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## One Birdstep For Mankind?

By Gerry Blackwell

Mobile wireless carriers now understand that Wi-Fi hotspots and enterprise WLANs will complement their wireless Internet services and applications, not challenge them. Or at least some do.

The announcement that Motorola, Avaya and Proxim are working on a voice-based WLAN-cellular roaming solution was a big shot in the arm for the whole notion of inter-network roaming. Until recently it was a very niche-y area. But even before that, some big carriers had seen the writing on the wall.

Mobile wireless subscribers are going to demand the ability to roam freely between wide area mobile and wireless local area networks, including Wi-Fi hotspots and enterprise WLANs. So carriers will have to make it happen. Otherwise some of their airtime revenues will migrate to hotspot service providers.

In North America, only T-Mobile has put a real push on WLAN-cellular roaming, but AT&T Wireless, Verizon, Telia (Sweden), NTT DoCoMo (Japan), British Telecom and Orange (UK) have all announced their intentions to offer roaming services. The question is how will they do it? And when?

A number of software vendors are vying to establish their WLAN-cellular roaming solutions as the defacto industry standard, including Adjungo Networks of Israel, U.S.-based Mobility Network Systems and a Norwegian company (with an office in Seattle), **Birdstep Technology**.

Birdstep, formed in 1996, and listed on the Oslo Stock Exchange, has a legacy business of providing small footprint database building blocks to use in embedded wireless products. Though it had revenues of less than \$1 million last year, the company is on a projected 60-percent growth spurt this year -- mainly because of its newer wireless infrastructure software products.

Most WLAN-cellular roaming solutions include network infrastructure software and clients that only work with that infrastructure software. Birdstep does sell a back-end suite for WISPs and hotspot operators called IP Zone, but its most important product, the Intelligent Mobile IP client, works with infrastructure software from other vendors as well.

Birdstep first launched the product in Europe in September 2001 and started selling it in North America last April. It already has over 3,000 paid clients in use spread over about 270 companies -- about 40 percent in Europe, 40 percent in North America and 20 percent in Asia-Pacific.

The company recently launched version 2 with a number of important enhancements. According to Hans-Arne L'orange, Birdstep's CEO for the Americas, a couple of large European clients -- not yet announced, but apparently mobile carriers -- will roll out about 100,000 Mobile IP clients this spring.

Customers load the software on their laptop and configure it to automatically manage roaming among a variety of Internet access services -- not just Wi-Fi WLANs and European and North American mobile wireless networks, but also dial-up services and enterprise LANs connections.

Of course the laptop must already be loaded with the hardware, software and permissions needed to access these services. The Birdstep product, like others of its kind, merely manages the roaming and related client device reconfigurations.

The Mobile IP client continually monitors the status of the Internet connection. The moment it senses a connection has been lost -- due to the user unplugging from a corporate LAN or moving out of range of a Wi-Fi hotspot, for example -- it makes a new connection, without interrupting the current session.

When more than one connection is available, the software uses a preconfigured priority list to decide which to use. This feature could provide enterprise IT administrators with the flexibility to ensure users only connect via expensive cellular services when other services are not available.

When a device is within a WLAN's coverage area, the Birdstep software continually monitors the strength of the connection and if it falls below a certain threshold will search for and connect to a different access point with a stronger signal.

The Birdstep product has some key advantages over its competitors, says L'orange. One is that it is at least partly based on standards and, as noted, does not require Birdstep's IP Zone system to work.

The other is its patent-pending ability to automatically switch VPN software on and off, depending on which connection the client is currently using.

If the device is inside the corporate firewall, the Birdstep software turns VPN off. As soon as it moves outside, and the Mobile IP client switches to a Wi-Fi WLAN or wide area network connection, the software automatically turns VPN on.

"Nobody else, as far as we can tell, will have this," L'orange says. "We filed a patent in July and there have been no claims against it so far."

The VPN switching technology is crucial, he believes.

"This is what will bring a critical mass of users into public hotspots," L'orange says. "It means enterprise users can roam into public hotspots without their employers having to worry about security."

The alternatives are impractical. If roaming clients have VPN turned on all the time, it will create bottlenecks when large numbers of them are behind the corporate firewall. They in effect go out and then come back in through a VPN gateway, potentially overloading the gateway.

The other alternative would be for end users to turn VPN on when needed -- as most using VPNs in Wi-Fi hotspots do now. But this entails ending the session, shutting down the applications (browser, e-mail), turning the VPN software on and then reconnecting and restarting applications.

That's far too unwieldy. The Birdstep product solves a real problem.

The new version allows administrators to configure the client to work with two "home agents." A home agent is a router on a mobile node's home network that maintains information about the device's current location. Allowing the client to work with two home agents makes it easier to configure the Birdstep software and set priorities and establish when VPN is turned on and off.

Version 2 also expands the number of VPN products supported, provides downloadable configuration templates to make it easier to configure clients and adds support for home DSL services.

Birdstep is targeting mobile and WLAN service providers and hospitality and transportation industry players now -- though ultimately the company expects to sell the product to enterprises.

For now, the lack of a critical mass of users for Wi-Fi hotspots means that few enterprises are taking advantage of hotspots -- other than on an ad hoc basis. Those who do are more likely to want to buy a complete roaming solution from their carrier or service provider, Birdstep believes.

That could begin to change within a year or so, though. "We think we'll see a critical mass start to be up and running in Europe and North America in the first half of 2004," L'orange says.

That's what other observers think too, and it makes sense. The mobile carriers that have announced plans to offer WLAN-cellular roaming expect to begin offering service by the end of this year. They are just now at the RFP (define) and RFQ stage, L'orange notes.

All of the companies mentioned are important targets for Birdstep, of course. He implies that some may already be customers, yet to be announced, or are at least talking to Birdstep.

The Motorola-Avay-Proxim initiative may introduce a new element in the mix and influence the way this market unfolds. The Birdstep solution, like others of its kind, works for data only. L'orange seems to imply that it will eventually have to support voice, but he guesses voice over mobile IP won't be a serious factor for another two years.

In the meantime, watch for a battle royal in the WLAN-cellular roaming arena. Could Version 2 of the Intelligent IP client be one Birdstep for mankind but a giant leap forward for the industry? We'll have to wait and see.