Appendix A

Migration System Guide

* **Hardware and OS**

**Processor**: Intel i7-6500U CPU 2.50GHZ

**RAM:** 8.00GB

**System type:** 64-bits operation system, x64-based processor

**OS:** windows 10

The system is running in the linux environment, here is the hosted ubuntu information

**Name:** ubuntu

**Operating System:** Ubuntu(64-bit)

**Base Memory:** 6096 MB

* **Software installation**

This appendix gives a detailed description of all the installation steps needed to run Migration System and shows a use case from start to finish.

A.1 Installation instructions:

1. **Install JDK1.8X\_YY from the command line( I use 1.8.0 )**
2. go to <http://www.oracle.com/technetwork/java/javase/downloads/>

Jdk8-downloads-2133151.html to check the appropriate version for your OS and architecture

2) copy the desired version to the clipboard (e.g. http://download.oracle.

com/otn-pub/java/jdk/7u79-b15/jdk-7u79-linux-x64.tar.gz)

3) open a terminal and paste the following command(replace link with the previous copied link):

**wget –no-check-certificate –no-cookies –header "Cookie:**

**oraclelicense=accept-securebackup-cookie" ’link’**

e.g.

wget --no-check-certificate --no-cookies --header "Cookie:

oraclelicense=accept-securebackup-cookie"

<http://download.oracle.com/otn-pub/java/jdk/7u79-b15/jdk-7u79-linux-x64.tar.gz>

4) untar the archive with the following command (replace jdk to match the name of the

downloaded archive):

**tar zxvf ’jdk’.tar.gz**

e.g.

**tar zxvf jdk -7u< version >-linux -x64.tar.gz**

5) delete the .tar.gz file if you want to save disk space

**2. install and configure Apache Tomcat 8 with the following commands:**

(I use version 8.5.20)

<https://www.digitalocean.com/community/tutorials/how-to-install-apache-tomcat-8-on-ubuntu-16-04>

**3. install Mininet:**

Go to <http://mininet.org/download/#option-1-mininet-vm-installation-easy-recommended>

(Option 3 is the way I used, version 2.2.1)

1. **install xampp**

Go to

<http://www.elinuxbook.com/install-xampp-server-in-ubuntu-16-04/>

1. **Download Floodlight controller**

Go to

<https://floodlight.atlassian.net/wiki/spaces/floodlightcontroller/pages/1343544/Installation+Guide>

* How to run System

1. download the project from(Git…)
2. Modify configuration file

port=8088

**image=mywebserver**

**container=iperfserver**

**hostInfoDir=/home/xu/mininet/custom/hostsInfo.txt**

**serverdeployRatio=0.5**

**policy=shortest path**

**aggregateDifferenceTreshould=1600**

**aggregateThreshould=20000**

**aggregateDefaultFrequency=4000**

**bandwidthDefaultFrequency=4000**

**aggregateCustomizeFrequency=1000**

**bandwidtCustomizeFrequency=3000**

**costomizedMornitorTime=10000**

**checkingFrequency=90000**

How to run the System?

1.Setup

->floodlight(SDN Controller)

->mininet(Deploy Network topology)

->Xampp(mySql server)

->Bridge(connection between physical host(ubuntu) and the hosts in mininet)

2.change the configuration file

->port --SDN controller floodlight RESTAPI port

->image --docker image which is used to create the docker container in your host docker repository

->container --container name which will combine with the host IP address

->hostInfoDir --the connection of the mininet hosts,and hosts IP Address. Follow the format of the example file

->serverdeployRatio --the ration of the initial network hosts which will run the docker container

->policy -- migration Policy(random,bandwidth,shortest path)

[random]: randomly select the src and destination

[bandwidth]:select the host which has the maximum available bandwidth as migration destination host

[shortest path]:select the host which has fastest path from the migration source host

->RandomGeneratorSeed --the seed for randomly select the hosts which run the docker container,and used by the Random policy

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