11 Jun 20

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# MC Revision Test - 7

(April 2018 - university question paper)

## PART A

### A1) Middlewares & Gateways

- It is layer between user application & operating system. (software)
- On the other hand gateways are networking hardware which are used in tele communication.
- Following are some of the types of middlewares:

(i) Communication Middleware:
These piec of software are more interested in the communication process.
eg:- Message oriented middleware.

(ii) Transaction Processing Middware:
- These include applicatons like transaction processing middleware.

(iii) Behavioural Middlewares

- These types of middleware look for the behavioural / health aspect of the communication that is going on.

eg:- System status health check middleware.

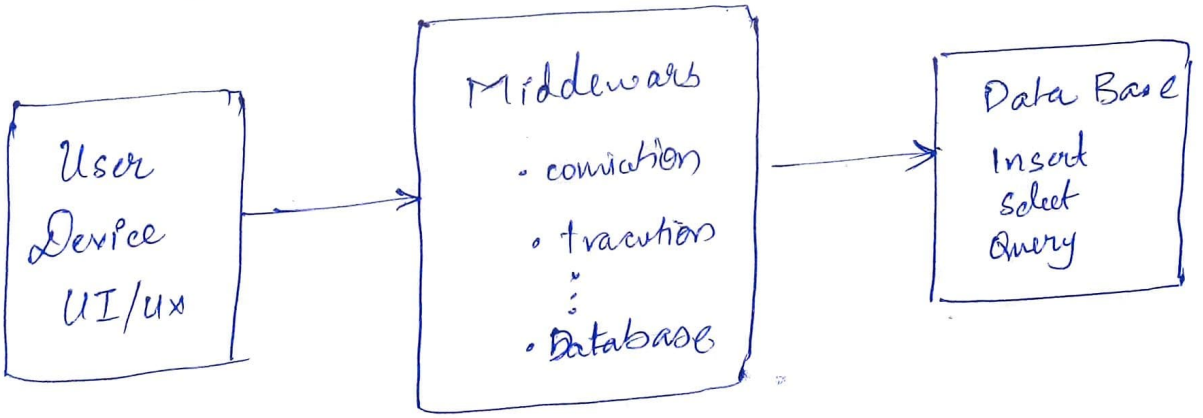
(iv) Database middleware

- This piece of software relates more to the working of a database.
- They perform more of storing and fetching operations.

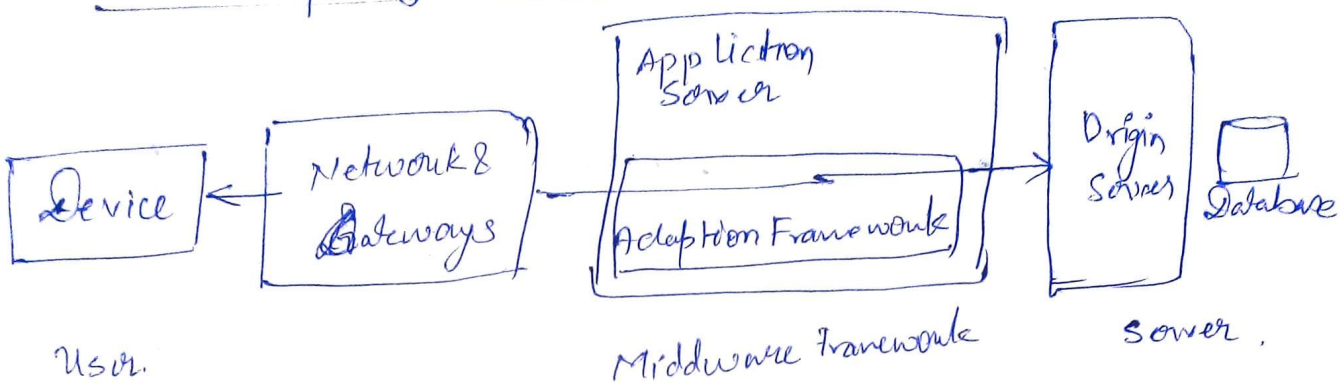
(v.) Communication Gateways

- These are the physical devices that allow communication across channels

eg:- Routers, Bridges etc.



