Dynamic Server Allocation as Fail Safe Mechanism

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Abstract

There are some situations when ip address of your primary server fails to load and you don't want to miss your visitors and what we have come up with the idea of generating a secondary server and the visitors will be redirected to secondary server with an floating ip address. Logs of all the failures to primary servers will be generated and stored along with the secondary server’s logs.

The keepalived daemon can be used to monitor services or systems and to automatically failover to a standby if problems occur. We will configure a floating IP address that can be moved between two capable web servers. If the primary server goes down, the floating IP will be moved to the second server automatically, allowing service to resume.

Introduction

On the Internet, a virtual server is a server (computer and various server programs) at someone else's location that is shared by multiple Web site owners so that each owner can use and administer it as though they had complete control of the server. Some Internet service providers (ISPs) offer a virtual server service instead of, or in addition to, virtual hosting. Using a virtual server, a company or individual with a Web site can not only have their own domain name and IP address, but can administer their own file directories, add email accounts and address assignments, assign multiple domain names that resolve to a basic domain name without involvement from the ISP, manage their own logs and statistics analysis, and maintain passwords. Users of a virtual server, however, do not have to manage the hardware aspects of running a server and effectively share the cost of expensive line connections to the Internet.

Prerequisites

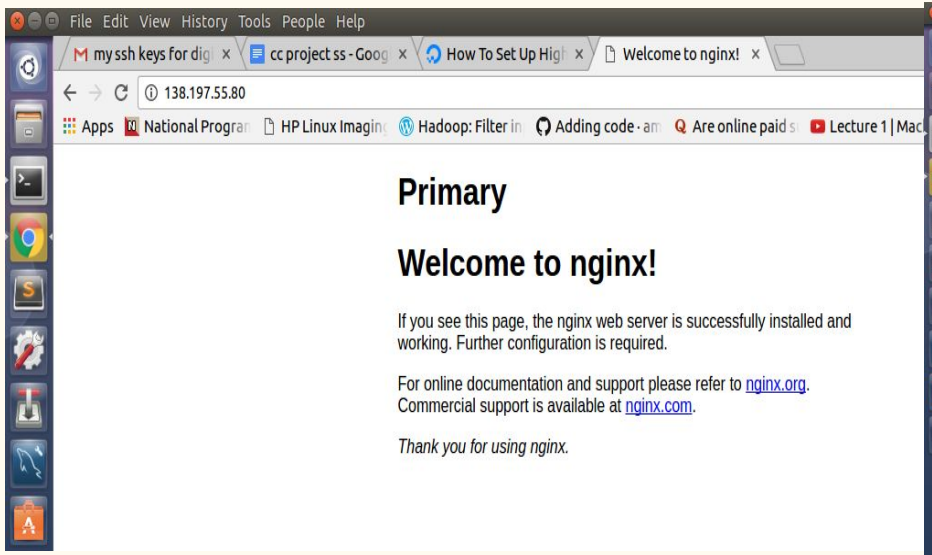
In order to complete this guide, you will need to create two Ubuntu 14.04 servers on your DigitalOcean account. Both servers must be located within the same datacenter and should have private networking enabled.On each of these servers, you will need a non-root user configured with sudo access. You can follow our Ubuntu 14.04 initial server setup guide to learn how to set up these users.When you are ready to get started, log into both of your servers with your non-root user.

Implementation

Implementation is done in three steps:

- Create DigitalOcean Droplet Virtual Server
- Set Up Highly Available Web Servers with Keepalived and Floating IPs on Ubuntu 14.04
- Start Up the Keepalived Service

