INTERACTING WITH A CLOUD BASED WORKING ENVIRONMENT

CLOUD COMPUTING

FERNANDO TENORIO
N. 2016198
[Company address]

Table of Contents

1. Upload items from my computer into GC Bucket

When working with the Google Cloud Platform, we work with an enormous possibility of creations, in other words, the user can create files that will store data from the user desktop, for example:

- As shown in the image bellow, I have created a bucket, and from my “Terminal” I uploaded a file from my “Desktop” to my Google Cloud account. It is possible after I have downloaded the Google SDK, a gsutil that allows the user to interact with the Cloud online.

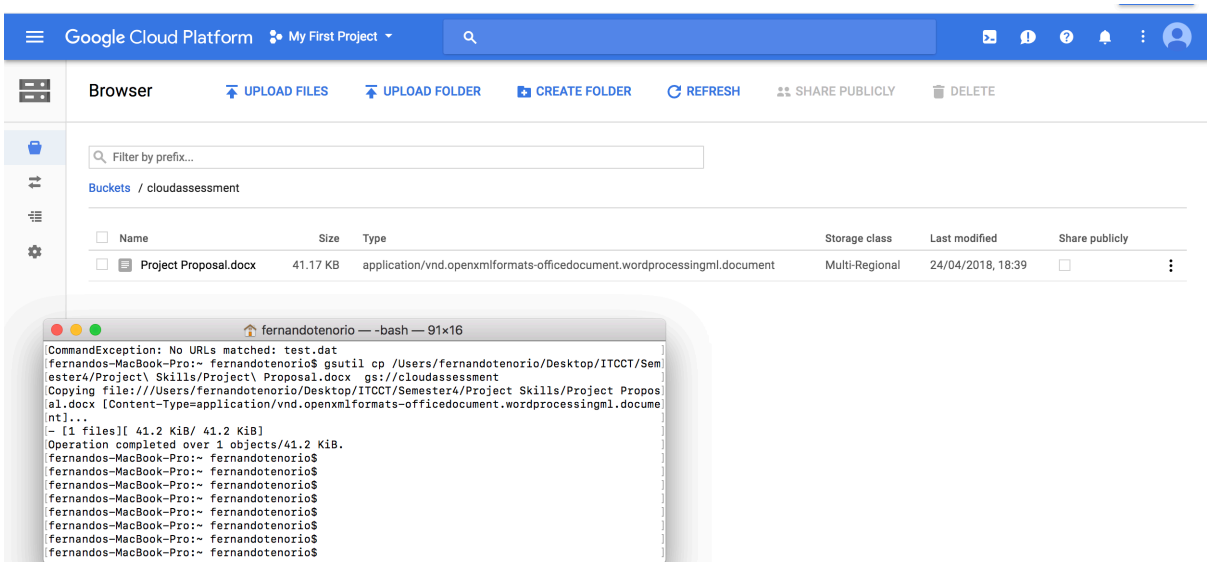

Figure 1 Sending a file to Bucket from the Command

2. Upload items from the bucket to a Linux virtual machine using the Google CLI

The Google Cloud Platform offers as well the possibility of creating VM – Virtual Machines, rather than using applications such as VitualBox, the user can create as many VM as they want without having to download it from internet and using an enormous amount of memory from their computers. We can also, as it shows in the picture bellow, copy files/folder from the bucket created to the VM desired. For example:

- I have created a bucket called ca2-cloud, inside that bucket I had a png picture, by using the command -gsutil cp gs://ca2-cloud/terminal.png . – I copied this image into my Linux VM.

