Load Balancing with HAProxy on Ubuntu

Step 1: Install HAProxy

1. Update the package list and install HAProxy using the following commands:

```
sudo apt update
sudo apt install haproxy
```

Step 2: Configure HAProxy

1. Backup the original HAProxy configuration file:

```
sudo cp /etc/haproxy/haproxy.cfg /etc/haproxy/haproxy.cfg.backup
```

2. Edit the HAProxy configuration file using a text editor of your choice. For example:

```
sudo nano /etc/haproxy/haproxy.cfg
```

3. Configure HAProxy to balance the load between your backend servers. Below is a basic configuration example:

```
global
    log /dev/log local0
    log /dev/log local1 notice
    chroot /var/lib/haproxy
    stats socket /run/haproxy/admin.sock mode 660 level admin
    stats timeout 30s
    user haproxy
    group haproxy
    daemon

defaults
    log global
    mode http
    option httplog
    option dontlognull
    timeout connect 5000
    timeout client 50000
    timeout server 50000
```

```
frontend app
    bind *:80
    mode http
    default_backend backend_servers

backend backend_servers
    mode http
    balance roundrobin
    server server1 192.168.1.101:80 check
    server server2 192.168.1.102:80 check
    # Add more servers as needed
```

4. Customize the configuration according to your requirements. You can add more backend servers, adjust the balancing algorithm, and configure health checks for the servers.

Step 3: Start and Enable HAProxy

1. After saving the HAProxy configuration file, check for any syntax errors:

```
sudo haproxy -c -f /etc/haproxy/haproxy.cfg
```

2. If there are no errors, start HAProxy:

```
sudo systemctl start haproxy
```

3. Enable HAProxy to start on boot:

```
sudo systemctl enable haproxy
```

Step 4: Test the Load Balancer

1. Ensure that your backend servers are up and running on the specified IP addresses and ports.
2. Access the IP address of your HAProxy server in a web browser. HAProxy will distribute the incoming traffic across the backend servers.