I have been looking for ways to setup my home lab to experiment on Kubernetes.

Before I could do that, I needed a environment I can build and destroy without spending much time.

Doing some research, I came across [fai-project.org](https://fai-project.org/) . Looking thru some videos, I tried to give this ago.

It took quite a bit of trial and error. But I finally managed to get the basic process working.

1. The High-level network diagram.
2. Explanation and function of the servers.
   1. alpine1

I needed to have a server to provide IP addresses to the Virtual Machines created.

Found alpine Linux to be suitable for this role. Small and does the job.

* 1. alpine2

I needed a test server to check if the DHCP server is working properly. Another Alpine server made sense. This server is purely to check if the DHCP is assigning an IP and in the correct range.

* 1. Faiserver

This is the server that will provide the boot and source of the images to be deployed. I used this version [faicd64-large\_6.0.3.iso](https://fai-project.org/fai-cd/faicd64-large_6.0.3.iso).

1. Before I go further there are a few terms that must be known.
   1. DHCP

This service assigns IP to the servers with dynamic IP addresses.

DHCP will be deployed on the VM alpine1.

* 1. TFTP

This is to serve files for the network boot process to access the initial boot files.

The network boot function must have this to function. This will be installed in alpine1.

* 1. NFS

NFS is a network storage where the OS Boot files are stored.

* 1. Pxelinux

Once alpine1 and Faiserver is setup, a new client (fai-test) will be setup to boot via the network. The fai-test will then use the information received via DHCP to access the tftp , where the pxelinux.cfg/default is located. The fai-test will then have the relevant information to boot up and start the OS setup process.