

Bluetooth Opportunities and Threats from a Market Perspective

Analysis of Bluetooth

Introduction

Bluetooth is a standard for short-range connectivity currently receiving much attention in the wireless industry. Initially launched in 1998, the Bluetooth Special Interest Group (SIG) has now attracted more than 2500 member companies. Even so, Bluetooth is a young standard and the degree of its impact is unclear.

The Bluetooth-technology was originally designed to be a flexible and efficient cable replacement, but two other usage models are now also supported by the standard. It is now also possible for a group of Bluetooth devices to communicate in a temporary network, a so-called pico-network. When Bluetooth enabled devices become widespread a third usage model may be realized, namely Bluetooth networking over access points. These three basic usage models i.e. cable replacement, pico-networking and access networking, are very different in character. In order to evaluate the impact of Bluetooth from a market perspective it is absolutely necessary to understand the timing and critical factors of each usage model.

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About Northstream:

Northstream offers strategies and intelligence to the wireless industry. We cover all aspects of wireless: R&D, technology and business planning, implementation and end user aspects. Northstream has assembled a multinational team with some of the world's best experts and analysts on wireless communication business and technology. Within Northstream you will find a dedicated research team, which follows and analyses the developments in the wireless industry.

In our work as strategic advisors, we work with several of the world's leading operators and system suppliers, e.g. Vodafone, AT&T Wireless Services, NTT DoCoMo, SmarTone, Sonera, Mitsubishi, Ericsson, Microsoft and Siemens.

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Usage models

As a cable replacement, Bluetooth is clearly superior in comparison to today's infrared solutions. Most significantly, under optimal conditions a typical cable replacement-connection can operate within a 10 metre range, and it does not require line of sight to communicate. This enables such applications as wireless communication between a headset and a mobile phone as well as synchronisation of data between for instance a laptop and a PDA. There are actually numerous useful Bluetooth implementations based on this usage model, considering the amount of equipment that can benefit from efficient wireless communication. Noticeably, almost all Bluetooth products on the market today are intended as cable replacements.

Secondly, there is today no realistic alternative to Bluetooth as a future enabler of pico-networking. As soon as there are enough devices capable of Bluetooth communication, it will be possible for several devices to intercommunicate, for instance playing a particular game or transferring files. The latter can be useful for instance in meeting rooms when people need to share documents. In terms of timing, applications of Bluetooth within this usage model will arrive at a somewhat later stage because a critical mass of Bluetooth-devices capable of pico-networking needs to be available.

The last usage model (access networking), is based on the vision that users will access Internet-content, localized content, or even voice-networks, from access points deployed in public areas (hotspots) or office environments. In order for this to be viable, an even greater amount of Bluetooth devices that are specifically fitted for this usage model must be available. Public hotspots based on Bluetooth are regularly compared to WLAN-hotspots based on the 802.11b technology, and confusion abounds in this debate around issues such as availability, bitrates, customer relationships, equipment, interference, price and power consumption.

The business case of short-range networks

The popular opinion is that 802.11b-networks may make Bluetooth obsolete as a networking technology due to market momentum and superior bitrates. However, without going into detail on 802.11b, at this stage Northstream believes this is speculation due to the challenges surrounding short-range network deployments, particularly public networking. In fact, there is still no proven business case for a service provider using short-range technology, be it Bluetooth, 802.11b or even good-old DECT. However, Northstream is investigating this area in further detail and monitors the ongoing efforts in the industry.

Opportunities and critical factors

Even if there exists much uncertainty around the market acceptance of the access networking usage model for Bluetooth specifically, one should keep in mind that major mobile phone manufacturers have indicated they plan to include browsing functionality based on XHTML/WAP in future terminals that can use Bluetooth as the bearer. If markets are penetrated with personal devices carrying this functionality, it is of course more likely that someone can successfully deploy a public network solution using Bluetooth. It is important to realize that Bluetooth so far has been chosen over 802.11b in these high volume devices because it is better suited in terms of chip-size and power consumption.

On the other hand, if Bluetooth is to reach market acceptance as an effective and intuitive solution for any of the three given usage models, there must be an improvement on interoperability aspects. This not only means that Bluetooth

protocol-stacks in the standard have to be fully interoperable, it also implies that actual applications on various devices from different manufacturers must be able to communicate. For instance, a file transfer application on one device should be compliant with another file transfer application on another device. These interoperability issues, together with the current relatively high price of chipsets/software in the marketplace, create an obstacle for Bluetooth take-up within the industry. This is especially true for non-Bluetooth centric equipment manufacturers who also face the apparent complexity of integrating Bluetooth into their existing products. For this reason, an important role in the Bluetooth value chain will be system integrators who can help overcome these challenges.

Coexistence

Northstream advises clients on business and technology aspects of Bluetooth, 802.11b and also UMTS. We believe that these three technologies only partly overlap as service enablers, and are largely complementary from a market perspective. These technologies target different types of services in non-overlapping environments, and it is therefore incorrect to claim that one technology will win out over another. Clearly there exist business opportunities for products and services in each area. To identify these it is more than ever necessary to understand the implication of the technologies, their usage models and the ways they complement each other.

Contact:

Northstream has studied all aspects of **Bluetooth**. Please contact us if you would like to find out more about this or about our company and the services we provide.

E-mail us at info@northstream.se or call our local offices at +46 8 564 84 800 (SE) or +33 4 9723 2450 (FR) or +81 3 3560 2401 (JP) or +852 2168 0858 (HK) or +44 7786 730 670 (UK)