

# The Tangled Web We Weave

## Managing the Social Identity Crisis on Mobile Devices

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### Abstract

As new social networks continue to gain popularity among users already active in other communities, mobile users will increasingly look to their phones for efficient “identity management” of their friends’ personas across multiple networks. In this paper, we outline several of the key challenges for managing this complexity and offer approaches for simplifying communication to and from a contact whose social information has been fragmented across several services.

### Background

The introduction of a new generation of “smart” internet-connected mobile devices has sparked a rapid rise in the number of mobile social networkers: 91% growth from May 2007 to May 2008 in the U.S., with 136% growth in users who return to social networks on a weekly basis.<sup>1</sup> Thus far, the social networking experience for users on-the-go has been limited to applications or websites largely isolated from the rest of the mobile platform – a “silo-like” experience with little flexibility to interact with other data or services on the phone. As mobile social networking matures, however, the potential for handsets to enable location-based services, connected media, and other exciting new user experiences will drive a tighter integration of social data with the phone itself. In parallel with this proliferation of social data, improvements to the hardware, user interface design, and network capabilities will continue to refine the ease with which we access and use social networks from mobile devices.

As streamlined, mobile-optimized applications replace the clunky user interaction of transplanted browser experiences, the patterns of mobile usage will increasingly mirror that of the desktop, where over half of social networkers claim loyalty not to one network, but to two or three<sup>2</sup> (see Appendix for details). Research suggests that these multi-network users are motivated by an interest in representing and expressing themselves uniquely to different circles of family, friends, and professional contacts.<sup>3</sup> Content appropriate for one audience (such as status messages, photos, and biographical data) may not be suitable for another, driving a social networker to fracture his or her online identity into different

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<sup>1</sup> Mobile social networking report for the U.S. market, M:Metrics, Inc., July 2008

<sup>2</sup> Survey of 1427 social network members, Compete.com, 2007

<sup>3</sup> Microsoft-sponsored ethnography research, 2.5hr interviews with ~200 people in 5 markets, October 2008

*personas* – different facets of the user’s online presence revealing selected aspects of his or her personality. Keeping “up-to-date” with a friend known only through one network is simple enough, but it quickly becomes a difficult task when the multiple personal and/or professional personas of a single contact are available through different networks.

## The Mobile Phone as a Social Hub

From relatively static data on interests and educational background to constantly-updating status messages and posted media, social networks confer a wealth of information about a user’s friends. When subscribed to multiple networks, managing the influx of data can quickly become overwhelming, particularly if a user’s interest is limited to certain friends or certain types of updates on each network. To manage the sheer volume of such rapidly accumulating information, some users have turned to social network “aggregators” which consolidate and filter content from numerous sources. These services do help manage the flood of information, but often with the side-effect of “whitewashing” the experience and capabilities which uniquely define each network’s identity. Few aggregators have captured a significant proportion of mainstream social networkers, often because the alternative – opening each of the social networking websites in a different browser tab – is not so painful on the desktop as to demand the stripped-down aggregated solution.

On the mobile device, however, alternatives are not as readily available due to the unique usability challenges of operating just one application at a time, and on a much smaller display. The problem is even more acutely felt because a phone should be, first and foremost, a *rapid* communication device: searching for the one social network that contains a friend’s mobile number (or work email address, or one of any number of pieces of data) *must* be more efficient than an exhausting iterative search of each social network’s sheltered domain.

One approach to resolving the problem of dealing with multiple mobile social networks efficiently: build an on-device directory of contact information across all networks on the phone, then “link” the related personas (those that correspond to the same person) with simple navigational aids. With a linking solution in place, the user can jump from one network to another for quick, straight-forward access to each network’s unique data while still retaining the full user experience and customizations of each community. A second approach, taking cues from desktop services tackling this problem, might be to use a similar directory of contact information to instead aggregate all related data across all services under a *single* user interface. This solution would provide “one-stop” access to a friend’s status updates, feeds, posted media, and even communication methods across all networks, albeit with the same “whitewashing” of user experience afforded by web-based equivalents.

