Wireless in Europe

Part 1: Scandinavia

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May 2001

Scandinavia is firmly established as the innovator of mobile telephones and networks, and has been for many years. We think it's time to explore this trend, so *developerWorks* staff asked Ira Kalb to talk with key decision-makers at a number of progressive companies in Finland and Sweden. Here's what they passed on to us.

One glance at a globe shows that, of the populated regions, Scandinavia is at the top of the world. More than that, this part of the world is at the top of the wireless strata as well. A 1999 *Time* magazine article (*Time*, August 23, 1999) said, "When it comes to wireless technology, the Finns rule." In some aspects of the technology, such as mobile phones, this is certainly true. However, the Swedes might argue when it comes to mobile networks, as they are believed to have the lead there.

In any case, whether it is Finland, Sweden, or any other Scandinavian country leading the wireless pack, most wireless developers don't care. What they are likely to care about are:

- Why Scandinavia has become a wireless Mecca
- Who the potentially important players are that could be customers, information sources, partners, and suppliers
- What these players are doing on the current wireless stage
- What is predicted to be the wireless future

To answer these questions, Ira Kalb interviewed key players, correlating with secondary research.

Why Scandinavia has become the cradle of wireless civilization

The culture

Scandinavians are generally reserved people, who are often more comfortable talking on a mobile phone than engaging in face-to-face conversation; this contributes to their being early adopters of high-technology products. Scandinavia has a relatively homogeneous, well-educated population with a climate, infrastructure, and topography that fosters cooperation, technological interest, and communication.

Gravitation towards Nokia and Ericsson

Nokia and Ericsson -- two of the world's top three mobile communications companies -- were developed there. They, in turn, have attracted wireless suppliers, alliance partners, and technical resources in much the same way that Silicon Valley and Hollywood drew computer and entertainment resources to California. Furthermore, manufacturers and network system operators cooperated to make sure that coverage and quality was as high as possible, and they joined with other Europeans to adopt GSM (Global System for Mobile communications) as a single standard and to create roaming agreements that allow cross-border mobility.

Government support

In the case of Finland, the Finnish Eduskunta is the only parliament in the world to have a permanent Committee of the Future. Chaired by Martti Tiuri, this committee creates a climate in which the Finnish government does far more than give lip service to wireless activities and high tech in general. It supports education, research, and organizations such as Tekes (Finland's National Technology Agency), Spinno, Medipolis, and Teknia, just to name a few, that support the efforts of entrepreneurs of wireless and other technologies. In a recent interview with Martti Tiuri (who once taught at Ohio State University), he talked about a position paper he wrote entitled *The Future of Finland in the Knowledge Society*. In it, he points out that the Parliament of Finland enacted a law giving the universities a 10% increase in their research funds each year. In 1999, the share of R&D in (Finnish) GDP reached 3.1%. The results have been excellent. The electronics and electrical industries have grown rapidly from 1991 onward and are now equal in size to forest products. The growth has been fastest in telecommunications products and applications.

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We first spoke with Sami Linnainmaa, director of products and technology, Nedecon (Network Development Consulting, PLC). This Finnish IT company provides management consulting and comprehensive e-business solutions to large corporations based on wireless and internet technologies. It is listed on the Helsinki Stock Exchange.

Why is Finland considered a leader in wireless technology?
Finland has been a forerunner in mobile communications and wireless technology ever since the early 1970s when the first public cellular network was taken into use in Finland. The first real breakthrough in bringing mobile communications to a wider audience took place in the early 1980s with the introduction of the Nordic Mobile Telephone (NMT) network. This was the first fully automatic cellular network in the world, and it was developed in cooperation with all the Nordic countries -- Denmark, Finland, Norway, and Sweden. It was also the first mobile network to enable roaming in other countries that had NMT networks.

Finland also participated very actively in the development of the world's first second-generation digital mobile communications standard, Global System for Mobile communications (GSM). The world's first commercial GSM network was launched in Finland in 1992. The introduction of this European-wide network, that has since spread all around the world, fueled the growth of the Finnish mobile market even further and it has constantly been exceptionally rapid. The penetration of mobile phones in the Finnish market is currently the highest in the world. Over 70% of the Finnish population, including senior citizens and children, has a mobile phone.

This high penetration of mobile phone users has made Finland an ideal test lab for new technology and service concepts. It has given the Finnish companies a competitive advantage, being able to test their new technology and concepts on a very wide and accepting audience. Many international IT companies have also established mobile test labs in Finland in recent years to take advantage of these exceptional conditions and to interact with the key players shaping the future of the mobile market.

Who are the important wireless players in Finland?
The key players shaping the market are the mobile phone and infrastructure developers, such as Nokia; the mobile network and service operators, such as Sonera; and the numerous IT companies, such as Nedecon -- all developing the services for the mobile users either independently or together with the operators.

