

Socialight: Social Network, meet Mobile Network

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Introduction

Over the next few years, the interpersonal communication technologies that we use most often will undergo a transformation. The locations from which we communicate, until now hidden or exposed only through manual means, will become important contextual elements of a large portion of our exchanges. With this change will come a host of new possibilities for the mediated connections we make with others. The geographic context of our conversations will not only provide an important additional data point about those with whom we converse; it will help create entirely new modes of communication as well.

Often, when people first learn about the capabilities of Socialight, a set of mobile communications applications I helped design, their first reaction is disbelief. They are taken aback, not that their phone might know where it is – they usually know about GPS (Global Positioning System) and other location technologies – but people often express the opinion that Socialight's form of location-based, one-on-one, mediated communication represents very new modes of communication. However, they also seem to surprise themselves with how quickly and naturally they can think of examples for how it might be used. Enabling Socialight on a mobile gadget does require a number of complex technologies working in concert, but in fact, the idea behind the interactions it allows is simple and ancient. One-on-one conversation on a city street is perhaps the simplest kind of communication there is, but until now, technology has not done much to enhance these types of interactions. In fact, communications technology, on the

balance, may have done more to reduce their incidence. Socialight is designed with the hope of re-enabling and enhancing these types of interactions. The system allows mediated, interpersonal communication to be place-based and personal but lightweight; conversations can be asynchronous and people do not need to specifically choose each partner with whom they converse.

Socialight is made up of multiple applications built on top of a common platform. The platform provides for media storage and management, a social network database that tracks connections between – and information about – people, and tools for connecting to user interfaces, including a web site and mobile applications. Furthermore, it relies on database and application servers and some more advanced capabilities of mobile networks such as location-based services and advanced data services. Socialight calls its first application to be built and launched, a place-based messaging system, Sticky Shadows.

A person using Sticky Shadows decides that there is something about the place where they are that they wish to capture, and potentially share with others. The person aggregates some media or information about the place – they compose a snippet of text, snap a photograph, or record some video or audio. Then, they place the Sticky Shadow, ‘attaching’ the media they have captured to the spot where they captured it. The composer has access to a host of options for the Sticky Shadow, but the most interesting choice might be to whom the message is made available. Instead of sending the message to others directly, as through short message service (SMS), email, or telephone call, the message is published to that specific location. And only those people or groups with access to the message can see it – when it buzzes and pops up on the screen of their mobile device as they approach the same location.

We designed Socialight because we were (a) excited about the new types of communication made possible by location-aware mobile devices and (b) frustrated by some of the limits of the technology we already used. As heavy users of instant messaging (tools like AOL Instant Messenger), my colleagues and I had grown accustomed to being able to send short messages and have lightweight conversations with our friends and workmates. But we were frustrated that, though newer mobile phones often supported instant messaging (IM), their standard interfaces did not take

into account anything about the place from which one chats, a set of data points that we thought could make some of our conversations much more interesting.

The Socialight system integrates with mobile data networks and mobile location services already built by mobile network providers. The system is designed to be agnostic to how the mobile device makes its connection with data networks and retrieves location information. In fact, there are a number of ways to retrieve the location of a mobile device, including satellite-based positioning systems such as the US-controlled GPS, and wireless data network-based methods such as those using triangulations between cellular towers. And mobile service providers have the ability to capture increasingly detailed location information. This is especially true in the US, where E911 legislation mandates the availability of location information for those calling emergency services dispatchers from wireless devices. A similar, though less mature, initiative called E112 exists in Europe.

Socialight is an example of social software, a broadly defined term that refers to computer-based tools that facilitate interaction and collaboration. Social software is nothing new. Many of the most powerful networked software applications, such as email, message boards, instant messaging, and weblogs, are social in nature. These applications, and many more like them, have enabled people to cooperate for business or pleasure, share stories, and, generally, keep in touch. Socialight seeks to create useful mobile social software (a category we like to call MoSoSo) and in doing so, make it easy to build and maintain interpersonal connections while moving about and to allow for some interesting possibilities for new types of interaction closely related to the places where the interactions take place.

