

# Building Social Services

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**Abstract-** Making a service social means providing a way for users to engage with a product or service as a group. We are specifically interested in groups based on connections that are established using the emerging online social networking tools like Facebook, MySpace, etc. This paper explores the value chain dynamics resulting from the integration of social networks with a given service. The example we will be using in this paper involves social TV applications, with a focus on social discovery. We hypothesize that these mashup social services introduce new control points in a given service's value chain, which complement or compete with existing control points. The paper focuses on the North American experience.

## I. INTRODUCTION

Making a service "social" means providing a way for a user to engage with a product or service as a group. We are specifically interested in groups based on connections that are established using online social networking tools. Today's social networking tools are manual, opt-in, two-way systems for generating an *explicit* social graph. A user invites other individuals to join his or her network who in turn accept, reject, or ignore the invitation. The term "friending" is often used to describe this process. Other models for social networking exist, including those that *automatically* generate the social graph based on users' communication patterns (the *implicit* social graph), as well as user-owned social networking tools, but these are outside the scope of this paper.

While many services or websites have built their own proprietary social networks with the goal of "socializing" their offerings, we are seeing a trend towards using APIs of the larger, more popular online social networks (OSNs) like Facebook Connect, Google Friend Connect, and MySpace ID. The Facebook Connect API, released to the public in December 2008, is one of the most popular of these in terms of implementations, and as of August 2009, over 15,000 sites are using it [1]. (According to one report, Google's Friend Connect has been installed on over 5 million websites, however none of these involve any of the larger brands, while Facebook Connect implementations include CNN.com, NBC.com, ABCNews.com, Hulu, WashingtonPost.com, and others.)

The API allows users of a participating site to sign in with their Facebook ID and subsequently makes the user's Facebook data available to the partner site. According to Facebook's platform guidelines, participating websites cannot share the information and must delete it after 24 hours. Activities conducted on the third-party site are fed back to

Facebook and thus shared with Facebook friends in the Facebook domain. Furthermore, users can connect with any of their Facebook friends who are also registered with the third-party site in that site's domain. The Connect API is a quick and easy way to implement social tools. It's important to note that at this point in time, many services using Facebook Connect are more interested in the single sign on function and resulting data exchange than they are in enabling social functions.

This paper explores the value chain dynamics of "social services" using social TV as a case study, with a focus on social discovery applications. Unless specified, social TV includes both operator-based "TV" services (cable, satellite, telco) and online "video" services. We hypothesize that these mashup social services introduce new control points in a given service's value chain, which complement or compete with existing control points. The paper focuses on the North American experience.

## II. THE SOCIAL COMPONENT

One of our key research questions is, how, exactly, and to what end are services making use of social relationships? The most basic purpose of online social networking involves interpersonal communication. This kind of interaction fulfills our emotional and psychological need for connection and companionship, regardless of how inane the interaction may be. The result is an overflowing repository of personal information.

Not surprisingly, most of the hype regarding the business opportunities for online social networking has thus focused on the potential for targeted advertising and viral marketing. However, advertisers and marketers have had a hard time exploiting the potential of social networks, discovering that they are not the best place to promote and sell products and services. Advertisers are wary of associating their brands with the "personal brands" of OSN users, but the bigger concern is that people aren't logging on to search for or buy things; they're there to socialize. Furthermore, users' desire for privacy and more fine-tuned controls for creating sub-groups (closed loops) of friends conflicts with advertising and viral marketing goals. At the same time, there are questions regarding the validity of friend networks in marketing. This is not to say that a successful model will not be found, but the focus on marketing and advertising may be obscuring the role OSNs can play in the value creation process.

If we go back to our definition of a social service—a service that enables users to engage with a product or service as a group—we are suggesting a particular model of customer integration into the value chain i.e., *via online social networks*.

Many studies have looked at the interaction between customers and suppliers, exploring customer-based value creation. Value creation processes range from those related to the design and manufacture of products and services, their distribution and delivery, and their consumption or use. These studies define customers as “co-creators of value,” and while they recognize the role of online communities in the collaborative relationship, the role played by OSNs in particular is new and intriguing territory, both in terms of the functionality of the applications themselves (i.e., what they enable users to do) and value chain dynamics (i.e., the interplay of the OSN value chain with other applications or other service value chains). We are in effect adapting the notion of customers as co-creators of value to social networking applications, i.e., *friends as co-creators of value*.

