WIRELESS LAN AND PERSONAL AREA NETWORK PROTOCOLS

Lesson 06

WiMax

WiMax

- IEEE 802.1y, y = 16 means a series of WiMax protocols, (for example, 802.16e and 802.16m)

- IEEE 802.16 a connection-oriented protocol specifying the MAC and physical layers

- Transmits only on authentication and permission of the base station

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WiMax IEEE 802.16e

- IEEE 802.16e specifications for OFDMA physical layer specifications

- High-speed broadband, fixed, and mobile services wirelessly to large areas with much less infrastructure

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WiMax Physical Layer

- 802.16e uses scalable OFDMA

- Supports 1.25 MHz and 20 MHz, with up to 2048 subcarriers, 64 QAM

- Adaptive modulation, and adaptive coding

- When signal quality is weak, it uses BPSK, when intermediate, then QPSK, else 16 QAM

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WiMax Physical Layer

- Supports Hybrid ARQ (automatic repeat request) and MIMO.

MAC Layer

- Sub-layer to facilitate convergence of IP, ATM, and Ethernet

- Security sub-layer consists of AES or DES encryption

- A sub-layer for managing power with sleep and idle modes

QoS

- Supports five classes of QoS

1. Unsolicited grant service (UGS)

2. Real time packet service (RTPS),

3. Non-RTP (NRTP),

4. Extended RTPS, and

5. Best efforts (BE)

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Summary

- WiMAX

- IEEE 802.16e and 802.16m

- Physical layer adaptive modulation, and adaptive coding

- MAC layer convergence of IP, ATM, and Ethernet

End of Lesson 06

WiMax