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ON THE EDGE

people

Mobile 2.0

By now no one can have failed to notice the latest hype: Web 2.0. Everybody is on Flickr and MySpace, blogging away and running their lives through Google's map and calendar services. According to Web 2.0 stalwart Wikipedia, the term refers to "a supposed second generation of Internet-based services such as social-networking sites, wikis, communication tools, and folksonomies that let people collaborate and share information online in previously unavailable ways." It also implies accessing services through a unified, distributed interface i. e., Web browsers. In fact, what the user sees often looks just like a stand-alone application, except that it runs in a browser window.

One device that often comes with a Web browser is the mobile phone, and already the idea of a "Mobile Web 2.0" is making the rounds. My new phone has a browser that would have been state-of-the-art a few years ago, and it is only a matter of time before most mobile phones can access even the most complex Web 2.0 services.

But using services designed for a stationary environment on a phone is not such a great idea. In fact, most mobile applications seem to have been dragged kicking and screaming from the desktop, squeezed into ever-smaller devices with tiny screens and diminutive keyboards. On top of all this discomfort, they are forced to live in a notoriously unfriendly environment a changing world of endless interruptions, abrupt changes of physical and social settings, and the constant risk of losing power and network connectivity.

What we need are not shrunken desktop applications, but services that are mobile from the ground up. Instead of trying to work around or ignore the limitations and opportunities of the mobile setting, services should thrive on them. Let's call this concept Mobile 2.0.

Figure 1. The Hummingbird was an early Mobile 2.0 device that had to be constructed from scratch.

Figure 2. Advanced mobile phones such as the Nokia E70 make it possible to quickly create Mobile 2.0 applications.

There are some interesting parallels between Web 2.0 and Mobile 2.0. Both make use of a widespread, standardized platform: In Web 2.0 this is the browser; in Mobile 2.0, the mobile phone. Both take advantage of connections between people. In Web 2.0 this means everyone on the Internet. In Mobile 2.0 the value of this connectivity is determined by the mobile setting, shared locale, shared context, shared history, and so on. Rather than connecting with anyone on the Net, it can be more useful to find someone who is in the same place right now, or who was here two hours ago, or who is in a similar place somewhere else in the world. Finally, just as Web 2.0 services are aggregating, connecting, massaging, and repurposing input from all over the Internet to create new and useful data, Mobile 2.0 should use sensors and other means to take in the richness of the mobile setting in order to adapt and provide functionality when and where it makes the greatest impact.

This is not a new concept. Inspired by projects such as Olivetti's Active Badge, which tracked users in an office building, my group developed a prototypical Mobile 2.0 application almost ten years ago. The Hummingbird was a mobile "friend-finder" that gave users an awareness of who else was in the vicinity. The small, wearable device roughly the size of a mobile phone constantly emitted a short-range radio signal. By tapping the signals from other Hummingbirds, it was possible to detect the presence of other users signaled by a characteristic "hum" even if they were in another room or another floor of the building.

But one important thing has changed since the Hummingbird: The standardized platform now exists. We had to build our Hummingbirds from electronic parts—radio transceiver, display, processor, etc. Today,

you can implement a Hummingbird in a matter of hours on any Wi-Fi phone. You can get location information through GSM cells and GPS. 3G provides a constant broadband connection, Bluetooth lets users exchange data in quick bursts, and so on.

This development is a major factor in the iDeas project, a collaboration between Göteborg IT University and Stanford University, supported by the Wallenberg Global Learning Network. The goal is to support university students in their design activities—sketching ideas, taking notes from field studies, brainstorming, and eventually creating and deploying new applications and products. Such work is inherently collaborative and mobile—perfect Mobile 2.0 material.

In Göteborg we are using standard Nokia E70 phones with wireless LAN, Bluetooth, and 3G networking. When the students are out in the field studying the work practices at different companies, they use the phones to take photos, make audio recordings, and write field notes. This raw data is tagged with location and other information derived from the mobile network and continuously uploaded to a server. When the students return from the field, they work collaboratively on the materials in order to design new applications that address problems at the companies they have visited. Their notes and other data are accessible in a modified wiki, where it is presented in aggregated form. For instance, a graphical timeline organizes all photos according to time, user, and location. To access the data, students use their personal laptops, and large, wall-mounted screens facilitate local collaboration.

This kind of hybrid, where mobile terminals combine with collaborative Web 2.0 services, is a way to make the best of both worlds. In the field, it makes sense to use phones, but as soon as the students return to the university, laptops make for a much more pleasurable experience. As the functionality of mobile phones increases and becomes standardized, we will see an explosion of new services, just as we have seen on the Web. Mobile 2.0 does not mean that the desktop goes away—rather, that it doesn't go where it shouldn't be. ✦

LINKS
The iDeas project at Göteborg IT University and Stanford
http://www.viktoria.se/fal/projects/ideas/
http://hci.stanford.edu/research/ideas/

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