HTML & Companion Web Technologies as a Universal Platform for Interactive Internet TV Advertising

Emmanouil Perakakis
Dept of Commerce and Marketing
TEI of Crete
Ierapetra, Greece
mperakakis@staff.teicrete.gr

Alina Levinenko
Dept of Commerce and Marketing
TEI of Crete
Ierapetra, Greece

Georghita Ghinea
School of Information Systems, Computing and Informatics
Brunel University
george.ghinea@brunel.ac.uk
Interactive Advertising for the Internet Connected TV

→ There many **new features** on the Connected TV compared to the *traditional TV*

→ One of these is **Interactive Advertising**

→ **TV Ads** that the users can interact with i.e. to:
  › Find **out more** about a product they like
  › Share a product to friends (*Social Media*)
  › Instantly buy products (*T-Commerce*)
  › And much more...
A look at the platforms

CONNECTED TV PLATFORMS
Connected TV Platforms

→ Too many platforms

→ None of them has a **significant market share** (yet)

→ Connected TV platforms are being developed by:
  › **Service providers** (Hulu, Netflix etc)
  › **Traditional TV manufacturers** (LG SmartTV, Samsung SmartTV, Philips SmartTV)
  › **Internet service companies** (Yahoo TV, Google TV)
  › **Computer manufacturers** (Apple TV)
  › **PC software developers** (Boxee, Kylo.tv, Windows MCE)
  › **TV channels** (HbbTV)
  › **Set-top box manufacturers** (Roku, TiVo)
  › **Media Player manufacturers** (Western Digital, Iomega)
  › **Game console manufacturers** (Sony PS3, Microsoft XBOX 360, Nintendo Wii).
Controlling the TV

→ Another issue is the **HUGE** differences in the input device for each platform:

- Simple TV remote
- Tablet
- Motion controller (Wii, LG)
- Keyboard (Google TV)
- Gamepad (PS3)
- Mobile Phone
Developing for TV

→ Usually there are platform-specific API for developing Apps

→ Most platforms support Flash (few) or some programming language (e.g. C++, Java, Javascript)

→ Most platforms have some kind of web browser

→ Most platforms support (to varying extend):

- HTML (5)
- CSS (3)
- JavaScript
Features and Properties

INTERACTIVE TV ADS
Interactive TV Ads

- Extend and enrich the **30-second TV Ad** experience

- Usually start with a 30-sec video spot or a banner on a TV-optimized website

- Pressing a key during the video or clicking on the banner triggers the interactive part (**Entry Point**) 

- Usually leads to a micro-site for the advertised product (**Landing Page**)
Some examples of Interactive TV Ads
Interactive TV Ads
Features/Properties

- Intensively branded and graphically heavy
- Visually interesting with animation and graphics
- Have music soundtrack and other audio (e.g. narration)
- Can include a game or a contest
- Can include a signup form (e.g. for newsletter)
- Include textual information about the product
- Have a small menu limited to 3-6 options
- Contains Social Engaging elements (Likeboxes etc)
- Can include videos such as the TV ad of the product or a video feature tour
- Has extensive information about the product
- Can include t-commerce option (e.g. order online)
- Allows user interaction/navigation
Features and Properties

PROBLEMS AND PROPOSED SOLUTION
Problems in Interactive Ad Development

→ There are no universally accepted specifications for developing Interactive Advertisements for TV

→ No single Connected TV platform has managed to gain considerable market share

→ It is currently very difficult to design and develop iTVCs compatible with all platforms.

→ Ads have to be redesigned/redeveloped for each platform, in order to target a considerable area requiring time, technical knowledge and money in order for the Ad to have greater exposure to a wider audience.
Proposed Solution

→ Use the latest web technologies of **HTML5, CSS3 and JavaScript** to create a **single** Interactive Ad to target **all** different platforms.

→ To make it more compatible regardless the limitations of support for some platforms (e.g. for HTML5), use JavaScript to detect the available features and provide a “**fallback strategy**” for the missing ones.
Advantages of this solution

→ **Universal cross-platform compatibility.**
→ Adaption for **different input devices** can be programmed.
→ All features of existing TV Ads can be reproduced with HTML5/CSS3/JS
→ HTML5 has now **native video support**, a vital feature for a TV Ad
→ **Personalization** is possible.
→ No platform-specific technical Skills required.