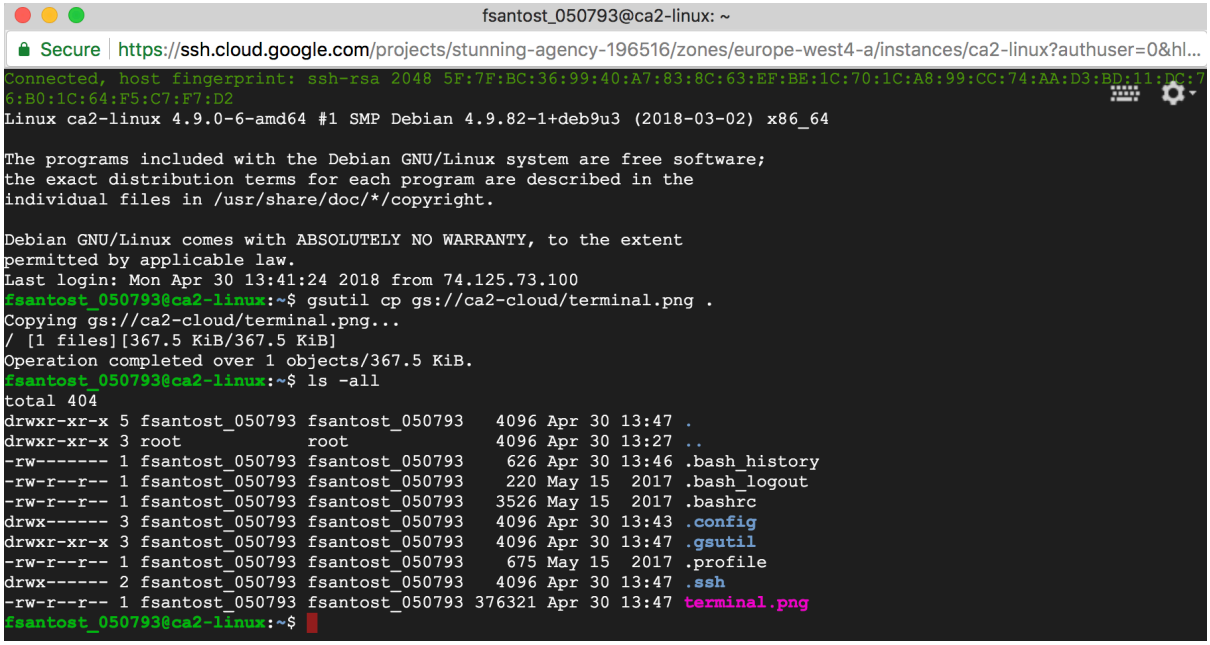

Figure 2 Sending a file from Bucket to the Linux VM

3. 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.

After creating my Linux VM I can also upload a web page from my command prompt, it can happen after the user download the apache, install it on the VM and copy the web page inside the apache document, after this, by only using the machine IP address, the user can upload the page that is inside the apache folder.