Networks of friends differ significantly from more open online communities, or the “crowd,” where, typically, individuals who share a common interest or experience become part of the same community, whether they want to be associated with one another or not. Many social applications like blogs and wikis create communities and foster group activity and social bonding, but these do not circumscribe groups the way online social networks do.

In principle, OSNs should, because of the two-way, opt-in nature of the friending process described earlier, result in a familiar and trustworthy network of individuals. Whether this is actually true in practice is a separate research question (e.g., out of politeness or peer pressure, people may reluctantly accept friend invitations from individuals they really don’t want to be connected to, either because they know them too well, or not at all), and one that is beyond the scope of this paper, however, for the sake of developing our case study, let us say that, *ideally*, friends are familiar and/or trusted (or at least vetted by trusted parties), and, perhaps more importantly, they can be identified and held accountable because their identity is known [2].

At the very least, trust and familiarity add value to social applications by generating meaningful or relevant interactions, e.g., chatting about a TV show with someone you know as opposed to a stranger. At most, trust is a requirement, e.g., social networks become crucial mechanisms for accountability in peer-to-peer networks.

To sum up so far, social networking applications provide a means for groups of friends to participate in the value creation process. Potential exists for just about any service to integrate social applications. The remainder of the paper will use social TV as a case study to explore in greater detail how friends co-create value. Social TV is one of the richer examples of social applications, and perhaps one that may benefit more than others from adding social context. We will start by giving an overview of social TV.

### III. SOCIAL TV

The term “social TV” has emerged within the last couple of years to describe a new breed of applications that integrate communication services like voice, chat, and context awareness to support a shared TV experience. That is not to

say that the social aspect of the TV experience is new. When television came of age in the 1950s, the TV was a shared device and consequently, watching TV was typically a communal event. But today, TVs are less of a luxury item and it has become common for the typical home to have more than one TV, where individuals or smaller groups watch their preferred programs separately. In effect, we have seen the growth of “anti-social TV” watching, where the shared, or social aspects of the experience have all but disappeared or are limited to those interactions that are disconnected from the TV experience and supporting infrastructure (like chatting about this week’s episode of *Lost* around the water cooler, or perhaps online or on the phone while watching TV.)

But shared viewing, along with the other basic social processes related to TV consumption like commentary, ratings, and recommendations, are reappearing as social TV applications, which themselves are driven by *convergence* and the *personalization* of TV/video—the delivery of services to communication devices that are personal, including PCs, cell phones and PDAs (as well as TVs)—and the *social networking* trend. Personalization creates a more individualized experience, but because today’s personal devices are networked—they are two-way communication devices (and therefore social) by design—that experience can be shared among other individuals. Furthermore, online social networking tools have made the sharing experience a more structured and convenient process. For example, YouTube’s “share” feature initially enabled users to forward links via email, where each email address was inserted individually (which is useful, and actually a better system if the user has very specific targets in mind). Today, the “share” feature includes automatic posting to MySpace and Facebook, as well as sending by email.

As new technologies emerge, new social TV processes will arise while traditional ones will become increasingly automated or enhanced. Many of these will be related to the consumption or usage aspects of value creation, while others may enable social-based creation, production, and distribution, and even delivery, as explorations into the use of social networks as the basis of peer-to-peer delivery networks are in progress [3].

In short, defined groups of individuals can interact with each other via personal devices, engaging in myriad social processes through various applications for a new type of shared TV experience.

We classify current social TV applications into several high-level categories in terms of their basic functionality, including:

- Shared viewing and interaction
- Ratings and recommendations
- Shared content distribution (e.g., P2P distribution, posting YouTube videos on Facebook, the networked DVR [4])
- Shared infrastructure (peer-to-peer delivery networks)
- Shared content creation

Applications are being developed for both operator-based TV and online video services, and include single-device experiences (sharing YouTube videos on your PC) or those that involve multiple devices (twittering from a cell phone to the TV).

