

CLOUD COMPUTING PRACTICAL

School of Computer Science
University College Dublin

Practical 2: Overview of AWS EC2 and S3

To be GRADED: YES

In this practical, we will explore a cloud computing environment through AWS EC2 and S3. This will bring you through AWS EC2 and S3 VM to explore some of the cloud computing concepts, and a case study II, about whether you can recommend AWS or not.

Part I: AWS EC2

Using online resources, explore the AWS EC2 (through registering an AWS Educate account).

Questions:

1. What is Amazon EC2?
2. List the main components of AWS.
3. List key features of Amazon EC2.
4. What are **Region** and **Availability Zones** in AWS Cloud?
5. Discuss some benefits of Availability Zones.
6. What is **Amazon Machine Image** (AMI)?
7. What is **Instance** in AWS?
8. What type of relation do **Instance** and **AMI** have between them?
9. What is **Key Pair** in AWS?
10. Is the EC2 cloud computing model a SaaS, PaaS, or IaaS. Justify your answer.

Part II: AWS S3

Using online resources, explore the AWS S3 (through registering for an AWS Educate account).

Questions

1. What is Amazon S3?
2. What can you do with Amazon S3?
3. What is **bucket** in Amazon S3?
4. What is the maximum size of S3 bucket?
5. What is the maximum number of S3 buckets you can create?
6. How to upload a file that is greater than 100 megabytes in Amazon S3?
7. How is Amazon S3 data organized?
8. What is S3 Versioning?
9. What are the benefits of using versioning in S3?
10. What is the cloud computing delivery model for S3? Justify your answer.

Part III: Case Study II

Consider a public company, C_B that provides social security services to citizen of a given country. C_B is independent of other government departments and manages its own IT services. The company has many branches which geographically distributed all over the country to bring its services closer to the customers (people). All the company's branches are connected to 3 centralised data centres running both mainframe and low-level platform environments. Its main services are related to processing social security benefits across the country. Its powerful IT resources led the company to enlarge its portfolio and started to provide basic IT infrastructure and services, such as server hosting and server colocation.

However, these new contracts and services are not standardized—negotiated service provisioning conditions are typically customized for each customer individually. Therefore, C_B 's operations are becoming increasingly complex and difficult to manage, which has led to inefficiencies and inflated costs.

The company's audit has identified cloud computing as a promising option for further diversification and improvement of services. If C_B chose to adopt cloud computing solutions,

- 1- Which of the three delivery models (IaaS, PaaS, and SaaS) is(are) required?
- 2- Discuss the suitability of AWS EC2 for this company. (*Hint, in terms of deployment of hardware resources, reliability, elasticity of services, as IaaS, PaaS, etc.*)
- 3- Discuss the suitability of AWS S3 for this company. (*Hint; suitability of S3 to Social Security data, delivery of services all over the country, IT resource perimeter, reliability, availability, etc.*)

Submission Instructions

All submissions must be done via **Brightspace** with deadline: **4th October 2021, 23:00**. Your submission should consist of one file (PDF), which contains the answers, to the above questions. The submitted file should be named following the format: **COMPxxxxx_Surname_FirstName_StudentNo_Practical02.pdf**

Example: (**COMP47780_Smith_John_12345_Practical02.pdf**)