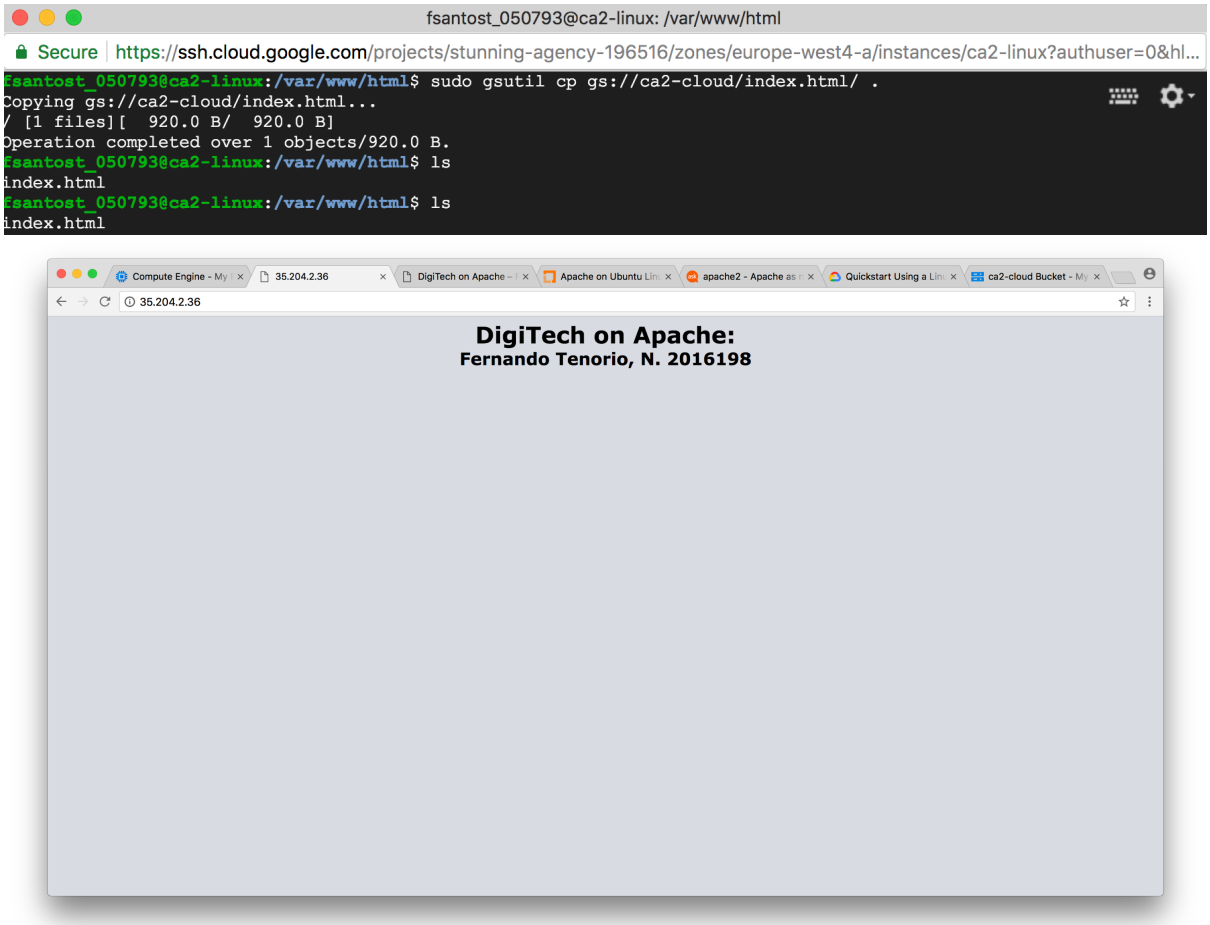

Figure 3 Uploading Web Page to web site from Linux VM

4. 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.

The possibilities of types of activities on the Google Cloud is so expanded that the same can be done from a Windows VM, but instead of installing the apache on windows, the user have to install the IIS – Internet Information Services. It allows the user to copy html file for example into the VM, by using the command line, or by creating a file inside the Internet Default folder, then the user can use the machine’s IP address to upload the web page registered.

