

Exam 13.12.2011

T-110.5121 Mobile Cloud Computing (5 cr)

Mark clearly on each paper:

- T-110.5121 Mobile Cloud Computing
- Exam 13.12.2011
- Family name, first name
- Degree programme, student number

Questions 1 and 5 are compulsory to all. Answer to two of the questions 2 – 4. All answers should only be based on the content of the required material and lectures. Try to structure your answer before starting to write and pay special attention to clear handwriting. Each question will be reviewed in scale 0-6 and the maximal score is accordingly 24.

1. Define the following abbreviations or concepts, in cloud computing context, shortly (1p / each):
 - a) Service model
 - b) Hypervisor
 - c) Multi-tenancy efficiency
 - d) PUE
 - e) BASE
 - f) Augmented execution

Answer **only** to **two** of the questions 2-4:

2. Explain the key benefits of the cloud computing (according to Basics lecture, adapted from Doug Terry virtual talk)
3. What are the main opportunities and challenges of a hybrid cloud (according to Hajjat)?
4. Describe the major security threats to cloud computing (according to CSA)

5. A new Mobile Virtual Network Operator (MVNO) is going to start 2015 in Finland. They are planning to offer basic services, voice and messaging, all over Finland, but advanced data services only in cities. Describe how they might utilize cloud computing technologies and principles. Review your concept at least by cost, performance, interoperability and security factors. What are the other opportunities for MVNOs to differentiate from the existing incumbent competitors (TeliaSonera, Elisa, DNA)?