A2.) Mobile Computing Functions




* Components / Segments

1) User with Device

- This is the tangible aspect of mobile computing where the user can interact with a device in multiple ways.

2.) Network & Gateways

- This is the amalgamation of software & hardware to manage the network and related function.

3) Middware Framework

- This piece of software is closly linked with the network & gateware hardware, which helps to manipulate the network through software.

f. Servers / Device OS

- They both are diffent but perfor similar fuction.
- while server is in a remote location, managing a database the Device OS is right withing the User device mangers internal database.

A3.)

FHSS:

- Changes freqency being used
- Freqnece Hopping Spread Spectrum.
- It is easier to synchronised
- Used in harsh environment
- Uses a psedo boise bit soure and a counter

DHSS:

- Chanes phase being used.
- Direct hopping spread spectrum.
- Difficalt to sychronise.
- Used in positioning systems.
- Uses only a pseudo noise bit source.

A4.) Types of Orbits

- There are mainly three types of orbits (i) GEO, (ii) MEO and LEO which stands for:

## Geostational Earth Orbit

- This is the height where geostarnak satellits are located.
- It about 35 kilometus above sea level.
- It has an inclidion of 0 deg
- Its time period is about 24 Hs.

## Low Earth Orbit

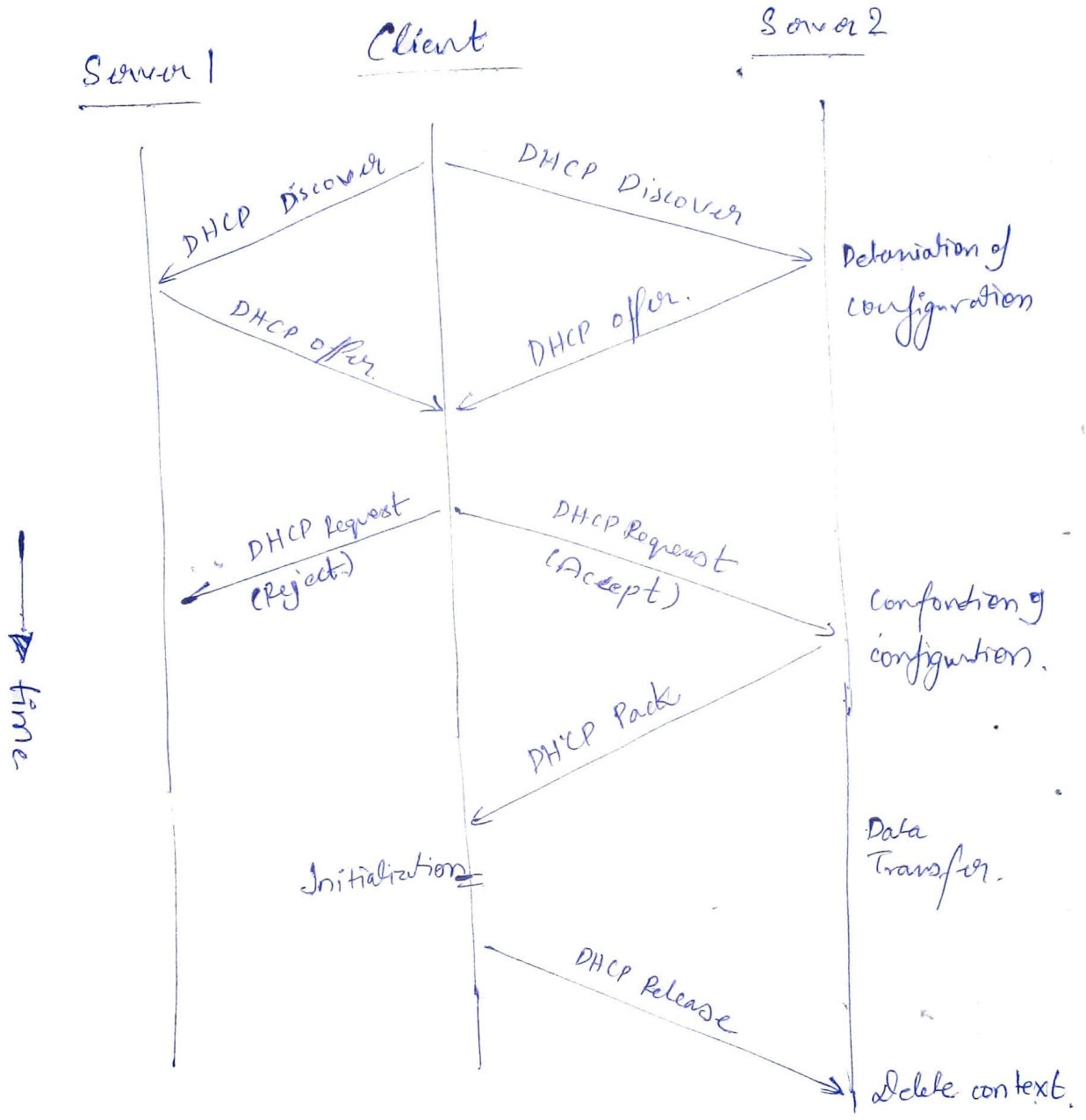
- Time period is about 95–120 min.
- Visibility time (from a point) on earth is 10 min.
- Elevation from sealevel is less than 1000 Km.
- It gives data transmission rates about 1000bps.