## Algorithmic Solutions to Persona Matching

The prerequisite for both of these proposals is an effective means by which to automatically match personas to a single contact – a problem which lacks a solid “primary key” on which to reliably base matches. While some matching can potentially be done by hand for family members and the closest of friends, a manual solution does not scale when applied to social networking contact lists of hundreds of friends. Automatic linking based on communication methods like email addresses and phone numbers is one reasonable option, but may suffer from poor reliability: a user may well reveal different numbers or

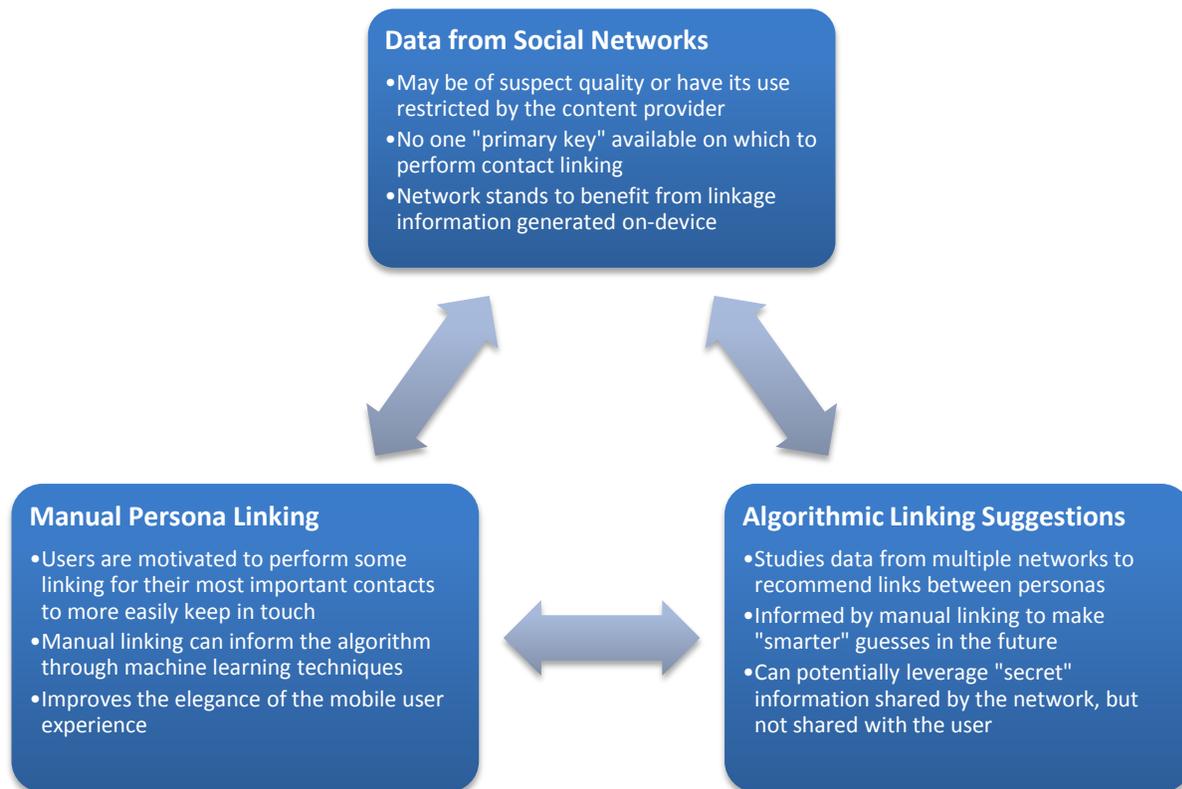
addresses for work and personal networks (or even for two personal networks), while a phone number for the corporate receptionist or a generic email address like [sales@contoso.com](mailto:sales@contoso.com) can generate dangerous false positives. Simply using a contact's name to attempt persona-matching is an equally risky proposition due to the prevalence of nicknames, logins, or aliases in many social networks.

Persona-matching across networks is further complicated if the user wishes to link against an address book in which the data is *self*-maintained (rather than populated by the friend), such as those found in online email and web portal services. Because most such contact lists are built on the shaky foundation of names input by the user (often nicknames or first-names only) with rarely-updated email addresses and phone numbers, information in a self-maintained repository is often inherently unreliable for matching purposes.