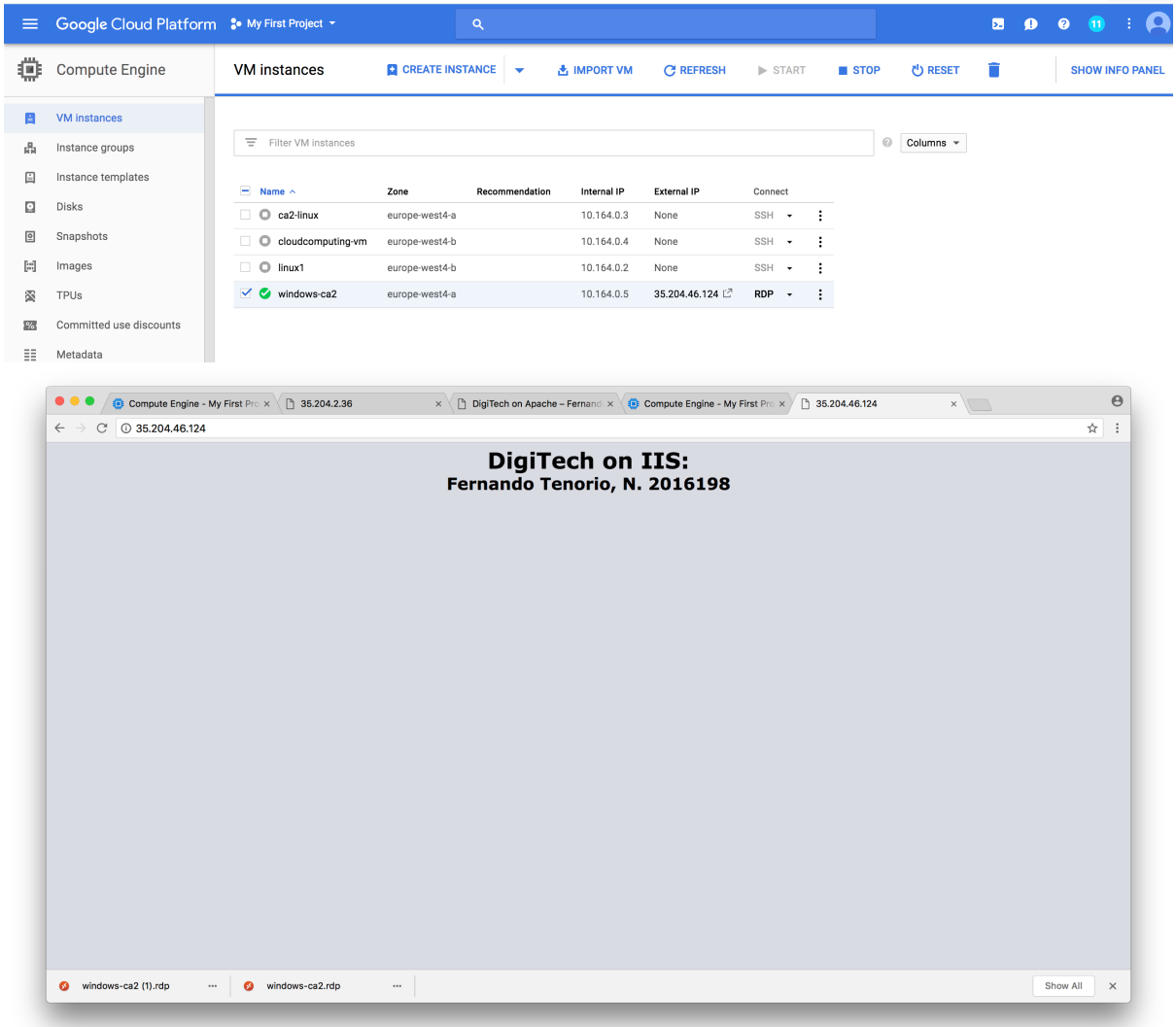

Figure 4 Uploading web page to web site from Windows VM

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.

NGINX is a web server responsible for hosting some of the largest and highest-traffic sites on the internet which consume less memory and CPU than apache.
As is shows in the picture bellow, I have created a NGINX VM to host a web page, the path is similar to Linux, I just had to copy it from my bucket into the host and after, by using the VM IP Address I can upload the webpage.

