**Intended Module Learning Outcomes**

1. Review current developments in the field of cloud computing, with an aim to incorporating recent changes and developments

2. Assess the options available for cloud based working environments though online business utility services

**Assignment Introduction**

Scenario: You are the assistant to the Network Administrator for a networking consultancy company called CompuTech. Your company has recently been providing *network consultancy services* for DigiTech, a small product services company which is located in a small village on the southern coast of Ireland. The Chief Information Officer has decided that the time is right to migrate DigiTech’s on-premise network operation to the Google Cloud Platform. The management at DigiTech would like to get a sample of some of the online business utility services that are available on the Google Cloud.

* • Document should be created in Word and should be submitted in a PDF file format.
* • You are reminded that College rules on plagiarism will apply to this assignment.

In other words: **Do your own work**… then you are really learning.

* • Check your spelling and grammar and ensure that the file reads as a properly constructed and well formatted document.
* • Late submissions will be penalised at a rate of 10% per day or part day. After 5 days no marks will be awarded. You should also include your policy for late assignment submission

**Your manager has instructed you to demonstrate and explain Google Cloud bucket storage:**

1. (5%) Create a storage bucket. Upload items from your computer using the command line and the GUI and place them into the bucket

2. (5%) Upload items from the bucket to a Linux virtual machine using the Google CLI

**Your manager has requested that you prepare and present prototypes of several of the cloud-based on-line virtualization and web site options available from Google Cloud**. You will need to create a one-page Website for DigiTech to complete this. DigiTech needs you to try several different configurations, therefore the webpage will need to be slightly modified for each of the different uses. *[You will be able to test that the web sites are working by using their external IP addresses].*

3. (5%) Create a Linux VM, install Apache and upload the web page to the web site.

The web page should say “DigiTech on Apache” and have your name on it.

4. (5%) Create a Windows VM, install IIS and upload the web page to the web site.

The web page should say “DigiTech on IIS” and have your name on it.

5. (5%) Create a Linux VM, install NGINX and upload the web page to the web site.

The web page should say “DigiTech on NGINX” and have your name on it.

6. (15%) Set up a working DigiTech web site on a Windows or Linux VM (you choose).

Upload a virtual machine (Live Migration) to the cloud and show that the Web site works.

The web page should say “DigiTech on Live Migration VM” and have your name on it.

**For the following research items please provide references of all sources used**

**7. (10%) DigiTech is very interested in the live migration that you performed. Explain what Live Migration is and identify situations where DigiTech could benefit from being able to perform live migrations of one or more of their production virtual machines. This is a research item.**

**8. (10%) Research topic: DigiTech is interested in other services that are available on the Google Cloud platform. Choose to research one of the services available from Google’s Cloud Launcher and explain how they could be useful to DigiTech. Choose one from the following list of Google Cloud partner services: Traffic Manager Enterprise Edition & WAF / App Engine / Kubernetes Engine / Deep Security for Google Cloud (Trend Micro) / Barracuda CloudGen Firewall for GCP (BYOL)**

**9. (10%) Challenging research topic: Your manger has heard that recently Google introduced GCSFUSE that allows you to mount a bucket to a Debian Linux virtual machine. This is a feature that DigiTech is interested in and your manager needs you to figure out how to do this. Please note: as part of your internship with the company you need you to demonstrate that you have the ability to conduct research and attempt to perform more difficult tasks. *Therefore, if you do attempt this task, you are to do all the work and research without any help from any other student or teacher. Furthermore, if you do successfully complete this task you are not to help any of the of students solve the challenge. This is a problem-solving exercise and it has a solution!* If you successfully mount the bucket to the Linux VM, install Apache and load the web page from the bucket to the VM and set up a web site. The web page should say “DigiTech on Apache Loaded from the Attached Bucket” and have your name on it.**

10. (10%) Finished report write-up and presentation.

**Note: In your report please provide screen shot evidence for each task that you attempt. All screen-shot demos must show IP addresses and proof of originality!**