Web and TV Convergence Through the Eyes of Consumers

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1 Introduction

Best Buy, Co., Inc. operates over 1,150 retail stores across the United States, Canada, Europe, China and Mexico, specializing in consumer electronics. With a large market share in the US and expanding businesses across the globe, we believe that our experience consuming and selling a multitude of technology products can positively contribute to a larger discussion about web standards on devices outside the realm of the PC desktop.

As technologists, we often unconsciously overlook the impacts our technology implementations have on end users. Ultimately, every standards decision we make as an industry has a downstream impact on the people consuming the technologies we influence and create. Development activities and technical decisions around Web and TV convergence are no different. Being a consumer electronics retailer with a large market share and tens of thousands of employees directly interfacing with consumers every day, we have a unique view into the insights of the customers we serve. For the purposes of the Web and TV workshop, and to gain a better understanding of what attitudes our customer base has toward internet-connected TVs, one needs to look no further than the wealth of data contained in the interactions we have with customers every day. To extract these insights, we took a deeper dive into customer feedback from our Enterprise Customer Care department, Web-connected TV and device reviews on bestbuy.com, reaction from social media outlets, and a local store visit to get the pulse of the consumer with regard to these converging technologies.

While this position paper is decidedly less technical in nature than most entries, we hope it will provide enough practical insight to assist in crafting the correct technical decisions that are right for technologists and consumers. Frankly, most consumers don't care what the technology is -- as long as it works. With this in mind, technical challenges should be prioritized and solved based on real world feedback.

In the rest of this paper we briefly explore Web and TV device and convergence issues and hurdles for consumers, taken from our various customer feedback sources. Finally, we examine what we believe would be the best steps going forward to technically address consumer issues and concerns.

2 Common Issues and Concerns for Consumers of Web-connected TVs and Devices

There are a handful of common issues and concerns that we found throughout our research for this paper. The following section details some of the issues we think are the most crucial to address by the creation and adoption of new technical standards.

2.1 Streaming and Downloading Issues Still Exist Despite Technical Advances

"Even after upgrading our DSL to 6.0 mbs, it took 13 hours to download a movie…furthermore, upon going to play the movie after the download, it said that another 14 hours until it was ready to play! What?! This could potentially be a cool item..." Blackhawk22, Elburn, IL, 02/04/2011 [1]

Even though technical advances and network speeds have increased in recent years, comments surrounding download/ streaming speed and performance occur in high frequency in the customer data analyzed. Variable download speeds cause heartache for consumers using connected devices and caused new web-connected media devices like TVs to be returned to the original stores of purchase for refunds. While download and network speed is most likely a common thread for people on PCs or non media-specific devices like traditional PCs, problems are even more apparent when an individual's desired output is to watch pictures, audio, or video in the fluid manner which we have grown accustomed to with traditional TVs and media delivery.

While there is a considerable amount of work being done in this space on many levels, the lack of universal and viable standards for video delivery on the web (e.g., DASH) will negatively impact adoption rate of Web and TV technologies.

2.2 "Web" vs. "Apps"

Some of the most interesting observations and customer feedback came when customers attempted to make distinction between built-in apps like Netflix, Pandora, and Hulu, and what was available on "the Internet". In much of the data

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[1] bestbuy.com product review, http://www.bestbuy.com/site/Apple%26%23174%3B+-+TV%26%23174%3B/1331156.p?id=1218251780234&skuId=1331156

and results of customer observations and interactions, there seems to be a lack of distinction between proprietary apps and browser-delivered functionality.

2.2.1 Little Awareness that Web Exists on TVs Outside of Apps

"This TV has the internet?!", Anonymous customer at Best Buy Store 281 [2]

Before our research for this paper, we assumed that a majority of consumers were aware of the early changes happening to TVs and media devices, and were more up to speed with convergence activity happening in this space. To our surprise, a number of consumers are still unaware that internet-connected TVs exist, or that many of them contain browsers that could serve as a portal to rich content on the open Web.

Many of the customers we observed in local Best Buy stores associated web connected TVs with apps, never realizing that beyond those proprietary apps there was a fully-featured web browser. In fact, the use of a web browser on TVs was virtually non-existent during a majority of the time we spent observing customers shopping for TVs. At this point in the Web and TV evolution, native web support seems to be taking a back seat to more proprietary apps. Potential expansion of content and technology could be limited by narrow view of apps as "the Web".

