WIRELESS LOCAL AREA NETWORK: THE NEW COMMUNICATION NETWORK APPROACH IN THE UUM CAMPUS

A thesis submitted to the Graduate School in partial fulfillment of the requirements for the degree Master of Science (Informat ion Technology), Universiti Utara Malaysia

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Abstract

This paper addresses the Wireless Local Area Network (WLAN) in Universiti Utara Malaysia. Universiti Utara. Malaysia is the one of the public university located in Sintok, Kedah. This campus now already be implemented the concept wired university. The wireless system for Local Area Network (LAN) is an important landmark in the history of the Internet and electronic applications. It opens up existing systems, databases and intranets to mobile equipment such as telephones and hand-held terminals through a graphical customer interface. The most important benefit of WLAN is that it is independent of different mobile technologies that are used in different parts of the world. The recent increase in mobile computing technologies and projects in the enterprise environment has resulted in extensive use of numerous point-to-point products that cover only a small part of the total mobile and wireless infrastructure that is required.

As the wireless local area network is getting more and more important to the infrastructure network, the objectives of this paper are to compare the wired LAN and wireless LAN in the UUM and to identify the strategic locations for implementing the wireless local area network in UUM.

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CHAPTER 1

1.0 Introduction

A wireless local area network (LAN) as an extension to the existing wired network backbone can provide higher accessibility and utilization of network resources (Geier, 1998). Using radio frequency technology, the wireless LAN transmits and receives data from one point to another over the air without relying on any physical wired connections. Thus, the wireless LAN supports user mobility and provides round-the-clock access to network resources. The wireless network also provides complementary network coverage, as it is able to cover many more locations for network connections where in the past these were unreachable. A wireless LAN system can be installed easily without the need to pull cable through walls and ceilings. It also lessens the demand for space in setting up permanent computer clusters.

A wireless LAN typically supports a data rate between 2-10 Mbps and a service range of several hundred meters. The standard that defines the widely use wireless LAN technology today is 802.11b, part of a family of 802.11 protocols. It is generically called "Wi-Fi". The 802.11b standard offers indoor communication speeds of up to 11 Mbps (megabits per second) for several hundred feet from an access point; outdoor connectivity can extend to several miles. Factors such as barriers and certain kinds of materials can affect the signal distance and strength. The 802.11a standard will offer faster speeds (up to 54 Mbps) later this year but probably over shorter distances (Cononer.Joel, 2000). In a typical wireless LAN configuration, access points,

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