Personal Television Standards

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Content

• What is TV-Anytime - role of Business Models
• Key working groups: Metadata, Content referencing, Rights Management Protection
• Metadata - content description and world wide interoperability
• Content Protection Principles
• TV-Anytime Forum Phase Two
• BBC priorities and aspirational services on PDR’s
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TV-Anytime Forum over 100 member companies

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• The TV-Anytime Forum is a non-profit association of organisations which seeks to develop specifications to enable audio-visual and other services based on persistent local or online storage.

• Membership is open to all who sign the Memorandum of Understanding, pay membership fee and attend meetings. Full info at: http://www.tv-anytime.org

• TVAF collaborates with MPEG and DVB (in Europe), with ATSC in the US and ARIB in Japan (amongst many).

• No one standards group is doing everything needed - this is not competition, it's collaboration.
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TV-Anytime Challenges for Business Models WG

• Keeping up with industry developments, so that TVAF standards are not too little, too late
• Ensuring content providers are encouraged to develop material for personal TV services
• Documenting new revenue-producing business scenarios which capitalize on TV-Anytime standards to provide interoperable systems and services to large groups of users
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- Stakeholders interests

- Scenario Development
  - informative

- Specification Verification

- Specification Development

- Industry adoption

Metadata

• Rights Management Protection

• Content Referencing

• System Design

Business Models

Interoperability Group

Rights Management Protection

Metadata
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Major Issues with Personal TV technologies

- Metadata - integrity, control, protection, quality
- Future - world wide interoperable ECGs?
- Rights Mngmt Protection - control in the value chain
- When will time-shifting reach significant penetration?
  - *Time-shifting may affect 50% of UK audience in 2006*
- Who will be the best Personal TV Service providers?
- Who ‘controls’ viewer profiles - need to be mobile?
- What happens when viewers consume programmes more and more by segments? (micro profiling)
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The Three TV-Anytime Models

Model 1: **Broadcast**
(uni-directional)

Model 2: **Consumer Response**
(bi-directional)

Model 3: **Broadband**
(bi-directional)
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Service & Content Providers

The Home

PDR

PDR

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## TV-Anytime Metadata SP003 Overview

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<th>5.2 Instance Description Metadata</th>
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<th>2.1.1 Target description and Audience profile</th>
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<td>2.2.1.5 Content description related data</td>
<td>3.2 Advertising targeting (dynamic insertion of advertising)</td>
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<td><strong>2.2.1.5.1 Mood</strong></td>
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<td>2.2.1.6 Atmosphere</td>
<td>3.4 Terminal targeting</td>
</tr>
</tbody>
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TV-Anytime Example Phase 1 Advanced Features

- Multi-user preference support and portable profiles
- Personal book marking/indexing of recorded content
- Playback content as virtual programmes (e.g. highlights)
- Dynamic segment insertion during playback (e.g. targeted advertisements)
- Updating recorded content with newer versions (e.g. keeping news, fresh)
- Verification of usage of content on PDR
- Consumer-controlled secure transfer of content from local to remote 'personal' storage
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TVAF Rights Management Protection Principles

• Provide end-to-end persistent protection of content, associated data and user rights

• Enable interoperation with other systems and the flow of commerce

• Provide sufficient level of effectiveness to:
  • Prevent widespread, easy hacks, not professional piracy
  • Prevent unfettered re-distribution
  • Protect content related rights and user rights and data through a domain scheme
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**Consumer Domain example 4 of 5 - External Storage (user access)**

*From SP001 Appendix A*

This example also uses a 3rd party NDR to provide adequate storage for the content required by the consumer. However in this example, the consumer directly selects and accesses the 3rd party NDR. It may be essential that the links to the consumer have similar capabilities. The benefit to the consumer is that they can off-load the storage requirement from their PDR to the NDR (e.g. archiving).
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TV-Anytime Phase Two Considerations

• What services/products do consumers want?
• What capabilities are currently being developed and deployed by the industry?
  • Integrated TV/PC/mobile/internet hardware and services
  • Removable media; content archiving
  • Targeted, personalised content delivery systems
  • In-home servers/personal networking
• What services/products does industry want to provide?
• What services/products will generate revenue?
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Phase Two Areas - taken from the current CFC

New Content Types, Targeting & Redistribution

New Content Types - Integration of other content types (games, enhanced TV, web pages, music files, graphics, data and many other applications) in addition to audio and video content.

Targeting – Automatically matching & delivering relevant content to profiled consumers

Redistribution – moving content around systems

  • Content sharing - Peer-to-peer distribution of un-protected and protected content over provider networks
  • Home networking - Multiple connected storage and display terminals within a defined private physical network
  • Removable media - Peer-to-peer distribution of un-protected and protected content on physical storage
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‘REAL’ ADVERTISING OPPORTUNITIES

1. Targeted advertising - we now know who is out there
2. Non-skipping options - For additional fees advertisers can force non-skip - regardless of where they are inserted
3. Ad free or ad funded - 1 choice
4. "the ad loyalty card" - Watch my ads we give you benefits such as a coupon
5. Cheaper programming for the consumer with ads - If they watch the ads included you get benefits such as extensions to programmes or the ad loyalty card
6. Dynamic Insertion - Ads can ‘drop’ into relevant content and viewers
7. Ad free or ad funded - 1 choice
8. Virtual ad channels - Viewers choose to go to relevant ad channels
9. Infomercials - extending the short form ad. Greater detail
10. Commercial exclusivity - on the PDR 2 forced
11. Commercial exclusivity - on the PDR 3 forced
12. Virtual ad channels - Upgrading of commercials on the PDR to retain timeliness
13. Story lines - Repeat viewings - Created via stored ‘soap operas’
14. Dynamic Insertion - Ads can ‘drop’ into relevant content and viewers

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What kinds of services could the BBC offer via PDRs?

- News bulletins - personalised ‘regionalised’ and UPDATED capture
- Personalised capture from magazine programmes
- Packages of theme’d or popular programming eg: comedy
- Highlight ‘capture’ of key sports or live event programmes
- Educational packages with targeted levels of learning
- Packages of interactive TV or web linked enhancements
- Niche content trickled in off peak to specialised audiences
- Targeted promotion ‘off the PDR’ to individuals

Concept link
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**Priorities for advanced BBC services on PDRs?**

<table>
<thead>
<tr>
<th>Support (capture and playback) for proprietary and standardised API’s</th>
<th>A – Playback combined with live or pre-recorded streams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra av streams <em>(Assumes multiple tuners the ability to capture multiple, parallel streams or staggered capture)</em></td>
<td>B - Downloaded for before and after.</td>
</tr>
<tr>
<td>Segmented video packages.</td>
<td>C - Download alongside</td>
</tr>
<tr>
<td>Synchronised - AV synchronised with attached simple proprietary applications.</td>
<td>Control over updating and exchanging</td>
</tr>
<tr>
<td>Return path.</td>
<td>Network games – downloaded and played off line.</td>
</tr>
<tr>
<td></td>
<td>Live linking from the site.</td>
</tr>
<tr>
<td></td>
<td>Sending links for content, via trails</td>
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<td></td>
<td>Networking</td>
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</table>
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Go to www.tv-anytime.org to download

The difficult is done at once; the impossible takes a little longer