2.2.2 Emerging "Splinternet" on Web-connected TVs and entertainment devices?

"…since most networks have blocked Google TV, there is no reason to spend $299 for this product…" [3]

"What's not so great: Unavailabity of Hulu+" [4]

Much of the gathered data and customer feedback points to a growing customer

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[2] Customer observation at Best Buy store 281, Richfield, MN 17, August 2011

[3] bestbuy.com product review, http://www.bestbuy.com/site/Sony+-+Google+TV+24%22+Class+/+1080p+/+60Hz+/+LCD+HDTV/1288169.p?id=1218248142441&skuId=1288169

[4] bestbuy.com product review, http://www.bestbuy.com/site/Logitech+-+Revue+with+Google+TV/1257136.p?id=1218243226608&skuId=1257136

divide based on delivery platform, not on content. In our current Internet enabled

TV and connected device product selection, customers are forced to choose specific content delivery mechanisms, all of which have their benefits and drawbacks. Often times the choice of one platform over the other means that web content available on one brand is not available on the other. As we have seen from many customer reviews, lack of universal access to content via web-connected TV devices is at best confusing, and at it's worst causes customer remorse, complaints, and a drop in adoption.

"Can't watch streaming video from websites that require plugins" [5]

While developers in the "traditional" web aim to deliver similar user experiences regardless of browser or OS, the same cannot be said for interface/ experience development on connected TVs. Every manufacturer, every brand who makes internet-connected TVs utilizes a different interface and different plugins and extensions which can be confusing to an end user who is expecting a relatively seamless, easy to use product similar to that which he has become accustomed to through traditional web channels.

From our research and observations, we conclude that much of our concern around the splintering of the web on TVs comes from the early development and focus on proprietary apps, rather than delivering similar functionality and content in a more standardized way, e.g., through a web browser. An interesting phenomenon occurs with many of our customers when they realize they are being forced to choose a platform that might not serve all their needs -- they simply fall back to the traditional web via a PC interface.

As long as a lack of web technology standardization exists and new development in this area focuses on apps, the value proposition of standalone internet-connected TVs and devices will suffer.

2.2.3 Consumer Fear of Obsolescence

Jeremy Toeman of mashable.com [1] talks of a fear of obsolescence among consumers with regard to connected TVs. We believe that this fear can be exacerbated due to the ever-changing landscape of content delivery platforms of TV over the Web, and by device and TV manufacturers focus on apps as content delivery mechanisms. Unlike the Web and browser technology standardization, the battle between manufacturers in this space forces consumers to make tough

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[5] bestbuy.com product review, http://www.bestbuy.com/site/Apple%26%23174%3B+-+TV%26%23174%3B/1331156.p?id=1218251780234&skuId=1331156Revue+with+Google+TV/1257136.p?id=1218243226608&skuId=1257136

decisions about the products they buy and what proprietary software they're willing to invest in to deliver TV on the Web.

To combat this perceived obsolescence, users again fall back to traditional Web devices, and connect these devices to their TVs, rather than face an uncertain future with a TV that could easily be rendered useless by a shifting technology landscape.

3 Opportunities for Technical Advancement and Standardization

While the previous section of this paper outlines some considerable hurdles for consumers and technologists, Web and TV convergence is not all doom and gloom. Many consumers are excited by the prospects of these two standards converging and the benefits it may bring to them. Many consumers comment on the "potential" of the technology. Comments like this, "Its a great idea and maybe it will work someday but not yet", point to an optimism that we as the implementers of these technologies should use as fuel for many of the import work that lies ahead.

We believe that the emerging HTML5 spec will play an important part in standardizing Web and TV, as earlier versions of HTML did for web browsers. We hope to see an acceleration and adoption of a common platform on web-connected TVs, fueled by HTML5 support. This provides a common technology for all consumers, regardless of TV manufacturer or brand. It also establishes a solid value proposition to consumers, knowing that the content they want delivered will be available regardless of which TV they purchase. Having this common technical thread also reduces the threat of obsolescence by reducing the proprietary nature of content delivery -- providers can win on the merits of their content and service, not just on the platform it's delivered on.

There is much work to be done to put the pieces in place to assist the growth and adoption of Web and TV. First, the ongoing work done in Adaptive Streaming should be accelerated and specifications written into HTML5. Second, we need to finalize support for the various media encoding standards to enable developers to go forward with creating a new class of interactive web applications. Last, we should insist that Web comes first, proprietary apps second to ensure an open and evolving Web on this emerging media channel.

References

1. Toeman, Jeremy. 5 Reasons Connected TV Could Flop in 2011. http://mashable.com/2011/01/11/smart-tv-flop/