

Qualifying Exam: Internet System Technology

Date: Friday, July 5th, 2013

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. (10 pts) Accountability defined as fundamental ability to associate an action with the responsible entity is a major concern in today's Internet. List two examples that illustrate lack of accountability and turn into vulnerabilities in today's Internet.
 2. (30 pts) Describe the basic components and mechanisms of MapReduce. Use the example of PageRank computation to illustrate the MapReduce operations step by step.
 3. (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.
 4. (30 pts) Compare Amazon's Dynamo and Windows Azure Storage systems.