Submit a technical plan/road map for moving the application to the cloud. Below is detailed information about application

# Background

The Trolls are small creatures who live in an almost perpetual state of happiness, singing, dancing and hugging all day long. However, they are discovered by the Bergens, large, grey, ogre-like creatures who never feel happy but discover that they can feel happy for a moment if they eat a Troll. The Trolls were captures by the Bergens but managed to escape. Many years later Bergen’s former head chef captured several Trolls. After some fun escapades the Trolls showed the Bergens that they could be happy on their own.

Now the Trolls and Bergens are friendly towards each other and the Trolls have discovered that Bergens have Trollmania and want to get their hands on anything Troll-related.

# Troll Leadership / Development Team

* **Princess Poppy** - Leader of the Trolls and a visionary in offering “hugs-as-a-service” and developing ideas to offer Bergens happiness.
* **Branch** - Chief Information Security Officer for the Trolls. Branch is understandable paranoid and likes to have control and keep all IT in house. He does not like Cloud Guy, I mean who wears socks with no shoes?
* **Cloud Guy** – Chief Information Officer for the Trolls. Cloud Guy leaders the Troll’s IT vision and wants to move the Trolls into the cloud and take advantage of the services that cloud environment can offer. Cloud Guy has hired you as a consultant to help develop a secure cloud implementation for the Troll’s website and to get buy in from Branch.
* **Smidge** – System administrator
* **Guy Diamond** – Web developer
* **Biggie** – Network engineer
* **Cooper** – Web developer / System administrator

# Technical Background

Capitalizing on the massive demand for anything Troll-related, the Trolls began to offer videos of their escapades to Bergens from their website **ENPM809J Troll World**. The site sells videos on demand to Bergen customers all around the world. The site quickly went viral and has since suffered downtime and other issues due to their popularity.

Due to a failure to properly backup the site and do proper code versioning the original site was lost and the current site was quickly written to get content back online. The entire site currently runs on a single Linux host, a copy of which has been provided as the virtual machine in the “**Project**” folder. The code is written in Python3 and Flask (web framework written in Python) with nginx acting as a reverse proxy between the code and the user.

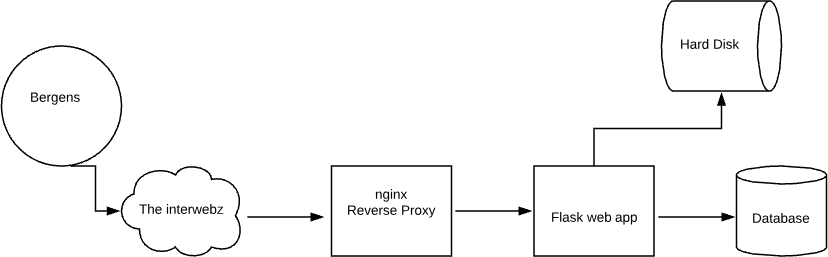
The site as presented to you does not actually offer video on demand or process credit cards –

## PRETEND IT DOES.

**Current Issues To Consider**

* The Trolls do not currently have a patching strategy
* The Trolls do not currently have a backup strategy
* The Trolls do not currently have an account permission strategy, every use has the ability to run privileged commands on the web server if they want to
* Their entire website infrastructure is highly vulnerable to DDoS, hardware failures, and troll error
* The website has experienced DDoS attacks and compromise attempts from The Chef, an evil Bergen who has been kicked out of the Bergen world and has become a persistent threat against Troll IT operations
* Bergens have complained about slow downloads and order processing

# Current Website Architecture



Customer comes over the Internet and connects to an nginx reverse proxy running on port 80. That forwards to the web app (written in Python with the Flask web framework) on port 5000. A MySQL database is running on 3306 for storage of queries. Media for the video-on-demand is stored locally on the hard drive of the web server.

# Virtual Machine (VM) / Code

As mentioned above a copy of the server that runs Troll World is in the “**Project**” folder in the Google Drive share (https://drive.google.com/drive/folders/16hBr3ujFLX5rAcyfWdvNohpWtqM-FzFM) It has been saved as an OVF so it should import into VMWare Workstation/Fusion or VirtualBox. It was developed in VMWare and was successfully exported to another VMWare system.

