VPROFILE PROJECT SETUP

Prerequisite

1. Oracle VM Virtualbox
2. Vagrant
3. Vagrant plugins
    a. vagrant plugin install vagrant-hostmanager

4. Git bash or equivalent editor

VM SETUP

1. Clone source code.
2. Cd into the repository.
3. Switch to the main branch.
4. cd into vagrant/Manual_provisioning

Bring up vm's
$ vagrant up

NOTE: Bringing up all the vm's may take a long time based on various factors.
If vm setup stops in the middle run "vagrant up" command again.

INFO: All the vm's hostname and /etc/hosts file entries will be automatically updated.

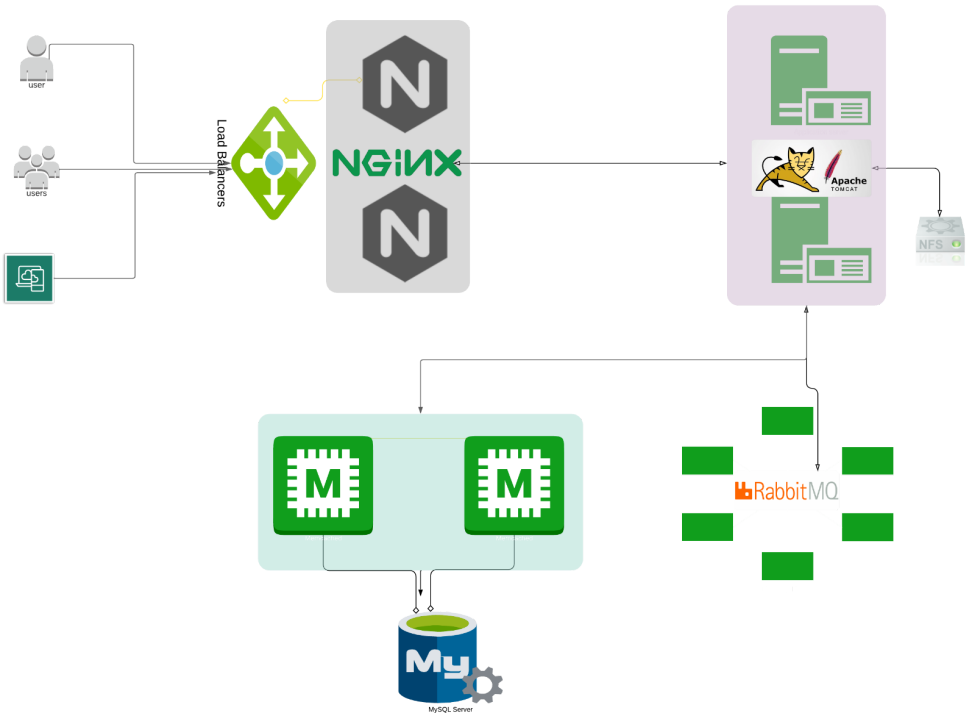
PROVISIONING

Services

1. Nginx:
   Web Service
2. Tomcat
   Application Server
3. RabbitMQ
   Broker/Queuing Agent
4. Memcache
   DB Caching
5. ElasticSearch
   Indexing/Search service
6. MySQL
   SQL Database

Setup should be done in below mentioned order

1. MySQL (Database SVC)
2. Memcache (DB Caching SVC)
3. RabbitMQ (Broker/Queue SVC)
4. Tomcat (Application SVC)
5. Nginx (Web SVC)



MYSQL Setup

Login to the db vm
$ vagrant ssh db01

Verify Hosts entry, if entries missing update the it with IP and hostnames
 # cat /etc/hosts

Update OS with latest patches
 # sudo mv /etc/yum.repos.d/fedora-updates.repo /tmp/
 # sudo mv /etc/yum.repos.d/fedora-updates-modular.repo /tmp/
 # sudo yum clean all
 # sudo yum update -y

Install Maria DB Package
 # sudo yum install git zip unzip -y
 # sudo yum install mariadb-server -y

Starting & enabling mariadb-server
 # systemctl start mariadb
 # systemctl enable mariadb

RUN mysql secure installation script.
 # mysql_secure_installation
NOTE**: Set db root password, I will be using **admin123 as password

```
Set root password? [Y/n] Y
New password:
Re-enter new password:
Password updated successfully!
Reloading privilege tables..
 ... Success!


By default, a MariaDB installation has an anonymous user, allowing anyone
to log into MariaDB without having to have a user account created for
them.  This is intended only for testing, and to make the installation
go a bit smoother.  You should remove them before moving into a
production environment.
```

Remove anonymous users? [Y/n] Y
 ... Success!

