Lesson 07
Synchronization Protocols—Bluetooth, IrDA and WAP
Synchronization Protocol

• Protocol used for communication of data between two nodes of a computing system
• Also at each layer of communication, a distinct protocol can be used when communicating data between two layers of a computing node
Synchronizer

• Can also use the different protocol layers for communicating to the personal area and remote area devices and computers
Synchronization protocols for the PIM, email and application data
Bluetooth protocol

- Used for synchronization among mobile devices and Bluetooth-enabled PCs in a wireless personal area network.
Bluetooth-enabled computing systems Synchronization
Bluetooth protocol

- A connection-oriented protocol using Bluetooth object exchange OBEX (a protocol for transport layer in Bluetooth)
Bluetooth protocol

- Can be used for one-to-one or one-to-many communication over short distances
- A self-discovery protocol
- Discovers whether nearby personal area device a Bluetooth-protocol-based communicating device
- A Bluetooth enabled device sets up an ad hoc network with the Bluetooth enabled devices and computing systems
APIs for the PIM, email, and customized device applications

- Deploy a client (software for sending requests for response from the other node, computer, or device) and an engine (software for driving the requests of the client and receiving responses from the server for the client)
Synchronization between the client and server

- Carried out through SyncML codes at the SyncML client and SyncML engine by sending the messages in the given sequence
Sequence of Messages

1. CONNECT
2. PUT (to put the response to the request) or GET (to get the response to the request)
3. ABORT (to abort the connection)
   • The term message used for describing information encapsulated in the header, commands, and associated accompanying data
Alternative way of synchronization

- Configuring a Bluetooth ActiveSync partnership
- In this kind of partnership, the device uses Bluetooth protocol synchronization and the PC uses ActiveSync
Bluetooth ActiveSync partnership

- For establishing the partnership for synchronization, the Bluetooth device port is first configured as a virtual COM port because the connected server for data is not a Bluetooth device but an ActiveSync PC port.
- Later the Bluetooth device and PC synchronize through ActiveSync.
Bluetooth device

• Synchronizes PIM data (calendar, email, business card, text messages, and phonebook) with the ActiveSync device or a device which is not Bluetooth enabled through the virtual COM port

• Similarly, a virtual USB port can be configured at the Bluetooth device
Infrared data association (IrDA) Protocol

- Infrared-based synchronization of mobile devices and computers within the same room
IrDA

- Specifications include connection-oriented or connectionless protocols. IrDA specifies five levels of communication—minimum, access, index, sync, and SyncML (levels 1 to 5)
- Synchronization can be used to synchronize PIM data (calendar, email, business card, text messages, etc.)
Wireless application protocol
WAP 2.0

- A protocol for wireless synchronization of WAP client computers and WAP servers
- Synchronization through SyncML codes binding over the WAP application layer client or server
WAP gateway

- Connects WAP client to HTTP servers which serve Internet websites
- The HTTP layer in TCP/IP protocol suite is an application layer protocol used when connecting to Internet in a wired network
WSP (wireless session protocol) 
layer in WAP 2.0

• An application layer protocol when connecting to the Internet in a wireless network
• SyncML codes bind with WSP for Internet connectivity
Summary

- Protocol for synchronization
- Bluetooth a self-discovery protocol, discovers whether nearby personal area device a Bluetooth-protocol-based communicating device
- IrDA
- WAP 2.0
End of Lesson 07
Synchronization Protocols—Bluetooth, IrDA and WAP