一個跨越GRPS與無線區域網路的無隙縫網路選擇系統之研究與實作 Design and Implementation of a Seamless Network Selection System across GPRS and WLANs

The era of wireless communications is coming. Users can not only get rid of the wire, but also can communicate on mobility. There are several wireless technologies, such as IEEE 802.11 WLAN, GPRS, and Bluetooth. However, any one technology among them has some drawbacks. For example, IEEE 802.11 has been deployed in our city. However, the number of　hotspots is still not enough. GPRS is a well-deployed wireless communication technology. Nevertheless, GRPS has the lower transmission rate than IEEE 802.11. Besides, a payment is needed when using GRPS. For the above reasons, integrating the advantages of the heterogeneous services is an urgent demand. Since the handoff problem between WLAN and GPRS on network layer has been already widely discussed in the literatures. Most discussions focus on the IP protocol. This kind of discussions tried to let mobile nodes connect to WLAN and GRPR at the same time. Their purposes in handling the handoff problem between GRPS and WLAN are to avoid the loss of packets. However, it consumes much power and users need to pay for the GPRS connection if WLAN and GRPS are connected at the same time. Therefore, in this paper, a Heterogeneous Wireless Network Control (HWNC) is proposed for networks selection between GPRS and WLANs. The status of the HWNC will be observed and collected during the connection. We will then determine when the WLAN or GPRS is actively connected according to the final status of HWNC mentioned above. Experiments by controlling WLAN device and GPRS device on Microsoft Window XP directly are performed as well.