Normally, root should only be allowed to connect from 'localhost'. This
ensures that someone cannot guess at the root password from the network.

Disallow root login remotely? [Y/n] n
 ... skipping.

By default, MariaDB comes with a database named 'test' that anyone can
access. This is also intended only for testing, and should be removed
before moving into a production environment.

Remove test database and access to it? [Y/n] Y
 - Dropping test database...
 ... Success!
 - Removing privileges on test database...
 ... Success!

Reloading the privilege tables will ensure that all changes made so far
will take effect immediately.

Reload privilege tables now? [Y/n] Y
 ... Success!

Set DB name and users.

 # mysql -u root -padmin123
mysql> create database accounts;
mysql> grant all privileges on accounts. TO 'admin'@'%' identified by 'admin123' ;*
mysql> FLUSH PRIVILEGES;
mysql> exit;

Download Source code & Initialize Database.

 # git clone -b main https://github.com/hkhcoder/vprofile-project.git
cd *vprofile-project*
 # mysql -u root -padmin123 accounts < src/main/resources/db_backup.sql
 # mysql -u root -padmin123 accounts
mysql> show tables;

Restart mariadb-server

 # systemctl restart mariadb

Starting the firewall and allowing the mariadb to access from port no. 3306

 # systemctl start firewalld
 # systemctl enable firewalld

 # firewall-cmd --get-active-zones
 # firewall-cmd --zone=public --add-port=3306/tcp --permanent
 # firewall-cmd --reload
 # systemctl restart mariadb

MEMCACHE SETUP

Install, start & enable memcache on port 11211

 # mv /etc/yum.repos.d/fedora-updates.repo /tmp/
 # mv /etc/yum.repos.d/fedora-updates-modular.repo /tmp/
 # yum clean all
 # yum update -y

 # sudo yum install memcached -y
 # sudo systemctl start memcached
 # sudo systemctl enable memcached
 # sudo systemctl status memcached

Config change so memcache can listen remotely from any IP
 # sed -i 's/OPTIONS="-l 127.0.0.1"/OPTIONS=""/' /etc/sysconfig/memcached

 # sudo systemctl restart memcached

 # sudo memcached -p 11211 -U 11111 -u memcached -d

Starting the firewall and allowing the port 11211 to access memcache

 # firewall-cmd --add-port=11211/tcp
 # firewall-cmd --runtime-to-permanent
 # firewall-cmd --add-port=11111/udp
 # firewall-cmd --runtime-to-permanent
 # sudo memcached -p 11211 -U 11111 -u memcached -d

RABBITMQ SETUP

Login to the RabbitMQ vm
$ vagrant ssh rmq01

Verify Hosts entry, if entries missing update the it with IP and hostnames
 # cat /etc/hosts

Update OS with latest patches
 # sudo mv /etc/yum.repos.d/fedora-updates.repo /tmp/
 # sudo mv /etc/yum.repos.d/fedora-updates-modular.repo /tmp/
 # sudo yum clean all
 # sudo yum update -y

Selinux settings
 # sed -i 's/SELINUX=enforcing/SELINUX=disabled/' /etc/selinux/config
 # setenforce 0

Set connection to the repositories
 # curl -s https://packagecloud.io/install/repositories/rabbitmq/erlang/script.rpm.sh | sudo bash
 # sudo yum clean all
 # sudo yum makecache
 # sudo yum install erlang -y
 # curl -s https://packagecloud.io/install/repositories/rabbitmq/rabbitmq-server/script.rpm.sh | sudo bash

Install RabbitMQ Server Package
 # sudo yum install rabbitmq-server -y
 # rpm -qi rabbitmq-server

