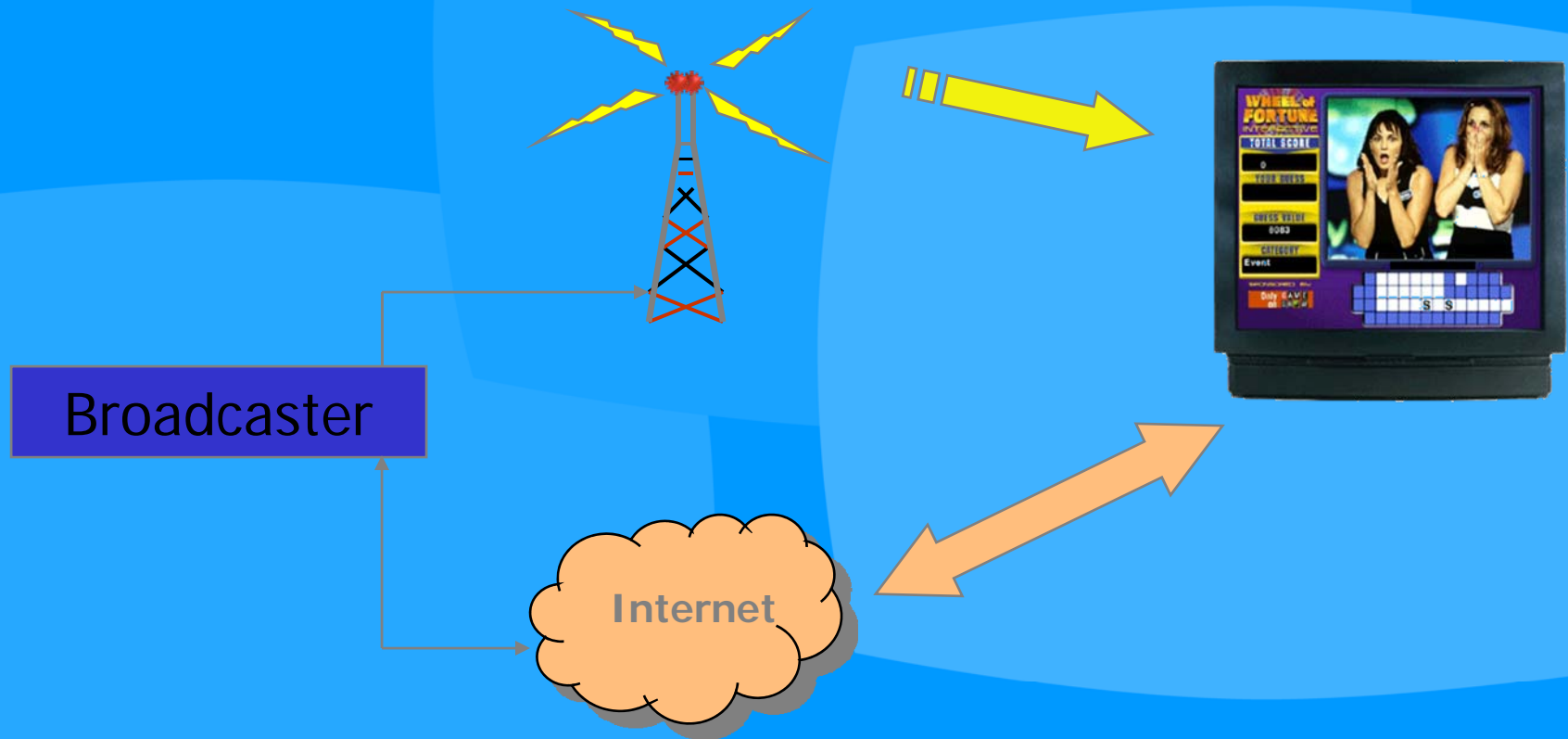
What is ITV?