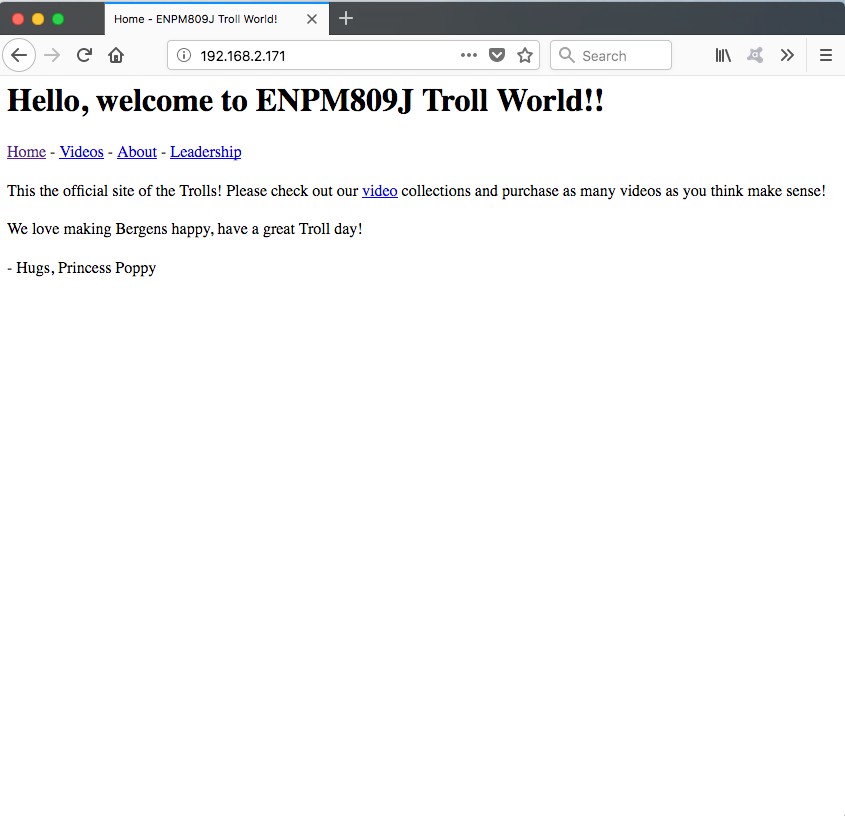
To import in VMWare/VirtualBox in the menu: **File** -> **Import…** and follow the instructions in the wizards. Or see:

* VMware: https://pubs.vmware.com/workstation- 9/topic/com.vmware.ws.using.doc/GUID-DDCBE9C0-0EC9-4D09-8042- 18436DA62F7A.html
* VirtualBox: https://docs.oracle.com/cd/E26217\_01/E26796/html/qs-import-vm.html Login: **enpm809j** Password: **password**

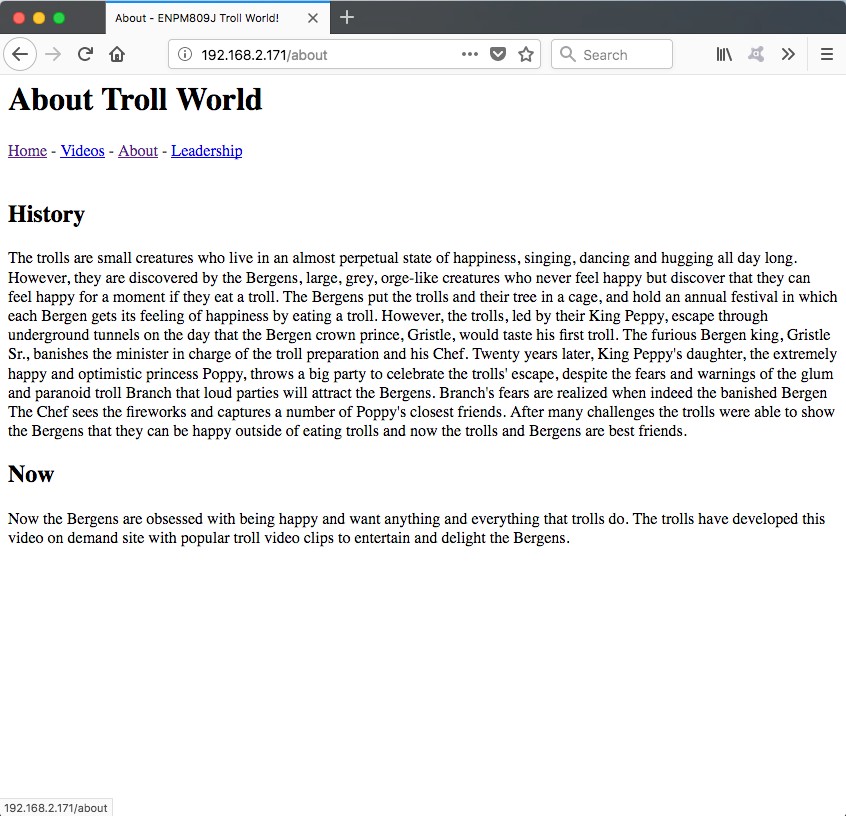
The VM is set for DHCP. The VM will auto start the web server on port 80, as well as port 5000. You can easily access it in any web browser with <http://ip.address.of.vm/>