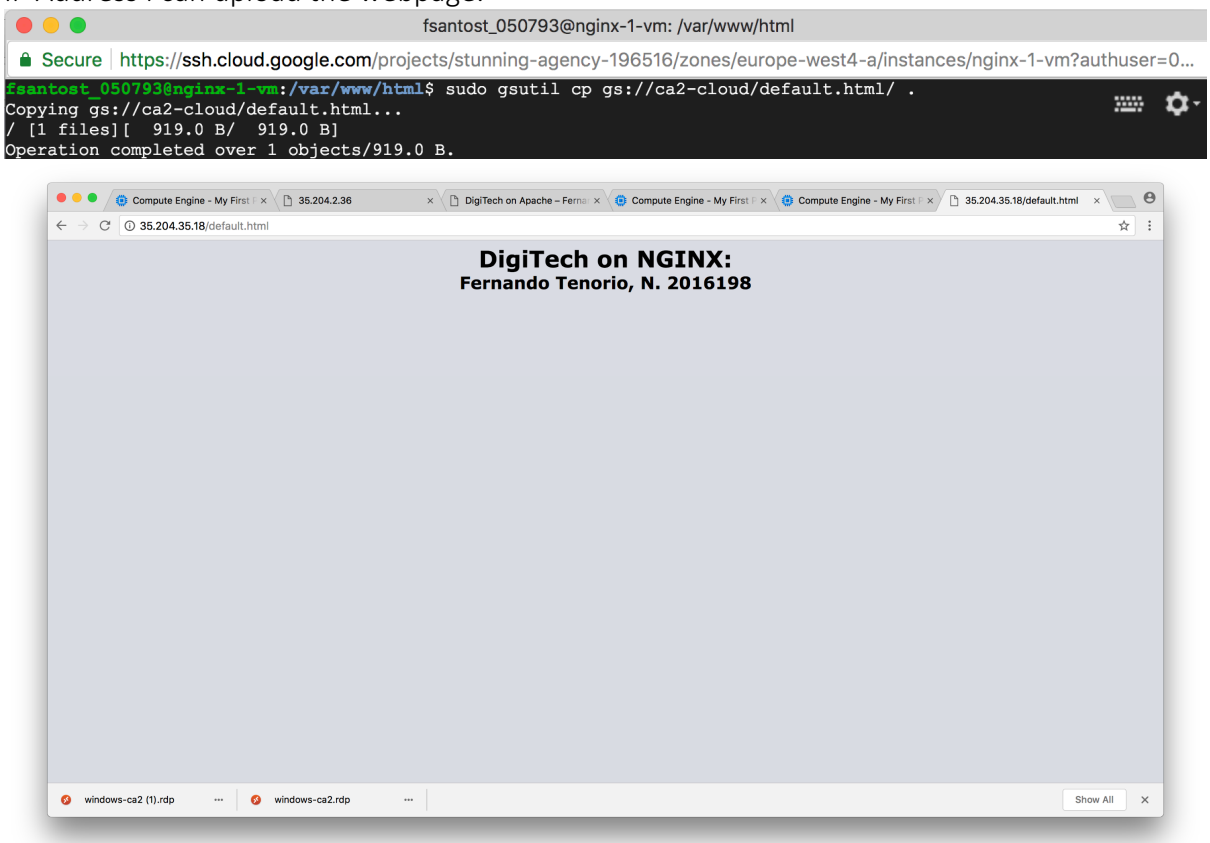

Figure 5 Uploading web page to web site from NGINX VM

6. Live migration

System Migration involves several instructions of programs, for example, sending programs from one platform to another minimizing the engineering, it can also involve downtime while the older system can be replaced with the new one, migration can be done from a main frame computer which is a close architecture to an open system as well migration can be from an open system to a Cloud Compute Platform. It motivates most of the companies since it influences in the cost savings.
Bellow, I have migrated a Windows Server 2012 from a virtual box to the Cloud VM Migration Service, as it shows, after migrating the server, an IP address has been generated.

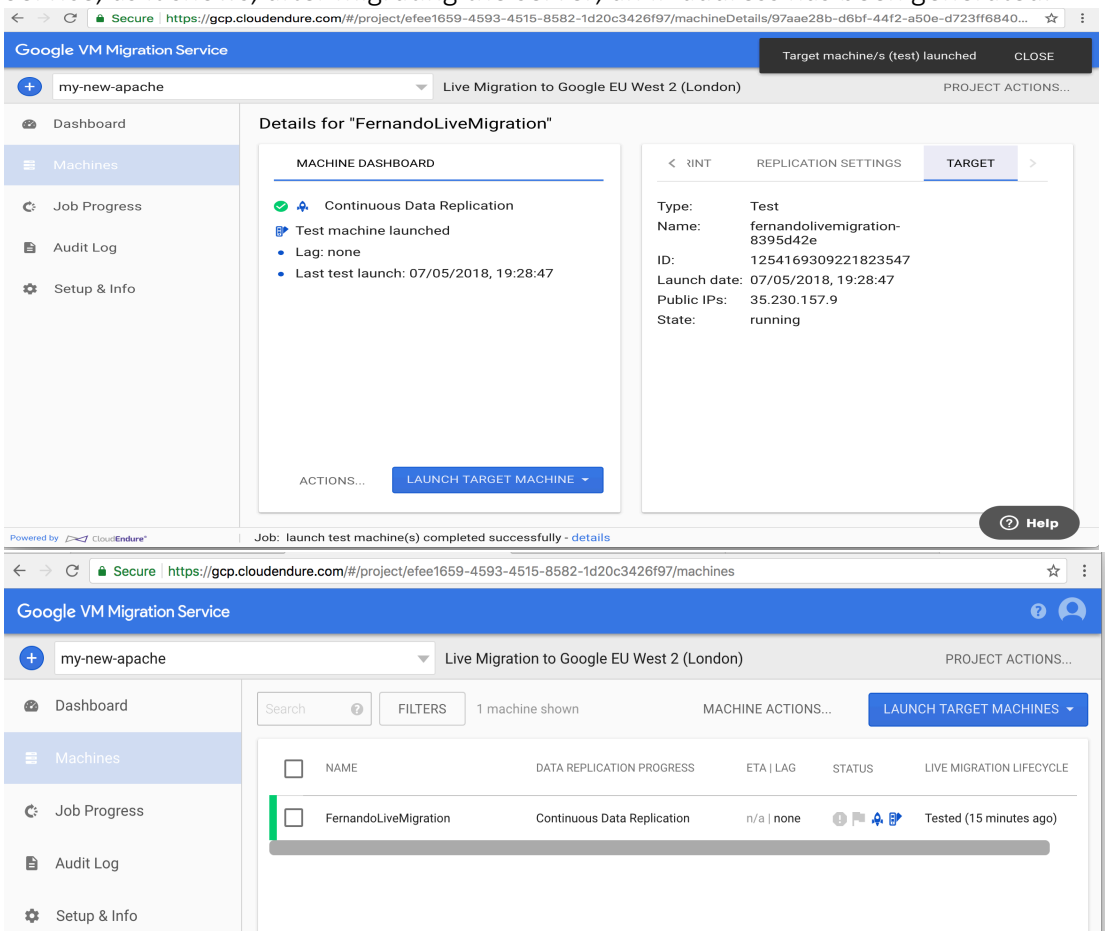

Figure 6 Illustration of a completed Live Migration

Once the migration is successfully done, by using Microsoft Remote Desktop, I was able to open the Server Desktop, the IP address showed on the menu bar, refers to the VM IP address.

