R-U-In? : Doing What You Like, with People Whom You Like

Nilanjan Banerjee, Dipanjan Chakraborty, Koustuv Dasgupta, Sumit Mittal, Seema Nagar
IBM India Research Laboratory
ISID Campus, Vasant Kunj, New Delhi 110070, India
Email: {nilanjba, cdipanjan, kdasgupta, sumittal, seenagar}@in.ibm.com

ABSTRACT

This paper presents **R-U-In?** – a social networking application that leverages Web 2.0 and IMS-based Converged Networks technologies to create a rich next-generation service. **R-U-In?** allows a user to search (in real-time) and solicit participation of *like-minded* partners for an activity of mutual interest (e.g. a rock concert, a soccer game, or a movie). It is an example of a situational mashup application that exploits content and capabilities of a Telecom operator, blended with Web 2.0 technologies, to provide an enhanced, value-added service experience.

Categories and Subject Descriptors

H.4.3 [**Communications Applications**].

General Terms

Management, Design, Human Factors.

Keywords

Web 2.0, Mashups, Social Networking, NGN.

1. INTRODUCTION

Recent years have witnessed the surge of social networking as a popular medium for online collaboration. With the advent of Web 2.0 technologies, like AJAX [6], competing social networking sites (e.g. Orkut [7], Facebook [8]) are constantly looking at ways to provide innovative features to their users. At the same time, there is a growing trend among traditional Telecom operators to offer their own capabilities and content as services. Operators have a wealth of content associated with their network as well as core network enablers, e.g. call control, presence and messaging. With standards like Parlay-X [4], it looks increasingly feasible to create *mashup* applications that combine network capabilities with Web-based services, in a number of interesting ways. This, in turn, presents unique opportunities for Telecom operators to protect and enhance their revenue streams in a Web 2.0 world. **R-U-In?** is one such application that enables the concept of *real-time* social networking - by enhancing social networking content (user profiles, interests, and buddy-lists) with advanced Telecom features, and delivering them using Web 2.0 technologies.

Using **R-U-In?**, one can search for partners in his/her vicinity who are interested in and available for an activity of mutual interest. Potential matches (partners) are displayed on Google Maps along with their current attributes (e.g. availability status, reputation, interests etc.). Figure 1 provides a snapshot of the **R-U-In?** portal. The user can further employ Telecom widgets, presented as part of the portal, to invite a partner, send a message, or place a call- all monitored by appropriate access control mechanisms, e.g. one can send an SMS/call a partner *only* when she has accepted the invite. Telecom functionalities of the operator (like location), along with SIP [1] based presence infrastructure, is used to manage dynamic attributes of users (i.e. location, availability and current interests). **R-U-In?** also seeks *rating-based* feedback from activity partners and uses this to foster trust in its social network, based on collaborative feedback. **R-U-In?** finally employs Web 2.0 technologies to "mash up" real-time data from multiple information sources (i.e. 3rd party social network, presence substrate, and Telecom services) to present the user with an enhanced, service experience.

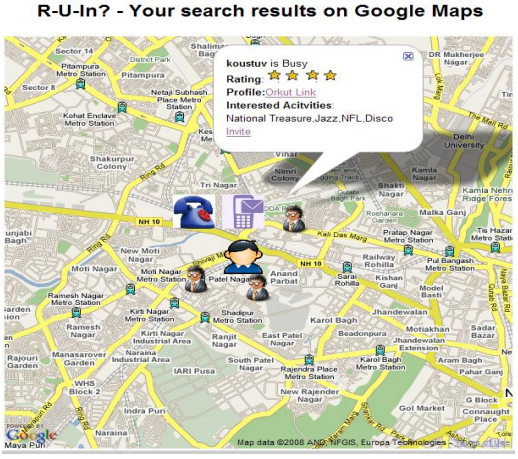

Figure 1. R-U-In? portal.

R-U-In? thus adds the benefits of real-time information, as well as communication capabilities, to social networking content and delivers a service that is targeted towards the *niche* domain of one-to-one online communications.

2. USE CASE

A subscriber Joshua, has two tickets to the Led Zeppelin Re-union Concert on Friday night. The concert starts in a couple of hours and none of his friends are in town. Joshua logs on to the **R-U-In?** portal and issues a query for someone interested in this activity. To help **R-U-In?** search through the list of subscribers, he specifies "Music" as one of the search keywords.

The **R-U-In?** matchmaking engine returns to Joshua a list of users (on Google Maps) who have expressed an interest in this activity

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(namely 'Music'), located in the vicinity, and have their real-time presence status as available. Joshua can now browse over each match and follow links to their social networking (Orkut) profiles. In particular, he likes the profile of Sue who happens to be an "*Orkut friend of his friend*" Bob. Using the portal, Joshua next sends an invite to Sue. The invitation is delivered as an SMS on her mobile device. Once Sue accepts the invitation, a notification is sent back to Joshua on his personalized **R-U-In?** mailbox, as well as his mobile device. Joshua can next use one of the Telecom widgets (e.g. SMS, Click-to-Call) available on the portal, to inform her of further relevant details about the event. The two eventually meet up and have a blast at the concert. A few days later, Sue is requested for a feedback on her experience using the service and, in particular, her partner Joshua. The feedback is used by the service to update the rating of Joshua as an **R-U-In?** activity partner.

