

SECTION – II

Q. 4. Case Study

(15)

The architecture of a wireless network is as below.

Stations: All components that can connect into a wireless medium in a network are referred to as stations. All stations are equipped with wireless network interface cards (WNICs).

Wireless stations fall into one of two categories: access points and clients.

1. Access Points:

Access points (APs) are base stations for the wireless network. They transmit and receive

radio frequencies for wireless enabled devices to communicate with.

2. Clients: Wireless

clients can be mobile devices such as laptops, personal digital assistants, IP phones, or

fixed devices such as desktops and workstations that are equipped with a wireless network

interface. **Basic Service Set:** The basic service set (BSS) is a set of all stations that can

communicate with each other. There are two types of BSS: independent BSS and

infrastructure BSS. Every BSS has an identification (ID) called the BSSID, which is the

MAC address of the access point servicing the BSS.

1. Independent BSS: An independent

BSS is an ad-hoc network that contains no access points, which means they cannot connect

to any other basic service set.

2. Infrastructure BSS: An infrastructure BSS can

communicate with other stations not in the same basic service set by communicating

through access points. **Extended Service Set:** An extended service set (ESS) is a set of

connected BSSes. Access points in an ESS are connected by a distribution system. Each

ESS has an ID called the SSID which is a 32-byte (maximum) character string. For

example, “linksys” is the default SSID for Linksys routers. **Distribution System:** A

distribution system connects access points in an extended service set. A distribution system

is usually a wired LAN but can be a wireless LAN also. **Wireless WAN-A WWAN** differs

from a WLAN (e.g. wireless LAN) because it uses cellular network technologies such as

WIMAX, UMTS, GPRS, CDMA, GSM, CDPD, Mobitex or HSDPA to transfer data. It can

also use LMDS and Wi-Fi to connect to the Internet. These cellular technologies are

offered regionally, nationwide, or even globally and are provided by a wireless service

provider for a monthly usage fee. Various computers now have integrated WWAN

capabilities (such as HSDPA in Centrino). This means that the system has a cellular radio

(GSM/CDMA) built in, which allows the user to send and receive data. There are two basic

means that a mobile network may use to transfer data: **Packet Switched Data Networks**

(GPRS/CDPD), **Circuit Switched Dialup Connections.** Since radio communications

systems do not provide a physically secure connection path, WWANs typically incorporate

sophisticated encryption and authentication.

Explain the following in short.

1. Independent BSS
2. Access points
3. Wireless WAN.
4. Extended service set.
5. Distribution system.

Q. 5. Answer the following:

(10)

- a) What are the applications of networks?

OR

- b) Write a note on Bluetooth.