From the Editor in Chief ...

Privacy and Open Services

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The Internet's legendary openness is rightly credited with its huge success. Anybody, even the proverbial kid in a garage, can create and launch a new content or e-commerce Web site. And all too often he does.

More generally, we can think of such sites as instances of *services*. While we may not appreciate most of these services, they add to the overall value of the Internet.

Users connect to services transparently, and interactions between users and services ensue as the parties see fit. From both service and user points of view, this offers great flexibility: The service bills at whatever terms it sees fit, and the user can easily personalize interactions with the service to the extent the service allows. Users need not divulge information they consider privileged, or even operate under their true identities unless it suits their purposes to do so.

Third-Party Services

Contrast Internet services with telecommunications network services, which are closed. Traditionally, telecom network operators create and launch phone services in-house with full control over service behavior. Creating such services is so expensive and time-consuming that they cannot economically and practically address narrow market segments or short-lived fads.

Telecom operators realize the potential benefits of having external developers create services for their networks. External developers tend to be more creative and to better understand narrow and emerging niche markets, which leads to better uptake of the services and thus more revenue for all. Operators especially benefit because the larger the pool of services, the more profits the operators make off them. Moreover, the considerable risk of developing services shifts from the operator to the external developer.

In a nutshell, this is the motivation behind NTT DoCoMo's wildly successful i-Mode services and the not-so-successful wireless application protocol- (WAP-) based services of American and European operators.

Here and Now

The commercial success of a set of phone services depends a lot on cultural and other regional variations, including the relative availability of phones versus desktop computers. But there is no question that, ultimately, the best phone services will always have a certain here-and-now value to them (see my January/February 2000 column, "In the Thick of Things"). In other words, good services will exploit the facts that phones are almost always with specific users and that users are mobile. The here-and-now value lies in personalizing services to their users.

Regulations (in the U.S. and elsewhere) requiring that operators be able to determine a caller's position accurately enough to direct emergency personnel adds an interesting dynamic. Such regulations would force operators to install expensive equipment. The same equipment, however, could be used to determine a phone's position even when there is no emergency. And, once the phone's position is known, it could be used to customize the services offered to the user. Considerable attention is thus being paid to location-based services. To me, location-based services are interesting because they demonstrate a certain here-and-now value. Operators like these services because their role in them is at a higher architectural (and, excuse me for saying so, at a higher revenue) level than when the operators are merely the bit pipe.

Privacy and Liability

The above developments — from telecom to WAP-

based to location-based services — fall into a natural logical progression. But combining them creates a recipe for disaster. The operator provides user location data to an external service and, suddenly, it is not just a user filling out a form on a Web site, but accurate real-time information about the user being passed along to some external service. In the Internet, the network is invisible above the transport level. In the telecom world, it is eminently reasonable to try to exploit the intelligence within the network (see my November/December 2000 column, "The Intelligence Within"). But doing so causes grave problems for privacy.

Having users opt in for services doesn't quite solve these problems. A user who opts in to a mailing list faces minor annoyance if the mailing list is not of interest. A user who opts in to a location-based service, however, faces tremendous risk, because user information potentially exposed to this type of service is so much more precise. Traditional privacy policies help only a little. The information can be compromised even if the service follows its published policy, leaving the operators, who wish to remain in the middle reaping the profits from advanced services, on the wrong end of a massive liability.

In the litigious U.S. and probably elsewhere as well, concerns of privacy and liability trump the benefits of personalization and openness. In a way, it seems we are stuck in the well-known trade-off between personalization and privacy. So do we have to go back to the bad old days of closed services residing within the network? I think not. Technical solutions that will help us escape such a trade-off are possible. I will talk about these solutions in my next column.

Erratum

In the September/October 2001 table of contents, Micah Beck's name was omitted and Alessandro Bassi's name was misspelled in the article, "Managing Data Storage in the Network." *IEEE Internet Computing* regrets these errors.

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