

CS4422 Wireless and Broadband Networking

Homework 2

Due – June 7 before 11:55 PM

Submit via Moodle

1. Answer the following questions based on the 2 white papers on Moodle about WLANs, deployment, and security.
 - a. What is wireless coverage? [1 marks]
 - b. What is wireless capacity? [1 marks]
 - c. What are the considerations while deploying an IEEE 802.11n WLAN? [4 marks]
 - d. What are the recommendations for deploying IEEE 802.11n WLANs? [4 marks]
 - e. What technological advances are introduced to IEEE 802.11n standard over IEEE 802.g to increase the capacity and security of a WLAN? [3 marks]
2. Twitter has become the social media solution for rapidly disseminating important messages during social gatherings, disasters, and political events. However, Twitter being owned by a single company creates many issues. For example, a government can demand Twitter to give out all Tweets related to a given event, drop selected Tweets, or they can even block access to the Twitter.com. A team of volunteers is starting a project to address these issues in Twitter by developing a distributed messaging system to be used during public events. They are envisioning a system where there is no single controlling entity and users will contribute to keep the system running, e.g., by contributing processing, storage, and networking resources as in peer-to-peer file sharing systems. It is envisioned that the proposed system can be used in large political gatherings, sports and recreational events, and disaster management activities.
 - a. What type of a network topology would you recommend for this solution? Explain with justification. [3 marks]
 - b. What wireless technology would you recommend to interconnect devices using this messaging solution? Justify your recommendation. [3 marks]
 - c. What challenges do you need to address while interconnecting devices and passing messages between them. Explain. [3 marks]
3. Following questions are based on the whitepaper “Wireless security in LTE networks” by Monica Paolini.
 - a. What are different entry points to a LTE network? [2 marks]
 - b. What impacts those entry points have on the LTE network? Briefly explain. [2 marks]
 - c. Briefly explain what security techniques can be used to address the security concerns in LTE networks? You may use other sources (e.g., industry articles and research papers) to prepare a more comprehensive answer. [4 marks]