VPROFILE PROJECT SETUP

Prerequisite

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

4. Git bash or equivalent editor

VM SETUP

1. Clone source code.
2. Cd into the repository.
3. Switch to local-setup 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.

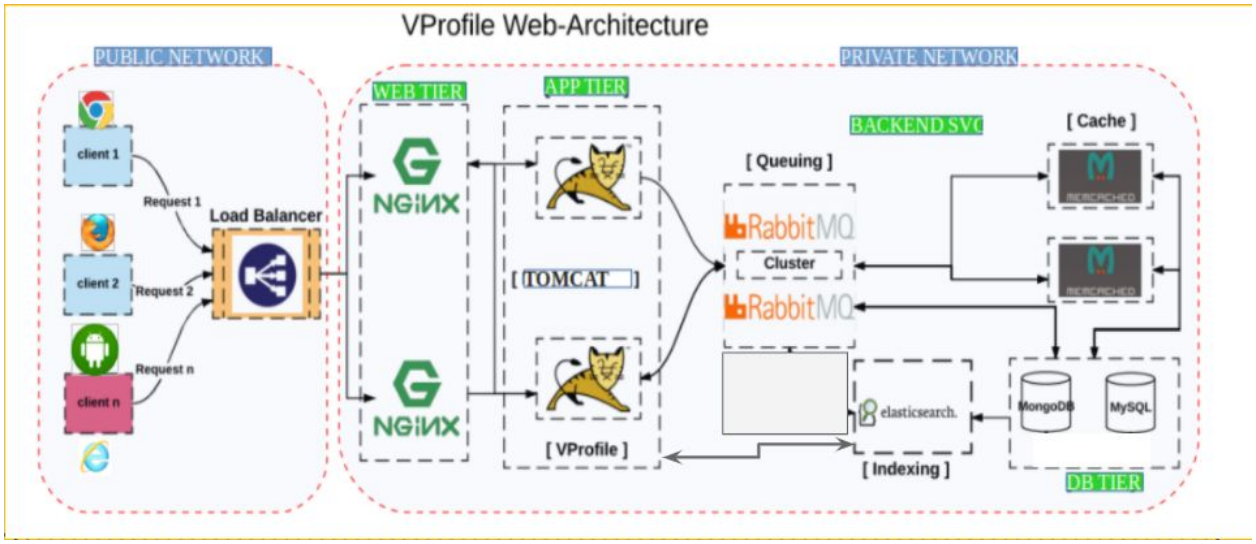
PROVISIONING

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

Set DB password Variable
 # DATABASE_PASS='admin123'

Update OS with latest patches
 # yum update -y

Set Repository
 # yum install epel-release -y

Install Maria DB Package
 # yum install git 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 as same as you set in the variable above (DATABASE_PASS='admin123')*

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!

Download Source code

 # git clone -b local-setup https://github.com/devopshydclub/vprofile-project.git
cd *vprofile-project*

Set DB name and users.

 # mysql -u root -p"$DATABASE_PASS" -e "create database accounts"
 # mysql -u root -p"$DATABASE_PASS" -e "grant all privileges on accounts. TO 'admin'@'app01' identified by 'admin123' "*
 # mysql -u root -p"$DATABASE_PASS" accounts < src/main/resources/db_backup.sql
 # mysql -u root -p"$DATABASE_PASS" -e "FLUSH PRIVILEGES"

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
#yum install epel-release -y
#yum install memcached -y
#systemctl start memcached
#systemctl enable memcached
#systemctl status memcached
#memcached -p 11211 -U 11111 -u memcached -d

Starting the firewall and allowing the port 11211 to access memcache

 # systemctl enable firewalld
 # systemctl start firewalld
 # systemctl status firewalld
 # firewall-cmd --add-port=11211/tcp --permanent
 # firewall-cmd --reload
 # memcached -p 11211 -U 11111 -u memcache -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
 # yum update -y

Set EPEL Repository
 # yum install epel-release -y

Install Dependencies
 # yum install socat -y
 # yum install wget -y

Create Repo file for Erlang package

Create below mentioned file.
vi /etc/yum.repos.d/rabbitmq-erlang.repo

Update the file with below mentioned content

```
[rabbitmq-erlang]
name=rabbitmq-erlang
baseurl=https://dl.bintray.com/rabbitmq-erlang/rpm/erlang/22/el/7
gpgcheck=1
gpgkey=https://dl.bintray.com/rabbitmq/Keys/rabbitmq-release-signing-key.asc
repo_gpgcheck=0
enabled=1
```

Install Erlang
yum install erlang -y

Run below mentioned command to setup rabbitmq-server repo file.
curl -s https://packagecloud.io/install/repositories/rabbitmq/rabbitmq-server/script.rpm.sh | sudo bash

Install Rabbitmq Server
yum install rabbitmq-server -y

Start & Enable RabbitMQ

systemctl start rabbitmq-server
systemctl enable rabbitmq-server
systemctl status rabbitmq-server

Config Changes

 # echo "[{rabbit, [{loopback_users, []}]}]." > /etc/rabbitmq/rabbitmq.config

Add user test in rabbitmq

 # rabbitmqctl add_user test test

Set admin privileges to rabbit user

 # rabbitmqctl set_user_tags test administrator

Restart RabbitMQ service

 # systemctl restart rabbitmq-server

Enabling the firewall and allowing port 25672 to access the rabbitmq permanently

 # systemctl start firewalld
 # systemctl enable firewalld
 # firewall-cmd --get-active-zones
 # firewall-cmd --zone=public --add-port=25672/tcp --permanent
 # firewall-cmd --reload

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

Update OS with latest patches
 # yum update -y

Set Repository
 # yum install epel-release -y

Install Dependencies
yum install java-1.8.0-openjdk -y
yum install git maven wget -y

Change dir to /tmp
 # cd /tmp/

Download & Tomcat Package
 # wget https://archive.apache.org/dist/tomcat/tomcat-8/v8.5.37/bin/apache-tomcat-8.5.37.tar.gz -O tomcatbin.tar.gz

Optional Step, Below variables are used in "Copy data to tomcat home dir" step. You can use the tomcat directory name also in the source.

 # EXTOUT=`tar xzvf tomcatbin.tar.gz`
 # TOMDIR=`echo $EXTOUT | cut -d '/' -f1`

Add tomcat user
 # useradd --home-dir /usr/local/tomcat8 --shell /sbin/nologin tomcat

Copy data to tomcat home dir
 # rsync -avzh /tmp/$TOMDIR/ /usr/local/tomcat8/

Make tomcat user owner of tomcat home dir
 # chown -R tomcat.tomcat /usr/local/tomcat8

Setup systemd for tomcat

Update file with following content.
vi /etc/systemd/system/tomcat.service

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

[Service]
User=tomcat
WorkingDirectory=/usr/local/tomcat8
Environment=JRE_HOME=/usr/lib/jvm/jre
Environment=JAVA_HOME=/usr/lib/jvm/jre
Environment=CATALINA_HOME=/usr/local/tomcat8
Environment=CATALINE_BASE=/usr/local/tomcat8
ExecStart=/usr/local/tomcat8/bin/catalina.sh run
ExecStop=/usr/local/tomcat8/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 local-setup https://github.com/devopshydclub/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
 # sleep 120
*# rm -rf /usr/local/tomcat8/webapps/ROOT**
 # cp target/vprofile-v2.war /usr/local/tomcat8/webapps/ROOT.war
 # systemctl start tomcat
 # sleep 300

 # chown tomcat.tomcat usr/local/tomcat8/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
```