Institute of Technology
University of Washington – Tacoma
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Midterm Review Guide – TCSS 562

Version 0.1

Midterm Date: Thursday May 11th

The midterm exam will test basic knowledge and awareness of core technologies and concepts relating to cloud computing through mostly short answer questions. If questions require writing, length may be limited.

The midterm exam is open book, open note, open internet. The goal is not to test for memorization but understanding and comprehension. The midterm will be completed as individual work during the class session on Thursday May 11th. Work must be completed individually in class.

Potential content includes material from the Cloud Computing Concepts, Technology, and Architecture book. Material from the slides posted online, and/or from chapters 3, 4, 5, 6, 7, and 8 could be covered. Additionally, questions relating to tutorials 1 and 2 can be covered as well as the AWS and Azure in-class demonstrations.

Some core concepts include:

- Motivations for cloud computing
- What is Grid Computing?
- What is Cluster Computing?
- What is virtualization?
- What are virtual machines?
- What are operating system containers?
- What is the difference between virtual machines and operating system containers?
- What is horizontal scaling?
- What is vertical scaling?
- What is the difference between a cloud provider and a cloud consumer?
- Can a cloud consumer also be a provider?
- What factors (list a few) make ensuring service level agreements “on the cloud” difficult?
- What are some risks associated with cloud adoption?
- What is multitenancy?
- What is resource elasticity in the cloud?
- Types of clouds: Public, Private, Hybrid, Federated, Community

- Know some differences between a type 1 and type 2 hypervisor used for hosting virtual machines
- Workload distribution architecture
- Active/passive mode for high availability
- Active/active mode for high availability
- Dynamic scalability architecture
- Service load balancing architecture
- Cloud storage models
    - Elastic block storage
    - Blob/object storage
    - Local disk storage (ephemeral / instance storage)
    - Thin provisioning of disk space
    - Thick provisioning of disk space
- Overprovisioning of cloud resources

Lecture slides 7 and 8 had several questions directly on the slides.

It is important to know, and be able to distinguish between the core classifications used for cloud services: Infrastructure-as-a-Service, Platform-as-a-Service, and Software-as-a-Service.

Regarding technology sharing presentations, we have had excellent, in-class presentations covering:
Team 1- AWS ElastiCache, redis, in-memory caching
Team 2- AWS Lambda microservices
Team 3- AWS Elastic container service
Team 4- AWS Simple storage service
Team 5- Google cloud SQL (relational database service)
Team 6- AWS RDS (relational database service)
Team 7 – AWS DynamoDB (NO SQL database)
Team 8 – Azure Functions
Team 9 – Google Blob Storage

The presentation for Team 10, on Amazon Elastic Beanstalk, has been moved until after the midterm. Students should be able to answer high level questions especially on these cloud services since they have been covered in greater detail through the cloud technology sharing presentations.

1 Change History

Version	Date	Change
0.1	05/09/2017	Original Version