Intelligent Wireless LAN Gateway
TD4-02
based on embedded system

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Wireless LAN access has become more popular in recent years. The wireless service revenue has been rising since 2000 and is expected to climb exponentially. Meanwhile, the global sales of wireless systems continue to boom according to research group Gartner Dataquest. Global sales of wireless LAN system units are forecast to increase 73% from 15.5 million units, up to 26.5 million in 2002.

With wireless LAN available, individual users in public hot spots can use their portable PCs for sending e-mail, Web browsing, and using corporate application. Business users can access network in corporate conference rooms for collaborative applications and messaging, and even stay connected to the corporate LAN anywhere they are as long as a public wireless LAN is accessible with little network set-up cost.

Our wireless LAN gateway is used to handle traffic from the mobile radio to the wired backbone of the infrastructure network, while promising security, access control, authentication, mobility, speed, and quality of service at the same time. This intelligent wireless LAN gateway is also small in size and portable in order to avoid complex installations and save space.
Our project aims at implementing an intelligent wireless LAN gateway placed at the edge of the network providing wireless connectivity for mobile computers. It can address the missing capabilities of wireless LAN gateways available in the market in providing wireless security, comprehensive authentication, and quality of service. It does not require an additional central server, but a complete wireless and centralized solution.

Virtual Private Network is the security feature to be added in the gateway, which is presumed to be the most effective security tool in wireless LAN nowadays. Our quality of service feature provides guaranteed performance and differential service, so that every user can opt to give privileges on certain network access services with predefined bandwidth. The user-friendly Graphical User Interfaces allows user interaction with the above added-in features.

The device runs in an embedded system to minimize the hardware requirement. We use Linux as operating system to ease the software development and integration.