Mobile Applications and Community

The creators of Socialight are acutely aware of some of the negative social trends in our communities. Especially in the medium and high population density regions found in the United States, people spend a large proportion of their non-working time in private space, in their often large, single-family homes, alone or with family or friends; they commute to and from places of work and leisure in automobiles and, outside of the rigid structures of labor environments, they spend little time in public spaces. Recent

research indicates that the accompanied decreased level of social interaction is having serious negative effects on the mental and sociological health of these populations.ⁱ At the same time, other societies around the world are experiencing similar issues.

Even urban environments, where people routinely move through shared spaces, are morphing into personal spaces. The “urban bubble” phenomenon encapsulates an increasing proportion of people physically close to others as they travel within cities, but existing within a bubble created by media; a music player’s headphones, a mobile phone, and other electronic media devices create barriers to social interaction that are rarely pierced by the people around the user.

However, communities that are considered healthy tend to have a higher degree of social capital, an indicator of community health defined by the Civic Practices Network as “those stocks of social trust, norms and networks that people can draw upon to solve common problems.” The writers of this description go on to say that “networks of civic engagement, such as neighborhood associations, sports clubs, and cooperatives, are an essential form of social capital, and the denser these networks, the more likely it is that members of a community will cooperate for mutual benefit.”ⁱⁱ Perhaps it is possible that mobile applications can ease these social problems while providing entertainment, information, and fun.

Sticky Shadows

Sticky Shadows allow for a host of different types of interactions between people. In their simplest mode of use, a person could set a Sticky Shadow for themselves as a reminder or kind of “life bookmark.” For example, someone could place a message outside a grocery store in the morning on their way to work reminding themselves to pick up milk when they pass the same spot on their way home in the evening. But in their more interesting social form, Sticky Shadows could be used to share stories with others, such as “this is the spot where I had my first kiss.” In this case, a friend of one’s friend stepping on the Sticky Shadow instantaneously becomes aware of something interesting and personal (but not too personal that it cannot be shared generally) about the person who placed the message. Not only does the recipient learn an interesting fact about the place and the person, but they also increase the likely emotional depth and

social connection strength surrounding a potential future interaction with the person who told the story. If the Sticky Shadow's author and recipient meet in person or interact again, they might more easily realize they have something in common or, at the least, have an option for a topic of conversation.

Sticky Shadows could serve various other purposes as well. They could be used for recommendations or reviews – one may tell others about a restaurant at which they just ate or about an intriguing item on sale at a store. A series of Shadows about a place could provide much more useful information than an expert review in a newspaper. Or someone could play a scavenger hunt-type game with their friends, placing Shadows as clues in a designated area and competing against others to pick up as many as possible.

These modes of use are especially powerful due to their relationship with social network data. The data, stored in a database on Socialight's server, represents connections between people. People are tagged as each other's friends or contacts and as members of affinity groups. Based on these connections, individuals setting Sticky Shadows are able to specify who should receive their messages. When placing messages, users can decide to make them available to specific people, all of their friends, their friends and their friends' friends, or selected affinity groups, which could be based on anything from shared interests to the neighborhood where they live.

A Shadow's basic record and configuration includes the media, its geographic place, and the access list of people or groups. It also includes a size, an expiry date, and, potentially, other filters such as the times during which it is available. While default settings allow for the easy placing of Shadows, configuration of these additional filters allow for some interesting applications of Shadows. The size of the Shadow represents the radius of the circle within which the Shadow can be tripped. This is necessary since a Shadow set at a park might be of a very different scale than one set outside a small shop. Expiry times are important for Shadows that should only last a set amount of time before disappearing, such as one that announces a sale going on at the shop. Finally, the composer of a Shadow might want to configure the times during which the Shadow is available for retrieval. A nightclub's Shadow might only appear at night and a shadow set at a farmer's market might only appear on Saturday afternoons.

