P2P & Cloud Computing

Prof. Dr. Jörg Hähner

Part 0:

Introduction

ORGANIC COMPUTING

- Organisational issues
  - Schedule
  - Lab content
  - Other courses
  - Persons

- Lecture "Peer-to-Peer and Cloud Computing"
  - Building "N", room 2045
  - Tuesday, 10:00 – 11:30
  - Lecturer: Jörg Hähner
- Lab
  - Building "N", 2045
  - Wed., 15:45 to 17:15
  - Lecturer: Dominik Rauh
- Exam
  - Oral examination
  - Time schedule will be published during December
  - Bonus available for successful lab participants

Please register in DigiCampus

First term:
→ **October, 31st**

- Lab - content
  - Work sheets
    - Comprehension questions
    - Some maths ;-)
    - Application of algorithms
  - Application-oriented exercises
  - Analysis of scientific papers
- Tasks to be completed by groups of 3 members
- Bonus of 0.3 for each member of a successful group
- Details within the first lab session!

ORGANIC
COMPUTING

- Further "organic" activities during <u>this semester</u>
  - Seminars:
    - *"Organic Computing" (Master)*
    - *"Ad hoc and Sensor Networks" (Bachelor)*
  - Lectures:
    - *"P2P and Cloud Computing" (Master)*
    - *"Interactive Simulation" (Master)*
    - *"Grundlagen des Organic Computing" (Bachelor)*

- Further "organic" activities during the <u>upcoming semester</u>
  - Seminars:
    - *"Selbstorganisation in Verteilten Systemen" (Bachelor)*
    - *"Naturanaloge Algorithmen und Multi-Agenten Systeme" (Master)*
  - Lectures:
    - *"Organic Computing" (Master)*
    - *"Ad hoc and Sensor Networks" (Bachelor)*
    - *"Weiterführende Betriebssystemkonzepte" (Master)*

- Other topics: Praxis-, Forschungs- and Projektmodul, Theses (Master, Bachelor), "HiWi" jobs. Interested? Just ask…

ORGANIC COMPUTING

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- **Slides**
  - Available at DigiCampus (usually before the lecture)
  - Partly provided by Dr. Frank Dürr (Universität Stuttgart)
    http://www.ipvs.uni-stuttgart.de/abteilungen/vs/abteilung/mitarbeiter/frank.duerr

- **Scientific Papers**
  - Cited in lecture slides
    - Copies available on web site of lecture
  - Digital libraries accessible from within university network:
    - ACM (http://portal.acm.org/dl.cfm)
    - IEEE (http://ieeexplore.ieee.org)

- Peer-2-Peer and Cloud Computing – *what is it about?*

  - P2P ⟷ Organic Computing ⟷ Cloud ?
  - Terms and definitions
  - Application Scenario: Trusted Desktop Grid

  Part 1

  - Distributed storage and computation – history and overview.
  - Basics: network model and some definitions.
  - Structured Peer-2-Peer networks.
  - Unstructured Peer-2-Peer networks.

  Part 2

  - Cloud Computing: aspects and terms.
  - Cloud Computing: topologies and services.
  - Cloud Computing: specific topic (e.g. Load Balancing)

  Part 3

ORGANIC COMPUTING

	(Expected) Topic	Comment
	Organisation + Introduction	
	Introduction	
	P2P Overview	
	P2P Overview	
	Network Models	
	Network Models + Structured P2P	
	Structured P2P	
	Structured + Unstructured P2P	
	Unstructured P2P	
	Christmas Break	
	Unstructured P2P	
	Cloud Basics	
	Cloud Load Balancing	
	Wrap-Up	Exam preparation