In the world of cable and IPTV services, social TV experiments began with STB-to-STB communications in the early 2000s. Within a few years, IPTV middleware like Microsoft's MediaRoom as well as next generation versions of Tru2way middleware for digital cable, were used for shared viewing applications using instant messaging-like capabilities, text bubbles, or even avatars that overlay the watched content, enabling friends watching the same program on separate TV sets to chat and exchange comments.

But operators are now starting to integrate *web-based social networking* directly into their offerings via the STB. Sites like Facebook and MySpace have been complementing operator services with features like movie recommendations and comments for the last few years, but in a loosely-coupled way. Consumers may recommend content through their online communities, for example, and then turn on the TV and interface with the EPG (electronic program guide). Although the process can be more synchronous than the water cooler scenario, it is still a technically separate process. Examples of more integrated experiences include Facebook and Twitter widgets, announced in early 2009 by Verizon FIOS TV. Users are able to twitter and post Facebook status updates alongside whatever program they are watching. The applications are not "bound" or linked to the content being watched, rather they run parallel to it, like the EPG.

It is hoped that the widget model will provide a better integration of social processes and content distribution (on a single screen) than the initial experiments using IM, text bubbles, and avatars. Nonetheless there is still debate over whether a single-screen offering is more or less appealing than a multi-screen offering (and, more generally speaking, how to design applications that enhance rather than obstruct the TV experience).

The early experiments suggested keeping channels for content distribution separate from communication and interaction, and some companies have designed social TV applications with this in mind. Orange Mobile for example, partnered with M6 (a French TV channel similar to MTV in the U.S.) to create a social networking application that complemented M6 content, using the cell phone for social interaction. (Orange mobile had originally created a mobile video portal but discovered that users were not interested in a stand-alone mobile TV experience. At the same time, users were interested in social TV features so the best use of the mobile channel appeared to be as the channel for the social networking tools and applications.) As TV in general moves to a multi-platform model, we will likely see both single-screen and multi-screen models.

In the case of online video, services like Hulu, and Netflix integrate social networking features like program ratings, "favorites" lists, discussion forums, and multi-user chat

sessions directly into their offerings. Some use proprietary social networking tools while others have leveraged the more popular OSNs as discussed earlier.

At the same time, OSNs like Facebook and MySpace have embedded video applications into their own sites. In addition to sharing movie and TV recommendations, subscribers to these social networks can now stream selected content in their personal pages for a shared viewing experience with visitors and "friends," thereby becoming video distribution platforms in their own right, where the experience is social by design. Facebook is close to becoming one of the top ten online video sites, according to a comScore report released in May 2009. At the time the survey was conducted, the OSN was in 11<sup>th</sup> place for the number of videos viewed, after Disney [5]. In terms of the number of unique viewers, Facebook entered the top-10 list (at number 10) in July 2009 [6].

For the time being, the video content found on Facebook is primarily user-generated: personal videos posted directly on the OSN (about 40% of uploads come from webcams [7]) or brought in from YouTube using YouTube's Facebook application. But some content producers have begun experiments with distributing commercial content directly to customers, through Facebook. In August 2009, for example, NBC posted the pilot episode of its new comedy series, *Community*, on a special *Community* fan page in Facebook. The design of the experiment had several problems in terms of the quality of social experience (e.g., the pilot episode was posted on a fan page, which means the community surrounding the show was not comprised of friends but of "fans," most of whom were strangers to each other), but it illustrated the potential of Facebook as a video distribution service for premium content.

Overall, designing group-based, and multi-platform experiences for TV or any other service is challenging on many fronts. We are still in the early stages of exploration, with few examples to indicate which applications will be most successful for either the operators or online providers (although some experiments have already indicated what *doesn't* work), not to mention advertisers, or that social networks will in fact comprise the underlying context or foundation for the TV/video experience.

#### IV. THE SOCIAL TV VALUE CHAIN

Whether for online or operator services, social applications are transforming the TV/video experience for consumers, but from a value chain perspective, they are adding new functions to the TV/video value chain and therefore opportunities for value creation and capture, or what we call control points. Some of these functions will complement or augment existing functions, while some have the potential to replace existing control points that are managed by traditional players. In the case of the emerging OSN mashup model, this means that social networks like Facebook and those offering similar APIs will play an increasingly important role in the social TV/video value chain as social graph and social application providers. And as discussed above, they also have the potential to

become video distribution platforms in and of themselves. This next section will discuss the implications of the entry of OSNs into the TV/video value chain.

