"My (TV) Space" – Using Subscriber Management Systems to refine and redefine video-based social networking

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Abstract

Social networking sites like MySpace and Facebook have enabled on-demand user-generated content to millions of viewers. In this paper we ask whether it is possible to leverage social-networking web technology, user-generated video, and cable infrastructure to provide a "best of all worlds" experience for these millions of viewers.

INTRODUCTION

Glass Houses

Social networking sites have enabled, for better or sometimes worse, unfettered access to as much personal information as individuals dare make public. When Warhol uttered the line about everyone being famous for 15 minutes, he appropriately conjugated the verb with a "will" rather than a "may". One feels that it is fast becoming impossible not to be famous for 15 minutes. In this "glass house" environment, cable potentially has a role in allowing subscribers to selectively draw the shades. Subscriber Management Systems (SMSs) have long served as a means to provision specific services to subscribers. Such services typically include high speed data tiers and subscription VOD packages. Why not take this a step further and allow subscribers to act upon service and account information so as to offer personal content in a more selective manner?

The TV is King.

A further aspect of MySpace and Facebook video-sharing is that the display mechanism is on the PC. Cable technology has the easiest consumer access to the most preferred viewing device for video: the television. According to a 2008 CTAM study, 96% of adults who subscribe to cable or satellite services prefer to watch television on traditional TV sets. [Reference: CTAM] While it is possible for viewers to hook up a PC to the television, the process remains more difficult than accessing content via a cable set top box. Given Cable's widely deployed VOD infrastructure, can Cable leverage its customer-friendly on-demand access to the television to provide user-generated content via the television?

This paper investigates three scenarios for selective entitlement of subscriber-generated video content via cable: local sharing, global sharing within an MSO, and global sharing across MSOs, all of which may in fact overlap. In all of these scenarios, the solution acts as a trust broker, allowing subscribers to issue entitlements to other subscribers – friends, family and/or acquaintances. The cable operator stores the subscriber-generated video content, uploaded via a web portal over an MSO's high speed data service, and maintains the associated entitlements on the subscriber's behalf. The solution provides a mechanism for the subscriber to allow or revoke entitlements on any subset of the subscriber's content.

THE GROWTH OF USER-GENERATED CONTENT

The question could be asked, "Who cares about user-generated content anyway?" and the answer is a resounding "Users do."

In terms of user-generated video specifically, in 2005 there were 3.3 billion user-generated video views, growing to 34 billion in 2008. [Reference: MediaPost]

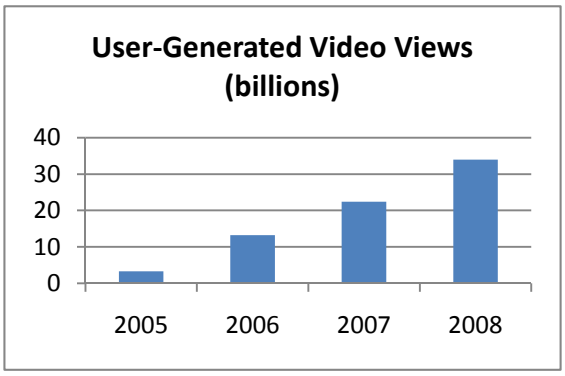

Figure 1. User-Generated Video Views

Cable has an opportunity to tap into this phenomenon to provide a value-add service that brings this wealth of user-generated content in a user-friendly manner all the way to the television set.

THE VISION

The "My (TV) Space" vision starts with a social networking web site providing all the features of the current "social sites" of today: account management, profile management, "friend" management, and content management. Content management today includes text, photos, and video. So, on the social networking web site users can upload user-generated content and share it with one or more of their friends. Note that this web site could be an existing social networking site, an existing MSO web portal, or a new web site.

Now, envision a connection between the social-networking web site and an MSO site. The social-networking solution would understand the connection between web users and MSO subscriber accounts, deliver user-generated content to the MSO site, and inform the MSO site of what subscribers have access to what content.

