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CNT UT-2

Q.1) Explain BSS and ESS in 802.11

Ans) BSS (Basic Service Set):

1. As per IEEE 802.11, BSS has been defined as the building block of Wireless LAN.
2. It consists of stationary and moving wireless stations and a central block station which is called as the Access Point (AP)
3. The BSS without AP cannot send data to another BSS. So no exchange of data can take place outside that BSS; hence it is known as stand alone network or ad-hoc network However all stations within the BSS can still exchange data.

ESS (Extended Service Set):

1. An ESS consists of several BSSs with APs. The BSS in this system are connected to each other via a distribution system or a wired LAN.
2. The ESS consists of two types of stations -
   (i) Mobile station which moves and changes location.
   (ii) Stationary or non moving stations

Q.2) Explain the basic architecture of WLAN and discuss various components in it.

Ans) The WLAN consists of two basic blocks →

1. BSS: A stand alone network with an access point
2. ESS: An extended set which covers several BSSs and allows them to communicate to one another.

There are 2 types of ~~WLANS~~ WLANs →

1. Wireless LAN as defined by IEEE 802.11 standard → also known as wireless ethernet.
2. Personal Wireless LAN or bluetooth which is also known as personal area network or PAN.

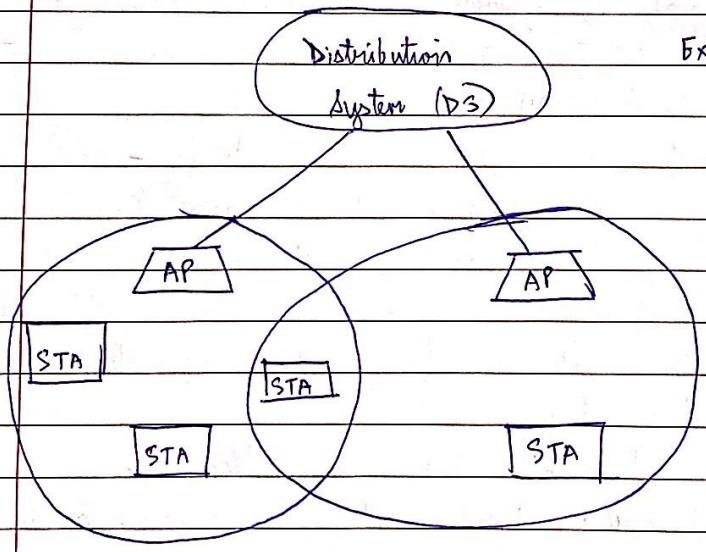
In order to get rid of the wiring associated with the

interconnections of PCs in LANs → researchers have tried to use radio waves or infrared light as a replacem

The components of IEEE 802.11 →

1. Stations (STA) : Stations comprise of all devices and equipments that are connected to wireless LAN. A station can be of 2 types -
   (i) Wireless Access Point (WAP)
   (ii) Client

2. BSS : It is a group of stations communicating at physical layer level. BSS can be of two categories depending on the mode of operation



Q3) Explain the issues in designing a routing protocol for Ad-Hoc wireless network.

Ans) The major issues are as follows →

1. Mobility of nodes : Due to movement of nodes, network topology becomes highly dynamic in ad-hoc networks.

2. Error prone channel state : Ad-hoc networks must be able to search path with min. congestion. For ad-hoc

networks, collision of control and data packets takes place. This problem comes under hidden terminal problem.

3. Resource constraints :
Processing power and battery life are two main and limited resources in an ad-hoc network.

4. Band width constraints :
Limited bandwidth transfer speeds reduce the transfer capabilities. It creates limitations on routes used for transfer.

5. Hidden Terminal Problem :
If a station is transmitting to another station; and some other station is already transmitting on the same channel it is termed as hidden terminal problem

Q.4) Explain AODV and DSDV in detail.
Ans) AODV : Adhoc On-demand Distance Vector
It is a stateless on demand routing protocol. The two main functions of AODV are route discovery and route maintenance. The performance of the protocol is improved by keeping routing information in each node. Routing decisions are taken based on no. of hops to the final destination.

DSDV:
i) It is a proactive routing protocol available for adhoc networks.
ii) It uses the Bellman Ford algorithm
iii) With DSDV each routing table will contain all available destinations with associated next hops, the associated metric and a sequence no. originated by destination hop
iv) Tables are updated in per topology per exchange btw nodes.

Q5) Explain the issues and challenges in IOT.

Ans) The issues faced in IOT are as follows →

1. Standards and Interoperability :
Devices from different manufactures do not use the same standards → hence interoperability becomes a problem.

2. Radio spectrum :
Longer radio spectrum is required due to anticipated growth in the no. of IOT devices.

3. Security :
There are several security risks concerned with IOT. Unauthorized access in several cases.

4. Privacy and data protection :
IOT consumer devices always collect personal and private data. This data may be stolen which leads to data breaches.

5. Mobility Support :
In the IOT scenario → as there is a lack of mobility support → scalability and adaptibility to heterogeneous techniques represent critical problems.

Q6) Explain the architecture of SDN.

Ans) Software Defined Networking is an approach to building computer networks that specifies and abstracts elements of these systems. The physical separation of the network control plane from the forwarding plane is directly programmable.

The SDN architecture specifies that the network ~~architecture~~ infrastructure is logically controlled by a central entity responsible for management and policy enforcement.

However it should be made clear that logically centralized control does not necessarily also imply physical centralization

Due to centralizing state in control layer SDN enables networks to configure → secure and manage network resources through dynamic and automated SDN programs.