Personal Communications - What is Beyond Radio?

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Abstract. The overwhelming success of newly introduced radio based telecommunication - mostly telephone - technologies has proved the clear demand for mobility. Use of mobile systems now poses the question: what else is demanded beyond access to telephone-type services to form a personal communication space?

The paper elaborates on this question, the concepts and key elements for the realisation of a personal service communication space. The integration between personal communication services and corporate applications as well as its alignment with the respective management domains are derived as key requirements. It then provides a more detailed view on two key components of such a service system: Service Adaptation and RouteControl. Finally conclusions are drawn for the open issues which require further work.

Keywords: Personal Communications, UPT, UMTS, Personal Service Communication Space

1. Introduction

The evolution of telecommunications technology and the integration with computing applications leads to a new situation on the market for the provision of services. The user requires more sophisticated and personalised services, which can also fulfil his needs for mobility in business and private life. The concept of the Personal Service Communication Space (PSCS) and its service architecture is under development in the RACE project Mobilise in order to meet these requirements. PSCS offers basic personalisation and mobility features like registration and location dependent services to the user as a value added network and service platform. Additionally it supports a competitive multi-provider scenario. Such, PSCS can be regarded as the service related extension of such concepts as UPT (Universal Personal Telecommunications) [3] or activities towards UMTS (Universal Mobile Telecommunications System)[10].

Personal communication will offer a set of common service features to users independent of their current location and independent of the terminal they currently use.

1. This paper is based partly on the work undertaken in RACE project R2003 "Mobilise" which started in January 1992. Partners of the Mobilise consortium are Ericsson Eurolab Deutschland GmbH, Cap Gemini Innovation, Dutch pt research, Televerket, RWTH Aachen, Ericsson Telecommunicatie B.V., empirica, Cap Sesa Telecom, Vodafone and Ascom Tech. The views represented in this paper are those of the authors and do not necessarily represent the view of the consortium.
To enable personal communication the following core features are required:

- **registration** for services at all network access points irrespective of network and terminal supported by using a dedicated device (for example a smartcard)
- execution of a service profile per end-user in which a personal service set-up is stored

PSCS is based upon a distinct enterprise and functional model which separates the domains of PSCS services. PSCS relies on the IN architecture for supporting basic personal communication services on a shorter timescale. Further developments in IN and the INA architecture [1], now continued in TINA-C, will enable PSCS to support multimedia and multipoint communication. On the other hand the by nature mobile networks like GSM will increasingly be enhanced by personal communication support features. These will be built according to their service control structure where the HLR (Home Location Register) plays a central role.

1.1 **Product View**

The PSCS service provider issues the PSCS subscription by means of a **smart card**. This card is comparable to current GSM SIM (Subscriber Identity Module) cards and upcoming DECT (Digital European Cordless Telephony) identification mechanisms. In addition to this, **PSCS control devices** will appear which provide DTMF signalling as well as service profile editing or on-line service control through a separate PSCS control communication channel. The services are provided through a range of separate **service terminal** which require little or no modification. The PSCS service features which are bound to the subscription can be obtained from the **personal service profile**[5, 6] which is located in the network. The user relevant part of the data is also stored on the smartcard.

1.2 **Personal Communication - the Concept for PSCS**

Personal communication supports everyday tasks such as getting and staying in touch with other people, accessing message and information servers, or performing tele-trading services, such as tele-banking or shopping. This places emphasis on another aspect of personal communication: the organisation of communication—the ability of users to decide for themselves when, how and with whom (or which system) they wish to communicate, as originators as well as as recipients.

The Personal Service Communication Space (PSCS) is a system concept designed to fulfil the demands of personal communication.

1.3 **New Market Structures for PSCS**

It is important to understand the market in which services like the PSCS will be introduced. New market structures have been developed in telecommunications since the 1980s. There have been two principal driving forces that have set the pace.