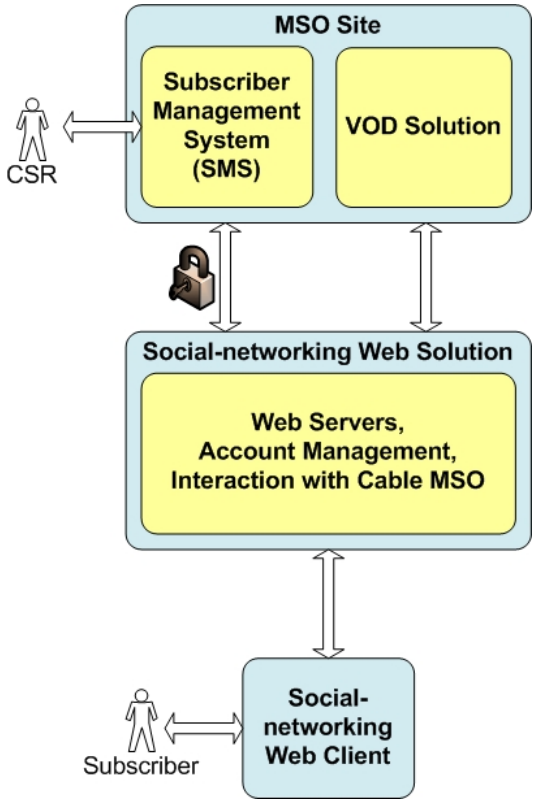

Figure 2. High-level System Overview

Subscribers at the MSO site can subscribe to the user-generated content subscription package in order to gain access to the user-generated content that their friends have shared with them. As in subscription Video-on-Demand (SVOD) packages, the user may subscribe to the package via an interactive screen on the EPG or through a web portal.

(Unlike SVOD packages, the user would not necessarily subscribe via a call to a CSR.)

The MSO's VOD system would be extended to understand the per-subscriber, per-content entitlements to conditionally allow subscribers to access the user-generated content. Titles will automatically appear in the subscriber's VOD portal—either a special social-networking VOD client application or a special category in the existing VOD client. Though outside the scope of this paper, there are many possible ways in which cable subscribers viewing user-generated content may provide feedback to the content author or other viewers about the video.

"MY (TV) SPACE, YOUR (TV) SPACE" – THREE SCENARIOS

At least three basic scenarios exist for selective entitlement of subscriber-generated video content via cable: local sharing, global sharing within an MSO, and global sharing across MSOs.

Think Local, Act Local

In the local sharing scenario, a subscriber might share content with schoolmates or with members of a neighborhood association. Another example is a subscriber sharing video content of little league games with the families of the other little league players. These groups are geographically local by nature and thus could be served by a single MSO site (e.g. a single city). The cable operator can easily manage entitlements and video content within the confines of the local VOD system.

Think Local, Act Global

In the global sharing case within an MSO, a subscriber might post video to extended family, to dispersed college friends, or to remote colleagues. In this situation a cable operator with a national footprint must be able to exchange entitlement information and content across its markets. So in our little league example, the Malibu-based grandparents of the little league player in St. Louis could watch the video of the game. Of course, even cable operators without national footprints can participate in this use case through integration with a web portal incorporating streaming video.

Think Global, Act Global

An enhancement of the above case extends the solution to share video content across markets that span multiple cable operators. In this solution friends can share user-generated content via Cable television regardless of the city or cable operator. This service could be provided only as long as the viewer's home market is part of a coordinated effort among the cable operators.

A SOLUTION – THE UNITED FEDERATION OF CABLE SYSTEMS

One solution option to implement the "My (TV) Space" vision by necessity involves coordination of subscriber information across MSO sites, coordination of content across MSO sites, and coordination of entitlements across MSO sites.

While a "united federation of cable systems" with coordinated entitlements, content, and subscriber information may seem to be somewhere between the implausible and the impossible, the introduction of social-networking solutions which can leverage SMS interactions may simplify some aspects of the solution.

