

Chapter-1

BACKGROUND

WiMAX stands for Worldwide Interoperability for Microwave Access. It is a telecommunications technology providing wireless data over long distances in a variety of ways, from point-to-point links to full mobile cellular type access. It is based on the Wireless MAN (IEEE 802.16) standard. WiMAX is a highly scalable, long-range system, covering many kilometers using licensed spectrum to deliver a point-to-point connection to the Internet from an ISP to an end user. WiMAX can be used to provide a wireless alternative to cable and DSL for broadband access, and to provide high-speed data and telecommunications services. WiMAX can also be used to Connect many Wi-Fi hotspots with each other and also to other parts of the Internet.

1.1 OBJECTIVE

The overall aim of this thesis is to review various features and limitations of familiar Bangladesh, with the lowest internet penetration in the world at 4 percent, will be exposed to high-speed wireless internet by the launch of the WiMax technology. At present, the country has four million internet users. WiMAX technology will revolutionize the way we communicate. It will provide total freedom to people who are highly mobile, allowing them to stay connected with voice, data and video services. WiMAX will allow people to go from their homes to their cars, and then travel to their offices or anywhere in the world, all seamlessly.

1.2 METHODOLOGY

The development of the thesis has followed no specific approach. Instead, it required study on terms of WiMAX, WiMAX related Characteristics and works, The design of WiMAX network, Selecting Network Topology, Mood of operation, RF Planning of WiMAX, WiMAX deployment types for connectivity, Wireless Service Provider Backhaul, Campus Connectivity, Access Point Controller, Connectivity and Solutions, WiMAX OFDM Basic, Physical Layer And MAC Layer, WiMAX VoIP , WiMAX Service Providers, Infrastructure of Bangladesh, Implement of WiMAX.

1.3 THESIS ORGANIZATION OF THE FOLLOWING CHAPTERS

Chapter 2: Introduces basic theory of WiMAX ,Based on characteristics of WiMAX and explains how it work, WiMAX Wireless Network and purpose of transmitting and receiving processes.

Chapter 3: The idea of IP based Wimax Architecture and existing IP operator core network. to interconnects in clients and application servers. The design of WiMAX network is based on the major principles and Able to be deployed in both licensed and unlicensed spectra.Independent RAN architecture to enable seamless integration.

Chapter 4: How to process of Network design of WiMAX, Network related Infrastructure Equipments of WiMAX, The Wireless Backhaul Layer, WiMAX Base Station and would allocate uplink and downlink bandwidth to subscribers according to their requirements, Selecting Network Topology included Point-to-Point, Point-to-Multipoint, Mesh Networks. Uses of Repeater , Mode of operations.

Chapter 5: Consists of discussion on how use broadband technologies of Wimax, Fixed WiMAX and Mobile Wimax, WiMAX OFDM Basics to transmit information between a base station and multiple subscriber stations. WiMAX Mobility Support.

Chapter 6: The discussion detail in service provide in WiMAX with respect in BWMA,DSL,VoIP.

Chapter 7: The discussion detailed in RF Planning, Frequency Plan can perform The wireless operator must make maximum use of limited spectrum assets. Base station Frequency Assignment & Location can decide Fully automatic or with manual adjustment .Radio link planning, Coverage capacity, tariff planning, Main planning of Campus connectivity included WiMAX deployment types for connectivity and Access Point Controller. WiMAX Connectivity and Solutions to provide Last Mile" Broadband.

Chapter 8: How to Implementation of WiMAX with its background, Future of WiMAX networks, Advantages of the (Mobile) WiMAX System and applicable of different purpose. Limitations of WiMAX related with lowering the range allows a device to operate at higher bit rates.

Chapter 9: The Discussions of Future of WiMAX, WiMAX and Wi-Fi Comparison, Benefits for Mobile WiMAX System, Benefits to Component Makers, Benefits to Equipment Makers, Benefits of operators, Benefits of Consumers, Internet oriented system, Drawbacks of WiMAX.

Chapter 11: WiMAX infrastructure of Bangladesh, Spectrum Distribution with respect in bangladesh, BanglaLion Communication Ltd. offers WiMAX Service Package, Bangla Lion Service provided in Bangladesh, WiMAX Connectivity of different purpose in Bangladesh, WiMAX Considerations with respect in Bangladesh, WiMAX speed and Bandwidth price in Bangladesh, Broadband and it's future in Bangladesh, Bangladesh aspect Implemented of WiMAX, Usage Scenarios of WiMAX in Bangladesh.

Chapter 10: Conclusion.

Abbreviation (A – Z) includes the thesis.