- **Enhanced TV**
 - EPG
 - “Tell me more”
- **Interactive TV**
 - Games, polls
 - T-commerce, VOD
- **Internet TV**
 - E-mail, Chat, Surfing at 10 ft
 - Program/ad related links, walled gardens
- **PVR (Personal Video Recording)**
- **Digital music**
- **Home networking**

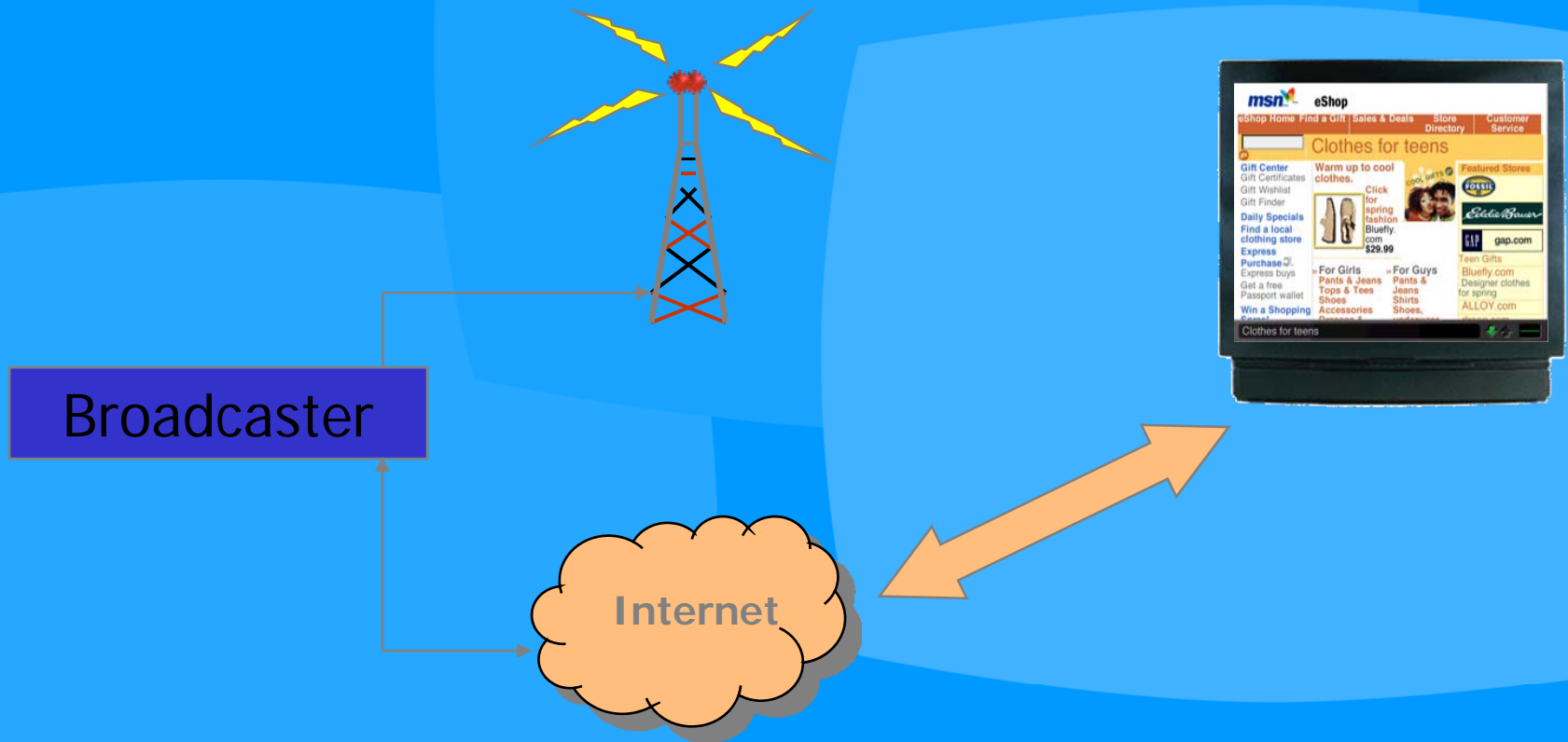
Enhanced TV



Interactive TV

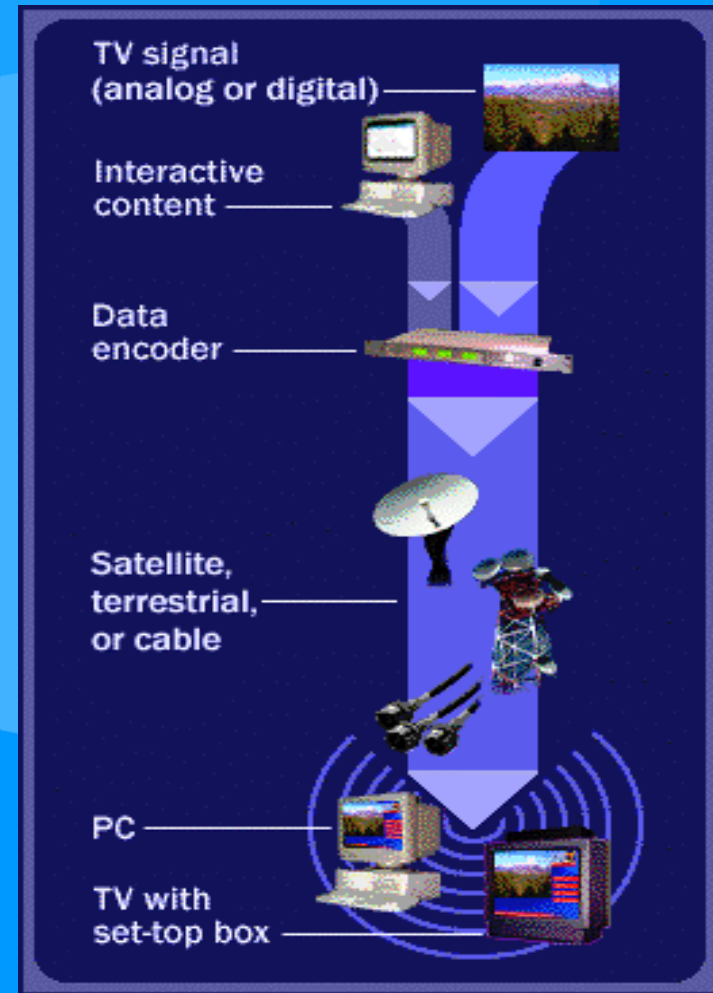


Internet TV



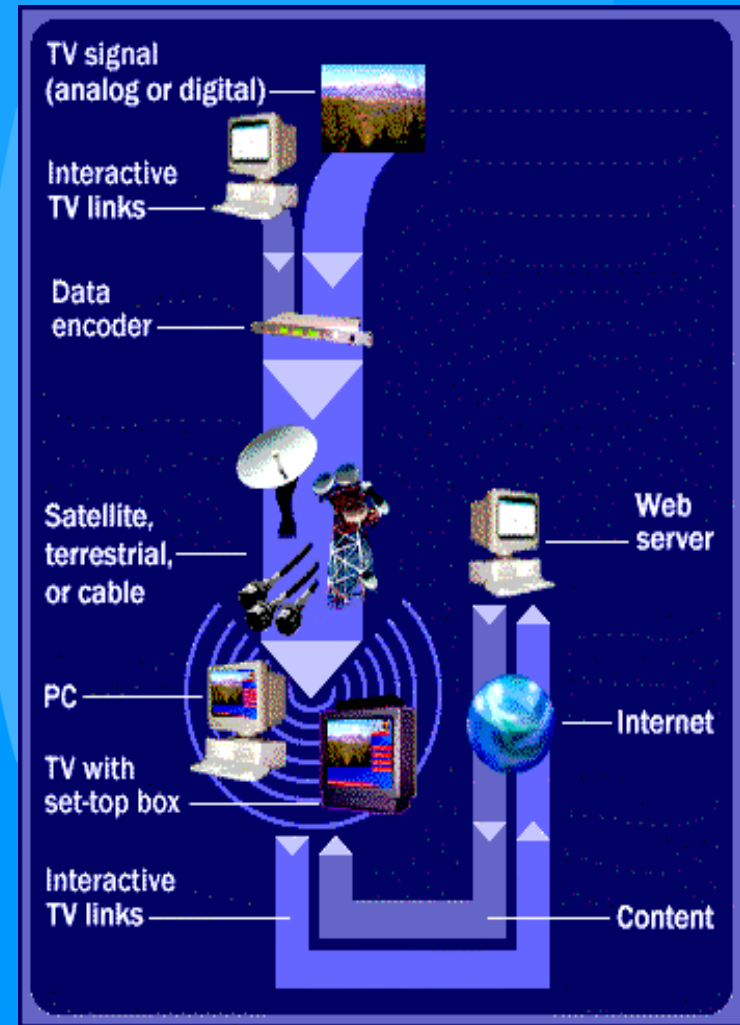
Downstream data path

- **10-14 kb/s per VBI line today**
- **Typically 2-3 lines used (~28.8 kb/s)**
- **DTV capacity will be ~3 – 19 Mb/s**



Upstream data path

- Typically uses dial-up modem today (56 kb/s)
- DSL or DOCSIS coming soon (>256 kb/s)





118 A&E

Law & Order

8:00 PM -- 9:00 PM TV-MA

Kincaid and McCoy are split over asking for the death penalty when a suspect is arrested in the murder of an undercover narcotics officer.