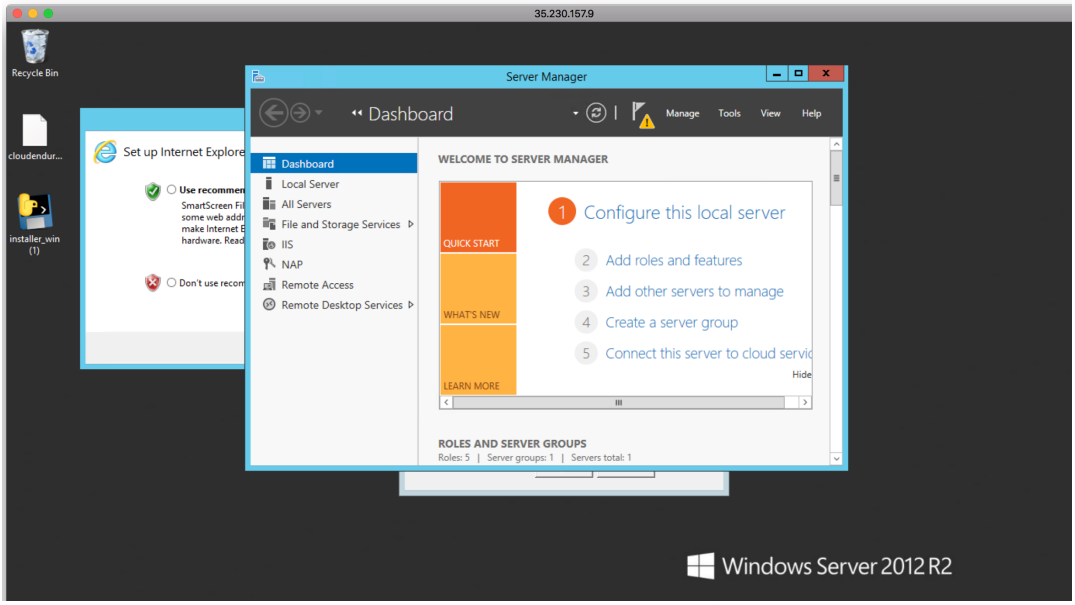

Figure 7 Image showing Desktop Migrated

Once VM is created, I uploaded a web page on the web site, as it shows on the pictures bellow.