What do these companies do that might be of interest to wireless developers around the world? How do they fit into the wireless picture?
The phone and infrastructure developers, such as Nokia, are building the foundation on which the other players can build new services. Nokia, for example, is divided into Nokia Mobile Phones, which develops mobile handsets from ordinary phones to PDA devices with built-in wireless technology; and Nokia Networks, which develops wireless networks and service platforms for mobile network and service operators and IT companies. The network and service operators, such as Sonera, build and maintain the basic mobile networks and develop value added services on top of these together with the various IT companies with which they partner. Sonera, for example, operates both as a network and service operator. There have also been several spin-offs in recent years; for example, Sonera Zed is currently an independent company developing value-added mobile content services for all network operators worldwide. Another spin-off is Sonera SmartTrust, developing secure mobile solutions mainly for the financial sector, but also for other companies that want to build high security mobile services. The network operators, on the other hand, are in a key role in developing location-based services together with the mobile phone and infrastructure developers. The IT companies, such as Nedecon, develop the actual end-user solutions. Most of them partner with one or more network and service operators, and also with the mobile phone and infrastructure developers, but they also build solutions independently for their customers. All of these players interact very actively with each other -- creating a tightly bound developer community.

What do you see as current and future trends?
A lot of development is currently going on in mobile commerce (m-commerce) and location-based services. There are several pilot projects investigating mobile payment methods involving banks and companies like Visa International in addition to the traditional mobile players. There are also some pilots in which mobile users can get location-dependent content, such as the address of the nearest pharmacy, based on where they are at the moment. In the future, improvements to the second-generation mobile networks, such as General Packet Radio Service (GPRS), that already enable up to 56Kb of wireless data transfer in limited areas in Finland, third-generation mobile networks based on the Universal Mobile Telecommunications System (UMTS), and the developments in mobile devices, will enhance and expand the forms of content that can be delivered to the mobile devices. For example, the users will be able to get a map on the screen of their wireless device showing their current location and the location of the nearest pharmacy instead of just getting the address of the pharmacy. And the same device will work as an electronic wallet enabling the users to pay for their purchases either at the point of sale or at a remote location ordering the purchases to be delivered to them. Nedecon has already developed a service together with a Finnish company specializing in electronic maps, called Genimap, and Finnish mobile phone vendor, Benefon, enables downloading maps from an e-commerce site to Benefon's new Esc! phone, that has a built-in satellite navigation system based on the Global Positioning System (GPS). Nedecon has also developed several B2B m-commerce solutions that enable companies to browse product catalogs and place orders at remote locations with a mobile device.

development. This is why Nedecon, for example, has a group of business consultants who specialize in knowledge management and supply-chain management and who are able to find the business benefits of investing in a wireless service or solution first and thus are able to calculate a return on the investment.

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Why is Finland considered a leader in wireless technology?
Finns are early adopters, eager to try new things. Almost every Finn has a mobile phone, and the Internet penetration here is one of the highest in the world. It's no wonder that Finland is developing leading-edge technology. Of course, Nokia's influence has been huge, and we can't forget the strategic input from innovative telephone operators like Sonera.

Who are the important wireless players in Finland and Sweden?
In addition to big players like Nokia and Sonera, there are plenty of smaller application providers, like Small Planet. On an operator side, Radiolinja, a new player DNA, and Swedish Telia try to challenge current market leader Sonera, whose mobile portal zedT is also trying to shape the global wireless markets.

What does your company do that might be of interest to wireless developers around the world? How does your company fit into the wireless picture?
We are innovative and experienced. We have a strong track record with plenty of products in actual use. We currently operate in three business tracks: information services, communications services, and entertainment services. The company's key products are: CMC, a mobile content distribution platform; MFriend, a mobile dating platform; and CollectM, a mobile collectable games platform. When it comes to mobile dating solutions and SMS gaming concepts, Small Planet's market lead is at least six months.

What do you see as current and future trends? How about emerging standards?
So far we've only [scratched] the surface. In the future, no matter what the standards are, everything that can be mobile will be. At the end of 2001, the mobile access to Internet services will be a part of the everyday lifestyle in Europe. In 2003, mobile devices will be used for accessing multimedia services and people will be able to be online 24 hours a day regardless of time and space. We at Small Planet are more than ready for that kind of truly mobile future; all of our products are created by using scalable technologies. In the end, it's the service users who will decide what applications and standards survive.

How can the developers visiting the developerWorks site use Small Planet's products to benefit both themselves and the company?
Small Planet's three-year dedication to mobile media development, and its more than 15 commercial launches, serve as a guarantee that our products are reliable and tested. We produce high-quality and innovative products with a short time-to-market before people even dream about them. Our mission is to bring a mobile dimension into the modern lifestyle from a service-oriented perspective.

