# **Nginx as Reverse Proxy Server Varnish as a cache Server and Apache2 as a Backend Server**

## **Install Nginx**

**#Switch to root user**

sudo -i

apt update -y

apt install nginx -y

systemctl start nginx

systemctl enable nginx

### **Configure Nginx**

**#Edit default configuration file**

nano /etc/nginx/sites-available/default

**#From here**

server {

listen 80 default\_server;

listen [::]:80 default\_server;

root /var/www/html;

index index.html index.htm index.nginx-debian.html;

server\_name \_;

location / {

proxy\_pass http://127.0.0.1:8080;

proxy\_set\_header X-Real-IP $remote\_addr;

proxy\_set\_header X-Forwarded-For $proxy\_add\_x\_forwarded\_for;

proxy\_set\_header X-Forwarded-Proto http;

proxy\_set\_header X-Forwarded-Port 80;

proxy\_set\_header Host $host;

}

}

**#To here**

nginx -t

systemctl restart nginx

## **Install Varnish**

apt install varnish -y

systemctl start varnish

systemctl enable varnish

### **Configure Varnish**

**#Edit default.vcl file**

nano /etc/varnish/default.vcl

**#From here**

vcl 4.1;

backend default {

.host = "127.0.0.1";

.port = "8081";

.connect\_timeout = 200s;

.first\_byte\_timeout = 200s;

.between\_bytes\_timeout = 200s;

}

sub vcl\_recv {

}

sub vcl\_backend\_response {

}

sub vcl\_deliver {

}

**#To here**

**Edit varnish file**

nano /etc/default/varnish

**#From here**

NFILES=131072

MEMLOCK=82000

DAEMON\_OPTS="-a :8080 \

-T localhost:6082 \

-f /etc/varnish/default.vcl \

-S /etc/varnish/secret \

-s malloc,256m"

**#To here**

**#Edit varnish.service**

nano /lib/systemd/system/varnish.service

**#From here**

[Unit]

Description=Varnish Cache, a high-performance HTTP accelerator

Documentation=https://www.varnish-cache.org/docs/ man:varnishd

[Service]

Type=simple

LimitNOFILE=131072

LimitMEMLOCK=85983232

ExecStart=/usr/sbin/varnishd \

-j unix,user=vcache \

-F \

-a :8080 \

-T localhost:6082 \

-f /etc/varnish/default.vcl \

-S /etc/varnish/secret \

-s malloc,256m

ExecReload=/usr/share/varnish/varnishreload

ProtectSystem=full

ProtectHome=true

PrivateTmp=true

PrivateDevices=true

[Install]

WantedBy=multi-user.target

**#To here**

systemctl daemon-reload

systemctl restart varnish

## **Install Apache2**

apt install apache2 -y

systemctl start apache2

systemctl enable apache2

### **Configure Apache2**

**#Edit ports.conf file**

nano /etc/apache2/ports.conf

**#From here**

Listen 8081

<IfModule ssl\_module>

Listen 443

</IfModule>

<IfModule mod\_gnutls.c>

Listen 443

</IfModule>

**#To here**

**#Edit apache 000-default.conf file**

nano /etc/apache2/sites-available/000-default.conf

**#From here**

<VirtualHost \*:8081>

ServerAdmin webmaster@localhost

DocumentRoot /var/www/html

ErrorLog ${APACHE\_LOG\_DIR}/error.log

CustomLog ${APACHE\_LOG\_DIR}/access.log combine

</VirtualHost>

**#To here**

systemctl restart apache2

## **TEST**

### **Check the ports used by Nginx Apache and Varnish**

netstat -plant | grep LISTEN

**#Output**

tcp6 0 0 :::80 :::\* LISTEN 9965/nginx: master

tcp6 0 0 :::8080 :::\* LISTEN 10248/varnishd

tcp6 0 0 :::8081 :::\* LISTEN 9888/apache2

### **check your hosted website**

curl -I localhost

**#Output**

HTTP/1.1 200 OK

Server: nginx/1.18.0 (Ubuntu)

Date: Fri, 23 Sep 2022 12:05:34 GMT

Content-Type: text/html

Content-Length: 10671

Connection: keep-alive

Last-Modified: Fri, 23 Sep 2022 06:34:21 GMT

Vary: Accept-Encoding

X-Varnish: 98318

Age: 0

Via: 1.1 varnish (Varnish/6.6)

ETag: W/"29af-5e9525e48e3d7-gzip"

Accept-Ranges: bytes