→ Even more features can be added, such as **multi-language, mash-ups** (.e.g maps, social plugins) etc.
→ More control of the Ad can be on the advertiser’s side since the Ad can reside on the advertiser’s website.
→ Easily setup **Analytics** for the Ads, as these will reside on a web server and can use normal Web Analytics services.
Pre-HTML5

→ Why not before?

→ HTML and related technologies on previous versions (HTML 4.01, CSS2) lacked some vital features that are essential for the TV experience:

- Video
- Audio
- Animation/Drawing
- Transitions
- Effects / Text effects
- Fonts
Latest Web Technologies

→ HTML5 + CSS3 + JS can do:

✓ Video
✓ Subtitles
✓ Audio
✓ Canvas
✓ Text/Typography
✓ Graphic Effects (shadows, rotation etc)
✓ Interaction design (JS)
Universal Compatibility?

→ HTML5 is not a completed framework but a work in progress, not all of its features are supported across all devices.

→ To ensure the Ad will be compatible with all platforms there should be a **Fallback Solution**.

→ An example solution is **modernizr.js**, a library that can **detect** the browser’s supported features.

→ In addition, **performance tests** must take place to most platforms to ensure smooth user experience.
An iTVC using HTML5

THE PROTOTYPE SYSTEM
The Prototype System

→ As a proof of concept, an iTVC was developed, using only web technologies.

→ As mentioned before, the TV Ad had to include two parts:

(a) The Entry Point,
which was chosen to be a Video similar to the traditional 30-second spots but with the added choice for the viewer to press a button to continue to ...

(b) The Branded Microsite
/Landing Page, a website with information about the product where the user can navigate and see its several features.
The Entry Point

→ Technically, the 30-sec spot is a normal HTML5 page that has a full screen video in the background using the new `<video>` tag

→ a music soundtrack and some car sound effects using the `<audio>` tag

→ a sequence of text sentences on the foreground which are layered and faded-in and out on top of the video. The fade-in and fade-out effects are easily produced using the jQuery library which animates the CSS3 opacity property
The Landing Page / Micro site

→ It is composed of navigation menus, controlled using JavaScript events, and a number of screens for the main page and each menu choice

→ Technically, it is a single HTML5 page with a number of main layers (DIVs) that are hidden or shown depending on the user’s actions using JavaScript events

→ The menus can be controlled using the arrows on the remote control, where the KeyPress events are traced with JavaScript
Testing on Different Platforms

- A small initial number of representative devices were chosen for the tests
  - the Nintendo Wii (Opera browser), a
  - Windows 7 HTPC connected to TV (chrome),
  - a Sony Internet TV and
  - a mac-mini running the Boxee internet TV software (also available as a set-top box).

It Worked 😊
An iTVC using HTML5
CONCLUSIONS AND FUTURE WORK
Conclusions

The main benefits as seen in our research and practically through the prototype were:

- **Simple coding** without need for specialized tools. Even on a simple text editor is adequate, or, if desired, any web-site development environment.

- **Rapid development**: It was very easy and fast to develop the Advertisement, while it was not needed to learn any new obscure APIs, different for every device.

- **Cross-platform compatibility**: The same Ad, is compatible with all devices with a web browser. There are however limitations on some platforms due to the limited support for HTML5 and CSS3. Still, the prototype works on these, by replacing the unsupported features with supported ones.

- Contains all the elements of an interactive TV Ad such as **Video, Audio, interaction, social buttons etc.**

- **Can be changed at real-time**: Since the Ad is a simple HTML page, it is possible to reside on any web-server. This means the advertiser can change it anytime.

- **Can support Analytics**: Analytics are a sought out functionality for marketing professionals and Since, the proposed Ad is a webpage, it is easy to track user interactions even with existing services (e.g. Google Analytics).

- The Ad can look limited on systems that don’t support important features (e.g. video)

- Can look limited on some systems.
Future work

There are a lot more work that can be carried out on HTML5 iTVCs:

- Test Compatibility on many more platforms
- Test Performance on many more platforms
- User Evaluation
- Try more complex features
Is HTML5 the future of iTVCs?

We believe YES

There isn’t anything that current interactive TV ads have that cannot be implemented with HTML5

(There is need for fallback strategies right now)

As TVs become more powerful and more HTML5 compatible there won’t be much point for redeveloping multiple versions.