

BUSINESS DAY | TECHNOLOGY

TECHNOLOGY; 'Holy War' Over the Future of Wireless

By SETH SCHIESEL FEB. 15, 1999

Perhaps the most far-reaching battle in telecommunications these days is not being waged in board rooms or stock markets. It is being fought in places like the Mines Beach Resort and Spa outside Kuala Lumpur, Malaysia.

There, in a conference room not far from the ocean, representatives of 34 of the world's largest communications companies joined official delegates from 14 nations on Feb. 6 to try to forge a consensus on the next generation of wireless phones.

That they failed was hardly surprising. For the last 18 months, the biggest players in the wireless business, both carriers and equipment makers, have been embroiled in what an AT&T spokesman describes as a financial, regulatory and political holy war for control of the wireless future.

In six weeks, the International Telecommunication Union, a United Nations agency that set up the meeting in Malaysia, is scheduled to start approving international standards for wireless technologies for the next decade. But that process is being threatened by a general reluctance to compromise on arcane technical standards and in particular by intransigence on the part of Ericsson of Sweden and Qualcomm Inc., of San Diego, two big communications manufacturers that have feuded for years.

The stakes are immense for both consumers and the companies. Over the next few years, most of the world's wireless carriers intend to introduce services that

could prove technically momentous. With an emphasis on bringing high-speed data services to customers wherever they are, proponents of so-called third-generation wireless technology predict that the next wave of mobile phones will incorporate World Wide Web browsing and video conferences. Billions of dollars in revenue could await the companies that manufacture and sell the equipment that will make this happen.

At the same time, a wave of consolidations is creating bigger and broader wireless carriers. Last month, for instance, the Vodafone Group, Britain's biggest wireless company, agreed to acquire Airtouch Communications of San Francisco, another huge wireless provider, for \$60 billion.

And as carriers extend their coverage, there is rising potential for callers to be able to use one phone, with one number, almost anywhere and at rates that are widely affordable. But to make that happen, the carriers, manufacturers and, to some extent, governments would have to agree on a single standard. Many industry insiders now think that will not happen.

"The idea of one standard or a universal standard sounds good," said Jim Brewington, who runs the wireless business for Lucent Technologies, North America's largest communications equipment maker and a relatively neutral party in the dispute. "We would like to see it happen. I frankly don't think it's going to happen."

Fabio Leite, a wireless counselor for the telecommunications union in Geneva, said, "We have a lot of reasons to be pessimistic." And even the adversaries concede that the fight, though couched in highly technical language, is really a political struggle.

"If you're asking me is it a political issue or a technical issue, I'll say it's a political issue," said Keith Paglusch, a senior vice president of Sprint PCS, a big United States wireless carrier that essentially belongs to the Qualcomm camp. "It really is a business/political issue."

The roots of the row over third-generation wireless technology were put down in the early 90's, when it became clear that the first generation of wireless phones,

analog cellular, was going to be replaced by a second digital generation known as P.C.S. -- personal communications services.

At that time, Qualcomm was basically alone in advocating a wireless approach known as C.D.M.A., for code division multiple access. This works somewhat like the Internet in that it breaks messages into small bits, which are then scattered throughout the wireless telephone spectrum and reassembled at their destination. The idea that C.D.M.A., which was originally developed for military purposes, could be adapted to civilian use was heresy to many wireless engineers and their companies.

Perhaps the most vociferous in its criticism was Ericsson, which had built a big second-generation wireless business on a competing technology called time division multiple access. That technology uses relatively narrow batches of wireless frequencies, which it then breaks up many times a second to convey many messages.

It is in a lot of ways similar to a third technology in the wireless alphabet soup: GSM, or global system for mobile communication, which is the dominant second-generation standard in Europe and many other areas. It is largely associated with Ericsson but is also supported by Nokia of Finland, Siemens of Germany and others.

Despite the engineers' early doubts, C.D.M.A., which was chosen by Sprint PCS and a few other carriers, turned out to work just fine -- and perhaps better than fine. So Qualcomm was upset when in October 1996, just as C.D.M.A. was emerging, Ericsson sued Qualcomm, charging that Ericsson held patents covering parts of Qualcomm's systems. The trial is scheduled to begin in April in a Federal court in Texas.

Not much later, development began on the wireless third generation, and both Qualcomm and Ericsson chose to use C.D.M.A. technology for transmitting digital data at high speed.

But in developing third-generation systems, Qualcomm and Ericsson seemed to have different agendas. Qualcomm wanted the new systems to be compatible with existing C.D.M.A. systems, so that carriers would not have to scrap their investments

and Qualcomm could continue to sell second-generation C.D.M.A. with the promise that it could be upgraded.

Ericsson, with no installed base of C.D.M.A. systems, did not appear as concerned with the compatibility issue. So with European partners, it developed a technology that is not compatible with existing C.D.M.A. services. It said it simply wanted the most robust, advanced system possible. But some United States executives and officials smelled a plot after the European Union adopted a directive in December that appeared to force European carriers to use Ericsson's third-generation technology.

Secretary of State Madeleine K. Albright; Secretary of Commerce William M. Daley; Charlene Barshefsky, the United States trade representative, and William E. Kennard, chairman of the Federal Communications Commission, sent a letter to the Europeans expressing concern over the policy.

Last month, the European commissioner for telecommunications, Martin Bangemann, appeared to mollify American policy makers somewhat by saying that competing standards would not be barred from Europe. But suspicion remains.

An American official, speaking on condition of anonymity, said, "It appears to some of us that our friends in Europe want to duplicate the conditions that allowed GSM to become the predominant global second-generation technology: Get it to market first, mandate it as a pan-European standard and make sure it's not backwards-compatible with existing wireless networks in North America."

Ericsson and Qualcomm have now each claimed patent rights over each other's third-generation proposals, and the International Telecommunication Union says it cannot certify a standard until the property rights are settled. Qualcomm wants Ericsson to converge its standard with Qualcomm's in a way that grants existing C.D.M.A. operators thorough compatibility. Ericsson has so far refused, saying such convergence would yield a technically inferior standard.

The end game may be a proliferation of multiple standards. For consumers, that could mean abandoning hope for a seamless global wireless network. Or it could

mean higher prices if carriers and equipment makers have to offer many technologies to insure seamless global wireless systems.

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