ATVEF

A Specification for Interactive Television Based on Internet Standards

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What is ATVEF?

- Advanced Television Enhancement Forum
- An industry consortium
- 14 founders
- Many adopters

Founders

- CableLabs
- CNN Interactive
- DIRECTV
- Discovery Communications, Inc.
- Intel Corporation
- Liberate Technologies, Inc. (Formerly NCI)
- Microsoft/WebTV
- NBC Multimedia
- NDTC Technology, Inc.
- Public Broadcasting Service (PBS)
- Sony Corporation
- Tribune
- The Walt Disney Company
- Warner Bros.

Adopters

American Film Institute
APL Digital
BillP Studios
British Broadcasting Corporation (BBC)
Broadcast.com, Inc.
BroadLogic, Inc.
Cable and Wireless Communications (UK)
Chronicle Publishing
Citytv
Dentsu USA
E! Entertainment Television
ExtendMedia (Formerly Digital Renaissance)
The Fantastic Corporation
Hitachi America, Ltd.
HoTV
Intertainer, Inc.
iXL
LG Electronics, Inc.
Lysis S.A.
Macromedia, Inc.
Mixed Signals Technologies
MoreCom, Inc.
MuchMusic
National Geographic Ventures
NetGem S.A.
Nokia
Norpak Corporation
NTL Digital Services
Pace Micro Technology
Panasonic AVC American Labs, Inc.
Peach Networks
Pittard Sullivan, Inc.
Playboy Enterprises, Inc.
Primestar, Inc.
ProSieben Digital Media
Pushy Broad
Regent Electronics Corporation
Samsung Electronics Co. Ltd.
Tektronix, Inc.
Telewest Communications
Thomcast Communications, Inc.
Thomson Multimedia
TVN Entertainment Corp.
WavePhore/WaveTop, Inc.
The Weather Channel
Wink Communications
WYSIWYG Diseno Digital

The ATVEF Specification

- Content specifications for ITV
- Transport recommendations
- Recommendations for bindings

Fundamental principles

- Uses existing standards
- “Write once, run anywhere”
- Transport-independent
- Bridgeable

Content

- HTML 4.0
- ECMA 262
- DOM 0
- CSS 1
- MIME file types

Specified file types

- Required for one-way environment
- Base profile
  - text/html (HTML 4.0)
  - text/plain
  - Text/css (CSS 1 only)
  - image/png (no progressive encoding)
  - image/jpg (no progressive encoding)
  - audio/basic
- Optional
  - image/gif (no progressive encoding)
  - audio/wav

TV on web pages

- `tv:` URL feature
- `lid:` URL feature
- IETF submissions

Transport

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

Transport A

- Low data requirements
- Presents links that users can choose to follow at their option
- Content comes from WWW
  - Existing web pages
  - Custom pages designed for TV viewing

Transport B

- Sends enhancement data in advance
- Receiver caches content (1MB minimum)
- User enables display
- Receiver runs enhancement when triggered

Triggers & Announcements

- Announcements alert Transport B receiver of enhancement data's availability (SAP)
- Session is set up by SDP
- Trigger runs enhancement
- Implementation can offer variation
  - Always run
  - Always alert
  - Never run

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

UHTTP

- Optimized one-way resource transfer of IP-Multicast data
- Analog or DTV
- SAP points to IP Multicast address and port
- Intended for real-time webcasting via TV

Conclusions

- ATVEF spec is pragmatic
- Based on proven formats
- Adaptable to any TV environment
- Broadly supported
- Leverages common content