

**THE INTEGRATED COMMUNICATION
TERMINAL FOR NEXT GENERATION MOBILE
TELECOMMUNICATIONS**

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] This invention relates to an advanced open communication terminal system and method of integrating the mobile communications, wireless access systems and wired communications into one common platform architecture, supporting cost-effective broadband voice, data and video services in both wireless and wired environment with one single integrated terminal. The invention includes improved system architecture in the integrated terminal and minimum modification in the existing mobile communication infrastructures.

[0003] 2. Description of the Related Art

[0004] Wireless communications comprises a wide range of technologies, services and applications that have come into existence to meet the particular needs of different market sectors and user environments. Different systems can be broadly characterized by:

- [0005]** content and services offered;
- [0006]** frequency bands of operation;
- [0007]** standards defining the systems;
- [0008]** data rates supported;
- [0009]** bidirectional and unidirectional delivery mechanisms;
- [0010]** degree of mobility;
- [0011]** regulatory requirements; and
- [0012]** cost.

[0013] The service requirements for telecommunications remain the following characteristics:

[0014] Speech and SMS (Short Message System):

[0015] This service type requires a peak bit rates up to 16 kbps. In the year 2010 onwards, there will still remain needs for these very low data rate applications of speech and simple message service. In addition to that, some applications in the field of sensor communication and/or low bit rate data telemetry would also be expected for the category, as ubiquitous communications. Most of mobile e-commerce applications would also be categorized in this type.

[0016] Multimedia and Low Rate Data:

[0017] This service type at a data rate of less than 144 kbps should also be considered, taking into account the compatibility with 3G and 2G data communication applications.

[0018] Medium Multimedia:

[0019] This type support a peak bit rate of up to 2 Mbps. This type would be required to sustain the compatibility with the 3G applications.

[0020] High Multimedia:

[0021] This type should be considered in order to accommodate high data rate applications, including multi-media video streaming services, which are provided with broad-

band service in fixed wired communication systems or with broadband wireless access systems.

[0022] Super High Multimedia:

[0023] This type should also be considered in order to accommodate super high data rates multi-media applications, which are currently provided with Fibre-to-the-Home (FTTH) services in case of wired communication systems.

[0024] Currently, these services require different communication devices with different connection facilities that the users need frequent switch between various terminals at home, office and in other environments.

[0025] A service usage pattern may be categorized according to an area where users exploit similar services and expect similar quality of service.

[0026] Home

[0027] Office

[0028] Public area

[0029] Wide area

[0030] In many countries, Internet access in Home, Office and Public Area becomes very popular and affordable. Meanwhile, WLAN (wireless local area network) access is evolving rapidly in these domains.

[0031] Second generation (2G) systems were mainly designed for applications such as voice. Third generation (3G) and especially, beyond third generation (B3G) mobile system will increasingly be designed as combination of different access technologies to complement each other in an optimum way for different service requirements and radio environments in order to provide a common and flexible service platform for different services and applications.

[0032] Access to a service or an application may be performed using one system or may be performed using multiple systems simultaneously or alternatively. Specifically, as will be described within the context of the present invention and has yet been un-addressed in the art, such improved technology could include an integrated communication system which will combine the wireless mobile communication, wireline communication, wireless local area network and Internet into one common platform so that the single Mobile Terminal can operate as a home phone, office phone, mobile phone and open terminal with single user number, which is the unique identifier of this integrated mobile terminal.

[0033] In the future operators may deploy a mix of technologies that could, at various stages in time and subject to market and regulatory considerations, incorporate cellular, WLAN, digital broadcast, satellite and other access systems as provided by the present invention. This will require the seamless interaction of these systems in order for the user to be able to receive a variety of content via a variety of delivery mechanisms depending upon the particular terminal capabilities, location and user profile.

[0034] Different radio access systems will be connected via the open and flexible core networks. In this way, an individual user can be connected via a variety of different access systems to the networks and services he desires. The integration between these different access systems in terms of horizontal and vertical handover and seamless service