Lectures for the course: Cloud Computing (IT 60020)

Week 1

Lecture 1 – 09/01/2013

• Introduction to the course
• Evaluation Guidelines
• Term paper and Term project guidelines

Lecture 2 – 10/01/2013

• Evolution of computing paradigms
• Distributed and parallel computing
• Cluster computing

Lecture 3+4 – 11/01/2013

• Case study/ hands on practice
• Overview of IaaS and Introduction to Eucalyptus

Week 2

Lecture 5 – 16/01/2013

• Grid computing
• Utility computing

Lecture 6 – 17/01/2013

• Utility computing
• Cloud computing – NIST definition
• Cloud computing service models

Lecture 7+8 – 18/01/2013

• Case study/ hands on practice
• Architecture of Eucalyptus - Cloud Controller, Cluster Controller, Node Controller, Virtual Networking

Week 3
Lecture 9 – 23/01/2013

- Cloud computing deployment models
- Cost justification for cloud computing as compared to in-house resource building
- Advantages and disadvantages of cloud computing

Week 4

Lecture 10 – 30/01/2013

- Cloud Computing (NIST Model)

Lecture 11 – 31/01/2013

- Cloudonomics

Lecture 12 – 01/02/2013

- Case study/hands on practice
- Installation and Configuration of Eucalyptus Cloud

Week 5

Lecture 13 – 06/02/2013

- Grid vs Cloud
- Role of Open standards

Lecture 14 – 06/02/2013 (Extra)

- Case study/hands on practice
- CloudSim 3.0

Lecture 15 – 07/02/2013

- Cloud Architecture

Lecture 16 – 08/02/2013

- Case study/hands on practice
- Installation of Eucalyptus

Week 6

Lecture 17 – 13/02/2013
- Case study/ hands on practice
- Example showing how to create a datacenter with one host and run one cloudlet on it using Clousim

**Lecture 18 – 14/02/2013**

- Cloud architecture
- Network virtualization

**Week 7**

Mid sem exam held

**Week 8**

**Lecture 19 – 27/02/2013**

- Service oriented architecture

**Lecture 20 – 28/02/2013**

- Mid sem scripts shown and feedback given

**Lecture 21 – 01/03/2013**

- Case study/ hands on practice
- Eucalyptus installation

**Week 9**

**Lecture 22 – 06/03/2013**

- Introduction to queuing theory
- Random variables and their types
- Various types of distributions

**Lecture 23 – 07/03/2013**

- Properties of Poisson distribution
- Relation between Poisson and Exponential distribution
- Conditional probability, Independence
- Random processes
- Markov processes
- Markov chains, DTMC and CTMC
Lecture 24 – 08/03/2013

- Quiz held

Week 10

Lecture 25 – 13/03/2013

- Birth death processes
- Generator matrix
- Kendall’s notations
- Little’s theorem
- M/M/1 queue
- M/M/m queue

Lecture 26 – 14/03/2013

- System virtualization
- Host and native VMM
- Advantages and pitfalls
- Roadmap

Lecture 27 – 15/03/2013

- Case study/ hands on practice
- Quiz scripts shown and feedback given

Lecture 28 – 15/03/2013

- Server consolidation
- Amazon IaaS

Week 11

Lecture 29 – 20/03/2013

- PaaS
- Azure

Lecture 30 – 21/03/2013

- PaaS
- Google App Engine
Lecture 31 – 22/03/2013
  • Case study/hands on practice

Week 12
Lecture 32 – 28/03/2013
  • Multi tenancy
Lecture 33 – 29/03/2013
  • Case study/hands on practice

Week 13
Lecture 34 – 03/04/2013
  • SLA
Lecture 35 – 04/04/2013
  • SLA continued
Lecture 36 – 05/04/2013
  • Lab assignment evaluated

Week 14
Lecture 37 – 10/04/2013
  • GFS
  • BigTable
Lecture 38 – 11/04/2013
  • Quiz scripts shown
Lecture 39 – 12/04/2013
  • Course wrap up