Inside the VM the code for the site is stored in /home/enpm809j/project The code is also available here: https://github.com/kts262/enpm809j

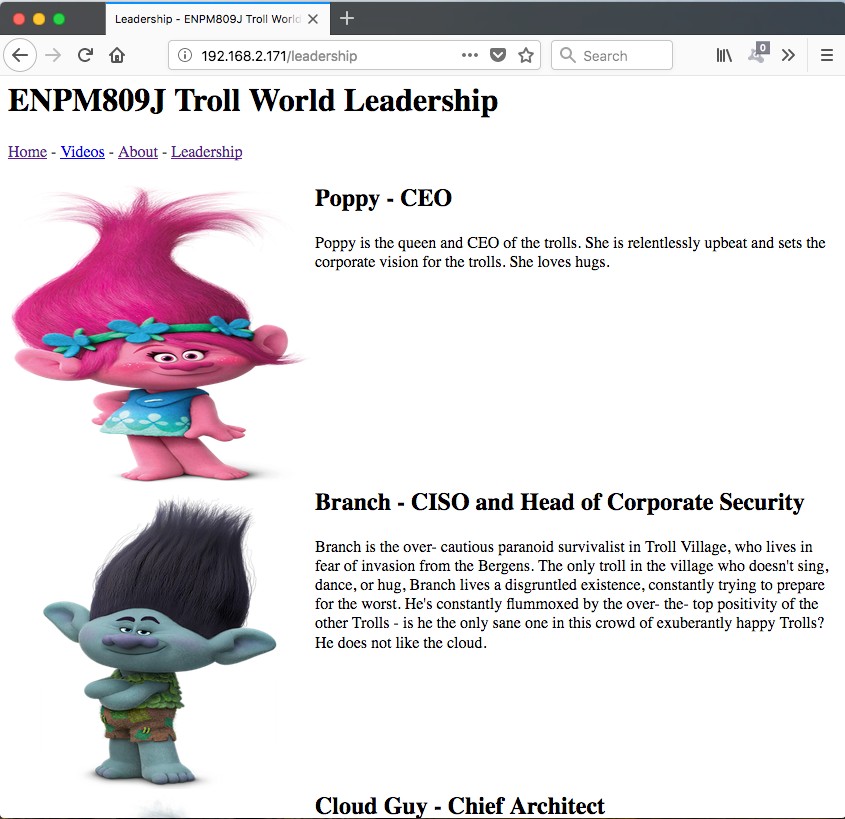
## Appendix – Site Pages Index (static content)



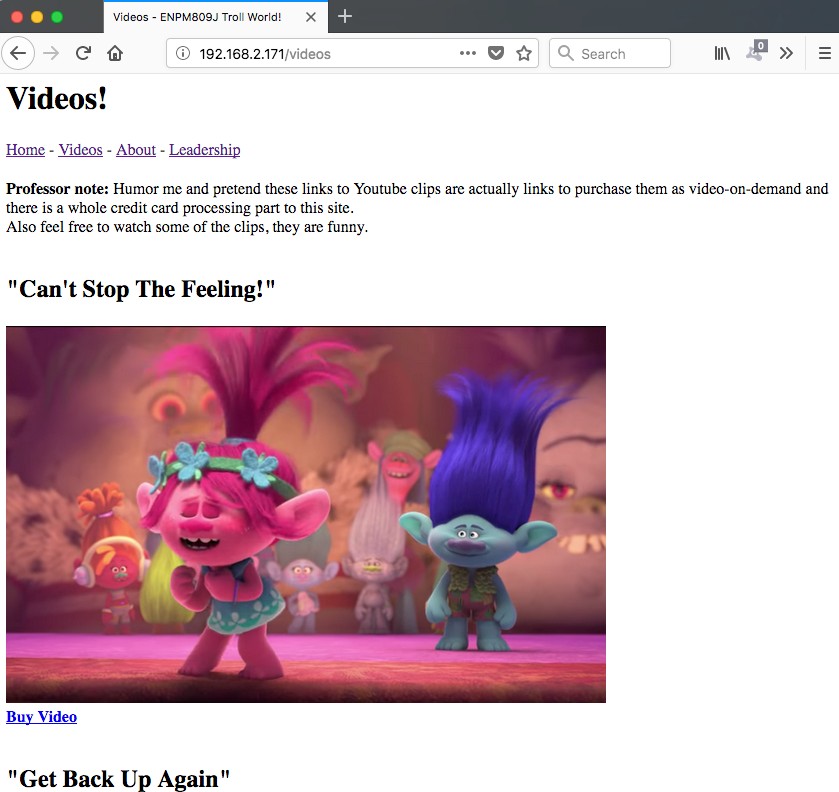
**About (static content)**



**Leadership (static content)**



**List of Videos (dynamic content)**



**Buy video (dynamic content)**

