Branch : Electrical and Electronics Engineering

Subject : Mobile Communication

Unit : Cellular System Design Fundamentals and Wireless Data Networking

IEEE802.11 Protocol architecture

Introduction:

IEEE 802.11 fits seamlessly into the other 802.x standards for wired LANs.The following section describes the protocol architecture of IEEE standard.

802.11 Protocol architecture:

- Figure 5.4 shows an IEEE 802.11 wireless LAN connected to a switched IEEE 802.3 Ethernet via a bridge
- The higher layers (application, TCP, IP) look the same for wireless nodes as for wired nodes.

- The upper part of the data link control layer, the logical link control (LLC), covers the differences of the medium access control layers needed for the different media.
- The IEEE 802.11 standard only covers the **physical layer PHY** and **medium access layer MAC**.
- The physical layer is subdivided into:
- *physical layer convergence protocol (PLCP)*
- *the physical medium dependent sub layer (PMD)*
- The basic tasks of the MAC layer comprise medium access, fragmentation of user data, and encryption.

The PLCP sub layer provides a carrier sense signal, called clear channel assessment (CCA), and provides a common PHY service access point (SAP) independent of the transmission technology.

- PMD sub layer handles modulation and encoding/decoding of signals.
- The MAC management supports the association and re-association of a station to an access point and roaming between different access points.

- Controls authentication mechanisms, encryption synchronization of a station.

- **PHY management:** Include channel tuning and PHY MIB maintenance.
- **Station management**: Interacts with both management layers and is responsible for additional higher layer functions
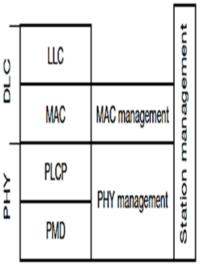

Figure 5.5 IEEE 802.11 protocol architecture and management

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IEEE System architecture

**IEEE802.11 Protocol
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IEEE 802.11 Protocols
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WIRELESS LAN

HIPERLAN

HiperLAN2

HiperLAN2 Basic
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BLUETOOTH

Architecture Of Bluetooth

Performance analysis of
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MOBILE NETWORK LAYER   +