Advanced Topics in Service-Oriented Computing and Cloud Computing

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Outline

- Why do we need this course?
- What is the course about?
- Course administrative information

Current trends in SOC and Cloud

- Advanced service models for Internet of Things (IoT)/cyber-physical systems
- IoT and cloud integration → IoT cloud systems
- Cloud and service technologies for Fog, Edge-centric and mobile-edge computing
- Social-cyber-physical clouds
- Analytics services atop big data infrastructures

Complex requirements and SOCloud focus

- Some key issues
  - High availability, data sharding, geographical multi-cloud load balancing, automatic formation of on-demand data centers
  - Horizontal scalability in big data, elasticity coordination in multi-cloud environments, elasticity algorithms for fog and network function virtualization (NFV)
  - Algorithms for large-scale data ingest/big data.
  - Performance monitoring and analysis
- Gaps between theoretical concepts and practical applications of advanced algorithms and techniques

We study and explore complex algorithms and techniques in SOC, Cloud, Fog/edge, and Big data systems.

It is a kind of “advanced distributed systems” focused SOC, Cloud, and fog/edge systems.

SOCloud – relevant courses

- Advanced Internet Computing
  - Give you some advanced technologies about SOC, Cloud Computing and (business) processes/workflows

- Advanced Services Engineering
  - Focus on services engineering techniques for IoT and clouds

- Distributed Systems Technologies:
  - Give you fundamental distributed technologies and how to use them

Course administration (1)

- Lectures are held through the whole semester
  - But not every week – check the course website!

- Who could participate in the course?
  - Master students in advanced stages (e.g., seeking for master thesis) in informatics and business informatics
  - PhD students: normal PhD track, PhD School of Informatics, and Doctoral Colleges
  - Students should have knowledge about fundamental distributed systems, internet computing and distributed computing technologies

Course administration (2)

- Learning methods
  - Discussion, individual and team work, literature and practical studies
- Evaluation methods
  - Assignments and a final examination
- Assignments
  - 3 home assignments resulting in some analysis summaries and discussions
- Oral final exam

Grades

- Assignments: 60 points
- Final oral examination: 40 points

Point	Final mark
90-100	1 (sehr gut)
75-89	2 (gut)
56-74	3 (befriedigend)
40-55	4 (genügend)
0-39	5 (nicht genügend)

Failed ? → retake the final oral examination part!

THANKS! ANY QUESTION?

Thanks for your attention

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