QoS AND MOBILE TECHNOLOGIES

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CHAPTER 26

IMPROVEMENT OF VERTICAL HANDOVER IN GPRS/WIFI SEAMLESS CONVERGENCE

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26.1 INTRODUCTION

Interworking mechanisms are of prime importance to achieve ubiquitous access and seamless mobility in heterogeneous wireless networks and it also known as Handover. Many handover algorithms have been implemented between heterogeneous networks. GPRS/WLAN is one of the most attractive example of the heterogeneous handover and also can be called as the Vertical Handover (VHO). GPRS operates in various frequency bands depending on the country and the operator itself. General Packet Radio Service (GPRS) can be defined as a packet data technology that enables GSM operators to launch wireless data services, such as e-mail and Internet access. GPRS provides operators with the ability to use data to gain additional income. GPRS is well known as the 2.5 generation (2.5G) technology as it is a GSM operator's first step toward the third generation (3G) and a first step in wireless data services [1].By distributing a high-speed Internet access from cable, Digital Subscriber Line (DSL), and other fixed broadband connections within the wireless hotspots, WiFi has dramatically increased productivity and convenience. Today, there are nearly pervasive WiFi that delivers the high-speed Wireless Local Area Network (WLAN) connectivity to millions of offices, homes, and public locations, such as hotels, cafés, and airports. The integration of WiFi into notebooks, handhelds and Consumer Electronics (CE) devices has accelerated the adoption of WiFi to the point where it is nearly a default feature in these devices [2].Among the differences between the WiFi and the GPRS networks are the Media Access Control (MAC) and the spectrum determines the mechanisms of channel assignment. The allocated spectrum for the WiFi system is completely operated in the license-exempt (unlicensed) band, while most GPRS systems use the licensed band. As a result, GPRS and WiFi have different MAC designs [3].

This paper proposes an improved GPRS/WiFi VHO. GPRS and WiFi, as well as illustrates how service providers can leverage these technologies to offer wireless broadband Internet connectivity and compelling new services at affordable prices and in more locations. The paper is using a GWGW (GPRS/WiFi Gateway) adaptation layer to reduce the delay in the protocol conversion. The realization of the inter-working between these two standards is discussed and evaluated. The results are compared with the other