Start & Enable Service
 # sudo systemctl start rabbitmq-server
 # sudo systemctl enable rabbitmq-server
 # sudo systemctl status rabbitmq-server

 # sudo sh -c 'echo "[{rabbit, [{loopback_users, []}]}]." > /etc/rabbitmq/rabbitmq.config'
 # sudo rabbitmqctl add_user test test
 # sudo rabbitmqctl set_user_tags test administrator

 # nohup sleep 30 && reboot & echo "going to reboot now"

TOMCAT SETUP

Login to the tomcat vm
$ vagrant ssh app01

Verify Hosts entry, if entries missing update the it with IP and hostnames
 # cat /etc/hosts

sudo mv /etc/yum.repos.d/fedora-updates.repo /tmp/
sudo mv /etc/yum.repos.d/fedora-updates-modular.repo /tmp/
sudo yum clean all

Install Dependencies
dnf -y install java-11-openjdk java-11-openjdk-devel
dnf install git maven wget -y

Change dir to /tmp
 # cd /tmp/

Download Tomcat Package
 # wget https://archive.apache.org/dist/tomcat/tomcat-9/v9.0.75/bin/apache-tomcat-9.0.75.tar.gz

 # tar xzvf apache-tomcat-9.0.75.tar.gz

Add tomcat user
 # useradd --home-dir /usr/local/tomcat --shell /sbin/nologin tomcat

Copy data to tomcat home dir
 # cp -r /tmp/apache-tomcat-9.0.75/ /usr/local/tomcat/*

Make tomcat user owner of tomcat home dir
 # chown -R tomcat.tomcat /usr/local/tomcat

Setup systemctl command for tomcat service

Update file with following content.

 # vi /etc/systemd/system/tomcat.service

```
[Unit]
Description=Tomcat
After=network.target

[Service]
User=tomcat
WorkingDirectory=/usr/local/tomcat
Environment=JRE_HOME=/usr/lib/jvm/jre
Environment=JAVA_HOME=/usr/lib/jvm/jre
Environment=CATALINA_HOME=/usr/local/tomcat
Environment=CATALINE_BASE=/usr/local/tomcat
ExecStart=/usr/local/tomcat/bin/catalina.sh run
ExecStop=/usr/local/tomcat/bin/shutdown.sh
SyslogIdentifier=tomcat-%i

[Install]
WantedBy=multi-user.target
```

 # systemctl daemon-reload
 # systemctl start tomcat
 # systemctl enable tomcat

Enabling the firewall and allowing port 8080 to access the tomcat

 # systemctl start firewalld
 # systemctl enable firewalld
 # firewall-cmd --get-active-zones
 # firewall-cmd --zone=public --add-port=8080/tcp --permanent
 # firewall-cmd --reload

CODE BUILD & DEPLOY (app01)

Download Source code

 # git clone -b main https://github.com/hkhcoder/vprofile-project.git

Update configuration

 # cd vprofile-project
 # vim src/main/resources/application.properties
 # Update file with backend server details

Build code

Run below command inside the repository (vprofile-project)
 # mvn install

Deploy artifact

 # systemctl stop tomcat

*# rm -rf /usr/local/tomcat/webapps/ROOT**
 # cp target/vprofile-v2.war /usr/local/tomcat/webapps/ROOT.war

 # systemctl start tomcat

 # chown tomcat.tomcat usr/local/tomcat/webapps -R
 # systemctl restart tomcat

NGINX SETUP

Login to the Nginx vm
$ vagrant ssh web01

Verify Hosts entry, if entries missing update the it with IP and hostnames
 # cat /etc/hosts

Update OS with latest patches
 # apt update
 # apt upgrade

Install nginx
 # apt install nginx -y

Create Nginx conf file with below content
vi /etc/nginx/sites-available/vproapp

```
upstream vproapp {
 server app01:8080;
}
server {
  listen 80;
location / {
  proxy_pass http://vproapp;
}
}
```

Remove default nginx conf
 # rm -rf /etc/nginx/sites-enabled/default

Create link to activate website
 # ln -s /etc/nginx/sites-available/vproapp /etc/nginx/sites-enabled/vproapp

Restart Nginx
 # systemctl restart nginx