CLOUD COMPUTING CONCEPTS

with Indranil Gupta (Indy)

INTRODUCTION TO PART 1

What this Course is about

- This course is about the internals of cloud computing
  - Not how to use cloud systems or write cloud applications (separate course in Cloud Specialization: *Cloud Applications*)
  - Not about networking (separate course in Cloud Specialization: *Cloud Networking*)
- We'll go underneath the hood and look at distributed systems that underlie today's cloud computing technologies

What this Course is about (2)

- We'll discuss
  - Concepts
  - Techniques
  - Industry systems, including open source (from the inside)
- The course is a mix of
  - Distributed systems
  - Distributed algorithms
  - As applied to cloud computing

Syllabus for Part 1

- Introduction: Clouds, MapReduce, Key-value stores
- Classical precursors: Peer-to-peer systems, Grids
- Widely-used algorithms: Gossip, Membership, Paxos
- Classical algorithms: Time and Ordering, Snapshots, Multicast
- Fun: Interviews with leading managers and researchers, from both industry and academia

Exercises

- 2 Homeworks
- (Optional) 1 Programming Assignment (C++)
  - Implement a membership protocol inside an emulator
- 1 Exam

Onward!

- Cloud computing is an exciting area to be studying, very dynamic and continuously changing
- I’m looking forward to working with you!
- Come, let’s tour the landscape.