
Name (Rafi Ullah)

ID (14283)

Department (BS(CS)) 5th
semester

Subject (mobile computing)

Submitted to (Sir Qasim)

Date 24/06/2020

Question 1: Provide the names of 4 challenges that exist in Adhoc Networks?

Answer:

Challenges for ad hoc wireless are given below:-

1. Security and Privacy:

- In the ad hoc wireless networks the packet of data is very little secure. Through neighbor authentication, a client can realize if neighboring clients are friendly or threatening. For security of packet we should need to utilize technique of data encryption.

2. QoS Support:

The QoS of ad hoc wireless networks depends on the available resource as well as on the mobility rates of such resources. The three primary constraints related to the quality of service are Bandwidth constraints, Dynamic topology of networks, limited processing and storing capacity of portable nodes.

3. Energy Efficiency:

Ad hoc devices today are mostly operated by batteries. Battery technology is lagging behind microprocessor technology.

4. Spectrum allocation and Purchase:

Spectrum is an inexhaustible resource that is limited in any moment of time yet through its various dimensions of utilization: space, time, frequency and bandwidth can be distributed to numerous users simultaneously.

Question 2: How the nodes in the Adhoc Network know about the changing network topology?

Answer:

MANET protocols are allowed to move arbitrarily as the system topology changes much of the time. Every protocol carries on as a switch as they forward traffic to other determined hubs in the system. Links between nodes are created and broken, as the nodes move within the network. This node mobility affects not only the source and/or destination, as in a conventional wireless network, but also intermediate nodes, due to the network's multihop nature. The resulting routes can be extremely volatile, making successful ad hoc routing dependent on efficiently reacting to these topology changes.

Question3: Why is it important to minimize flooding of control packets in Adhoc Networks and how MPR achieves it?

Answer:

Multi-point Relay limits the flooding of communicate bundles in the system by diminishing duplicate re-transmission in a same district. All assets can be directed effectively by settling adaptability issues.

Question 4: Explain briefly how Mobile Cloud Computing is different than simple mobile computing and simple cloud computing?

Answer:

Mobile cloud computing:

Mobile cloud computing at its simplest, refer to an infrastructure where both the data storage and data processing happen outside of the mobile devices. Mobile cloud applications move the computing power and data storage away from mobile phones and into the cloud, bringing application an MC to not just smartphones users but a much broader range of mobile subscribers.

How it different from simple mobile computing and simple cloud computing?

1: Limited mobile resources

Battery, storage, processing, network,

Consider tradeoffs!

2: Permanent storage

Backup (reliability), long-term storage, anywhere access (availability)

3: Data sharing

Social media, sensor data, collaboration, producer-consumer, ...

4: MCC allows for dynamic provisioning

- Resources always available; no need for reservation

- Mobile applications can be scaled to meet user demands
- Services can be added and expanded easily
- Multiple services can be integrated through cloud

5: New/additional services possible (or easier)

- Mobile payment
- Push notifications
- Advertising
- Analysis tools
- Social network integration
- User management tools

Question 5: Explain the term MBaaS in your own words?

Answer:

Provide web and mobile app developer with a way to connect their applications to backend cloud storage and processing while also providing common features such as user management, push notification, social networking integration, and other features that mobile users demand from their apps these days.

In simple words, it is a way of empowering mobile developer with ready backend mobile resources, APIs, and cloud storage so that the mobile application development process can be fast-tracked. They are saved from doing repeatedly the time consuming complex back-end development and server configuration processes.

The saved time can be used to improve on the UI/UX and other critical front-end element of mobile application that offer a smoother experience to the users.

Question6: Imagining you visit a completely new city. What kind of services modern LBS can provide you at your location automatically?

Answer:

If we visit a completely new city an LBS allows us to receive services based on our geographic information about restaurants, retail stores, and travel arrangements. Such services can be provided in response to any customer's manual input of his or her location to track the location of the consumer automatically.

Question7: Use your imagination as to how the following context can be used by a context aware application in mobile computing environment?

Date/Time Environment Emotional state focus of attention
Orientation User preferences Calendar (events)
Browsing history

Answer:

Date/time

- Provide time Date and day information

Environment

- network connectivity. connection links, temperature, lightning. location updates.

Emotional :

- Includes psychology. habits. emotions related information

Focus or Attention :

- notifications. deliveries, that can be used by context aware application in mobile computing.

Orientation:

- The device's current location. built-in accelerometer, and compass mobile devices.

User preferences :

- Includes color. Font type. Font size, brightness, general settings etc.

Calendar (events) :

- Contain User is time schedule information based on events and tune events, parties, assignment, birthdays Festival etc.

Browsing history • Mobile computing environment give access to personalize web search using browsing history, user accounts and passwords.

Question 8: Explain why energy efficiency is important in technologies like Bluetooth and ZigBEE?

Answer:

ZigBEE is the primary component of this development is its incredibly successful utilization of imperativeness. It is shown to be a genuinely strong correspondence, more dependable in fact than Wi-Fi or Bluetooth.

Question9: Explain briefly how you use RFID technology at INU on a daily basis when present on the campus? Do you use an active or passive tag?

Answer:

A social affair contraption passes on and gets radio signs. These signs are gotten and returned by a RFID tag with information included. A peruse which is facilitated with a structure recognizes and stores these data called events at last they trigger exercises. A gathering device passes on and gets radio signs.

Question10: Explain how Wearable Computing can be employed in computer gaming?

Answer:

Wearable tech is serving to untether employees from their work areas while as yet helping them hold a finger to the beat of their business. For instance, with keen watches, you gain admittance to schedule and arrangement updates. Not at all like phones and tablets, wearable tech conveys a significant part of a similar data and highlights while keeping hands free for different undertakings.

Different Type of wearable computing devices are used to play computer gaming. Such Myo Headphones etc. Myo is wearing on arm, which control actions with gestures and user to take control of phone, PC, laptop or other device with a simple flick of the wrist. We can use "the wearable computer camera to enhance the visualization of game environment of figures. We can use the wearable sensors to sense the pressure and give Input to online computing game. These can also detect the direction and location of players in game. Gestures can also use to input.

Question11: What kind of facilities and technologies must be present in order to call you own home a Smart Home?

Answer:

Internet of things(IoT) through which we can control all appliances at one point, we can also use ZigBEE module to control all home appliance Wirelessly like AC, lights, electric heater, fans, refrigerators, water pump etc. Bluetooth can also be used to control different devices at home lies in specific range. The appliances home can be activated/ON only when they are required Cartons can be close automatically when the sun light appears, the AC can be ON when the temperature at the room. These are the more examples to make a home a smart home.

1) Lightning:

Light should be associated with the sensor that recognize an individual in/out capacity.

- 2) Security cameras:
Surveillance cameras should be introduced in each edge of the home.
- 3) Fire Alarm System:
Light should be associated with the sensor that recognize smoke and send your warning message to fire detachment and to your versatile.
- 4) Automatic Door Lock:
Programmed gateway lock should have associated with unique mark and voice or mystery key of home loan holder.
- 5) Automatic Home apparatuses:
We can on/off AC, TV, Speaker, Lights and different apparatuses.
- 6) Automatic Washrooms:
Programmed voice recognized application installed washrooms. That has capability to control the water hotness.
- 7) Smart Thermostat for Automated Climate Control:
By building out your system with a series of sensors, you can completely eliminate those hot and cold spots that menace conventional thermostats. This intelligent thermostat can also detect when rooms are occupied to optimize comfort.