70022: Scalable Systems and Data (Autumn 2020) Assessed Coursework 2

Lecturer: Peter Pietzuch

Please post questions on the 70022 Piazza channel.

"ZooKeeper: Wait-Free Coordination for Internet-Scale Systems", Patrick Hunt, Mahadev Konar, Flavio P. Junqueira, and Benjamin Reed, USENIX Annual Technical Conference (ATC), Boston, MA, 2010

https://www.usenix.org/legacy/events/atc10/tech/full_papers/Hunt.pdf

1. What is the problem that this paper tries to solve? [20%]

2. How would you summarise the paper's key contributions in a few sentences? [20%]

3. Explain what limits the scalability of the ZooKeeper design when handling:

   (a) read requests? [10%]

   (b) write requests? [10%]

4. How is ZooKeeper different from a traditional distributed database system? Justify your answer. [20%]

5. Propose and describe multiple extensions to make ZooKeeper more *usable* by developers in practice. [20%]

*[Your answer must occupy **at most two** A4 pages with an 11-point font size and 3cm margins.]*