Patent strategies – a fork in the road toward 4G

The way the telecom industry works with standards is **being challenged**. Patents play a crucial part in standards, but are also a **major cause of dispute**. The industry is nearing a point when it must decide which way to go: collaboration and openness, or a completely new business model that threatens key telecom values such as interoperability and scale.

THE TELECOM industry relies on interoperability between devices to ensure communication from anyone to anyone. The way it works is that a group of company representatives sits down and looks at what is at hand and says, "Hey, that's a new spectrum, we need to fill that spectrum with content!" So you try to find the requirements for this new technology, defining what problems need to be solved in order to build a new and better system. Next thing you know, all the companies go back and start working on solutions to the requirements that were agreed upon.

So, all these competing companies are basically doing research on the same topics, while presenting their solutions to the other standardization partners at the same time. It would seem difficult to openly discuss the new ideas long before you actually have a product. You are sharing your technologies, or your technological development, with your competitors. A key part of this, of course, is patents: If we have patented a new product, at least we have some protection, which means that we can get some return on the risk we're taking in spending money on research and development.

This way of working means that the best solutions are the ones that constitute the standard. When you have a standard; you have a specification; and the specification defines the market. This market is owned by all the companies that have contributed to the standard.

A basic principle with patents is that one company can obtain a monopoly – it can stop others from using its patented solution. But in standardization, each of the partnering companies must sign a waiver from the beginning, by which they waive their rights to a monopoly and promise to license all of the involved patents on fair and reasonable terms.

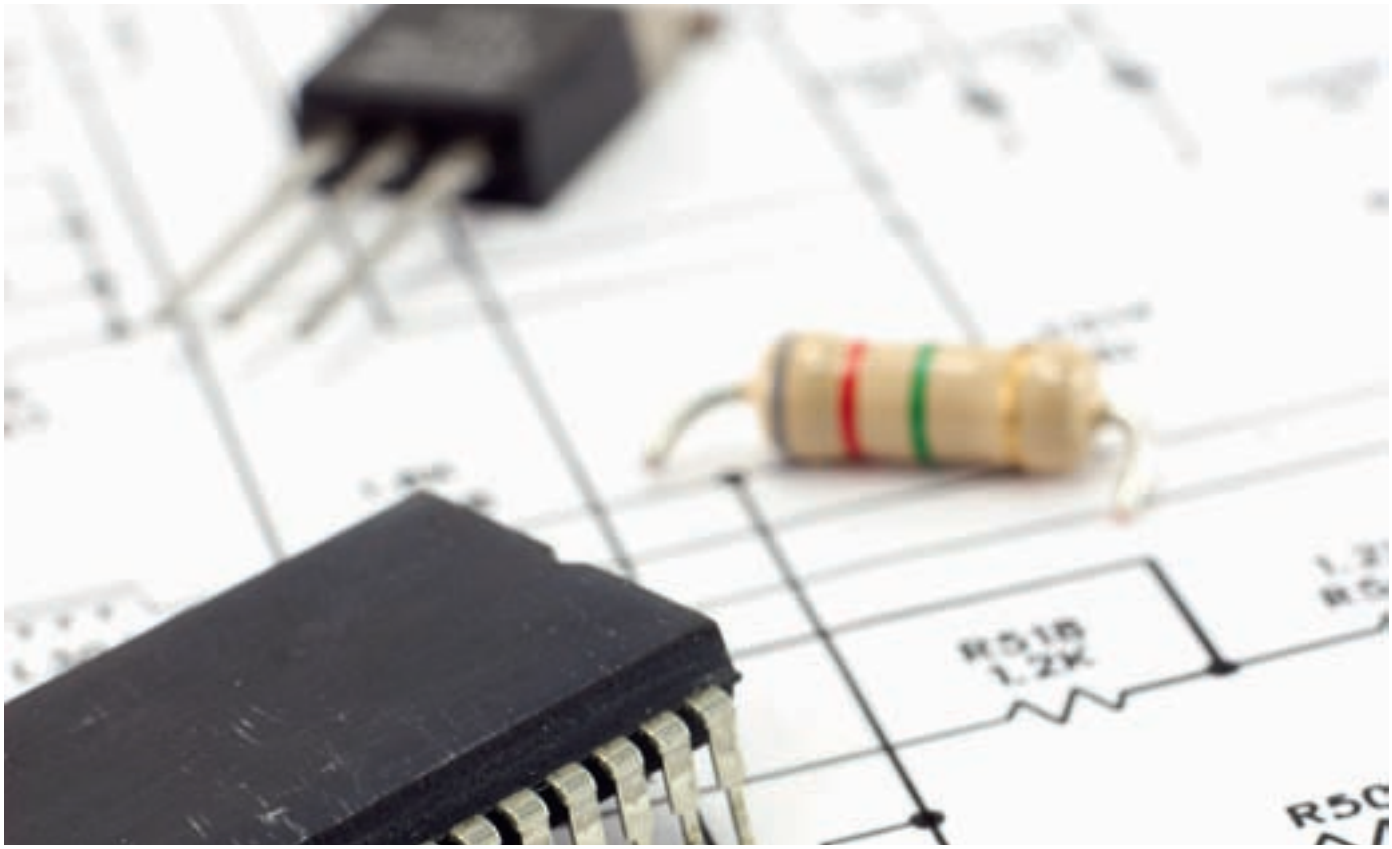
In telecom standardization, the companies that contribute the most get the largest share, the biggest return. But an important part of this business model is that companies which take part in the development of solutions and products are guaranteed part of the returns instead of gaining a monopoly.

