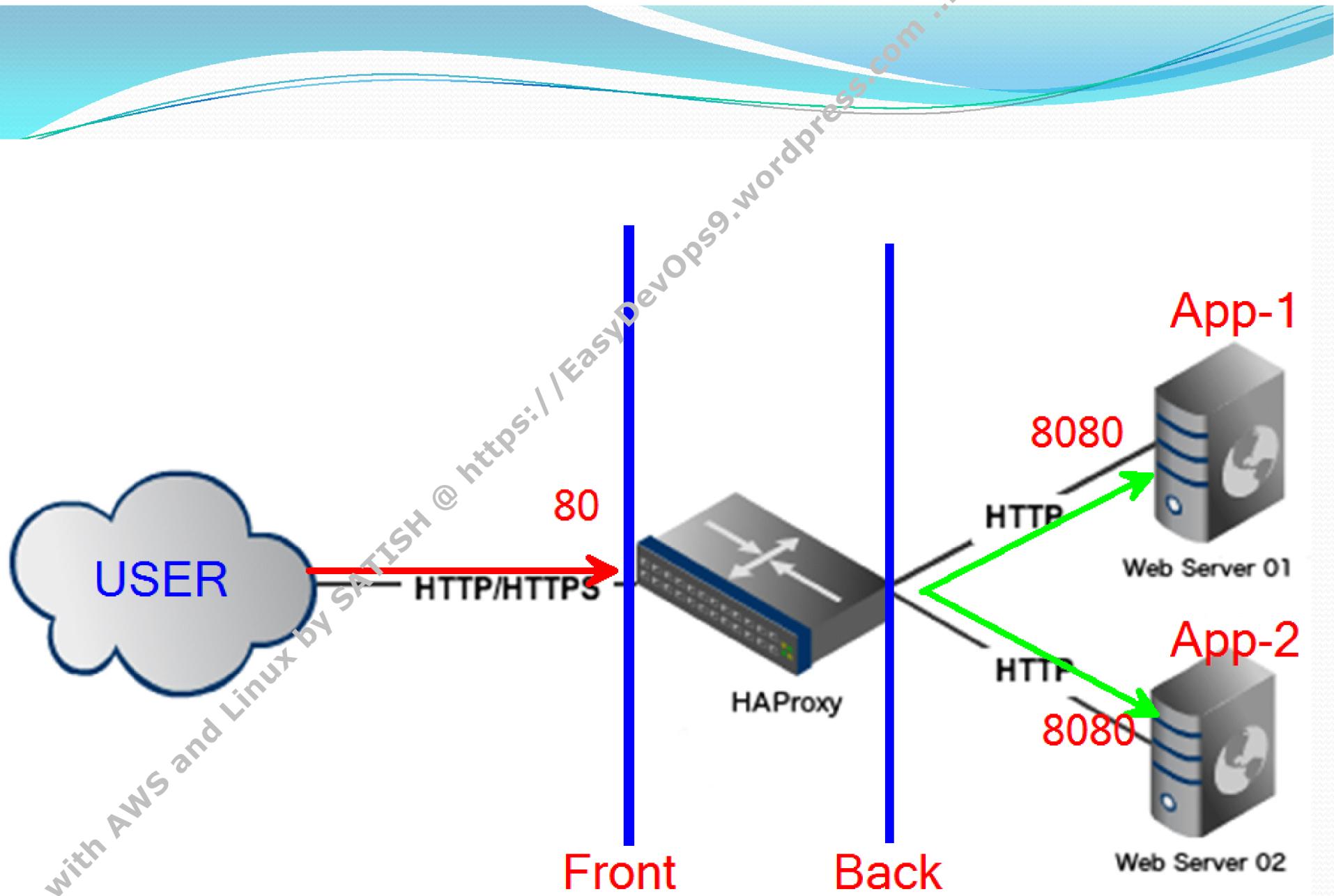


# HAProxy



# Introduction

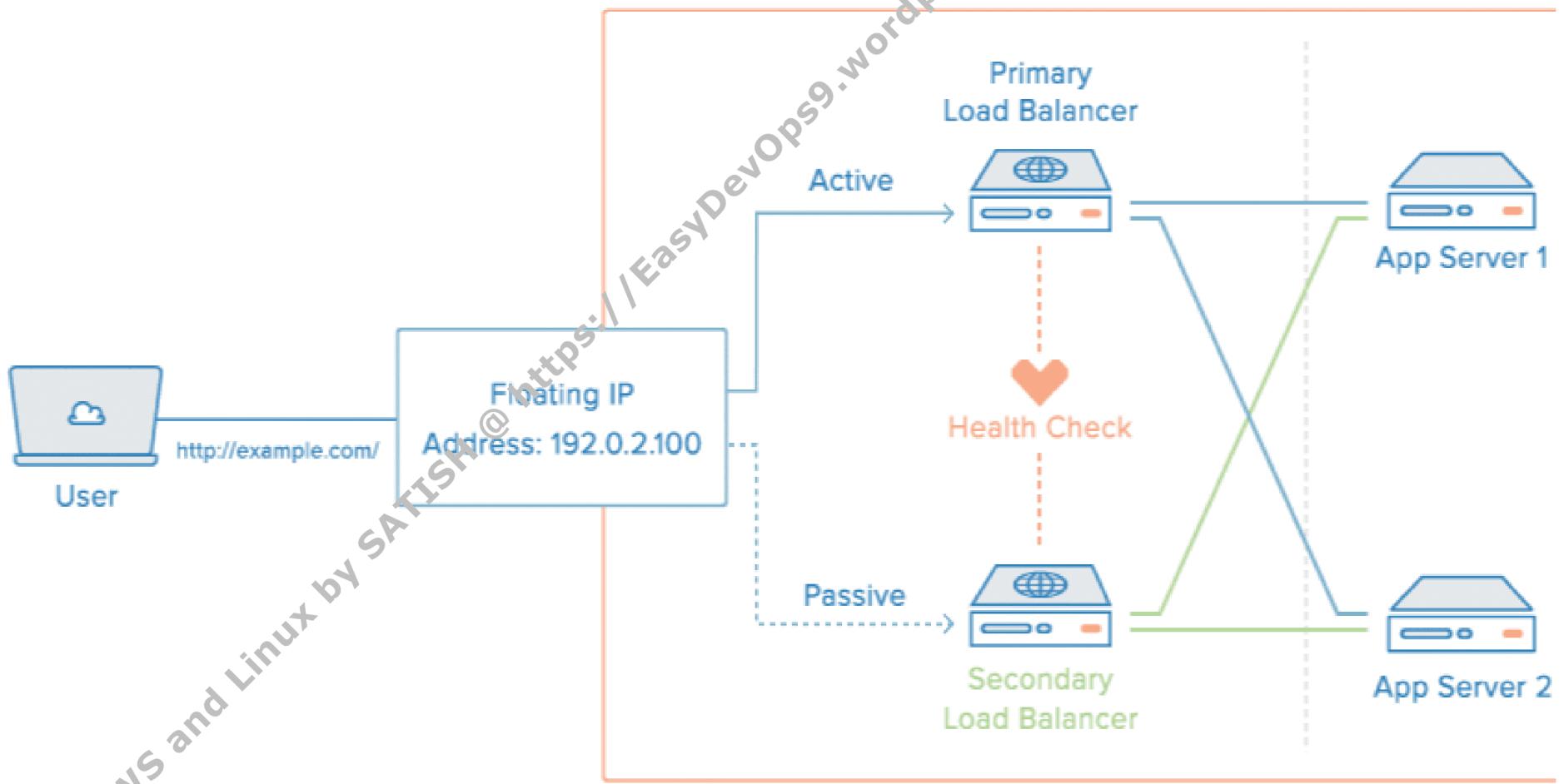
- HAProxy, which stands for High Availability Proxy, is a popular open source software TCP/HTTP Load Balancer and proxying solution which can be run on Linux, Solaris, and FreeBSD.
- Its most common use is to improve the performance and reliability of a server environment by distributing the workload across multiple servers (e.g. web, application, database).
- It is used in many high-profile environments, including: GitHub, Imgur, Instagram, and Twitter.

# HAProxy Terminology

- **Backend**: a backend is a set of servers that receives forwarded requests. Backends are defined in the *backend* section of the HAProxy configuration. In its most basic form, a backend can be defined by:
  - which load balance algorithm to use
  - list of servers and ports
- **Frontend** :A frontend defines how requests should be forwarded to backends. Frontends are defined in the *frontend* section of the HAProxy configuration.
  - a set of IP addresses and a port  
(e.g. 10.1.1.7:80, \*:443, etc.)

# Load Balancing Algorithms

- The load balancing algorithm that is used determines which server, in a backend, will be selected when load balancing.
- **Roundrobin** : Round Robin selects servers in turns. This is the default algorithm.
- **Leastconn** : Selects the server with the least number of connections--it is recommended for longer sessions.



1 Active/Passive Cluster is healthy

2 Primary node fails

3 Floating IP is assigned to Secondary node

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# HAProxy Installation

