Exercise 2.1: Overview and Preliminaries

We will create a two-node **Ubuntu 16.04** cluster. Using two nodes allows an understanding of some issues and configurations found in a production environment. While 2 vCPU and 8G of memory allows for quick labs you could use much smaller VMs. Other Linux distributions should work in a very similar manner, but have not been tested.

⚠️ **Very Important**

Regardless of the platform used (**VirtualBox**, **VMWare**, **AWS**, **GCE** or even bare metal) please remember that security software like **SELinux**, **AppArmor**, and firewall configurations can prevent the labs from working. While not something to do in production consider disabling the firewall and security software.

GCE requires a new `VPC` to be created and a rule allowing all traffic to be included. The use of **wireshark** can be a helpful place to start with troubleshooting network and connectivity issues if you're unable to open all ports.

The **kubeadm** utility currently requires that swap be turned off on every node. The **swapoff -a** command will do this until the next reboot, with various methods to disable swap persistently. Cloud providers typically deploy instances with swap disabled.

Download shell scripts and YAML files

To assist with setting up your cluster please download the tarball of shell scripts and YAML files. The `k8sMaster.sh` and `k8sSecond.sh` scripts deploy a Kubernetes cluster using **kubeadm** and use `Project Calico` for networking. Should the file not be found you can always use a browser to investigate the parent directory.

```
$ wget https://training.linuxfoundation.org/cm/LFD259/LFD259_V2019-03-11_SOLUTIONS.tar.bz2 \
          --user=LFtraining --password=Penguin2014

$ tar -xvf LFD259_V2019-03-11_SOLUTIONS.tar.bz2
```

(Note: depending on your software, if you are cutting and pasting the above instructions, the underscores may disappear and be replaced by spaces, so you may have to edit the command line by hand!)