Consumers don't care who owns the intellectual property behind a product or service; they just want optimal functionality. The way the telecom industry traditionally works with open standards can guarantee this, because the deciding factor when selecting a technical solution for a new standard is its technical merits. On top of that, a voting process decides the outcome, which means consensus among participating companies. The only way licensing can work in this context is that all participants are open with what they do all the way through.

THE CONVERGENCE of the telecom and computer industries has brought new players into the communications arena. Some of them are accustomed to being able to dictate feature development through proprietary interfaces or market dominance.

Non-telecom companies such as Cisco and Intel also work with standards but in a manner that allows them to dominate their markets. They use this dominance to continuously evolve their products with new features. First they put the features on the market, and only then will they go to a standardization body (for example, the Internet Engineering Task Force, or IETF) and claim to be a part of the standard. Unless the standardization body does what these companies want, the new standard won't be interoperable with what they have developed.

No one can accuse these companies of not sharing; it's just that they do it after the development process. Because their business strategy is to maintain a dominant position in the marketplace, they see no reason to share the way we do in the telecom world. Consequently, patent licensing is not an important part of the business for a company such as Cisco. Patenting of new features or solutions, however, is. As long



as competitors remain "friendly" nothing will happen to them, but the minute a company is not, Cisco can use all its patents to impede them.

Telecom vendors are willing to take the risk to start from scratch with a new technology and race against other vendors to come up with new products. This means that network operators get a fresh start, also, and can play vendors against each other. And participating vendors have promised to license their patents, so no one can be stopped and new players are able to join.

In comparing the two models, you can say that the Cisco model is like sailing a large tanker, and every now and then you throw something out for the others to catch, whereas a telecom vendor is taking the risk of lining up in a new race against the others. Those who don't win the race still get to charge for licensing their patents.

Interoperability is secured with open standards and competition between companies providing products for those standards. The open-standard process is unique compared to other industries, in that competing companies continuously share their latest results, technologies, and solutions.

Standardization starts by defining what problems to solve, which leads to concurrent research to find solutions and patent applications to protect these solutions. The commitment to let others use the patents on "fair, reasonable, and non-discriminatory" (FRAND) terms ensures that all can afford to use the solutions in their own products.

REASONABLE PRICING is critical. Two examples are the Global System for Mobile (GSM) and Code Division Multiple Access (CDMA). GSM has been adopted in almost all countries, whereas CDMA has limited competition. Last year GSM had four times as many new subscribers as CDMA. This shows that one of the two is open to competition, with cheaper mobile phones and subscriptions. The low cost for consumers is all-important, because without it, investment in development would be meaningless.

To ensure reasonable prices and rapid market acceptance of Long-Term Evolution (LTE), the market leaders – among them Ericsson, Nokia, and Alcatel-Lucent – published a press release in April 2008 indicating that they are behind the majority of the intellectual property rights concerning LTE and agree to a single-digit maximum aggregate percentage royalty rate for handsets. The signing companies ►

also stated that they maintain their commitment to certain important principles regarding the licensing of LTE.

For a standard to become the "winning" standard, it needs to attract the best researchers and research organizations. In other words, an incentive is needed for companies to contribute good solutions.

The telecom industry talks about FRAND licensing terms, but owners of intellectual property recognize that there has to be profit involved, otherwise no one will invest in developing new technology. There is no contradiction here: To acknowledge reasonable total royalty levels is a good deal for you as a patent holder, even if you only take your proportion of the total, as long as you have your patented technologies in the "winning" standard that reaches a global market.

