Can MWIF Unify Cellular Protocols?

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Some would say that following the actions of standards bodies can be about as interesting as watching paint dry. But if the wet paint was on a tool that could help your business, wouldn't you be interested in tracking its progress? One group well worth watching is the Mobile Wireless Internet Forum (MWIF), an organization working to simplify roaming between cellular networks and accelerate the shift to the higher-speed, always-on, packet-switched cellular data connections necessary for two-and-a-half (2.5G) and third-generation (3G) services. The MWIF isn't an official standards body but a trade forum with a solid roster of heavy-hitters from all sides at a time when the wireless industry has several official groups shepherding competing standards. It may take time, but the MWIF has a good chance of success at being that shepherd.

WHO'S IN CHARGE?

Cellular network standards have a long history of development through multiple, sometimes competing groups. In the late 1990s, the International Telecommunications Union (ITU), an agency of the United Nations, tried to consolidate parallel efforts in the U.S. and Europe. But the original goal of one global cellular standard by the year 2000 quickly faded as numerous proposals were submitted, including UMTS (a.k.a. W-CDMA), the successor technology to GSM, and CDMA2000, the heir to CDMA.

Making enhancements directly within the ITU proved cumbersome, so a new organization was created in 1998, the Third Generation Partnership Project (3GPP), to advance the UMTS specifications and to perform maintenance of the GSM standards. 3GPP is an international organization whose primary members are the standards organizations of particular countries. Shortly afterward, 3GPP2 was formed to represent CDMA2000 standards. Today, these two organizations are the primary vehicles for developing technical specifications for these cellular technologies, including both radio-access networks and core networks. These organizations then submit their specifications to the ITU, which creates formal standards.

ONE NETWORK, ONE WORLD

The MWIF appeared in February 2000, with a mission to "drive acceptance and adoption of a single mobile wireless and Internet architecture that is independent of the access technology."

Perhaps the most startling thing about the MWIF is its membership roster, which includes nearly every major infrastructure manufacturer, vendor, and cellular network operator in the world, from all sides of the protocol wars.

What's important to understand is that while UMTS and CDMA2000 both are based on direct-sequence spread-spectrum radio technology, and while it may be possible to develop cell phones that are agile enough to work on either network, the core infrastructure networks are fundamentally different, using both different network elements and different protocols for communications between nodes. For major carriers like Vodafone, the world's largest carrier and 45 percent owner of Verizon, this is a huge problem, as Vodafone will be operating both UMTS and CDMA2000 networks in different parts of the world. A common core network would greatly facilitate roaming, deployment, and common services.

A single mobile Internet architecture has other advantages. In the future, operators may want to offer cellular access in the wide area, but use wireless LAN technology in areas of high user density. The MWIF architecture would readily support this scenario.

The other far-reaching consequence of MWIF's work is that it is advocating an all-IP architecture, including voice over IP and multimedia over IP, as well as core network infrastructure based on IP, as opposed to protocols such as ATM. The idea is for wireless networks to become tightly woven into the overall fabric of the Internet, as opposed to current architectures where wireless networks operate independently of the Internet and connect to the Internet only at specific gateways.

It will be interesting to see whether the MWIF can actually achieve its ambitions, given that 3GPP and 3GPP2 are far apart in their core network architectures. Even with the best of intentions, it will take years for these grand strategies to play out. But given the juice of the participants, the recommendations that MWIF submits to 3GPP and 3GPP2 could be highly influential and could have a major impact on how future wireless networks operate. The bottom line is that the MWIF's work will help accelerate the shift from legacy circuit-switched foundations for wireless networks to all-IP networks.

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