# LB2

## Software

• Visual Studio Code

• BashGit

• VirtualBox

• Vagrant

## Lösung

Mit einen befehle «vagrant up». Erstellen einer automatisierte Virtuelle Maschine mit Web Server und Webseite und eine automatisierte Virtuelle Maschine mit FTP Server der entsprechend automatisch konfiguriert ist.

## 1. Konfiguration Vagant File

Vagrant.configure("2") do |config|

config.vm.define "WEB" do |web|

#VM BOX Ubuntu

web.vm.box = "ubuntu/xenial64"

#VM Hostname

web.vm.hostname = "Ubuntu-WEB"

#Sync Folder

web.vm.synced\_folder "./Shared\_WEB", "/var/www/html"

#VM Network

web.vm.network "private\_network", ip: "192.168.1.10"

web.vm.network "forwarded\_port", guest: 80, host: 8080

#Script

web.vm.provision :shell, path: "config\_web.sh"

#VM Disksize

web.disksize.size = '10GB'

#VM Provider and Specs

web.vm.provider "virtualbox" do |vb|

vb.memory = "2048"

vb.name = "Ubuntu-WEB"

vb.cpus = "2"

vb.gui = true

end

end

config.vm.define "FTP" do |ftp|

#VM BOX Ubuntu

ftp.vm.box = "ubuntu/xenial64"

#VM Hostname

ftp.vm.hostname = "Ubuntu-ftp"

#Sync Folder

ftp.vm.synced\_folder "./Shared\_FTP", "/vagrant"

#VM Network

ftp.vm.network "private\_network", ip: "192.168.1.20"

ftp.vm.network "forwarded\_port", guest: 20, host: 1420

#Script

ftp.vm.provision :shell, path: "config\_ftp.sh"

#VM Disksize

ftp.disksize.size = '10GB'

#VM Provider and Specs

ftp.vm.provider "virtualbox" do |vb|

vb.memory = "2048"

vb.name = "Ubuntu-ftp"

vb.cpus = "2"

vb.gui = true

end

end

end

## 2. Konfiguration WEB WM (config\_web.sh)

• sudo apt-get update

• sudo apt-get install apache2 -y

• sudo sed -i 's/XKBLAYOUT="us"/XKBLAYOUT="ch"/g' /etc/default/locale

• sudo ufw allow ssh

• sudo ufw allow http

• sudo ufw allow https

• sudo ufw --force enable

## 3. Konfiguration FTP WM (config\_ftp.sh)

• sudo apt-get update

• sudo apt-get install vsftpd -y

• sudo cp /vagrant/vsftpd.conf /etc

• sudo service vsftpd restart

• sudo sed -i 's/XKBLAYOUT="us"/XKBLAYOUT="ch"/g' /etc/default/locale

• sudo ufw allow ssh

• sudo ufw allow ftp

• sudo ufw --force enable

## Sicherheit:

In den Shell Scripts für die einzelnen VM’s werden die Firewall Regeln erstellt damit nur der benötigte Zugriff aktiviert werden.

# LB3

In der LB3 werden die beiden Service (Apache & FTP) auf einer virtuellen Maschine innerhalb eines Containers mit Docker realisiert.

## Neues Vagrantfile:

Vagrant.configure("2") do |config|

#VM BOX Ubuntu

config.vm.box = "ubuntu/xenial64"

#VM Network Settings

config.vm.network "private\_network", ip:"192.168.1.50"

config.vm.network "forwarded\_port", guest:8080, host:8080, auto\_correct: true

config.vm.network "forwarded\_port", guest:20, host:1020, auto\_correct: true

#VM Hostname

config.vm.hostname = "docker"

#Script

config.vm.provision :shell, path: "config\_docker.sh"

#Sync Folder

config.vm.synced\_folder "./Shared\_Docker", "/vagrant"

#VM Provider and Specs

config.vm.provider "virtualbox" do |vb|

vb.memory = "2048"

vb.name = "Docker"

vb.cpus = "2"

vb.gui = true

end

# Docker Provisioner

config.vm.provision "docker" do |d|

d.pull\_images "ubuntu:16.04"

end

end

## Neues Bash Script File:

sudo apt-get update

sudo sudo apt install docker.io -y

cd /vagrant/apache

sudo docker build -t apache .

sudo docker run --rm -d -p 8080:80 -v `pwd`/web:/var/www/html --name apache apache

cd /vagrant/ftp

sudo docker build -t ftp .

sudo docker run --rm -d -p 20:20 --name ftp ftp

sudo sed -i 's/XKBLAYOUT="us"/XKBLAYOUT="ch"/g' /etc/default/locale

## Docker Files:

### 1. Apache

#Ubuntu Version

FROM ubuntu:16.04

#Apache installation

RUN apt-get update

RUN apt-get -q -y install apache2

# Konfiguration Apache

ENV APACHE\_RUN\_USER www-data

ENV APACHE\_RUN\_GROUP www-data

ENV APACHE\_LOG\_DIR /var/log/apache2

RUN mkdir -p /var/lock/apache2 /var/run/apache2

EXPOSE 80

VOLUME /var/www/html

CMD /bin/bash -c "source /etc/apache2/envvars && exec /usr/sbin/apache2 -DFOREGROUND"

### 2. FTP

#Ubuntu Version

FROM ubuntu:16.04

#FTP installation

RUN apt-get update

RUN apt-get install vsftpd -y

# Konfiguration FTP

COPY /vagrant/ftp/vsftpd.conf /etc/vsftpd.conf

RUN service vsftpd restart

EXPOSE 20