Result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Welcome to nginx!
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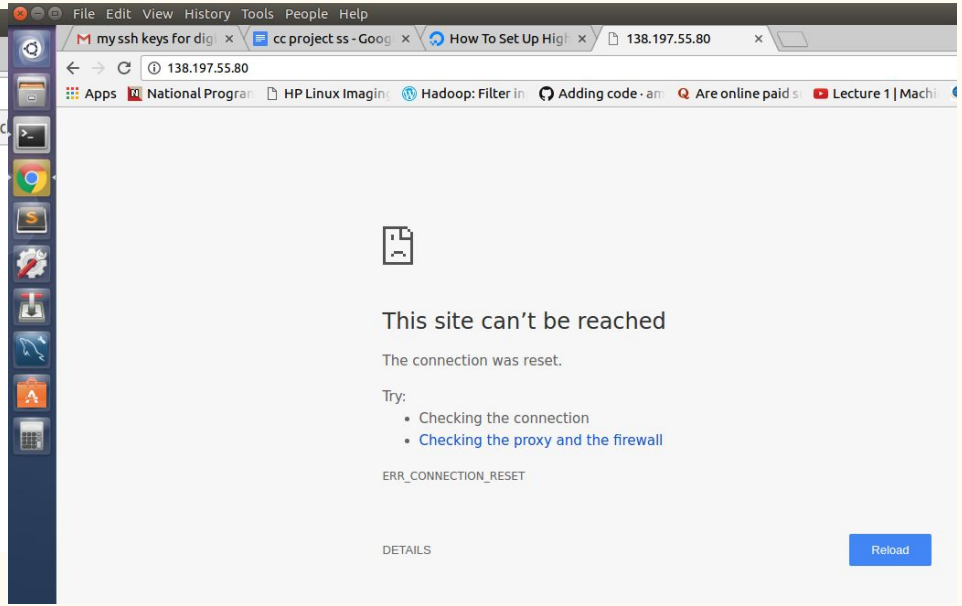
Primary
Welcome to nginx!
If you see this page, the nginx web server is successfully installed and working. Further configuration is required.
For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.
Thank you for using nginx.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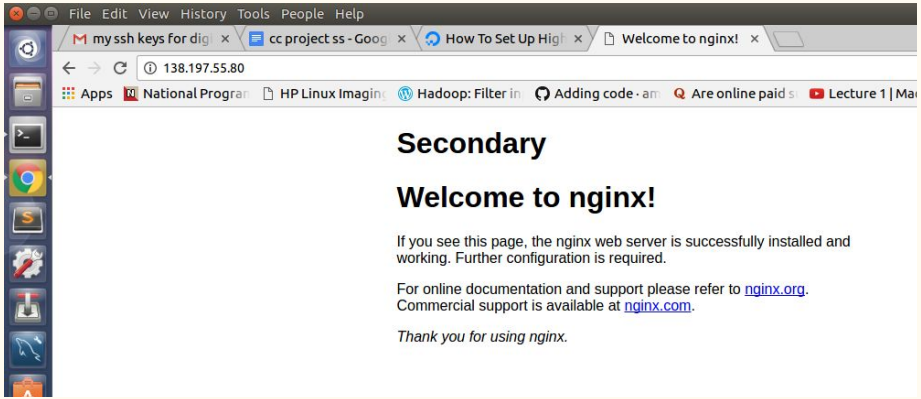
This site can't be reached
The connection was reset.
Try:
Checking the connection
Checking the proxy and the firewall
ERR_CONNECTION_RESET
DETAILS
Reload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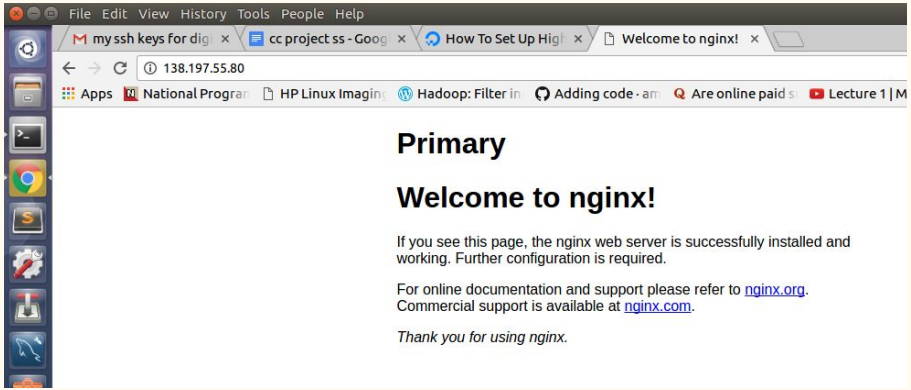
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Conclusion

We configured a highly available web server environment using keepalived, the DigitalOcean API, and a floating IP address. The actual infrastructure was rather simple, but the concepts can be applied to any type of infrastructure where service availability and uptime is important.

References

https://www.digitalocean.com/community/tutorials/how-to-create-your-first-digitalocean-droplet-virtual-server

https://www.digitalocean.com/community/tutorials/initial-server-setup-with-ubuntu-14-04

https://www.digitalocean.com/community/tutorials/how-to-set-up-highly-available-web-servers-with-keepalived-and-floating-ips-on-ubuntu-14-04