

Cloud Data Center Service Provisioning: Theoretical and Practical Approaches



DATE: Jan. 29-Feb. 9, 2018

Overview

With capability to offer a finite pool of virtualized resources (computational, storage and software) as services via the Internet on-demand, cloud data centers have become the core part of modern IT infrastructure. Efficient use of virtualized data center resources is paramount important to optimally manage the data center energy consumption, increase resource utilization and achieve users quality of service (QoS) requirements. This course introduces prospective attendees to the state-of-the-art principles and practical applications of cloud data center resource provisioning techniques. The course will enable prospective attendees to acquire advanced theoretical and practical knowledge in cloud data center virtualized resources optimization.

Objectives

The objective of the course is to enable participants to have a thorough knowledge and practical experiences in advanced resource management solutions and scheduling techniques for Cloud computing. The course examines in depth the critical resource management and scheduling features such as efficiency, scalability, reliability, energy conservation, and environmental impact as well as mechanisms for the implementation of resource management and scheduling policies. Thus this course enhances the participants knowledge of the key functions in Cloud computing resource management and scheduling as well as equips the participants with the skills and knowledge required for a career in Cloud computing or Cloud computing research and development. The knowledge gained in this course will enable attendees to perform deep and wide analysis of issues related to virtualized resources optimization, implement appropriate resource provisioning techniques and perform high quality research in the area.

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The Faculty

Jemal H. Abawajy, PhD, SMIEEE

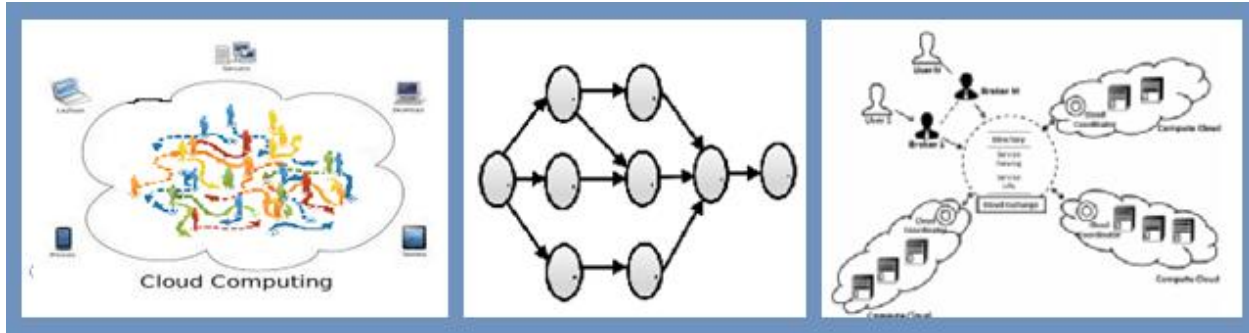
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JEMAL H. ABAWAJY is a full professor at Faculty of Science, Engineering and Built Environment, Deakin University, Australia. He is a Senior Member of IEEE Society; IEEE Technical Committee on Scalable Computing (TCSC); IEEE Technical Committee on Dependable Computing and Fault Tolerance and IEEE Communication Society. His leadership is extensive spanning industrial, academic and professional areas (e.g., IEEE Technical Committee on Scalable Computing, Academic Board, Faculty Board and Research Integrity Advisory Group). Professor Abawajy is currently the Director of the Distributed System and Security Cluster. He has been actively involved in the organization of more than 300 national and international conferences in various capacity including chair, general co-chair, vice-chair, best paper award chair, publication chair, session chair and program committee. Professor Abawajy has served on the editorial-board of numerous international journals and currently serving as associate editor of the IEEE Transaction on Cloud Computing, International Journal of Big Data Intelligence and International Journal of Parallel, Emergent and Distributed Systems. He has also guest edited many special issue journals. Professor Abawajy is actively involved in funded research supervising large number of PhD students, postdoctoral, research assistants and visiting scholar in the area of Cloud Computing and Big Data. He is the author/co-author of five books, more than 250 papers in conferences, book chapters and journals such as IEEE Transactions on Computers and IEEE Transactions on Fuzzy Systems. He also edited 10 conference volumes. Professor Abawajy has delivered numerous keynote addresses, invited seminars, and media briefings (e.g., Voice of America's English Radio).