Over time, we've seen new functions and their associated control points enter the TV/video ecosystem, like *recording* with the VCR and DVR, and *place-shifting* with the Slingbox for example. Likewise, with social TV we're seeing the entry of new social functions including those related to creating groups (friending), and those related to the TV experience itself, i.e., shared viewing; ratings and recommendations; shared content distribution; shared infrastructure/delivery; and shared production/creation.

There are multiple ways to build social TV services. Models will depend on the functionality (which social TV features are included), and on the model for the TV/video service (cable vs online video, etc.) as well as for social graph provision (proprietary vs third-party OSNs, etc.).

Given that social TV is nascent, there are not many examples of full implementations to draw from. For the time being, one of the more salient examples, which we have started to explore in more detail, involves "social discovery" through ratings and recommendations.

## V. SOCIAL DISCOVERY

Social discovery, sometimes called social filtering, can be viewed as one of several recommendation systems that help users navigate through vast content choices. Other recommendation tools include "expert" or editor picks (professional reviewers or promoted by the service); choices based on similarities or commonalities with other content; and collaborative filtering (suggestions are made based on previous choices and comparisons with other individuals who made similar choices). Social recommendation is based on the usage patterns of one's peer group and usually complements other recommendation systems. Netflix for example uses a combination of recommending films based on common traits with other films the user liked (actors, genre, etc.), collaborative filtering based on ratings, and social recommendations.

Each of these systems requires different capabilities and produces different results for the user, but for our immediate purposes, the more important comparison is between collaborative filtering and social filtering (since one is based on the "crowd" and the other on friend networks). Collaborative filtering is by far the more technically complex of the two and the most commonly used. However, with the increase in content sharing and social media in general, there is anecdotal evidence that social recommendation tools are becoming an important aspect of TV/video services.

Hulu, for example, announced Hulu Friends in March 2009, which allows Hulu account holders to create friend networks inside the site. Among the features of this app is the recommendation and ratings of content; friends share their preferences, which then forms the basis of content choices for peers and, in effect, results in the "sub-aggregation" of Hulu content. Netflix has a similar feature, which allows users to

friend fellow Netflix subscribers and view their activities and endorsements of films they are interested in.

While the social feature in these two examples is "buried," i.e., one must drill down a few layers to the "friends" section of the site, Boxee's interface integrates friends' activities and recommendations directly into the welcome screen as a "sub-aggregated" or "pre-aggregated" stream of web video content (in this case a stream refers to a list of content, presented as a row of icons a user can scroll through horizontally). In this sense, Boxee is a higher-level (meta) aggregator, organizing multiple web video services into a one-stop shopping zone, similar to the traditional operator model. The friends' activity stream is presented alongside recommendations by Boxee, as well as "recently added" and "recently used" content and apps. In this way, social recommendation systems, depending on how they are designed, have the potential to form the primary interface for users, not unlike the "favorites" lists on cable and telco TV offerings. Many users will only surf these "sub-lists" of programming rather than the full EPG, the difference with social recommendations being that the list is based on the peer group's viewing preferences, not just those of the individual user.

In each of the three cases, the video service provider—Hulu, Netflix, and Boxee—own the social graph and thus create and capture value associated with the social discovery functions. For the user, getting recommendations will increase satisfaction and in turn draw more users. For Netflix, which relies on subscriptions for revenue, accurate matches—those that make customers happy—are key to their business model. For those video services that rely on advertising, more viewers mean higher ratings and therefore more ad revenue. Furthermore, the application generates data about their users that will help advertisers target their ads.