Insert Branding Here



THU	8:30 PM	9:00 PM
118 A&E	Law & Order	Quincy
120 HIST	20th Century	Weapons a...
122 SCIFI	Close Encounters of the Thi...	
124 BET	Rap City	Comicview
129 BRAVO	A Man for All Seasons	
130 AMC	A Farewell to Arms	

YOUR LOGO HERE

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around town

LONDON

▶ change city



Weather

At noon PT: **59°F, partly cloudy**

Humidity: **60%**



THU

73 / 45



FRI

75 / 49



SAT

76 / 48



SUN

67 / 46



MON

66 / 44

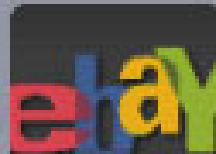
€ more weather from the Weather Channel

What's Happening



Movies

Times, reviews
by MovieQuest



Auctions

Bid online
at eBay

Things to try

- € Find Hardware
- € Find a car dealer
- € Get local papers
- € Find a ZIP code
- € Get govt. info
- € More to try...

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FARMS.com**

SOMETHING to CELEBRATE™

Around London



Allergies?

click



Health

HEALTHY ADAM/HEALTHY EVE



- News
- Business
- Sports
- Local
- Health**
- Technology
- Living • Travel
- TV News
- Opinions
- Weather
- Shop@MSNBC
- MSN.com

Growing old gracefully

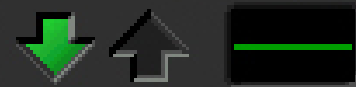


Photo Illustration: Sofia Vecchio/MSNBC

- **Adam: A man's view of aging**



life after a loss



JEPARDY!

INTERACTIVE

CATEGORY

America Since
1900

POINTS

100

TOTAL SCORE

0



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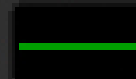
ANSWER

- A. Unions?
- B. Mechanics
- C. None of the Above

Clothes for teens

[Gift Center](#)[Warm up to cool](#)[Featured Stores](#)

Address:



YOUR LOGO HERE

M A I L

Write a message

write

addresses

clean up

settings

HELP



Microsoft®
TV

From: johnsmith@microsoft.com

To: someone@microsoft.com

Subject: Party tonight!

Everyone is meeting at the restaurant about 8 p.m. We are celebrating Janin's birthday tonight. Don't be late again. See you there!

send

Home for JohnSmith



Insert
Branding
Here

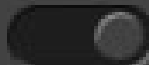
Write a message



Add to Message

Choose **Freeze**
to take a picture.