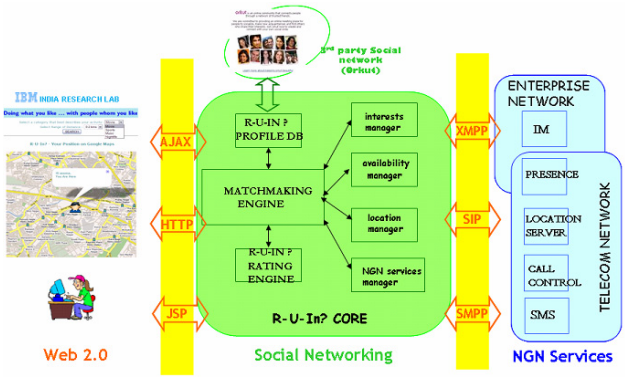

Figure 2. R-U-In? system architecture.

3. SALIENT FEATURES

As demonstrated by the use case scenario**, R-U-In?** provides a number of salient features, as a *real-time* social networking service, that arise from the use of next-generation converged network capabilities blended in a Web 2.0 flavor.

These features include: (1) the ability to find on-demand like-minded partners who are potentially interested in a common activity filtered by their current location, availability, and interests attributes, (2) ability to present the results on Google Maps along with these real-time attributes and presence status (dynamically updated using AJAX), (3) ability to invite one or more of the matched users for the activity through multiple channels like the Web or via SMS, (4) communicate with a partner using Telecom widgets (namely, SMS and Click-to-Call) that are available on the portal, and finally (5) rate an activity partner based on the experience, thereby building a notion of trust in the matchmaking process.

4. R-U-In? SYSTEM ARCHITECTURE

Figure 2 presents the architecture of **R-U-In?**. At a high level, **R-U-In?** consists of three tiers – (i) the *presentation tier* empowered by Web 2.0 technologies, (ii) the *control tier* consisting of the social networking core, and (iii) the *services tier* comprising of converged NGN (Next-Generation Network) capabilities.

The presentation tier is based on Web 2.0 technologies and serves as an interactive interface to a subscriber using the service. The **R-U-In?** social networking core uses real-time location attributes of subscribers (using Telecom Parlay-X APIs), as well as live updates of their availability status and current interests, in a Matchmaking Engine that provides a list of matches for an activity. The Location, Availability, and Interests managers (in Fig. 2) store and manage the dynamic attributes to be used in the matchmaking process. The NGN Services manager controls and facilitates the access of users to the communication services that are available as part of the portal (currently Click-to-Call and SMS, in future extended to include Email, IM etc.) The services tier consists of the NGN infrastructure that is available to **R-U-In?**. This includes traditional Telecom functionalities like location, messaging, and call control, along with advanced presence-based capabilities, as well as enterprise communication features like IM.

As mentioned earlier, the Matchmaking engine [3] is the core module that uses real-time attributes of the requester and other users to find a list of potential matches in response to the queried activity.

For the sake of brevity, we omit other implementations details of the **R-U-In?** system. However, it is worth mentioning that we have used the IBM Presence Server, based on the SIMPLE protocol [1], to efficiently implement the Presence substrate of our solution. We have similarly used IBM Telecom Web Services Server (TWSS) to capture location information of subscribers from the Telecom infrastructure. Further, the current implementation uses Parlay-X [4] interfaces to Telecom functionalities such as third-party Call control and SMS, that are available as part of TWSS.

5. CONCLUSIONS

R-U-In? demonstrates a *real-time* social networking service that brings together benefits of converged communication capabilities provided by Next-Generation Networks and mature Web 2.0 technologies that are present today. The proposed mashup application can be efficiently deployed by Telecom operators - either as a value-added service or in collaboration with third-party social networking services that are popular in different geographic regions.

6. REFERENCES

1. A Presence Event Package for Session Initiation Protocol (RFC 3856). http://www.ietf.org/rfc/rfc3856.txt
2. N. Banerjee, K. Dasgupta, and S. Mukherjea. Providing Middleware Support for the Control and Co-ordination of Telecom Mashups. In proceedings of MNCNA Workshop, Middleware Conference, Nov' 07.
3. D. Chakraborty, K. Dasgupta, S. Mittal, A. Misra, A. Gupta, E. Newmark, and C. L. Oberle. BusinessFinder: Harnessing Presence to enable Live Yellow Pages for Small, Medium and Micro Mobile Businesses. In Proc. IEEE Communications Magazine, Issue on New Directions in Networking Technologies in Emerging Economies", Jan 2007.
4. Open Service Access (OSA); Parlay X Web Services; Part 1: Common. 3GPP TS 29.199-01.
5. S. Mittal, D. Chakraborty, S. Goyal, S. Mukherjea. SewNet - A Framework for Creating Services utilizing Telecom Functionality. (To appear) in Proc. 17th International World Wide Conference (WWW), April 2008.
6. AJAX. www.asp.net/ajax/
7. Orkut. www.orkut.com/
8. Facebook. www.facebook.com/