

Beneficial and Disruptive Seams in Mobile Communications

[UbiComp 2005 Workshop 6]

Prashant Velagaleti and Frank Bentley

User Centered Solutions Lab, Motorola Labs

Schaumburg, IL 60196 USA

{ prashant.velagaleti, f.bentley }@motorola.com

INTRODUCTION

The past two decades have seen great change in the ways that people can communicate. From the rapid adoption of email and instant messaging systems to the freedom allowed by ever more powerful mobile devices, increasingly many people today can be contacted at almost anytime, anywhere, via a number of different communication modalities. As such technology has been adopted by cultures world-wide, many have adapted it in different ways. We believe that technologies and applications in the communications space should be designed to recognize that even the smallest of perceptual barriers may play an important role in personal need or social propriety. To this end, we are researching the value of not only bridging seams but distinguishing when, how, and to what extent they should be enforced.

BRIDGING SEAMS

As more communication begins to occur at a distance, we believe it is important to facilitate as many rich interactions that are possible to more accurately respect a user's original intent. In 2001, we conducted a family communication user study focused on discovering key gaps in communication and content sharing experiences [1]. As a result of this study, we observed the lengths that consumers must go to share media with others in the context of a conversation – often unsuccessfully. To better address this need, we designed a user-experience around Push-To-Talk (PTT) which allows users to share a still photo over their mobile phones while engaging in a PTT conversation. The resulting mobile phone prototype, which we dubbed Push-To-View (PTV), provided users with an intuitive means by which to interleave shared images in the context of an active half-duplex voice conversation. The commercial version of this concept was initially introduced in 2004 under various operator brands in several countries [2].

While mobile phones have given us the ability to contact others at virtually any location or time, there is a recognition that possessing more detailed knowledge of the person whom we are contacting beforehand could prove useful in how, or even whether, we choose to

communicate. For example, communication modalities may change if someone is at home or work, or likely to be busy at a given time [3] [4]. We are investigating how the sharing of awareness information about a person's context could help in determining the socially acceptable times to call. Building on the work of Consolvo et al [5] in learning about the places people feel comfortable revealing, we hope to understand how the sharing of such context could help enhance communication experiences among people and help to mediate the meaningful seams of social mores.

As we expand the scope of enhanced communication to encompass a framework for multi-device, multi-display, collaborative media rendering, we are also increasingly aware of respecting a user's desire for less intrusion, and interruption whether in the home, mobile or work space.

PROTECTING SEAMS

We believe that cultural and perceptual seams are important to respect when designing new means for communications. In this sense, a seam is a belief that certain places and times ought to afford different types of communication. These beliefs are rooted in cultural transmission of knowledge including evaluations of behavioral appropriateness for different places.

As Harrison and Dourish point out, [6] places that are perceived as different will have different kinds of activities associated with them. By place, we are referring to a particular location at a particular time. Sometimes the same geographical location can function as multiple "places" depending on the situation. For example, a sports arena can also serve as a venue for concerts or political rallies. Likewise, a public park can be a quiet place for relaxation one day and host to a rock concert the next. As Jones et al point out, even the same place for the same activity can imply different perceived boundaries in communication [7]. There can also be transitional places, like a car during commute or a train ride to and from work, which may be perceptual place-domains on their own. For some, boundaries between domains such as office and home could have corresponding boundaries between work and leisure communication.

RESEARCH QUESTIONS

In moving from one "place" to another, we want to know: do people perceive a boundary or activity shift between these two places? To what behaviors does this boundary apply? Are there certain activities that are appropriate in both places, while other behaviors are only appropriate in one or the other? What kind of boundaries are we talking about: permeable and flexible, impermeable and rigid, or some combination thereof? How is this boundary used by people? Does it shift roles or mediate the demands of others? In what ways is the boundary desirable? Problematic? How does this boundary affect communication/media consumption especially as it pertains to issues of privacy (awareness vs. anonymity, trust, security are all applicable) given their social context?

In the technological sense, a seam is a system stopping point, where the transfer of information becomes technologically obstructed. Is modulating the fidelity of the interaction sufficient to address many of aforementioned boundary concerns of privacy, trust, and the like? Are cultural norms a strong determinant in the propriety of seams and if so must we design systems to be highly flexible in this regard? If seams and culture are found to be strongly interlinked is there a need for the bifurcation of efforts whereby some boundaries should be respected while others are sought to be redrawn with the advent of novel devices and means for consumption?

If we can figure out where people's boundaries lie, how they use them in their daily living, and what the boundaries offer to people, then we can determine if, when and how ubiquitous technologies should span the boundaries. To this end we are conducting a qualitative user study which will combine smaller in-depth observational field work with larger more diverse focus groups. Our goal is to elicit a better understanding for what underlies the appropriateness of bridging or enforcing seams.

BIOGRAPHY

Prashant Velagaleti is a Sr. Research Engineer for Motorola Labs and is a member of the User Centered Solutions Lab (UCSL) in the Applications, Content & Services Center of Excellence. He earned his B.S. in Computer Science from Northwestern University, Evanston, IL. He is currently pursuing a Masters in Product Development at Northwestern University, Evanston, IL under Walter Herbst of Herbst LaZar Bell.

Frank Bentley is a Sr. Research Engineer for Motorola Labs and is a member of the User Centered Solutions Lab

(UCSL) in the Applications, Content, and Services Center of Excellence. He earned his Masters of Engineering and S.B. degrees in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology in Cambridge, MA where he created a framework for perceptive presence applications and participated in Project Oxygen through the Intelligent Room project.

ACKNOWLEDGEMENTS

We would like to thank members of the Motorola User Centered Solutions Lab, particularly Crysta Metcalf and Gunnar Harboe whose work on the aforementioned user study to better understand seams have greatly influenced these ideas.

REFERENCES

1. Motorola Labs Family Communications Field Study. Available at: <http://www.motlabs.com/user/papers/epatrick-crystam-vmc2001.pdf>.
2. Motorola Drives Next Generation Services with Push-to-View. Available at: http://www.motorola.com/mediacenter/news/detail/0,,5177_5171_23,00.html
3. Ho, J. and Intille, S.S. (2005). Using Context-Aware Computing to Reduce the Perceived Burden of Interruptions from Mobile Devices. In the Proceedings of ACM CHI 2005: conference on Human factors in computing systems. Portland, OR, USA.
4. Marmasse, N., Schmandt, C. and Spectre, D. (2004). WatchMe: communication and awareness between members of a closely-knit group. In the Proceedings of Ubicomp 2004: Sixth annual conference on ubiquitous computing.
5. Consolvo, S., Smith, I.E., Matthews, T., LaMarca, A., Tabert, J. and Powledge, P. Location Disclosure to Social Relations: Why, When & What People Want to Share. *Proceedings of ACM CHI 2005: conference on Human factors in computing systems*. ACM (2005).
6. Harrison, S. and Dourish, P. Re-Place-ing Space: The Roles of Place and Space in Collaborative Systems. *Proceedings of Computer Supported Cooperative Work*. ACM (1996), 67-76.
7. Jones Q., Grandhi S.A., Whittaker S., Chivakula K., Terveen L. Putting systems into place: a qualitative study of design requirements for location-aware community systems. *Proceedings of Computer Supported Cooperative Work*. ACM (2004), 202-211.