TV



VIDEO

Freeze



Write a message



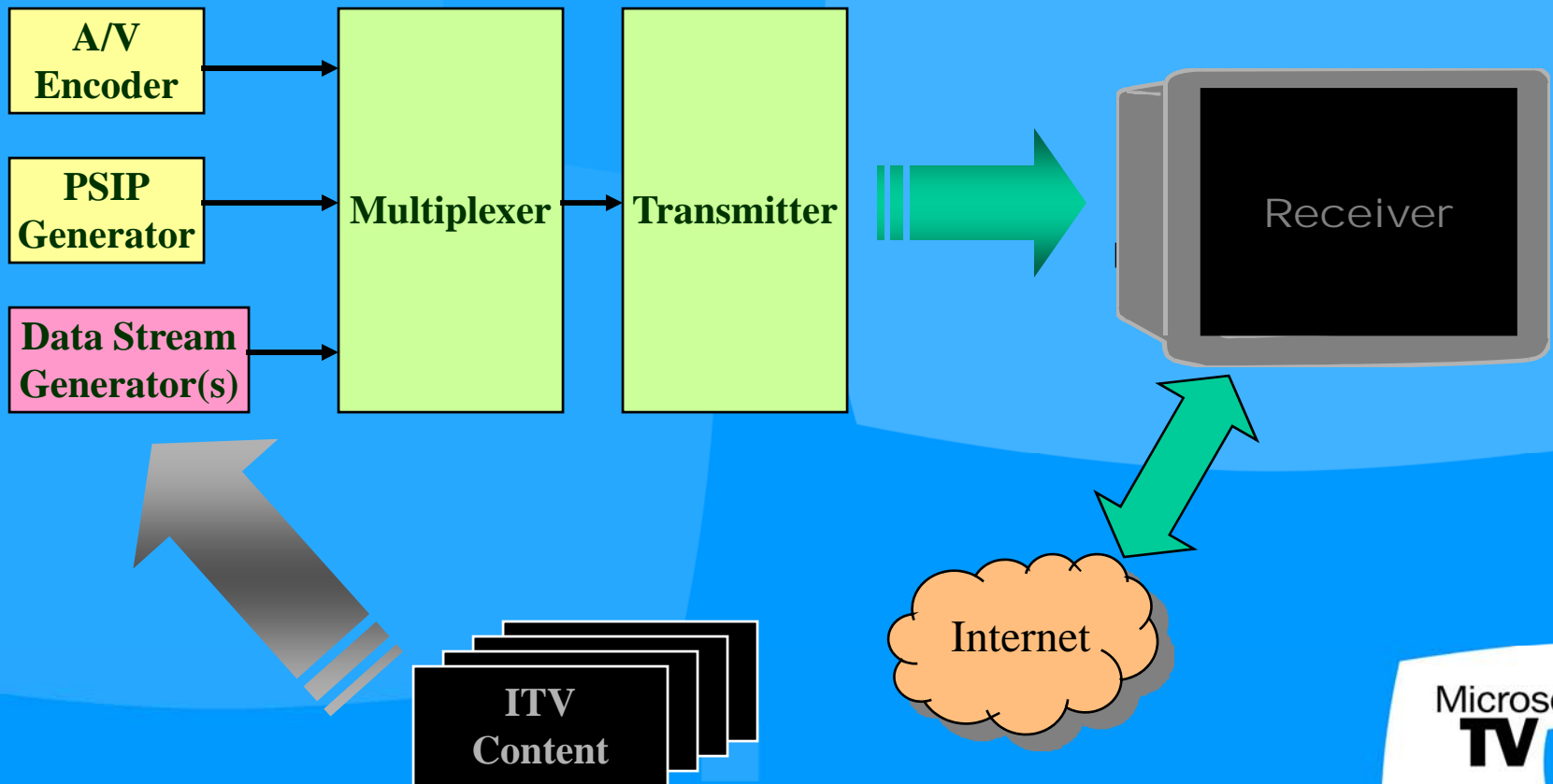
What is ITV today (NTSC)?

- **ATVEF in VBI**
- **“Two screens” (ABC’s Enhanced TV)**
- **Proprietary platforms**
 - **WebTV**
 - **OpenTV**
 - **Liberate**
 - **Others**