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Why is Scandinavia considered a leader in wireless technology?
This is not something that I can be sure about, but presumably it is the combination of a foundation built on Nokia and Ericsson, and then a fair number of aggressive startups in the arena in the past few years. Getting the tech/stock/press attention in the past few years seems to have been quite easy, thanks to "the new economy."

Who are the important wireless players in Sweden?
The obvious answer is, of course, Ericsson. Although they seem to be backing out of the mobile phone arena, they have a good grip on a lot of the related systems. There are heaps of companies that work in the wireless area and, as far as I know, very few of them are making any significant profit. Yet since the number of useful products is small, I personally find a few interesting such as AXIS, CTech/Anoto, BlueTronics, and those of my company, Adcore. And we should not forget about all the broadband fibers connecting a fair amount of homes, even down to villas like my own.

What do these companies do that might be of interest to wireless developers? How does Adcore fit in to the wireless picture?
I'll leave Ericsson for someone else to describe. The ones I just mentioned work with different kinds of specialized hardware that seem promising.

scanner (in the case of Anoto it uses a special paper, too) and has worked with an IR in the past that isn't very exciting. The new Bluetooth range of products, combined with the base technology being very easily extensible (built around plain objects files produced by something like a gcc compiler), could work miracles if Bluetooth takes off the way a lot of people think.

Bluetronics, in turn, is pushing their specialized Bluetooth modules to become affordable everywhere.

Adcore is an integrator, creating bridges between legacy systems and new technologies.

Add to this that broadband connection fibers are providing a fast link to a point that is likely to be in your range, and you can become truly wireless.

What do you see as current and future trends?
To contradict what I've said above, I can describe my own situation: I have a 10Mb fiber to my house, and I have my own firewall/gateway (Linux) which connects to my own network wirelessly using an Apple AirPort. My laptop connects wirelessly wherever I am in my house (or in the garden), as does my hand held iPaq running Linux. What I use is IEEE 802.11b, a.k.a Wi-Fi, which (as opposed to Bluetooth) has been available for quite some time. Because it also uses the same frequencies as Bluetooth, I can predict some problems. The drawback with Wi-Fi is that it currently uses a lot more power, but the result is also more impressive.

Because I carry the laptop to work everyday, I have made a little clever hack which automatically reconfigures it according to the nearest access point -- this type of autoconfig is what I seriously hope we will see a lot more of.

As another example of this autoconfig, I would like for mobile phones to sense positioning. Sure, there are things on the horizon that can solve it in an elegant way, but you can already get something very useful by combining the GSM cell ID with the time of the day, and from this, automatically change your profile. The Nokia 9110 has all this potential. With a little freeware product, I can even let specific people query my position using SMS.

How can wireless developers use your products to their benefit and yours?
We should regard the various technologies as components that enable us to use back-end applications. We are not really into reinventing wheels, but instead, providing new ways to make use of the old ones. Most of what is referred to as "wireless Internet" does not stand up on its own, but can cooperate with others in order to achieve the best "view" of a certain application in each case. To this end, Adcore often works as an integrator, creating bridges between legacy systems and new technologies. In many cases, there is a lot of hype even though there are significant problems and limitations that still need to be addressed. It may, therefore, be sensible to handle the deployment with some care. Mission-critical applications and cases where security is important may not be the best place to start. From this standpoint, it is somewhat odd to see that banking applications often try to be at the frontier. Of course, micro e-Payment is a very good carrot.

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Why is Finland (Scandinavia in the case of Swedish companies) considered a leader in wireless technology?
The penetration rate of mobile phones is very high; Finland is the first country where ring-tones and logo really took off. A lot of mobile games and applications are being developed by many startups. Nokia has two main research centers in Tampere and Helsinki, and there is a high Internet penetration rate.

What are the important wireless companies in Finland?
Nokia Nokia Nokia, Sonera, Saunalahti, Radiolinja, Telia, DNA (new operator), Accenture (Internet center of excellence), and IOBox.

What do these companies do that might be of interest to wireless developers around the world? How does the Adcore Finland branch fit in to the wireless picture?
Nokia has a lot of research going on that could interest developers. Nokia lets developers build applications on top of a communicator. Lots of ring-tone and logo development, payment systems, Linux (on PDAs, Phones, Palms, other devices). It fits in the wireless picture by having a lot of development on wireless communication. Also, convergence between industries (content, telco, PC, and other IT-related industries) and the new possibilities are actively being researched in Finland. Adcore was one of the first members of the WAP forum, and is continuously working with new technologies. Adcore creates many solutions for clients based on SMS or WAP. Adcore is also responsible for the marketing and branding strategies, implementations, and technical documentation related to Bluetooth.

Adcore is a leading European digital business consultancy. Adcore has three global practice offerings: strategic consulting, the transformation of business models, and technology implementations. Adcore is now globalizing rapidly, and is a very strong presence in the Nordic region. Adcore was voted the number one Internet consultancy firm by industry-related companies in the February issue of Sweden's >*Guru* magazine.

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