It should also be asserted that the communication enabled by the Sticky Shadow application is not one-way. Each Shadow could potentially become a conversation about the place at which it is placed. The system allows for easy replies by those who receive a Shadow. When a user of the system is viewing a Shadow on their mobile device, they have to press only one button to place a new Shadow in response to the original message. This ability to create threaded location-based messages can quickly create a community conversation around a specific place and topic.

Social Effects

The social effects for users of Socialight are, as of yet, undetermined since there is no established community using the system at the current time; it is still being developed and tested. We hope to gather much more information as the applications are made available to the public and adopted by user communities. The systems were designed with a major goal in mind, however, of enhancing and enabling social interaction in a variety of ways. Within communities, this translates to the creation, strengthening, and enhancement of communities, based on shared interests, values, and places.

We hope that Socialight's database of connections between people allows us to create new connections between users. Socialight includes two categories of data points for this purpose – a “social network”, and a repository of affinity groups. A social network is simply made up of connections between people. The social network captures data about who a person's friends are. In turn, it is able to compute who is in ones extended social network by creating a list of one's friends' friends. In terms of computer-based applications, web-based tools, such as Friendster, popularized the concept.

For Socialight, the social network serves a number of purposes, all of which act as filters for the media that people access. By including this social network filtration system, we hope to deliver messages that are more interesting to the people who receive them. We can assume that it's more likely you'll want to hear what those in your extended – at least by one or two additional degrees – social network, have to say about the places they go, versus a complete stranger. At the same time, we hope to cut down on unwanted messages, including spam, since there is social pressure on those placing a

message against bothering others to whom they have a social connection. For example, a rational user would likely make the decision, “I am not going to bother my friend’s friends with this Sticky Shadow about where I had my first kiss since they don’t know me and thus, probably don’t care.” This type of social pressure is greater the closer the social connection to a prospective recipient.

Affinity groups serve another, related purpose. People with something in common join the same affinity group so that they can share knowledge about the interest area they have in common. For example, people who enjoy shopping for antiques might join an appropriate affinity group in order to learn and make connections with other like-minded people. When a member of the antique-lovers affinity group sets a Shadow outside the shop of an antique dealer with a review, any member of the same group is able to see this Shadow. Affinity groups might also be place-based; a residential city block might create an affinity group to allow for collaboration around neighborhood issues or people traveling from a city might join an affinity group. A group for “Traveling New Yorkers” might allow a New Yorker visiting a city such as St. Gallen, Switzerland to pay special attention to things in the city that others from their hometown also enjoyed.

By learning what others in one’s network of social connections and affinity groups think about places and things, a person can form new connections with people they have never met, and learn more about those whom they do know. At the same time, it provides a way to maintain relationships in a way that is natural, yet less time-consuming than composing a letter or making a call. The types of ongoing connections fostered by Socialight can be more akin to running into an old friend on the street than the maintenance of a relationship with regular contact.

Through this type of contact, people also could potentially create shared feelings of responsibility and ownership for aspects of their neighborhood. A colleague from Japan, to whom I explained Socialight, quickly thought of deploying the system in a Tokyo neighborhood that is concerned about trash on its streets. If residents of the neighborhood share a common platform with which to discuss a common problem like this, they might be better at mobilizing around it.

In addition to the nurture of social connections, people would be able to provide a form of natural surveillance that can aid community. Urban planners and architects of the last few decades agree for the most part that having what they call “eyes on the street” helps create safer, more cohesive environments for community members. People, living or working on the street, who casually watch over everything that happens there, they argue, serve to deter crime and encourage communal feelings. Jane Jacobs, a noted urban planner, has based her career in part on this idea and discussed the surrounding issues in her seminal work, *The Death and Life of Great American Cities*.ⁱⁱⁱ Technology can serve a similar purpose in promoting community cohesiveness. By allowing people to develop both weak and strong relationships with others who live and work around them, well-designed MoSoSo (mobile social software) applications enable the creation of effective public characters.

