

GPRS roaming network evolution to NGN

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In most developed countries data traffic has already surpassed voice traffic and this trend will only continue to accelerate. As result for operators and vendors there are major economic advantages to multiplexing all types of traffic over packet switched networks.

The mobile communications are dominant technology in all markets of advanced and developing countries. Providing a truly satisfying mobile experience to end users requires suitable air interfaces, advanced capabilities within the core network, close coordination between network operators in support of global roaming and interconnection over inter-PLMN backbone networks. As result mobility arise as an essential and integral part of Next Generation Networks. This evolution is already supported in the various second-generation (2G) and third generation (3G) standards for the wireless mobile world. As example, GSM ph2+ and UMTS include the GPRS core networks. Between two or more GPRS core networks may be GPRS backbone roaming network.

This paper has the main objective of developing common understanding of the trends and requirements for evolution of GPRS roaming networks to NGN, in particular on the network architecture and their open, multi-vendor interfaces for service/application delivery.

The main feature of the 3G/4G system traffic is unique diversity depending on type of supported services. In particular there will be a considerable increase in the rate of transactions and in the total traffic intensity in roaming backbone networks. Besides it is necessary to take into account the notion of self-similarity that will take place in NGN due to the high variability of burstiness of the multiservice traffic. For these reasons the prediction problem of data traffic measures becomes very complex when planning inter-PLMN backbone network.

General solutions for GPRS roaming network on evolution phase to NGN may base on adaptation of IPv6 and its advanced protocol stacks that will allow to overcome difficulties for IP addressing and supporting of mobile services on network layer, security and screening, quality of service and others. All IP based global roaming and mobility solutions allow effective charging and billing procedures.

An IPv6-enabled inter-PLMN roaming network that being planned as NGN backbone will provide vast opportunities for a myriad of new service and applications to be developed, upon which one cannot begin to speculate.