Mid Semester Assignment, Course: - Mobile Computing

Deadline: - Mentioned on SIC   **Marks: - 30**

Program: - BS (CS), BS-SE   **Dated: 13 April 2020**

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Class and Section: BS(SE) 8th Semester, Section: A

Question1: Explain why wired networks have higher bandwidth in comparison to mobile networks.   (2)

Ans: Wired Network is the network which consists of cables which are made of copper wire, twisted pair or fiber optic. In wired network electric signals are carried in different forms from one end to other. Mostly Cable modem and T1 line are used to take one internet connection in wired network. This connection can be used among various devices using wired network concept.
Wired networks have higher bandwidth than mobile network due to higher frequency spectrum. As we know that wired network can be made of copper wires or optical fiber cables so there is less chances of interference because it is made of one wire.

Question2: Explain the relation between miniaturization and portability.   (3)

Ans:

Portability
In early days computer devices were really big in size which were not easy to move physically. Later on in 70s first laptop computer was created which was Grid Compass. The importance of that computer laptop was that it can easily be moved. So the term Portability refers to the concept of reducing size of hardware that enable the creation of computers that can be moved easily around.

Miniaturization
In early 90s computer hardware introduced as more smaller in the form of mobile computer which evolved the market. Using the concept of miniaturizatoin small devices such as mobiles and something that the user could use while actually moving around physically.

So the concept is same in both portability and miniaturization. In both cases hardwares can be moved physically but size of hardware is much smaller in case of miniaturization.

Question3: Differentiate between convergence and divergence. (3)

Ans:

Convergence
The term convergence tends to operate many functionalities in a single device. Smartphone is the primary example of convergence. Smartphone includes phone, camera, smart computer, music player and watch etc.

Divergence
The term divergence is totaly opposite to convergence tends to the devices which are designed for the specific functions such as DSLR cameras used for capturing , mp3 player for music, remote devices etc.

Question4: Suppose you are given the task of designing an app for mobile devices which has the capabilities of text chat, recorded audio message, and live video conferencing. Explain which protocol out of UDP and TCP would you use for each type of service and why? (4)

Ans: I will be using HTTP protocol. HTTP stands for Hypertext Transfer Protocol. HTTP abstract the socket layer. HTTP prefer DNS instead of IP address. The main reason behind why I will be using HTTP protocol because it has its own set of rules which includes GET and POST requests, Headers etc. In HTTP protocol API structure the data according HTTP rules. Moreover it also manage endpoint and the session.

Question5: Suppose you have the choice of using 2G, 3G, 4G, 5G, Wi-Fi and Satellite networks. Which of these technologies will you use in the following scenarios and why. (18)

a) **A city wide network with voice, SMS services and Internet services good enough for ultra-high definition streaming and video conferencing.**

Ans: I would probably prefer Wi-Fi and Satellite network for voice, SMS services and all other streamings. However 5G is another best option for all internet services. 2G is best for SMS services while 3G and 4G can also be prefered for video and for ultra-high definition streaming.
Satellite networks depends upon weather conditions. 5G (GHz) provides faster and more reliable connection but it can cover less distance due to shorter radio waves. Wi-Fi (2.4 GHz) can cover larger area and is better at getting through walls.

b) A city wide network with only voice and SMS services.

    Ans: We can fullfil our need for voice and SMS services through 2G. 2G uses GPRS (General Packet Radio Service) and GSM (Global System for Mobile) technologies. 2G have lower bandwidth however it is best for voice and SMS services.

c) A city wide network with voice, SMS services and Internet services good enough for normal definition streaming and video conferencing.

    Ans: For a city wide network I would prefer 5G as it is capable of providing fast and more reliable connection in less distance. However, 3G and 4G can also play there role in absence of 5G. t's the next (fifth) generation of cellular technology, and it promises to greatly enhance the speed, coverage and responsiveness of wireless networks.

d) A global scale network with voice, SMS and Internet services.

    Ans: Global scale network means wide area network and in my opinion Wi-Fi will be best option for global scale network. However, 3G, 4G and 5G can also be used for wide area services but Wi-Fi is far better for farher area services. Satellite is another best option for global scale network but satellite network depends upon weather condition.

e) A campus size network for information and resource sharing between 200 end devices.

    Ans: For a campus size network Wi-Fi can be prefered. We follow LAN (Local Area Network) concept for limited area. LAN gives users the ability to move around and remain connected to the network. LAN is easy to install that's why it is more popular for small organization such shool, college , universities, campus or office building.

f) A city wide network with voice, SMS and basic Internet services.

    Ans: 5G, 3G and 4G can also be used for city wide network however I will prefer municipal wireless network . A municipal wireless network is used for city wide network. It can be deployed out door, often on pole. The operator of the network acts as a wireless internet service provider.