

## Abstracts for introductory presentations and research questions

### **Introduction to the workshop - Background and Challenges** (Jan Markendahl)

We can currently see major changes on the market for mobile services. Fixed and Mobile systems are converging and the same kind of service can be delivered using a multitude of distribution channels; fixed and wireless broadband, broadcast, cellular systems and even using non-conventional ways like rapid downloads using info-stations and terminal to terminal communication. In addition to this multitude of technology options we can also foresee new forms of co-operation between market actors and new types of actors. In this introductory presentation we will highlight some trends and highlight some of the implications and challenges e.g. willingness to pay, cost efficient networks, design of business agreements, business relations and responsibility, regulation and market entry.

### ***Theme 1: The Future Business Landscape.***

#### **Unbundling of value chains** (Jan Markendahl)

The current cellular market is usually dominated by a few Mobile Network Operators (MNOs) in each country. The user has a subscription with a MNO, with a vertically integrated value chain, playing all business roles and providing a full service offer. The presentation will describe different business roles and how they can be decoupled so that the user can use different market actors for provisioning of access services, value added services, trust and billing services. A case study for public internet access will be used in order to illustrate how this is already happening for provisioning of WLAN access.

#### **New business roles and actors** (Oscar Rietkerk)

Unbundling of value chains combined with the dynamic possibilities of Ambient Networks to cooperate and compete will increase the number of relations in the new value network. In order to keep the number of relations manageable it is likely that intermediary roles will become more important. Both in the B2B as in the B2C relations these intermediaries, e.g. brokers and aggregators can play an important role. As the value chain unbundles and roles are re-distributed over actors there are opportunities for new actors (from other sectors of industry) to step in telecommunication. With the functionality of Ambient Networks it might even be easier to step in.

#### **Examples of discussion items and questions**

- Will access service and value added service provisioning be one market?
- Will traditional operators “allow” new actors to enter the market?
- Will the market regulate itself or is there a need for regulatory directives?
- Will end-users see a need for 3<sup>rd</sup> parties like brokers and aggregators?

## ***Theme 2: Co-operation and Competition***

### **Vertical & horizontal co-operation & agreements** (Jan Markendahl)

End-users have long term business relations with operators in the form of subscriptions. In the same way different types of providers have long term business relations with each other for different types of co-operation. Similar to today's agreements for international roaming we can foresee different types of national and local roaming. This is different to international roaming since the co-operating parties at the same time compete for the same customers. Operators can also co-operate by deployment of shared networks or by allowing real-time load sharing and load balancing. Service Level Agreements (SLA's) is one form of agreements where e.g. a service provider agrees with a network provider on terms and conditions for use of the network resources for service delivery.

In the presentation both long term and short term agreement will be described together with the different types of Composition Agreements (CAs), proposed by the Ambient Networks project, supporting co-operation between networks and business entities. CAs can be dynamically established and contains both technical and business parameters. CAs between operators can include both SLA's and roaming aspects. A CA between an end-user and a provider can be seen as a short term SLA.

### **Examples of traffic distribution & End-user experience** (Ove Strandberg)

Better access for users is one of the critical enablers for introducing better connectivity and services. The multitude of different access and network technologies and service support makes seamless use challenging to achieve and trying to include multi-operator cooperation makes it even harder.

The presentation includes a case study with description of proposed new functionality and selected performance results. The proposal in the case study tries to provide a feasible technical functionality for distributed participation in the access selection by the stakeholders (access providers, users, etc.). The challenge is to look beyond technical functions and evaluate operational possibilities in the heterogeneous network environment and discuss network utilization and user performance benefits.

The results show that both the overall traffic and the connected time for users increase.

### **Examples of discussion items and questions**

- Can we today see examples of "future" types of co-operation?
- Will vertical cooperation be more easily adopted than horizontal?
- Will "more" co-operation tend to develop into fixed alliances?
- Is new functionality needed in order to manage more close cooperation?
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### ***Theme 3: Challenges for adoption of new networking concepts***

#### **Standardization: Example Network Composition** (Ove Strandberg)

New cooperating models in mobile networks are addressed with the proposed Network Composition functionality. The new cooperation framework enables new ways to specify access to resources in another network and shifts the manual configuration into an automatic method. The Network Composition principles are being considered for standardization in the 3GPP and in SA it was addressed as a study item (TR 22.980) with different use cases as focus. There are other evolving functionalities challenging mobile network evolution and the benefit of the new functionalities has to be estimated.

#### **Regulation: Cases Shared Networks & National Roaming** (Jan Markendahl)

During the early 3G roll-out in Europe concepts for Network Sharing got a lot of attention. The regulators in different countries soon issued regulatory directives on how much and under what conditions sharing was “allowed“ with respect to competition. Regulators also have issued directives on national roaming, often in order to support entry for new market players. The presentation will provide some examples of how regulators have tried to regulate co-operation between competing operators.

#### **Adoption by End-users and by Business actors** (Oscar Rietkerk)

New services will be possible with the new technology of Ambient Networks and quality of service will improve. This will bring together the service richness of the internet with the guaranteed connections of the telecom industry. But adoption of new technology is based on more than technical functionality. End users will need to buy new devices and need to be able to control all the new possibilities while business actors will think about the investment and the return on that before going on the road towards Ambient Networks. Furthermore a lot of other components need to be in place before these actors will even consider it. The theory of dominant design can shine some light on how Ambient Networks can become the dominant design.

#### **Examples of discussion items and questions**

- Is it enough with regulation of the type “control large players”?
- Can Ambient Networks be adopted without standardization?
- Will the end user enjoy the experience of Ambient Networks?