Large-Scale Data Management and Distributed Systems

Introduction

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About me

Associate professor

- Since 2015
- LIG Laboratory

Research topics

- Reliability and efficiency of large-scale systems
- Current research work:
  - Algorithms for new memory/storage hierarchies (Pmem, CXL, etc.)
  - Energy efficiency of cloud platforms
  - ML approaches for optimizing distributed systems

Teaching staff

- Baptiste Lepers (baptiste.lepers@inria.fr)
- Vania Marangozova (vania.marangozova@imag.fr)
- Thomas Ropars (thomas.ropars@univ-grenoble-alpes.fr)

Organization of the course

2 complementary topics

- Data management (V. Marangozova) – 18 hours
- Distributed algorithms (B. Lepers and T. Ropars) – 18 hours

Grading

- Each topics counts for 50% of the final grade
- For distributed algorithms:
  - A final exam

Covered topics

- Fondamental problems in distributed systems
- Ordering of events
- Consensus
- Broacasting information (with different guaranties)
- Distributed transactions
- etc.

Main references

Some books than can complement the material presented in class

- *Designing Data-Intensive Applications* by Martin Kleppmann
- *Introduction to Reliable and Secure Distributed Programming* by C. Cachin, R. Guerraoui, and L. Rodrigues