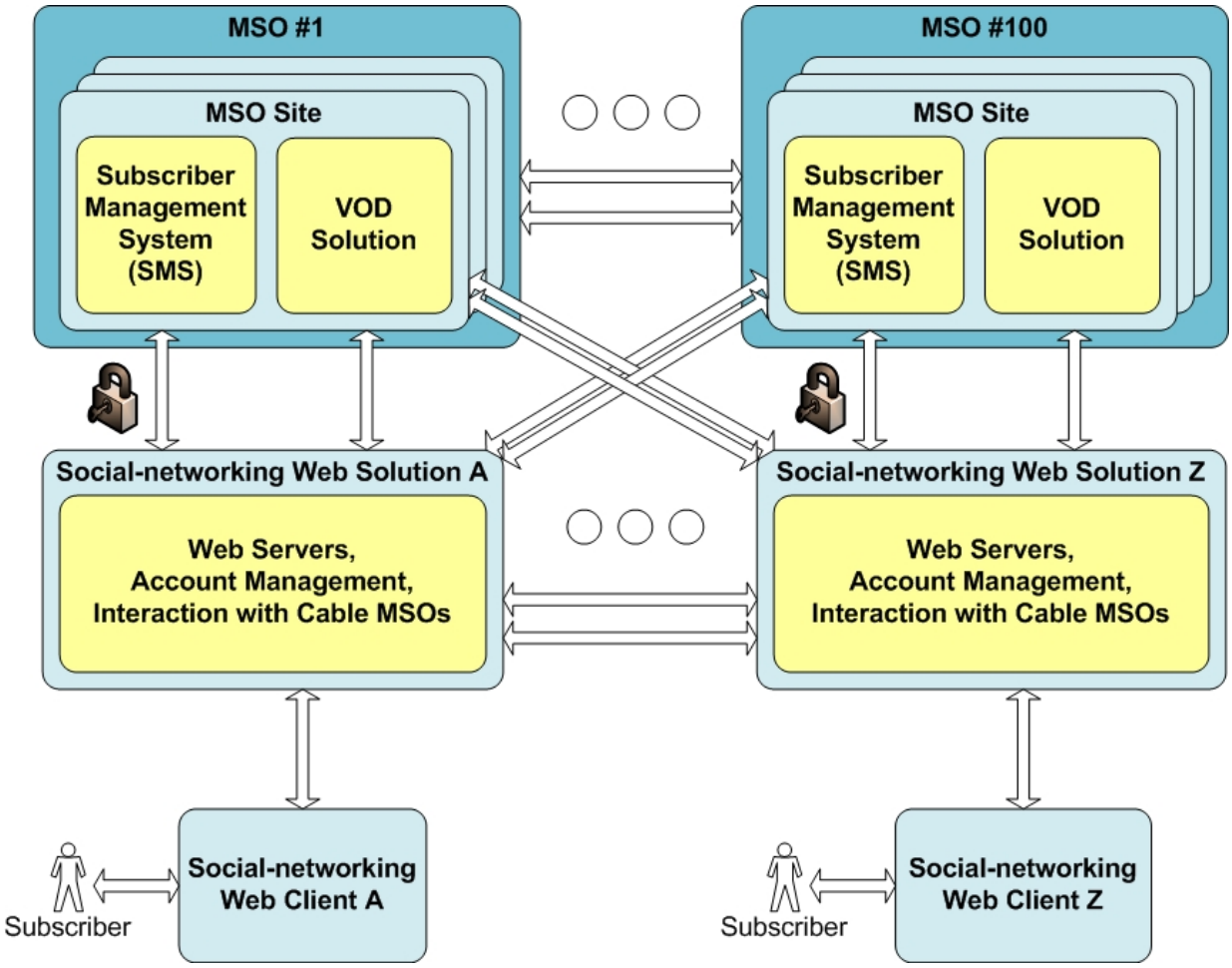

Figure 3. Cross-MSO System Overview

TECHNICAL ASPECTS OF THE SOLUTION

Now let's explore some technical aspects of the solution.

The Social-Networking Web Sites

The social-networking web sites will provide a web-based control interface to users of the system. Capabilities to manage profiles, connect friends, upload videos, and assign viewing access to videos are key aspects of this component. Technical considerations here involve using web development technologies or perhaps partnering with existing social networking sites. Note that this site could be an MSO-branded site or a social-networking site which is independent of MSO interactions. Also note that multiple social-networking sites could be supported by the overall solution.

