

Qualifying Exam: CS542 Internet System Technology

Date: Friday, January 10th, 2014

Time: 4:20-5:20pm (1 hour)

Instruction:

- Put your name and student number on all your answer sheets.
 - You have 60 minutes to complete the first part of the exam.
 - Show all your work. Partial credit is possible for an answer, but only if you show the intermediate steps in obtaining the answer.
1. (30 pts) What is CAP theorem? Name one system that the theorem applies in the design and describe the particular applications that the system targets. Argue the pros and cons of the system.
 2. (40 pts) Traditional LAN (local area network) technologies could not cope with the newly arising architectural demands in data center networking and novel L2 approaches, such as VL2, Portland, and SEATTLE, have been proposed. Pick one and describe its features that overcome the shortcomings of traditional LAN technologies.
 3. (30 pts) What are the green technologies that can apply in data center networking? Be as specific as possible about the features and estimated cost saving in overall operation cost.