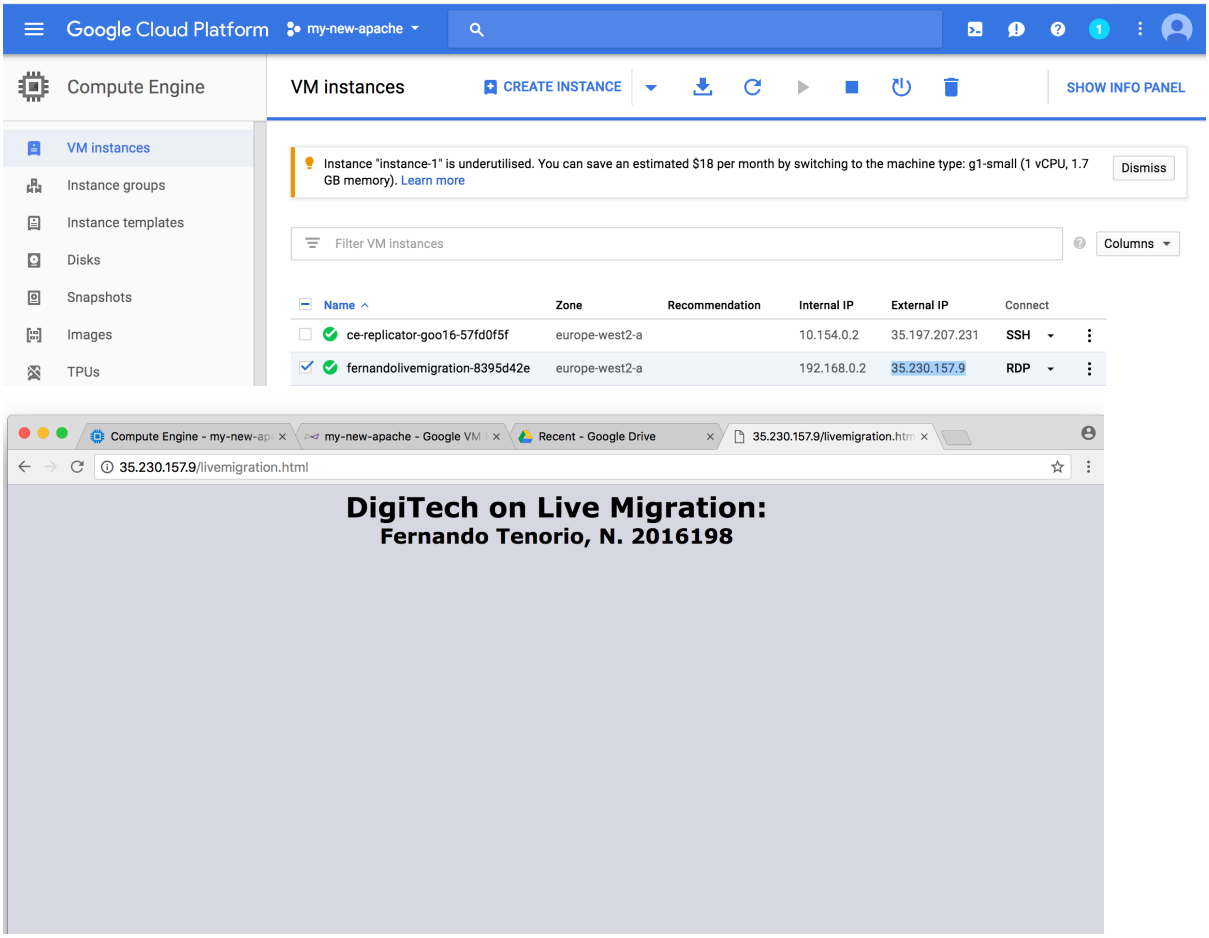

Figure 8 Uploading web page on web site from Windows Migrated Machine

7. What is Live Migrations and Live Migration Benefits

With the purpose of keeping a healthy environment administrator has started to manually migrate or replicate virtual machine in cases of hardware issues or when capacity cannot meet the demand needed. It because the rise of the technology files tools, information is getting bigger and heavier with the time and with this hardware with bigger capacity are being requested by business and companies that cannot keep with the demand, but some of business, especially smaller ones, sometime cannot afford to keep such type of hardware, for example blade server, rack servers. It because those kinds of storage demand big amount of human work, time and money, which would not be the case of smaller business/companies, since their profit sometime would ne be enough to maintain such machines.

To keep storage, information, file and all what is needed from a computer safe with a lower price, some of these businesses has started using the cloud computing and to do the live migration for the purpose save money, have a safer protection for their company and also to have a better computer environment.

Live migration allows business and organizations to keep running their cloud configuration, avoiding underlying infrastructure failure or hardware upgrade and to waste money doing maintenance. It refers to the process of moving a virtual machine or an application between different physical machines without disconnection the client.

By doing the migration the company will be "covered" of benefits, in other words, will be helping the IT environment in such a way that it will help the growth of its profits, for example:

- It will reduce the power consuming – by using such powerful hardware, companies and even small business pay such a big amount of money on energy to keep it running. Since they have it on the cloud, by doing the live migration, it will be only a device that can access internet to use their configurations, no power consuming, no shutdown.
- It will reduce costs by hardware damage – since companies that make use of hardware to storage their information, the risk of damage is high, once the use is constantly by the users, the maintenance is often required, but sometime when not done some damages can happen, what will make the administrator/business waste money by paying to fix it.

By doing the virtual migration of their production virtual machines the company is going to increase their profits, since the will spend less with hardware maintenance, will not have to by expansive machine to run their configurations, also avoid the risk to loss data by loss of drives or shutdown power, all what they need is to have access to internet to be able to use it so it will also help on the companies' environment.

8. Traffic Manager Enterprise Edition & WAF

Once businesses are accelerating their digital transformations to increase revenue, reduce operational costs digital transformation is driven by the internal development to help to create valuable interactions between internal operations, customer and the third users on the business process.

Traffic Manager Enterprise Edition & WAF is designed to speed up the process of deployments made by developers and help on the protection of the applications used through the iterations, it provides protection against bots and also enable applications to run on faster and safely by even helping developer to develop apps without having problems with connections and slowing down their process impairing their time management.

Since the user decides on going to online platforms they will be going using their plan and pay as it goes, in other words, basically there is no limits on how they can use, so the billing will be depending on how much cloud is being used, so by using Traffic Manager Enterprise & WAF some services such as image size are smaller which can reduce on both cloud operating cost and spin-up time.

It will enable developers on develop sophisticated traffic management policy by consuming less time, since the process is faster and it will use less storage, so costs on the cloud is going to be reduced, but also the quality of services is going to be in a high level, and also safe, since the Enterprise Edition improves the security and “Rout Health Injection” which helps to maintain services and availability.

