

IE801/IE481/CS744: Cloud Computing

Spring 2016

Class Meetings MW 9:00 – 10:15
E2 Bldg, Room 2501

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Dr. Park received Interdisciplinary Ph.D. in Computer Science, and Industrial and Systems Engineering from The Ohio State University in 1988. He was a tenured Professor of Information Systems at The University of Iowa during 1989-2000. He was Chair of the Technical Section on Telecommunications in INFORMS (Institute for Operations Research and Management Science) in the U.S.A. during 1998-2000. He moved to Samsung SDS in 2001 and served as Executive Vice President and Chief Technology Officer until 2009.

Since 2010 he is invited Professor of Industrial and Systems Engineering, and Joint Professor of Computer Science at KAIST. Currently he is Principal Investigator of the Smart Mobile Cloudlet R&D project funded by Korean government. He is President of SEMAT (Software Engineering Method and Theory) headquartered in Mountain View, California, U.S.A.—an international community of software engineering experts which has developed the OMG Standard on the Kernel and Language for Software Engineering Methods called Essence. He serves as Chair of the Cloud Adoption Committee of the Cloud Policy Forum for the Ministry of Science, ICT and Future Planning, and Chair of the Cloud Committee of the E-Government Forum for the Ministry of Government Administration and Home Affairs of Korea.

He has published numerous papers in leading journals such as Management Science and INFORMS Journal on Computing. He has served as IT advisor to U.S. companies including HP Software, Unisys and Rockwell Collins, as well as Korean companies including Samsung Electronics, LG Electronics and Seoul National University Hospital. He is Associate Editor of Information Technology and Management journals. He was listed in Marquis Who's Who.

Course Objectives

Cloud computing is a style of computing where scalable and elastic IT-related capabilities are provided as a service to customers using Internet technologies. It represents the biggest new wave of computing after e-business and will penetrate every business process during this decade. All layers of the IT stack (i.e., application software, platform software and IT infrastructure) will more and more be delivered “as a service” from the cloud, paid per use by consumers. Cloud computing offers great opportunities, but imposes significant risks, too, if not carefully planned and managed, for both IT industries and consumers.

In this course, we investigate this new computing trend to understand the use cases and benefits driving it, its potential risks, the technology factors enabling it, its architecture, and its complex value chain and the echo system. We discuss how to successfully develop new cloud-based software business—from the viewpoint of a cloud service provider. We also discuss how enterprises can successfully adopt and migrate to cloud services to improve their IT infrastructure and applications—from the viewpoint of a cloud service consumer.

Course Materials:

Lecture notes and reading references are available online from the course web site on KLMS.

Course Assignment and Grading:

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| ■ Cloud Service Business Planning Project | 40% |
| ■ Final Exam | 50% |

Closed-note, multiple-choice exam with 60 questions to answer in 90 minutes.

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| ■ Class Participation | 10% |
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You earn +1 if you ask a relevant question or correctly answer my question in class, but lose -1 if you do not attend a class meeting.

Course Topics:

Week	Topics	Project
1	Evolution of IT: 1960-2015	
2	Definition and Taxonomy of Cloud Computing	
3	Value Proposition and Use Cases of Cloud Services	
4	Cloud Service Industry	
5	Cloud Service Business Planning	
6	Cloud Service Architecture	
7	Infrastructure as a Service	
8	Midterm	
9	PaaS and SaaS	Chapter I
10	Cloud Management Platform: O/BSS	
11	Cloud Service Engineering: Requirement Analysis	II, III
12	Cloud Service Engineering: Agile Development	
13	Convergence of Cloud, Mobile, Social and Big Data	IV, V, VI
14	Cloud Adoption Strategy and Process	
15	Cloud Service Management	VII, VIII, IX, X
16	Final	Final Report

Cloud Service Business Planning Project

- Each group should have 3~5 students.
- Reports should be produced using the “Cloud Service Business Plan” template.
- You must apply the concepts, methodologies, technologies and best practices learned in the class as you conduct the project.
- Project reports should be uploaded to KLMS by 6 p.m. on Friday of their deadline weeks.
- Groups will present the project outcome in class during the designated weeks..