Mobile Cloud Computing

Overview

As defined by the Mobile Cloud Computing (MCC) forum, MCC [1]: '… at its simplest, refers to an infrastructure where both the data storage and data processing happen outside of the mobile device. Mobile cloud applications move computing power and data storage away from mobile devices and into the cloud, bringing applications and MC to not just smartphone users but a much broader range of mobile devices.'

This class provides an introduction to mobile cloud computing. Specific interest areas include cloud and mobile architectures, models, services, and applications. Related wireless communication issues include 802.11, cellular, and related RF technologies. Enterprise issues include planning for cloud mobile devices and cloud mobile device infrastructure.

Learning Objectives

At the end of this course, you will be able to:

1. List and explain common cloud computing terms.
2. Articulate how hardware independence, virtualization, clustering, networking and data centers relate to cloud computing
3. Compare and contrast different cloud architecture, models, and services.
4. Explain how cloud mobile computing can provide business value
5. Explain RF principles and functionality
6. Compare and contrast cellular and 802.11 technologies
7. Explain disaster recovery principles and how they affect mobile devices
8. List and define issues related to the implementation of enterprise Cloud Mobile solutions
9. Identify and explain common Cloud Mobile Computing security issues
10. Identify various encryption methods for securing Cloud Mobile environments.
11. Explain risks, threats and mitigation strategies affecting the Cloud Mobile ecosystem

[1] http://www.mobilecloudcomputingforum.com/

Resources: Textbooks/Publications

Bobby Rogers, CompTIA Mobility+ Certification, McGraw Hill Education, 2014, ISBN 978-0-07-182522-1

Nate Stammer and Scott Wilson, CompTIA Cloud+ Certification, McGraw Hill, 2014, ISBN 978-0-07-182818-5

NIST SP800-124r1, "Guidelines for Managing the Security of Mobile Devices in the Enterprise", http://csrc.nist.gov/publications/PubsSPs.html Accessed on 23 Aug 14.

NIST SP800-145, "A NIST Definition of Cloud Computing", http://csrc.nist.gov/publications/PubsSPs.html Accessed on 23 Aug 14.

NIST SP800-146, "Cloud Computing Synopsis and Recommendation", http://csrc.nist.gov/publications/PubsSPs.html Accessed on 23 Aug 14.

Texts to be supplemented with selections from Academic Journals and related sources.

Grading

Final grades determined through a weighted average that is projected to include examinations, "Hands On" Activities, projects, and an online class Portfolio. Portfolio sections will include an "Assignments" section, a reading section, and an external links section, as well as related materials.

Exam(s)/Quizzes	70%
Assignments	15%
Portfolio & Project	15%

Projects, Assignments, and Activities

Class participation, that is, the active engagement in questions and answers, taking part in analyses, and contribution of comments, is expected from all students. In class, there may be participatory "Hands On" assignments. Only students present in class can participate in the participatory assignments.

Class Attendance

Attendance is expected at all class meetings. Each class may have a participatory activity. Since students not present cannot participate, they cannot make up these activities.

Exams

As specified in the class schedule, there will be multiple exams. Students that take all exams will have their lowest exam grade dropped. A student that misses an exam will not have their lowest exam grade dropped. **Note** since makeup exams are **not** an option, anyone that is not confident of being present

for the scheduled exams should consider dropping. (While make up exams are not an option, people, such as those unexpectedly called up to active military duty, have been known to take exams in advance.) Note also that students are expected to be on time for exams.

Class Interruptions

During class, mobile phones and pagers must have their audible alarms turned off. Failure to observe this rule can have a negative impact.

Class	Selected Topics: Cloud Mobile Computing
Bldg AH, Rm. 11 Day, Tuesday	CIS 4397, Hybrid Section 26034
Instructor	**Office**
Ed Crowley	T2, Room 337
Phone: 713-743-4096 E-mail: ecrowley@uh.edu	Office Hours 2:30 -- 3:45 Monday 2:30 – 5:15 Tuesday *Other hours by appointment.*

Table One: Class Information

Online Support

This class will have an online support site. The site URL will be announced at the first class meeting.

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Projected Reading/Exam Schedule

Date	Reading/Exam
Week 1 20 Jan	Cloud Computing Concepts, Models and Terminology (Chapter One) from Cloud Computing+ Certification Chapter Two from: NIST SP 800-145, The NIST Definition of Cloud Computing Executive Summary and Chapters Two, Three, and Four from: NIST SP 800-125 Guide to Security for Full Virtualization
Week 2 27 Jan	Disk Storage Systems (Chapter Two) from Cloud Computing+ Certification Chapters 5,6, and 7 from: NIST SP 800-146, Cloud Computing Synopsis and Recommendations
Week 3 3 Feb	Storage Networking, Network Infrastructure, and Virtualization Components, (Chapters 3, 4, and 5) from Cloud Computing+ Certification
Week 4 10 Feb	Test One Chapters 1,2,3,4, and 5 from Cloud Computing+ Certification plus Assignments
Week 5 17 Feb	Virtualization and the Cloud, and Network Management (Chapters 6, and 7 from Mobility+ Certification.
Week 6 24 Feb	Performance Tuning and Systems Management (Chapters 8 and 9) from Cloud Computing+ Certification
Week 7 3 March	Cloud and Business Continuity and Disaster Recovery (Chapters Eleve and Twelve) from Cloud Computing+ Certification
Week 8 10 March	Test Two Chapters 6,7,8,9,11 and12 from Mobility+ Certification. Read Radio Frequency Principles (Chapter 3) from Mobility+ Certification.
Week 9 17 March	Spring Break (16-21 March) Read Cellular Technologies Technologies (Chapter 4) from Mobility+ Certification.
Week 10 24 March	Wi-Fi Client Technologies (Chapter 5) from Mobility + Certification
Week 11 31 March	Planning for Mobile Devices and Implementing Mobile Device Infrastructure (Chapters Six and Seven) from Mobility+ Certification.
Week 12 7 April	Test Three Read Mobile Security Risks (Chapter 8) from Mobility+ Certification..
Week 13 14 April	Mobile Security Technologies (Chapter Nine) from Mobility+ Certification.
Week 14 21 April	Monitoring and Troubleshooting Mobile Security (Chapter Eleven) from Mobility+ Certification.
Week 15 28 April	Test Four.
Final Exam	To be discussed in class…
online	Rackspace Certification, electronic class

Note: In addition to these readings, there will be regular homework assignments.