9. Mounting a bucket to a Linux VM

Google Cloud Fuse is a way to integrate the file storage system that we use in the Google Cloud called bucket. It is use to translate object storage into file, by making the computer act as a directory, and helps on the access cloud storage, since all data are transferred by the GC Fuse and mounted as file system on Linux system.

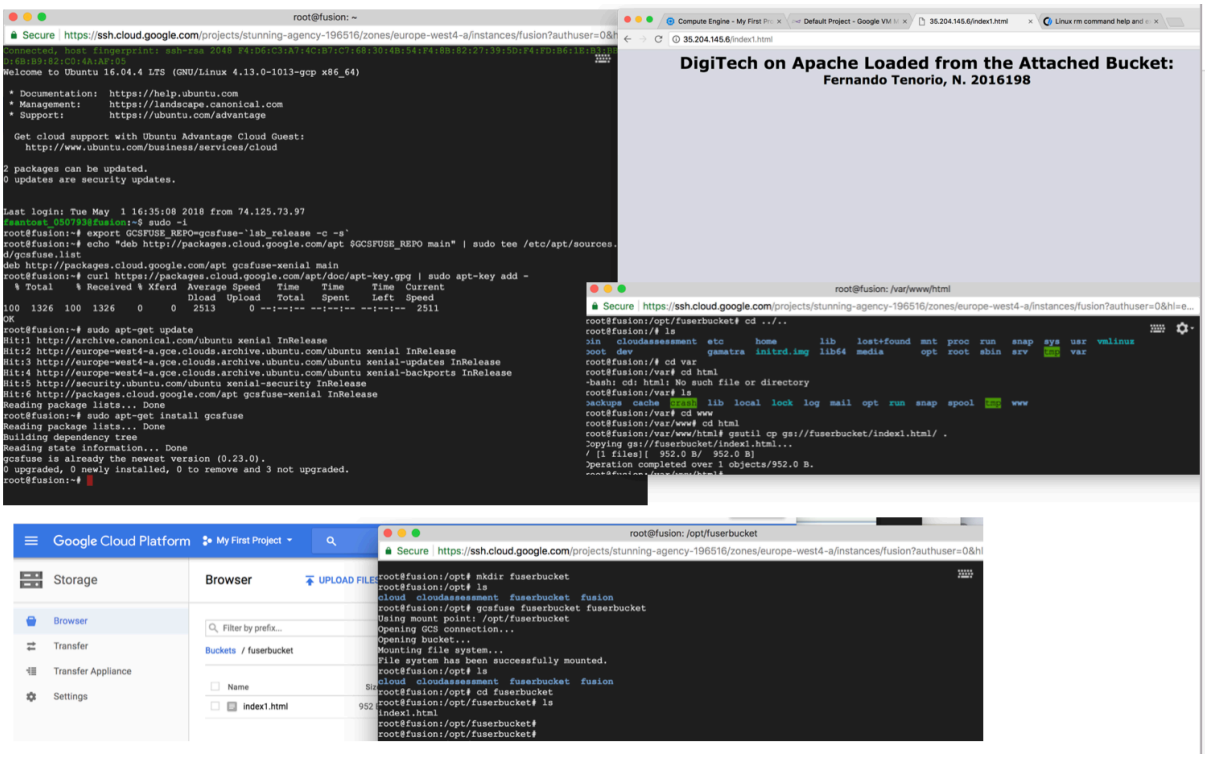

Figure 9 Mounting Buckets by using Google Cloud Fuse

10. Reference:

Freiman, Rom – Live Migration – Your Datacenter's Secret Weapon. Feb 23, 2016. Available at[https://www.stratoscale.com/blog/industry-buzz/live-migration-your-datacenters-secret-weapon/]. Accessed [May 1, 2018].

Search Server Virtualization. Live Migration. October 2006. Available at [https://searchservervirtualization.techtarget.com/definition/live-migration]. Accessed [May 1, 2018].

Google Cloud Platform. Traffic Manager Enterprise Edition & WAF. Dec 14, 2017. Available at[https://console.cloud.google.com/launcher/details/brocade-public-1063/stm-csub-2000-l-saf?project=stunning-agency-196516&folder&organizationId]. Accessed [May 1, 2018].

NGINX. What is NGINX? How different is it from Apache (for example)?. Available at

[https://www.nginx.com/faqs/what-is-nginx-how-different-is-it-from-e-g-apache/]. Accessed [May 2, 2018].