Addressing HTML5's Gaps for TV Services:

Richness, Compatibility, & Security *(but other than that, its perfect ☺)*

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1 Introduction

Television continues to be the largest and most social screen in most users' lives, yet it alone amongst digital consumption technologies seems mired in the pre-web patterns, both business and technical, of the previous century. Despite that, it enjoys healthy mindshare and enviable growth – uniquely delivering on a consumer value proposition, to date, unmet elsewhere. But as it grows, inevitably, into an interactive and more engaging services platform, we'd like to ensure that the underlying technologies involved evolve more openly than in other maturing eco-systems, like the smartphone or tablet.

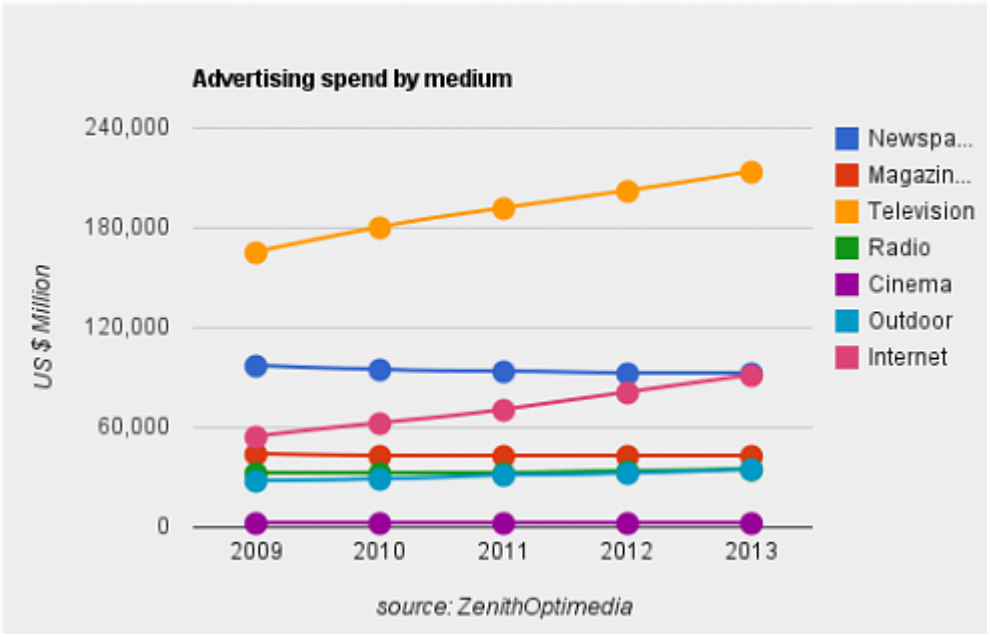

Fig 1.1. The continued consumer value is demonstrated empirically by examining advertising spend projections. http://paidcontent.co.uk/article/419-zenithoptimedia-all-media-bar-print-will-join-net-on-ad-growth-curve/

In many ways, the ongoing fragmentation of the content experience in TV -- 60+ channels are required to achieve more than 2/3 of viewership over the course of a week -- is a measure of its health and accessibility.

The notion of "Connected-TV" (either "Smart-TVs" or through TV-connected IP devices, like a game console, Blu-ray player, or dedicated device) is gaining popularity, driven by the potential of the concept to move the experience beyond its largely passive services. However, we would draw parallels from the 2011 interactive TV market to the pre-2007 smartphone market. Today, this market is fragmented and under delivers on the opportunity, for both consumers and developers. Innovation is largely in the hands of proprietary eco-systems controlled by a limited few. This drives the winner-take-all economics we see in domains like online advertising.

We believe the right answer is an open application and content delivery eco-system, as embodied by HTML5. However, a number of material gaps exist to make this viable, as demonstrated by its failure to capture share in the smartphone and tablet markets.

2 Past Failures

Most industry efforts to capitalize on open developer eco-systems have adopted the "***Embrace-and-Extend***" philosophy, attempting to derive the benefits of a point-in-time eco-system, while wresting control to ensure future value. We have re-christened our industry's attempts at this technique "***Branch-and-Botch***", and it includes well meaning but ultimately underwhelming efforts like HTML-CE (CEA-2014), Java derivatives like Java TV and Tru2way, and others.

Ultimately they failed, in our view, because the combination of branching from the mainline – which removes the ongoing investment of the community – and management through some new and internally focused community process (CEA, CableLabs, etc.) has lead to a slower pace of innovation and non-productive platform fragmentation.

While we're not advocates, this "Embrace-and-Extend" model only works under the totalitarian authority of a single entity, and requires a resource commitment most individual corporations are unable or unwilling to expend.

3 A Different Approach

To that end, we believe that the essence of a successful approach is to augment the mainline, rather than divide from it by sub-setting or otherwise branching.

Some areas for augmentation in the HTML5 and associated standards as proposed, are:

- Authentication and verification model for all HTML content, inclusive of verified endpoints, like the browser itself, and a model for secure execution of signed content
- Programmability of the video pipeline, in particular, a programmable adaptive streaming framework and decomposition of the ***<video>*** tag

- Security model for content that is robust and non-proprietary, on par with the transactional model that enables e-commerce today
- Bridging discovery and content playback inside the home network
- A reliably performant and web-compatible model for rich user interfaces
- Unified treatment of web/traditional and commercial/amateur video: video vs. object element; caption formats
- Support for all types of video ecosystem applications, including content access (guides), video interactivity (enhanced TV) and content augmentation (extras)
- Cross-browser application packaging for applications stores.

4 A Mental Model

We (tongue-in-cheek) made light of the richness and robustness issues facing HTML today – most obviously evidenced by the increasing market share of "native" applications in the CE space (iOS/ Objective-C, Android/Dalvik, AJAX-CE, etc.). Our desire is that HTML5 is augmented to address gaps in richness and application composability required for succeed in the television space.