integrated terminal, as set forth above, with one single communication number. Furthermore, the aforementioned integrated terminal of the present invention utilizes the existing or any future communication standards (including both wireless and wireline standards) rather than relying on new defined transmission technologies. Specifically, as described within the context of the present invention, the aforementioned integrated terminal is just an improvement of the existing communication device, wherein this integrated terminal, as set forth above, is operable in each individual communication standard and backwards compatible to the same transmission technology.

[0069] Lastly, the system and method of present invention comprises the best and optimal utilization of the existing communication infrastructure, wherein almost all existing telecommunication equipments, including MSC (Mobile Switching Center), BS (Base Station), Gateway and Router, and backbone networks, remain unchanged and fully operable.

[0070] The advantage of the integrated communication system and method of the present invention includes remarkable improvement of spectrum efficiency in mobile cellular bands, improvement in network resource, optimization in network interoperability, enhancement of the emerging broadband availability, convergence of entertainment and Voice/Data services, interaction and integration of various communication devices and defining the future intelligence of truly smart communication environment. More specifically, the system of the present invention provides the capability of the true Personal Communications, wherein one single terminal with one number manages all personal communications needs everywhere and anytime.

[0071] All these and other introductions of the present invention will become more clear when the drawings as well as the detailed descriptions are taken into consideration.

BRIEF DESCRIPTION OF THE DRAWINGS

[0072] For the full understanding of the nature of the present invention, reference should be made to the following detailed descriptions with the accompanying drawings in which:

[0073] **FIG. 1** is a hardware architecture of Integrated Wired and Wireless Mobile Terminal, wherein main functional blocks of this invention are listed.

[0074] **FIG. 2** is the Call Processing Management System in Mobile Switching Center or Mobile Gateway, wherein the incoming calls are further forwarded through IP connection or over the mobile air link channel.

[0075] **FIG. 3** introduces the Network Access Control scheme in the integrated terminal of the present invention, based on the example of Wired/W-LAN/GSM/CDMA 4-in-1 terminal.

[0076] **FIG. 4** is a method to configure the user home computer with Internet access as a Virtual Mobile Server of the integrated terminal of the present invention.

[0077] **FIG. 5** is a design prototype of the integrated terminal of the present invention, wherein basic functions in services and applications are described.

[0078] Like reference numerals refer to like parts throughout the several views of the drawings.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0079] The present invention relates to a system and method of integrated communication terminal wherein the mobile cellular standards, including existing or future standards, can integrate the short range wireless access standards (for example, Wireless LAN and Wireless PAN) and wireline network standards including Internet, into an open communication platform so that the same integrated terminal device can be operable in various communications environment to maximize the wireless spectrum utilization, and broadband services and applications, as well as optimize the network resource management and system capacity management.

[0080] **FIG. 1** is the hardware architecture of the integrated wired and wireless mobile terminal of the present invention, wherein the key functional units are:

[0081] Open Wireless Architecture (OWA) Common Air-interface (CAI) BIOS (Basic Input/Output System)—this function unit defines the basic open platform to support various wireless air interfaces (or called radio transmission technologies) including existing standards and future to-be-defined standards. Open architecture is very important for next generation communication systems because it allows different modules and subsystems to be provided by various different vendors through the open interface standards. OWA is different from Software Defined Radio (SDR) in which the operating parameters including frequency range, modulation type, and/or output power limitations can be set or altered by software. In this way, SDR is only one of the functions of OWA system. Hence, Soft Radio API (Application Program Interface) deals with the above parameter settings in the open platform of the present invention.

[0082] Wireless LAN/Wireless PAN Interface—this functional unit provides the short range wireless network access including wireless local area network (WLAN, for example IEEE 802.11 standard) and/or wireless personal area network (WPAN, for example IEEE 802.15 or UWB, Ultra Wide Band). However, as utilized hereinafter the term "Wireless LAN/Wireless PAN" refers to any type of short range wireless broadband technology operable in the fashion of "IEEE 802.11/15", but not limited thereto.

[0083] "VoIP (Voice over IP)" Unit provides a state-of-the-art solution to transmit real-time voice service over IP networks, wherein the integrated terminal of the present invention may connect to the wired Internet network through a Network Interface Unit (NIU) interface, for example, USB port or Ethernet port, or connect to the Internet through a Wireless LAN, Wireless PAN or other Broadband Wireless Access system, whichever is available with user-defined search order, but not limited thereto.

[0084] Software Defined Module (SDM)—this functional module supports multiple wireless standards (air-interfaces) for the integrated terminal of the present invention. The module can be stored in the aforementioned terminal system, or in the external card or downloadable from the Internet. The OWA of this invention supports open air interfaces so that users can change different wireless standards, including existing standards or future standards, by updating or replacing this module, as set forth above, wherein this module may further contain independent pro-