CAB432 Cloud Computing Lecture 1 - Introduction

Faculty of Science

Assignments and all that Stuff

ASSESSMENT

The Assessment (Summary)

- Individual Assignment (30%)
  - Docker and web app

- Assessed prac exercises (10%)
  - Scaling and load balancing
  - Persistence

- Paired Assignment (60%)
  - Auto-scaling of a serious application
  - Group mark: 45%
  - Individual: 15%

Assignment 1

- Assignment 1 Key features:
  - Docker container
  - Azure/AWS/Google VM deployment
- Technologies for Assignment 1:
  - HTML/CSS/JS front end
  - Node back end (usually)
  - Azure/AWS/Google linux VM
- Released in Week 3; Due end of week 8 (Discuss)

Assignment 1 (Unit Outline)

- **Assessment**: Project (applied)
- You will implement a web application mashup which utilises public data and service APIs, and deploy it to the cloud using a software container. You will be required to present and demonstrate your application, and to write a professional report describing your work.
- **Relates to learning outcomes**
2, 3, 5
- **Weight:** 30
- **Individual/Group:** Individual
- **Due (indicative):** Before mid-semester

Unit content and Assignment 1

- Assignment 1 is about services and containers (Docker)

- Combination of services, but we require that you do *server side* integration and deploy using Docker

- The prerequisites for the assignment are:
  - Week 1 AWS/Azure VMs and the cloud
  - Week 2 Lecture, Week 2-3 Prac: Docker
  - Week 3-4 Lectures and Pracs: REST, HTTP, Node
  - Some basic client side JS, use of Ubuntu

- Choose the server you are most comfortable with
  - Node is strongly preferred, but use others if you like

Assessed Pracs

- Key features:
  - Preparation for Assignment 2
  - Autoscaling and load balancing
  - Persistence
  - Public cloud of your choice: AWS, Azure, Google
- Technologies:
  - Cloud dependent, but scaling and persistence APIs
- Released in Week 4 or 5
- Verify (simple) before midsemester
- Unit Content – See requirements for Assignment 2

Assessed Pracs (Unit Outline)

- **Assessment**: Practical Exercises (applied)
- You will undertake a number of assessable practical exercises demonstrating key aspects of the provision of cloud services. These may include services such as autoscaling and load balancing of cloud instances, the use of storage services and application caching, and the use of collections of software containers. These will be assessed in class to the satisfaction of the tutor on a pass/fail basis, and you will be given an opportunity to revise work which is not of an appropriate standard.

Assignment 2

- Assignment 2 Key features:
  - Multiple servers on a public infrastructure; persistence
  - Automated scaling in response to load variation; load balancing
  - Public cloud of your choice: AWS, Azure, Google
- Technologies for Assignment 2:
  - HTML/CSS/JS front end
  - Node backend
  - Usually Data Analytics of some kind – parsing, NLP, machine learning, visualisation
  - Serious workload. Data sources to be discussed; students strongly encouraged to propose their own application
- Released in Week 8; Due week 14.

Assessment (Unit Outline)

- **Assessment: Project (applied)**
- Working with a partner, you will design and implement a stateless cloud application which employs modern cloud services and scales automatically in response to variations in computational load. It is mandatory that your application be deployed to a public cloud infrastructure. You will be required to present and demonstrate your application, and to write a professional report describing your work.
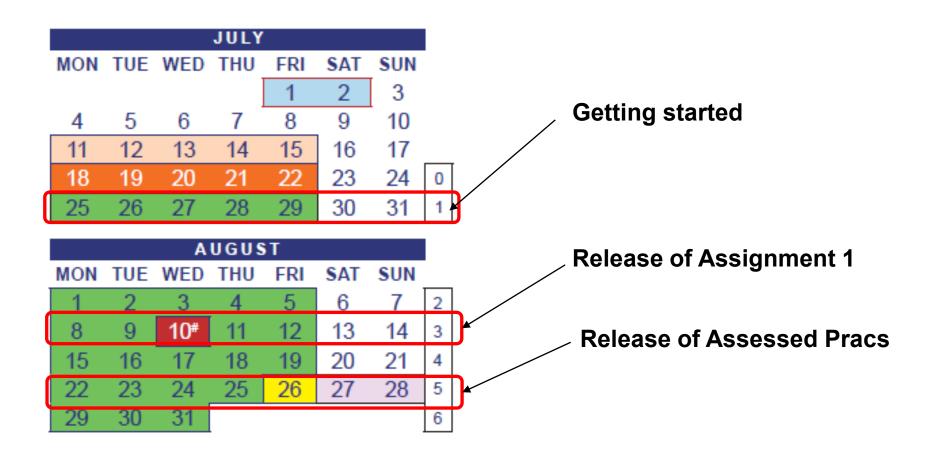
Assessment (Unit Outline)

- **Assessment: Project (applied)**
- **Relates to learning outcomes**
  1-2 and 4-6
- **Weight:** 60 = 45 (Group) + 15 (Individual)
- **Individual/Group:** Individual and Group
- **Due (indicative):** Week 13

Unit content and Assignment 2

- Assignment 2 is about scalability and persistence. We require automated scaling, deployment to a public cloud (usually node based instances), two levels of persistence and serious computational load.

- The prerequisites for the assignment are:
  – Weeks 1-4: Node and Basic cloud services
  – Week 2-3: (Optional: Docker deployment).
  – Week 5: Cloud Architecture, State and Storage
  – Week 6: Load Balancing and AutoScaling
  – Week 7: Persistence and CAP
  – Week 8: Security in the Cloud
  – Week 9: Lambdas and Serverless Cloud (optional)

QUT a university for the **real** world ®

Graphically

Getting started

Release of Assignment 1

Release of Assessed Pracs

Graphically

SEPTEMBER

MON	TUE	WED	THU	FRI	SAT	SUN	
			1	2	3	4	6
5	6	7	8	9	10	11	7
12	13	14	15	16	17	18	8
19	20	21	22	23	24	25	9
26	27	28	29	30			

Submission of Assignment 1
Assignment 2 Release
Validation of Assessed Prac 1

OCTOBER

MON	TUE	WED	THU	FRI	SAT	SUN	
31					1	2	
3	4	5	6	7	8	9	10
10	11	12	13	14	15	16	11
17	18	19	20	21	22	23	12
24	25	26	27	28	29	30	13

Validation of Assessed Prac 2

NOVEMBER

MON	TUE	WED	THU	FRI	SAT	SUN
	1	2	3	4	5	6

Submission of Assignment 2
Demos to follow.