

Imagining the YouTube Model for Interactive Television

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Abstract

User-generated content (UGC) is a social revolution waiting to be experienced on interactive television (iTV). The actual content is not necessarily radical, however its mass distribution on video sharing sites is becoming ubiquitous and powerful. This paper proposes a retooling of YouTube's user interface for iTV and considers the technological and business constraints preventing true convergence.

1. Introduction

Shared content by the general public for mass consumption and judgment, or user-generated content (UGC) is far from revolutionary. In 1990, America's Funniest Home Videos (AFHV) debuted bringing homemade content into American living rooms. The show features one-off, short (less than a minute), humorous videos that are submitted through the mail by the general public competing for prize money and airtime on broadcast television. The producers of the show select the tapes to include in each broadcast, but the audience does the voting to decide what they consider the funniest home video. AFHV is one of the longest running primetime series on ABC networks in the United States and has set a precedent not only for reality-based programming, but also for user-generated content on the Internet.

Web viewers are now watching more than 100 million video clips of shared content daily just on YouTube alone [1]. The videos with the highest ratings and most views prevail, and occur in real-time within a system driven by viral distribution. These communal interpretations [2] force the most celebrated content to the top-level (homepage), dynamically perpetuating what is popular. Considering the proven success of AFHV on television, it is easy to imagine the egalitarian system empowering YouTube being adapted for users to experience shared content on iTV.

1. The Sharing of Content Redefined

The concept of "sharing" content should include other social uses of UGC besides "submitting" content. By definition, the word "sharing" means to participate and to distribute. A typical use of video

sharing sites occurs when a user is "deep linked" to a specific piece of content after receipt of an email in the form of a personal recommendation. The "Share Video" function on YouTube also prompts users to include a message explaining the reason for the share (i.e. the default text is "This video is awesome!") This forwarding of content to friends and family members is the essence of viral promotion.

Another form of sharing is when a user offers an opinion about whether they liked a particular piece of content. This public discussion is what gives birth to new communities or "groups" of highly discerning individuals with similar tastes. The two most standardized techniques for leaving real-time user feedback on video sharing sites are ratings and comments. Ratings are a form of voting that provide an at-a-glance collective opinion about how much other users have liked or disliked the content. Comments are an opportunity for users to leave an explanatory remark about the good and/or bad aspects of the content. Both forms of user feedback are permanently coupled with the associated video clip.

Broadcasters have not yet attempted to port these social and interactive aspects of the Web experience to iTV. They are merely broadcasting UGC that in some cases was voted on by the users on the Internet. This certainly is endemic of the "crawl" phase of iTV application development [3] since there are numerous aspects of experiencing UGC that can work in both environments, despite the constraints of the remote control, on-screen keyboard, and the back-channel.

2. Rethinking the Interface for iTV

Current set-top box remote controls provide less interactive functionality than the keyboard and mouse combination. In general, remote control users navigate iTV systems by using the arrow buttons to move the input focus and then press the Select button to act on the focused item. Only one item on the screen can have focus at any one time. This requires the user experience to be streamlined for a simplified form of user input, and to reduce the required number of button presses. [4]

The usability issues related to the input device require rethinking the browsing paradigm of a video sharing website. Numerous GUI elements need to be reworked for directional navigation to parallel hover states, contextual functionality, player controls, scrollbars and pagination elements. There are also information density and readability issues related to text display on a low-resolution device (such as a standard-definition TV) compared to a computer monitor.

A video-sharing site such as YouTube needs formidable reconstruction to work on iTV. YouTube has over 100 interactive elements and links on its top level and subsequent web pages. The majority of these are search options allowing users to browse content based on variables ranging from community-driven to time to subject matter. Ultimately, a cross-referencing system needs to be implemented to allow users to filter content by more than one variable at a time.



Figure 1: The top image is a screen capture of the video navigation system on YouTube.com. Below it is a proposed navigation system of YouTube for interactive television.

As shown in Figure 1, several modifications are essential for repurposing. The following elements should be accessible from the top-level: featured videos, content filtering options (by top rated, most

popular, keyword search, channels, categories, time of upload), contextual functionality for each piece of content (watch, rate, share, organize), a preview screen with player controls (including watch full screen and pause), and a user widget.

By using a multi-column layout, the functionality can be separated into sections. Arrowing left or right enables the user to move between the functional sections. Arrowing up and down can provide browsing through the options (or content) that makes up each section. Contextual options for each clip can display as a highlight state upon the first press of the Select button. The second press plays the video clip.

Personalization options can be embedded into a widget so that it can travel with the user throughout the system, always accessible by a special button (the red button or a function key). This would include account information, user defined datasets (playlists and favorites), a message center, and the ability to mark as favorite, rate, and to share the content currently viewed on the player.

Versions of this interface are already implemented on Windows Media Center “Online Spotlight/Showcase” channels such as MTV “Overdrive” and “Vongo” [5]. It is both intuitive and usable for sifting through large amounts of video content. It is only a matter of time before this navigation paradigm is scaled to other iTV systems for exposing a larger audience to user-generated content.

Looking ahead, as more sophisticated remote controllers like Nintendo’s Wii Remote become commonplace, more complex interfaces can be undertaken. Motion sensing capabilities enable a user to point at items on a screen and interact with more than one item at a time. At the very least, input devices using gesture control [6] could improve a user’s experience while sorting and organizing large amounts of content. Additionally, spatial navigation utilizing the z-axis can be used to orient a user within a vast world of hierarchal data through unification of the interface design with meaningful motion graphics.

3. Technological and Business Challenges

A major issue that needs to be addressed is how iTV users will submit content directly through the TV, as opposed to uploading it to a website or sending it from a mobile phone (MMS). In general, set-top boxes do not allow for this type of function. The process of uploading from a set-top box requires the user’s files to be either stored locally or

accessible in some other way. Uploading also requires a satellite, cable TV, or ADSL infrastructure to support a back-channel for sending the data back to the carrier. Until these limitations are addressed in a widespread fashion, shared content applications for iTV need to be geared more toward browsing and recommending (by proxy) UGC.

Fueled by other self-publishing Web 2.0 applications such as blogging and podcasting, the sharing of content has great momentum and influence. What makes the content sharing evolution possible is the adoption of open standards, which enable developers of tools to collaborate outside the boundaries of commercial enterprise. In order for UGC trends originating on the Web to extend to television applications, cross-platform standards for content syndication and consumption must be supported by television's infrastructure.

The inevitable questions remain: Who has the political and economic capital necessary to bridge the gap between the democracy of the Web and the (up-until-now) autocratic nature of TV? What role will current initiatives such as the iTV Production Standards and OpenCable (OCAP) have in bringing together the disparate interests of producers, networks, advertisers, equipment manufacturers and operators? Who and what will be the catalyst for the development of a system that enables distribution of UGC on all major set-top boxes, wireless and personal computer platforms?

4. Conclusion

The leap of UGC from the personal computer to the television is far from transparent, and integration is a conundrum. However, this should not inhibit iTV designers and developers from building interfaces and applications that are scalable for browsing, sharing, and recommending of video content. What is at stake is the next generation of social uses for interactive television.

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