Homepage: <https://www.deakin.edu.au/about-deakin/people/jemal-abawajy>

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Course Coordinators

Deo Prakash Vidyarthi, Professor

School of Computer and Systems Sciences, Jawaharlal Nehru University, Delhi, India

Deo Prakash Vidyarthi is Professor in the School of Computer & Systems Sciences, Jawaharlal Nehru University, New Delhi. Dr. Vidyarthi has published around 90 research papers in various peer reviewed International Journals and Transactions (including IEEE, Elsevier, Springer, Wiley, World Scientific etc.) and around 45 research papers in proceedings of various peer-reviewed conferences in India and abroad. Dr. Vidyarthi has authored two books (research monograph): one entitled “Technologies and Protocols for the Future Internet Design: Reinventing the Web” published by IGI-Global (USA) released in Feb. 2012, and another entitled “Scheduling in Distributed Computing Systems: Design, Analysis and Models” published by Springer, USA released in 2009. He is in the editorial board/reviewer’s panel of many International Journals. Dr. Vidyarthi is the member of the IEEE, IACSIT, ISRST, and IAENG. Research interest includes Parallel and Distributed System, Grid and Cloud Computing, Mobile Computing and Evolutionary Computing. Homepage: <http://www.jnu.ac.in/SCSS/LAB05/index.html>

Dr. Zahid Raza, Assistant Professor

School of Computer and Systems Sciences, Jawaharlal Nehru University, Delhi, India

Zahid Raza is Assistant Professor in the School of Computer and Systems Sciences, Jawaharlal Nehru University, India. He is M.Tech and Ph.D. in Computer Science. Prior to joining Jawaharlal Nehru University, he served Banasthali Vidyapeeth University, Rajasthan, India. He is an active researcher and his research interest is in the area of Parallel and Distributed Systems, Computational Grid, Cloud and IoT. He is a member of IEEE and ACM. Homepage: <http://www.jnu.ac.in/SCSS/LAB05/index.html>

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Lecture Schedule

Day 1

Lecture 1: Two Hrs.
Introduction to Cloud Computing

Tutorial 1: Two Hrs.

Day 2

Lecture 2: Two Hrs.
Scheduling Optimization Criteria

Tutorial 2: Two Hrs.

Day 3

Lecture 3: Two hours
Virtual Machine Management and Provisioning

Tutorial 3: Two Hrs.

Day 4

Lecture 4: Two Hrs.
Cloud Resource Provisioning and Scheduling Plans

Tutorial 4: Two Hrs.

Day 5

Lecture 5: Two Hrs.
Heuristic Resource Provisioning Techniques

Tutorial 5: Two Hrs.

Day 6

Lecture 6: Two Hrs.
Meta-heuristic Resource Provisioning Techniques

Tutorial 6: Two Hrs.

Day 7

Lecture 7: Two Hrs.
Market-Oriented Cloud Resource Provisioning

Tutorial 7: Two Hrs.

Day 8

Lecture 8: Two Hrs.
Scheduling Scientific Workflows on Cloud

Tutorial 8: Two Hrs.

Day 9

Lecture 9: Two Hrs.
Optimization of Cloud Data Centre Energy Consumption

Tutorial 9: Two Hrs.

Day 10

Lecture 10: Two hours
Failure-Aware Cloud Resource Provisioning

Tutorial 10: Two Hrs.

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Who can Attend

- Ph.D. students working in the areas of Parallel/Distributed Systems, Grid & Cloud Computing, Mobile Computing, Cluster Computing etc.
- Post-doctoral fellows or young researchers
- MCA/M.Sc./B.Tech students and other advanced UG Students
- Faculty members from academic institutions and universities who may find the course useful for their current or future research

Registration

The participation fees for taking the course is as follows:

- Ph. D. Students: **Rs. 1000**
- P.G. / U.G. Students: **NIL**
- Participants from abroad: **US \$100**
- Faculty from Academic Institutions: **Rs. 2000**
- Accommodation will be available to outstation participants on nominal charges subject to availability.

Important Information

- For course registration, please visit:
<http://www.gian.iitkgp.ac.in/GREGN/index>

And

<http://www.jnu.ac.in/GIAN/>

- Registration Deadline: December 2017

Contact Details

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