One new function of the "My (TV) Space" web solution will be back-end transcoding of video to a format conducive to display on cable set top boxes. Existing CableLabs content encoding standards and existing MPEG transcoding technologies may be leveraged for this purpose.

Federated Cable Subscriber and Cable Service Information

In order to enable content access to only those cable viewers who have subscribed to the user-generated content package, the solution as a whole will need to understand cable subscriber information (and package entitlement) across cable operator sites and even across the cable operators themselves. This will require interaction with existing Cable Subscriber Management Systems (SMS's) to coordinate the information. Several industry-standard or existing SMS-vendor interfaces may be leveraged for this interaction.

Federated Assets (Metadata and Content)

A key element of the solution is to allow user-generated content to flow to cable operator networks. This will include both the user-generated videos and the metadata associated with the videos such as title, description, length, and the user who created the content. This data will need to move across MSO sites and across multiple MSOs as well. One approach to getting this content and metadata to the service provider site is to leverage existing CableLabs Asset Distribution and Metadata interfaces.

Federated User-specific Asset Entitlements

Once the correct assets are on the MSO site and the VOD solution recognizes that the account has access to the user-generated content package, the solution still needs the entitlement information of which users are entitled to which specific assets. This information will need to be provided across the cable operator sites and potentially across the cable operators.

Federated User-generated Content Session Feedback

As cable viewers interact with user-generated content there exists an opportunity for feedback to the social network. This feedback could be as simple as the number of views for a given asset. Furthermore, the cable viewer could send messages back to the user who generated the content such as "Great Video!" or "Very funny!" Again, this aspect of the system is a subject unto itself, but the basic feedback mechanism must be acknowledged.

Social Networking VOD Applications

The cable operator's VOD Application Server and VOD Client may or may not change depending on the approach taken to the solution.

One approach is to leverage the existing VOD Application. By enhancing the existing VOD application server and client, the VOD system could display a "User-Generated Content" category in the existing VOD Guide. This category would contain the titles of the user-generated content that the subscriber is entitled to view.

Another approach is to develop a new VOD Application. There are advantages to providing a new VOD Application (server and client), for example, leveraging tru2way, to form the solution. The viewer could be provided with a branded custom "User-Generated Content" user interface with features specifically designed for interacting with social networking user-generated content. The VOD client experience then becomes an extension of the web-based experience. This approach might further benefit cable operators by providing a means to "upsell" set-top devices capable of

supporting more sophisticated user interaction.

NON-TECHNICAL CHALLENGES

There are some non-technical challenges that need to be overcome. Among these are potential legal challenges. Most social networking web sites have site guidelines prohibiting upload of copyrighted or illegal material. Will this be sufficient in the domain of cable networks? Will the social-networking web site need to provide moderation of video uploads? These challenges will need to be overcome prior to adoption of user-generated content solutions on cable networks.

WHAT THE FUTURE HOLDS

Given the infrastructure described above the possibilities for new functionality are endless.

Cable operators can extend the approach to create appealing and easy-to-use new services, including:

- Video albums containing personal content and links to entertainment content to be shared among a limited audience.
- Personal TV channels, programmed by the subscriber
- "Internet TV" – bringing web-based series programming to the TV. Today, these series can be found at web sites such as blip.tv and Crackle.com.
- Video mail – either multicast or unicast
- Real-time subscriber interaction across cable systems – chat with your friend in a different city via the TV screen – even if your friend is serviced by a different MSO
- Multi-screen – TV, PC, Mobile content availability

Such services amount to a natural offering, in keeping with cable operators' position as a trusted provider.

CONCLUSION

With the ever-increasing ways for people to consume video, Cable operators face ever-increasing competition for the eyes viewing that video. The "My (TV) Space" concept, as described here, explores some of the technical aspects of providing user-generated content in a user-friendly manner to cable-enabled televisions across the globe. The challenge of cable operators will be to further leverage the efforts of those individual content creators and to move those user-generated content viewers from small-screen PCs back into the big-screen living room.

REFERENCES

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[MediaPost] MediaPost (1/31/08) "User Generated Video Expects 34 Billion Views in 2008"