When talking about interoperability between devices, instant messaging should also be mentioned. The downside of messaging applications is that, although they can be launched quickly, quite often you are not able to communicate between different brands of messaging systems. MSN Messenger and Facebook are examples of proprietary systems that lock the customer in. In the telecom world there are also many different systems, but once something is launched it works interoperably from "anyone to anyone." The value in this should not be underestimated – it is what might make a service last for a long time in the market. In the near future, messaging will (hopefully) go through the same development as telecoms in general, and consumers will be able to communicate between different applications or systems.

WE THINK IT'S important that operators understand this difference in approach and recognize the great opportunities that lie ahead in working with open standards. However, there is a risk that operators will continue to look more toward the promises coming from Google and MSN, the outcome of which is not certain.

The Third Generation Partnership Project, 3GPP, has stayed in the lead as the "winning standard" in wireless ever since GSM was established in the late 1980s. GSM has seen a tremendous development since its inception, stepwise adding functionality and capacity to always be in the lead: GSM > EDGE > WCDMA > HSPA > LTE.

To stay in the lead, a standard needs to constantly evolve. The company that provides the most to a new standard cannot sit back and be happy and say it is the leader. If you have two patents out of ten, that does not mean you still have 20 percent when perhaps hundreds of patents have

been added. The participants' shares are always changing.

One example that demonstrates the importance of sharing royalties fairly is Qualcomm's attitude toward Wideband Code Division Multiple Access (WCDMA) royalties. Qualcomm claims similar royalty levels for WCDMA as for CDMA, for which the company contributed most of the specifications. But many companies took part in the development of WCDMA, which is something quite different from CDMA. Therefore, all participants should get a fair share of the credibility and the revenue. As well, WCDMA phones always have a dual mode that incorporates them with GSM, and Qualcomm has never contributed anything to GSM. This makes it even more unfair that Qualcomm should get a similar royalty level from sales of GSM/WCDMA phones as for CDMA phones.

It is hard to establish globally accepted communications standards from a position of trying to dominate a market. Intel launched the Worldwide Interoperability for Microwave Access (WiMAX) as an attempt to get wireless connectivity "for free" and reduce the value of communication to zero in the value chain — all in order to maintain the lion's share of the value in the processor market, which it controls.

MOST ANALYSTS now agree that WiMAX can't hope to get away from licensing fees, as has often been claimed. If Intel or any other of the companies behind WiMAX in some way infringes on wireless patents, they cannot ask patent holders like Ericsson to give licenses away for free just because they want to maintain their old processor-centric business model in the wireless world. Ericsson acknowledges that it must treat WiMAX vendors in a fair and reasonable way; otherwise Ericsson will not be viewed as a fair and reasonable player.

An important point here is that a patent can be said to grant exclusive rights to the use of a technology, not a product or a standard. In order to get a competitive standard, the WiMAX camp needs to solve the same intellectual property rights issues already solved in 3GPP, coming up with the same negotiated and agreed-upon solutions by learning from available results in 3GPP. Ericsson is confident that, moving into 4G, WiMAX can exist side by side with LTE. But it is not investing in WiMAX because it is certain that LTE is the best way forward.

Can a pooling system help streamline 4G innovations? Some players claim that a 4G patent pool could indeed get costs reduced and under control. However, the setup of a licensing mechanism in itself can never be a solution. Instead, the FRAND principle of the telecom industry is the solution. The licensing of patent rights is possible either through a pooling system or bilateral agreements – it really makes no difference.

Working with patents and other intellectual property in an open and collaborative manner is crucial to the future of communications. The way the telecom sector has handled these issues in the past has been a resounding success, exemplified, for instance, by the way GSM has created global mass-markets built on interoperability, open competition, and economies of scale.

This way of working is being challenged by alternative business models, as represented by Cisco, Intel, and Qualcomm. To counter the challenge, the communications industry should heed the dangers of being fragmented and stick to doing business in open competition within a framework set by all participants. The key to this is following the fairness principles; in other words, the question of reasonable total royalty and proportionality. Each patent owner can only demand its share of the total royalty in order to be reasonable. ●

AUTHORS

Gustav Brismark is Vice President of Patent Strategies and Portfolio Management. He has worked at Ericsson for more than 20 years in positions ranging from research to product management. He joined the IPR group four years ago and has been active in building up a portfolio management function for patents. (gustav.brismark@ericsson.com)

Kasim Alfalahi is Vice President and General Manager of IPR, Licensing and Patent Development. He joined Ericsson in 1995, after receiving an MSc in Engineering and Management from Linköping University, Sweden. First responsible for Ericsson's patent portfolio covering the US Mobile Systems, Alfalahi was in 2000 appointed Director of Patent Licensing and in 2005 became responsible for Ericsson's worldwide IPR activities. (kasima.lfalahi@ericsson.com)