Potential Problems

In all cases, in order for people to communicate and work together, they must share some information. Often the parties involved consider some of that information to be personal. And often, people would prefer freedom from the intrusion of information into parts of their lives. Social software can accelerate the process of working together and allow for new types of cooperation, but it also introduces new modes of social interaction that have not been mastered to as great an extent as time-worn modes such as the face-to-face meeting or even the telephone call. A side effect of this novelty is that methods for controlling one’s privacy are not as well developed in the new modes. MoSoSo has the built-in potential to lessen privacy issues since access to personal information can be limited to those within one’s social network, but issues regarding personal invasiveness remain. A lack of privacy associated with a technology, whether real or just perceived, can have strong effects on those choosing whether and how to use that technology.

One type of privacy is freedom from unwanted communication. There are times during people’s daily lives when they would simply prefer not to be bothered. Or they may prefer not to be bothered by certain groups of people. If a close friend wants to get in touch, one might be happy to hear from them, but that same person may not want to

speak with their boss. For MoSoSo applications to be successful, it is critical that they take this subtle, but important issue into account.

Privacy concerns can be more severe when location information about users is available. Users are often worried that location information will be used against them and they would rather keep such information to themselves. Users may be concerned about friends or relatives, strangers, commercial enterprises or government and other organizations knowing where they are. These are entirely valid concerns and it is up to the MoSoSo designer to create tools that mitigate these issues and to effectively communicate how users' privacy might be compromised.

In order to clarify how community knowledge of location can be possible without causing users to feel as if they are under surveillance, I suggest the following core requirements of location aware applications: (1) configuration of others' access to one's location information is performed easily and location information is available only to those whom the person being tracked grants access, (2) one's privacy status and options are made clear to them, and (3) when a user elects to leave tracking off, there is as little social stigma and suspicion attached to this choice as possible. Of course the final requirement will only become pertinent once location aware applications are much more commonly used, but it is to our benefit to start planning and thinking about these types of issues early on. As new modes of interaction become commonplace, new modes of practice will develop quickly.

Contextual Information and the Mobile Toolset of the Future

Key to the functionality of many new mobile applications – including Socialight – is the quality and quantity of contextual information available to the mobile devices and the systems that support them. The contextual information about the situations in which mobile devices are used as people move through their lives will increasingly help our tools to help us. The necessary data can be compiled from varied sources: device-based media capture tools such as cameras and RFID (Radio Frequency Identification) scanners, local and networked data storage, broadcast media reception, and person-to-person communication tools. Some of the data points, such as time, and the people involved in the communication instance can be collected relatively easily and

immediately. Location data is increasingly available with increasing accuracy. Through the aggregation of this data and the development of more advanced tools, the computer-based systems with which we work will be able to make better decisions about how to adapt to the ways we live our lives.^{iv} And through the use of the systems, we may, in fact, be able to strengthen the communities in which we live.

Conclusion

We believe that social software will have a significant impact on the mobile world – as Friendster and other services are beginning to have on the web. Connected with location-based data, well-implemented examples of mobile social software will become powerful tools. They will likely change the ways we routinely interact and converse. In fact, they may even change our understanding of social networks because they will not only strengthen but also enlarge our networks in yet unknown ways. Using Socialight, including its Sticky Shadows application, as an example, this chapter provided a first examination of the potential benefits, and possible pitfalls, of such a tool. The so-called mobile age will – without a doubt – reveal many new ways to foster ties with the people around us.

ⁱ Robert Putnam. *Bowling Alone*. Simon & Schuster. 2000.

ⁱⁱ “Social Capital.” Civic Practices Network, Civic Dictionary. Internet:
<http://www.cpn.org/tools/dictionary/capital.html>

ⁱⁱⁱ Jane Jacobs. *The Death and Life of Great American Cities*. Vintage Books USA, 1992.

^{iv} Marc Davis, Simon King, Nathan Good, and Risto Sarvas. “From Context to Content: Leveraging Context to Infer Media Metadata.” In: *Proceedings of 12th Annual ACM International Conference on Multimedia (MM 2004) Brave New Topics Session on "From Context to Content: Leveraging Contextual Metadata to Infer Multimedia Content"* in New York, New York, ACM Press, 188-195, 2004.