

Mobile Services

Problem #5: GSM, UMTS, LTE

Explain the main differences between GSM, UMTS, and LTE! For that purpose, have a closer look on the respective access and core networks. What is the impact these systems have on mobile services? For your answer, check Chapter 2 and search the Internet!

Problem #6: Mobile IP

Charles E. Perkins has significantly coined the design and development of Mobile IP. Download the paper: Charles E. Perkins (1997). Mobile IP.

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.49.8890&rep=rep1&type=pdf>

- a) Chapter 2 gives an overview of the basic working of Mobile IP. Sketch the basic operation and explain the most important procedures!
- b) What is Agent Discovery and how does it work? Do you know similar procedures in other mobile networks, for example, GSM or UMTS?
- c) What is route optimization and why is it necessary?
- d) What are typical problems of Mobile IP w.r.t. firewalls and packet filtering?

Problem #7: Mobility Support Comparison

- a) Compare the solutions for mobility support that has been established in the different systems covered in the lecture (GSM/UMTS circuit-switched domain, GSM/UMTS packet-switched domain, Mobile IP). Think of basic procedures (location update, paging), addressing, and network components. Can you detect a common principle that is applied in all systems?
- b) What was the reason behind the modification of the proven location management when introducing GPRS?