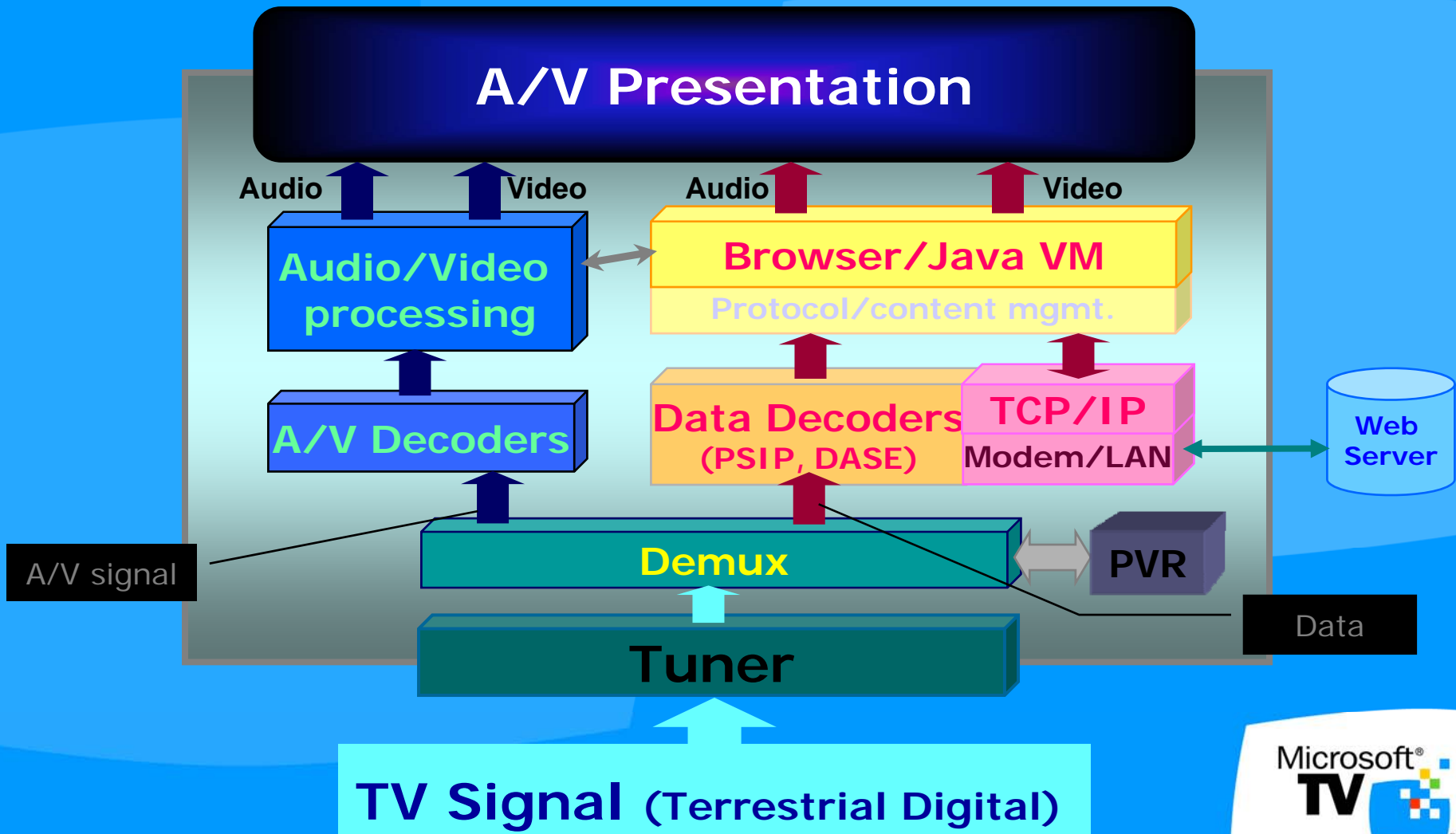
What is **ITV tomorrow** **(DTV)?**

- **ATSC DASE (DTV Application Software Environment, T3/S17)**
- **OCAP (OpenCable Application Platform - CableLabs)**
- **DVB MHP (Multimedia Home Platform)**
- **ARIB BML (Broadcast Markup Language)**
- **Declarative vs. Procedural content**
- **Interoperable PVRs (TV-Anytime Forum)**