## Middle Earth Orbit

- It is used for TV, radion broadcast.
- It has a larger life time than LEO
- It's about 1000 km high
- The time period is not constant.

PART C

A8.) DHCP (Dynamic Host Configuration Protocol)




- This figure explain how DHCP works.
- In a network when a client requests for a single host from all the multiple hosts that are live on network DHCP is used.
- This request is recive by the servers on the network.

- They in reply offer DHCP service.
- The client chooses the feasible servers and reject others.
- Then a 3-way handshake is performed to complete connections.
- Once the connection is established the data transfer takes place.
- After the data transfer the connection is ruptured.

## 19.) Selective Retransmission in TCP

- There is always a possibility of errors in mobile network.
- This require retransmission of the lost packets.
- Usually, whenever a packet is lost, the incoming packets immediatly after it are rejected.
- The receiver then sends the NAK of the damaged/lost packet and the sender has to transmit it all over again.
- It is obvious that this method is inefficient and hinders mobility.

- To overcome it selective re-transmission is employed.
- Here, instead of rejecting subsequent frame packet, they are accepted.
- Again the reciever informs of the missing or damaged packet and then sender sends only that perticular packet.
- This enables more degree of freedom beacse, they need not wait again at square one to recive all the reject packets.

A10.) DSR
(Dynamic Source Routing)

- Divides task into two
  (i) Route Discovary
  (ii) Route Maintance
- A route request is sent to all the nodes
- Node with request check if it already received - if yes it drops the packet

DSDV
(Dynamic sequence distance vector)

- It has additional two thing
  (i) Sequence Number
  (ii) Damping
- Each node exchages it neighbours table periodically with its nabours.
- These tables then get periodically upated.

- If a mod which receives this is a destination then it adds its destination address.
- Other mods append their address and sends the request back.
- The initiator recieve a list of address and routing path
- It requires more bandwidth.
- If the table values are outdated, echo is sent and the values are upddated.
- It uses routing information protocol.
- It has low energy requirement.

## AIII) MANET (Mobile Adhoc NETwork)

- It is a decentralized type of wireless network.
- It is adhock because it does not rely on any pre-infrastructure.
- For many network services, mobile nodes needs access.
- When a mobile agent is in a foreing location it sends out a broadcast to find the home agent.
- As a reply the foreign agent ask for the home

location.

- ~~Attendees~~ One provided the forigen agent the provied acess to this mobile agent.
- This way even on adhoc networks mobile agent are able to discover services.
- The service lookup provided for the discovery of paramets needed for a certain service with the help of the directory.
- This service discovery is also done via Extend Functionality Interface.