- # sudo apt-get update
- # sudo apt-get install -y haproxy  
(or)

```
# sudo yum install -y haproxy
```

install Web Servers(apache2) or Application(tomcat) in  
backend servers

```
# sudo apt-get install apache2 -y  
# sudo apt-get install tomcat7 -y
```

# HAProxy Installation

```
# hostname -i
```

```
# hostname -f
```

```
# vi /etc/hosts
```

```
10.128.0.63 haproxy.us-central1-a.c.clear-booking-
247113.internal
```

```
10.128.15.195 node1.us-central1-a.c.clear-booking-
247113.internal
```

```
10.128.15.196 node-2.us-central1-a.c.clear-booking-
247113.internal
```

# HAProxy Configuration

- HAProxy configuration can be found at /etc/haproxy/haproxy.cfg

```
global
    daemon
    maxconn 256
defaults
    mode http
    timeout connect 5000ms
    timeout client 50000ms
    timeout server 50000ms
frontend http-in
    bind *:80
    balance roundrobin
    default_backend servers
backend servers
    server tom1 192.168.33.3:8080 check maxconn 32
    server tom2 192.168.33.4:8080 check maxconn 32
```

# Enable HAProxy

```
root@haproxy:~# cat /etc/default/haproxy  
# Change the config file location if needed  
#CONFIG="/etc/haproxy/haproxy.cfg"
```

ENABLED=1

```
# Add extra flags here, see haproxy(1) for a few options  
#EXTRAOPTS="-de -m 16"
```

## To Start HAProxy Service:

```
#service haproxy restart
```

# Testing Load-Balancing and Fail-over

- Start the service backend servers
- Then test in HAProxy Servers

```
# while true; do curl http://localhost; sleep 1; done
```

- Open HAProxy IP in Browser and check load-balancing and fail-over