Lacking a global, centralized database of persona linkages across networks, we propose that successfully reassembling the disconnected, potentially "stale" shards of a friend's multi-faceted profile – and doing so efficiently for large social networking friends lists – requires three elements on the mobile device: (1) data from the social networks themselves, (2) a method by which the user can manually link his or her most important contacts, and (3) a recommendation system for helping to quickly and intelligently link hundreds of additional contacts shared between multiple social networks. In offering the user both manual and automatic linking mechanisms, we provide a means by which to set certain associations manually (or override an incorrect linkage, when necessary) while still attempting to ease the user burden around having to match several entire networks of friends by hand.

One example of a strong recommendation system might apply machine learning algorithms to accept feedback from failed recommendations and offer better ones in the future. The system could ask the user to link a few of contacts manually, and then use the resulting information to set a series of weighted values defining the probable ties between fields on different social networks, their probability of containing relevant matching data, the reliability of that data, etc. By presenting the user with a selection of likely matches, the weighting system might then dynamically adjust or "tune" itself as the user accepts or rejects linkage suggestions, leading to the quick, painless, and nearly automatic association of dozens (or hundreds) of friends' personas across all the user's networks.

If designed carefully to take both user privacy and social networks' restrictions on data usage into account, the networks themselves also stand to benefit from a strong linkage system on the mobile phone: the resulting high-confidence information on user personas and shared networks could provide valuable intelligence for hyper-targeted advertising or other ventures. Social networks could also assist in linking efforts by allowing the algorithm to query a friend's private, hidden data (such as an email address that is not publically shared) against known information from another network to confirm or deny a match, further improving the reliability of linkage data.



## Conclusion

Research into current trends clearly shows that mobile devices will play an important role in the future development and use of social networks. As phones become increasingly capable platforms for location-based services, connected media, and other new community-centric technologies, the mobile user experience will also begin to serve as a painful reminder of the *social identity crisis*: our tendency to fracture our online presence and carefully tailor our image to each social network in which we are active. With communication to and from our contacts split across several profiles, the simple act of trying to call a friend becomes an exercise in frustration.

To solve this social identity crisis, we propose either an aggregation of or a linking of personas from multiple social networks – reassembling the visible facets of a friend’s identity to unify access to his or her feeds, posted media, communication methods, and other data. To do so, we must give users both manual and algorithm-assisted methods for tying associations across accounts – a process which ultimately results in a manageable, trusted, and high-quality contact dataset for the consumer and a potentially valuable resource for the social networks. It is only through this association of contacts can we ensure that social networks will remain an enabler of – and not a barrier to – communication with friends, family, and colleagues.

## Appendix

### Member Overlap at Social Networks

(Unique Visitors to start page/login, Sep '07)



	Facebook	Myspace	Bebo	Friendster	Hi5	LinkedIn	Ning	Orkut	Plaxo	Salesforce	Viadeo
Facebook		64%	4%	2%	2%	2%	1%	1%	0%	0%	0%
Myspace	20%		3%	1%	1%	0%	0%	0%	0%	0%	0%
Bebo	25%	65%		2%	3%	1%	1%	0%	0%	0%	0%
Friendster	23%	49%	5%		4%	6%	2%	1%	0%	0%	0%
Hi5	24%	69%	7%	4%		1%	0%	2%	0%	0%	0%
LinkedIn	42%	32%	4%	8%	2%		8%	3%	3%	3%	0%
Ning	35%	44%	6%	6%	1%	19%		2%	2%	1%	0%
Orkut	26%	29%	3%	4%	7%	8%	2%		1%	0%	0%
Plaxo	48%	34%	5%	8%	2%	54%	14%	4%		1%	0%
Salesforce	22%	27%	4%	4%	0%	29%	3%	1%	1%		0%
Viadeo	29%	0%	1%	4%	2%	38%	10%	0%	1%	0%	

This chart shows the percentage of users in the [row] social network who also use the [column] network. For example, 20% of [MySpace](#) members are also Facebook members, while 64% of Facebook members also belong to MySpace. Note that members of smaller communities often also participate in one of the larger networks.

Patriquin, A. (November 12, 2007). *Connecting the Social Graph: Member Overlap at OpenSocial and Facebook*.

Retrieved December 2, 2008, from Compete.com: <http://blog.compete.com/2007/11/12/connecting-the-social-graph-member-overlap-at-opensocial-and-facebook/>