

# Mobile Adventure - towards 4Generation mobile systems

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In the past, generations of mobile systems were often characterized according to their radio interface. Consequently most of the discussions today regarding beyond 3G systems are focusing on wireless transmission technologies. However future Systems that are targeted at solutions towards 4th generation mobile systems are expected to provide advances in a much broader sense. In particular they are aiming at two goals: Firstly seamless end to end connectivity with high capacity and predictable quality of service parameters and secondly a multitude of substantially enhanced new services that are tailored to customer needs. Seamless connectivity hereby will not only encompass heterogeneous access networks as we see them emerging today, it will more importantly expand networks to reach out for a mobile-ubiquitous networking environment, integrating cellular networks and an ubiquitous computing environment. Seamless connectivity can be achieved through composition of networks, including VAN, PAN, BAN etc. as well as sensor networks and others in a wireless ad-hoc manner. This new mobile-ubiquitous environment will be the foundation for providing services to users (corporate as well as individual end-users) that are unprecedented in scale and intensity and need careful filtering and considerations of consumer preferences in order to be manageable by and meaningful for the customer.

The successful leap to the next generation will strongly be influenced by new ways of providing semantically enhanced rich services and applications and equally important by new methods of presenting them to the user. With the complexity of services increasing – 4G customers will have access to a huge variety of services and a multitude of offerings to combine them – it seems

easy to predict a growing market for solutions that are aiming at assisting the customer. That will include as a key concept context-aware dynamic adaptation of service offerings, thus providing services to the user according to his current contextual conditions. Since difficulties in using and accessing new and complex services have been reasons for slow service adoption in the past, one key factor for operators to succeed commercially is to unburden the user by providing services that are deeply personalized. Personalization is regarded to be one of the most compelling features for future mobile communication systems. It will allow for supporting customers in discovering specific services from a diversity of mobile service offerings, and provide user support for intuitive service access. Operators can adjust selected services to the users' individual needs by utilizing usage patterns and proactive service selection mechanism. The deep personalization not only promises to strengthen the relationship between the customer and the operator it also gives room for implementation of novel business models thus encouraging third parties to enter the attractive market of personal service provisioning.

Even more futuristic support systems could explore the possibilities and advantages of using machine learning techniques to acquire knowledge about specific user behaviour and provide an user assistant, e.g. in form of an observer agent, to help navigate their way in an ambient-aware services environment. Following the concepts as described, the traditional role of mobile operators within the next generation of mobile systems is likely to change significantly, focusing competition not only on seamless connectivity and prices but also on rich services and extensive service usage support.