

# CLOUD COMPUTING

## Practical 1: Introduction to CC

School of Computer Science  
University College Dublin

### Part I: CASE STUDY I

Consider a telecommunication company  $C_A$  that provides network equipment to telecommunications industries across the globe. Over the years,  $C_A$  has grown considerably and their product portfolio has expanded to accommodate several acquisitions, including companies that specialise in infrastructure components for Internet, GSM, and cellular providers.  $C_A$  is a leading supplier of a diverse range of telecommunications infrastructure.

However, in recent years, market pressure has been increasing.  $C_A$  has begun looking for ways to increase its competitiveness and efficiency by taking advantage of new technologies, especially those that can assist in cost reduction. A detailed investigation on the company's assets, management structures, and its future plans has led to the following conclusions:

1.  $C_A$  various acquisitions have resulted in a highly complex and heterogeneous IT environment (IT resources). The IT complexity became a source of critical concern to company's board of directors.
2.  $C_A$  management decided to outsource applications maintenance and operations overseas. This lowered costs but unfortunately did not address their overall operational inefficiency.
3.  $C_A$  started considering cloud solutions. However,  $C_A$  is unsure of how to choose the right set of cloud computing technologies and providers. They became overwhelmed by the plenitude of cloud providers and cloud-based products.

Assume that you are hired as a cloud consultant to help  $C_A$  to adopt the cloud solutions.

1. Discuss within the context of cloud computing IT solutions the complexity of the  $C_A$  IT environment.
2. Why outsourcing is not a good solution for  $C_A$ , and why Cloud Computing is believed to be a much better solution? Justify your answer.
3. Suggest a logical process of actions to determine whether  $C_A$  should adopt the cloud computing solutions. (**Hint:** consider some measures for complexity, heterogeneity, ...,  $C_A$  application architecture, projected cost savings, pilot project, ...)

### Part II: Basic concepts of Cloud Computing

1. What are the cloud-delivery models and cloud-deployment models that characterise each of the following Cloud providers (**Hint:** use online resources)?
  - a. Amazon Web Services
  - b. Microsoft Azure
  - c. Google Cloud Platform
  - d. IBM Cloud
  - e. VMware
  - f. Salesforce
  - g. Oracle Cloud

- h. SAP
  - i. Rackspace
  - j. Eucalyptus
2. If you want to develop an application on the Cloud, which Cloud provider would you choose? Why?
  3. Explain the difference between cloud-based storage and traditional data centres.
  4. Explain the concept of scaling (horizontal vs vertical) in Cloud Data centres. (**Hint:** support your analysis by using some examples).

## Part III: AWS Platform

Using online resources, explore the **AWS Cloud** (<https://aws.amazon.com/>) and **AWS Educate Cloud** (<https://aws.amazon.com/education/awseducate/>)

1. Register a regular **AWS account** or an **AWS Educate Starter Account** (free and does not request credit card but has some limitations compared to AWS account).
  2. Describe the provided GUI after you login.
  3. Describe the GUI of your profile.
- 

## Submission Instructions

All submissions must be done via **Brightspace** before **27 September 2021, 17:00**. Your submission should consist of one **PDF** file, which contains the answers, to the above questions. The submitted file should be named following the format:

***COMPxxxxx\_Surname\_FirstName\_StudentNo\_Practical01.pdf***

**Example:** ( *COMP41110\_Smith\_John\_12345\_Practical01.pdf* )