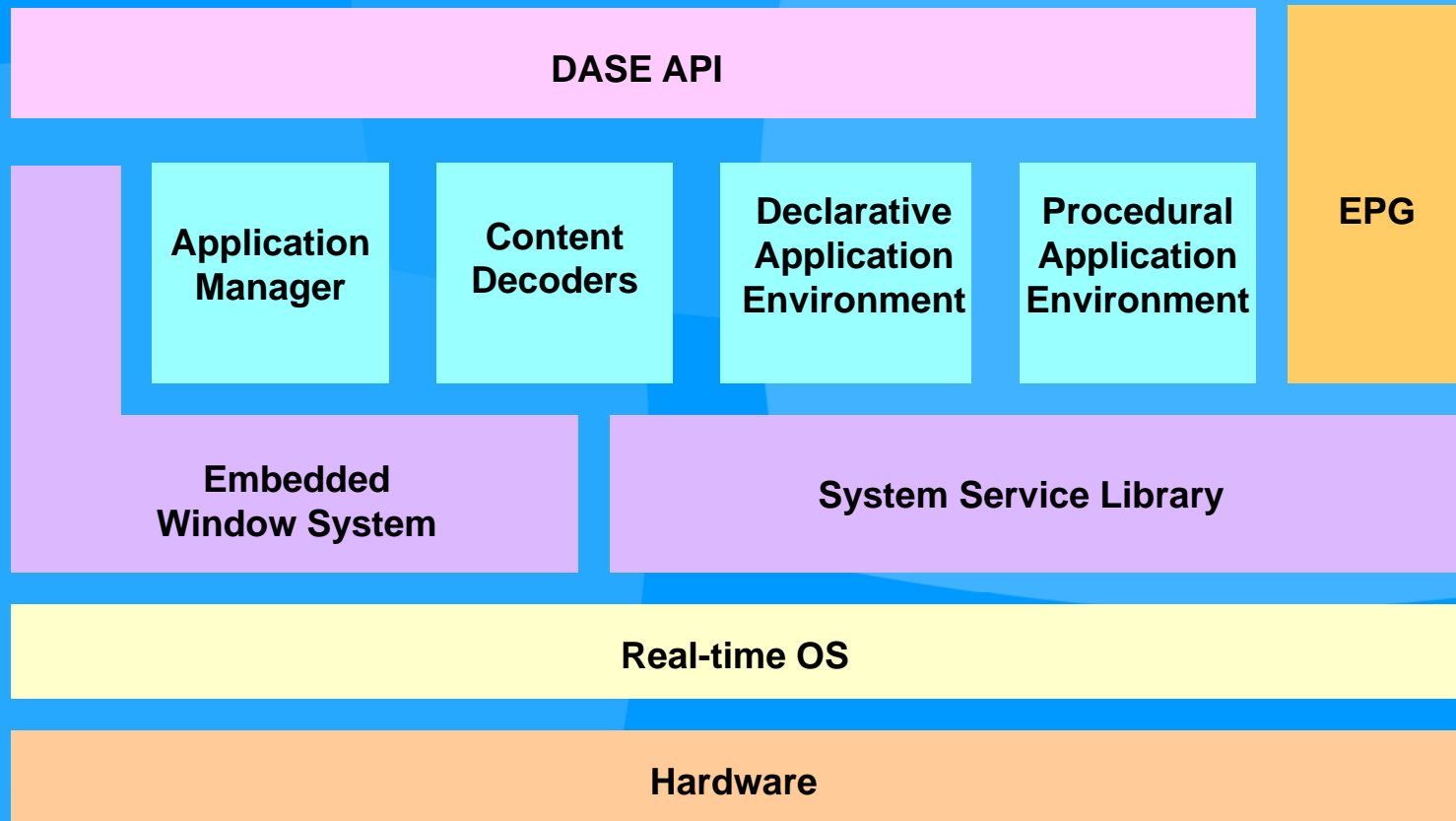
DTV Transmission



DTV Receiver



DASE client architecture



Creating content

- **Absolutely essential to ITV success**
- **Common authoring standard needed**
- **Easy tools required**
- **Various bindings to delivery formats required**
- **Declarative content preferred today**
- **ATVEF is a good example**

The ATVEF v 1.1 Specification

- **Advanced Television Enhancement Forum (www.atvef.org), 1999**
- **Content specification for ITV**
- **Transport recommendations**
- **Recommendations for bindings**
- **Basis for SMPTE DDE-1**

Fundamental principles

- **Uses existing content standards**
- **“Create once, play everywhere” (COPE)**
- **Transport-independent**
- **Bridgeable across systems**
- **Universal display (TV, STB, PC, HHD, etc.)**

ATVEF Transport

- **How content is sent to user**
 - **Internet links & triggers only via TV**
(Transport A)
 - **All content via TV** *(Transport B)*
- **Transport A assumes backchannel**
- **Transport B for one-way**
- **Both can run simultaneously**

ATVEF Bindings

- Define how ATVEF content runs on various distribution services
- Each service uses unique binding for common content
- IP is reference binding
- NTSC-specific binding also in spec
 - Transport A uses VBI Line 21, T-2 (EIA-746A)
 - Transport B uses IETF's IP-over-VBI recommendation

SMPTE takes up ATVEF

- **DDE-1 (Declarative Data Essence)**
- **Extending and clarifying ATVEF 1.1**
- **Will become ANSI spec**
- **Emission standard for declarative
ITV content authoring**

How it works with ATSC

- **Transcoding to DASE *Declarative Application Environment* (XHTML browser)**
- **Transcoding likely done at emission point**
- **All DASE receivers will support DDE-1**
- **Triggers remain an open issue (S13/DIWG)**
- **Disney/ABC, WB, PBS, others support declarative only now, procedural later**
- **DASE 1.0 Spec nearing completion**

In the end...

- Ideally, content authors COPE
- Consumers buy any manufacturer's TV or STB, which offers uniform and/or predictable ITV functionality
- International differences will still exist
- Differences in ITV systems among US delivery formats (OTA, cable, DBS) still require convergence
- ITV means business for broadcasters!

Where do you want to go
today?

<http://www.microsoft.com/TV>