However, with the OSN APIs, a different model and corresponding set of dynamics results. Netflix, for example, has implemented a Facebook Connect application, which allows a user to log in with their Facebook account and feeds their ratings (a Netflix application) back to the user's Facebook page, thereby sharing their preferences with their typically much larger Facebook social graph. Each rating also has a feature that allows Netflix subscribers to add the title to their queue from within Facebook (although the user is taken out of Facebook and to the Netflix site). In this way, Facebook becomes a new control point in Netflix's value chain. No fees are exchanged (the API is free), but other forms of value flow back and forth: Facebook gets data about Netflix users and more content for its site in the form of ratings, while both the Netflix service and individual movie titles are promoted inside Facebook. For Netflix + Facebook account holders, the Connect application has the potential to increase the number of recommendation sources. And because users will tend to spend more time in Facebook than in Netflix, they will have more opportunities to see them. It may be for this reason that Netflix has chosen to use the Connect application to feed ratings back to Facebook, rather than to import Facebook

friends into Netflix, which is how the potential use of Facebook Connect is typically described.

It is not yet clear whether the social discovery tools actually improve the accuracy of matches and therefore customer satisfaction. Not all friends share the same taste, and not all friends put that much time or thought into their ratings. On the other hand, one or two friends may serve as a user's key "trusted advisor," because of their expertise or because they share movie tastes. At the very least however, as noted above, social recommendation tools will complement Netflix's collaborative filtering algorithms.

It is also significant that Netflix is not an advertising-based model, and so feeding any Netflix activities back to Facebook cannot hurt Netflix. There is no risk of losing advertising eyeballs to Facebook. By comparison, consider the case of *Goodnight Burbank*, an online-only sitcom. Back in 2007, the producer had found a fan base for his show in Facebook, but because users preferred to view the show inside Facebook (using video streaming applets) rather than on the site that hosted the show (blip.tv in this case), Facebook effectively siphoned *Burbank's* eyeballs—and the associated advertising value—into its own site. This led the producer to build his own social network around his video content, however this solution limited the potential for an extensive social TV experience and viral marketing of the show—exactly what Facebook was good for. (Following a one-year hiatus in 2008, the show has returned and is now hosted by online video distributor Babelgum [8].)

In the world of operator-based TV services, many of the same dynamics apply, but the value chain is far more complex, especially as operators begin to integrate the broadband delivery channel into their offerings. Furthermore, live or scheduled viewing (and thus time-shifting) is still the primary mode of consumption (as opposed to video-on-demand), adding a dimension to social discovery that is typically not part of online distribution and therefore additional design challenges. (For example, an application that lets viewers know their friends are watching another channel at the moment could easily lure eyeballs away from one program to another.)

As described above, the earliest forms of operator-based social TV involved features that allowed subscribers to connect with each other so they could chat while watching TV. In this way the operator was building its own social network. But with the rise of OSNs, applications that integrate Facebook, Twitter, etc. are starting to appear. Most of these do little more than allow users to chat alongside programming as well, and while users may indicate they watched or are watching a particular program, this is not a very rich social discovery model. A more interesting example is Facebook TV (see Baca et al. [9]). Developed as a pilot project at the MIT Media Lab, Facebook TV enables the DVR to communicate with Facebook so that users can program their DVRs automatically, based on what their friends are watching. The social network look and feel is incorporated into the TV UI with some minor changes, e.g., a menu item (e.g., my friends' favorites) and/or a real-time chat application for shared

viewing. In this model, Facebook is the social graph provider while the application would be offered by the operator, similar to Verizon's FIOS model. As with the online social TV examples described above, this results in the sub-aggregation of the operator's content based on friends' activities.

## VI. CONCLUSION

Overall, groups of "friends" increasingly play a key role in recommending, rating, programming and even creating the content for the group to watch. In this sense, users—as a group, and enabled by social networking tools and applications—are taking on some of the distinguishing roles played by traditional operators and the newer online aggregators alike (minus the scheduling). In other words, the group as an entity functions as a "virtual operator."

Social Networking sites like Facebook or MySpace can thus play a key role in the TV value chain—as the social graph providers, or even as the video distributors—competing with traditional operators and online aggregators for control over distribution as well as valuable user data. We have already seen a shift in control from the operators, and even the broadcasters, to the content providers, who can now distribute directly to consumers or through aggregators they themselves control via the public Internet, like Hulu or the Major League Baseball (MLB) site. As social networking becomes more important, the OSNs become an important new partner, with which the content providers must deal.

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