


# Deploying Dockerized Rails App to AWS EC2/ECS #1

Ankit, Trung

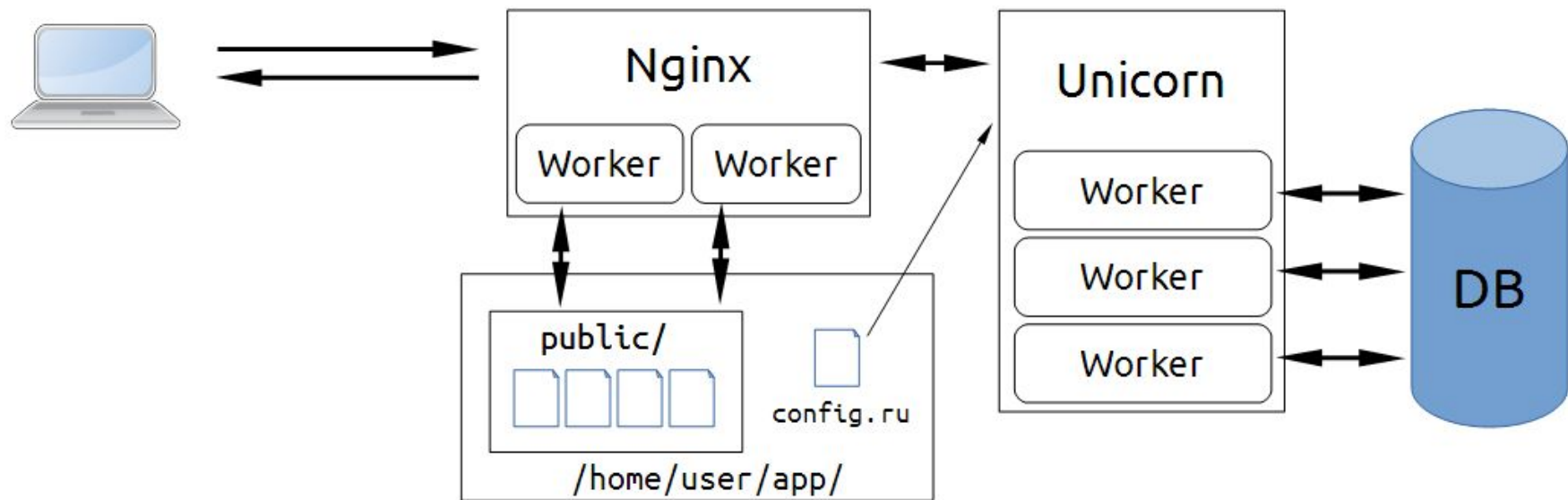
Growth Session #18 - September 13-14 2018



## Steps We Will Follow

- Infrastructure Provisioning (Launching the instance, RDS etc.) using Terraform.
- Secret Manager engine: Vault.
- Setting up underlying components:
  - Web Server (Nginx, Apache).
  - Application Server (Puma, Passenger).
  - Docker configuration (Dockerfile).
  - Installing docker on EC2 instance.
  - Deployment automation tool(Mina, Capistrano) or Use CI/CD Tool

## Request Process



















Nginx should be preferred because:

1. It's lightweight.
2. It is Designed for High Concurrency.
3. As opposed to Apache's threaded- or process-oriented architecture (process-per-connection or thread-per-connection model), Nginx uses a scalable, event-driven (asynchronous) architecture. It employs a reliable process model that is tailored to the available hardware resources.
4. Each nginx worker process can handle thousands of connections.

# Nginx Processes

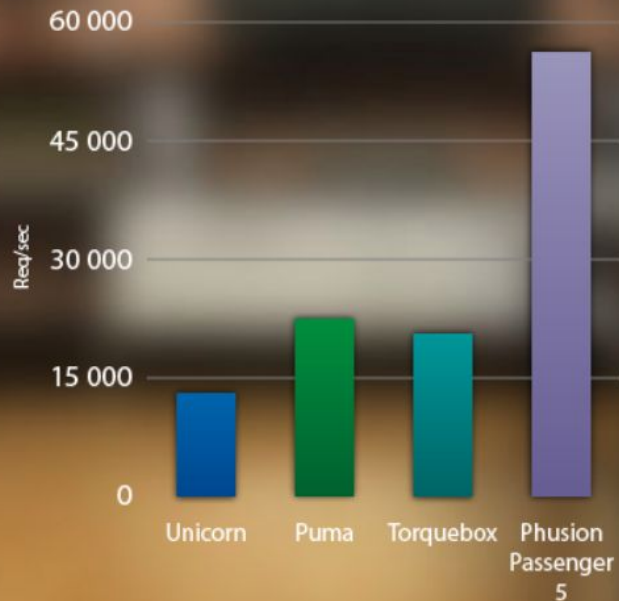
```
ubuntu@ip-172-31-2-126:/var/log/nginx$ ps aux | grep nginx
root      17196  0.0  0.2 179076  5696 ?        Ss   09:40   0:00 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
www-data  17197  0.0  0.4 179076  8384 ?        S    09:40   0:00 nginx: worker process
ubuntu    17258  0.0  0.0  12916   968 pts/2    S+   09:50   0:00 grep nginx
```

# Passenger vs Puma

	<div> <b>Passenger</b>  <a href="#">Web Servers</a> Favorites ★ 23 Stacks 588 <a href="#">I Use This</a> Fans: 228, Votes: 198, Jobs: 0</div>	<div> <b>Puma</b>  <a href="#">Web Servers</a> Favorites ★ 13 Stacks 192 <a href="#">I Use This</a> Fans: 119, Votes: 4, Jobs: 35</div>
Hacker News, Reddit, Stack Overflow Stats	<div> 2</div> <div> 23</div> <div> 3.33K</div>	<div> 267</div> <div> 78</div> <div> 852</div>
GitHub Stats	<div> 4.17K</div> <div> 489</div> <div> about 17 hours ago</div>	<div> 5.4K</div> <div> 878</div> <div> 1 day ago</div>
Description	<p><b>What is Passenger?</b></p> <p>Phusion Passenger is a web server and application server, designed to be fast, robust and lightweight. It takes a lot of complexity out of deploying web apps, adds powerful enterprise-grade features that are useful in production, and makes administration much easier and less complex.</p>	<p><b>What is Puma?</b></p> <p>Unlike other Ruby Webservers, Puma was built for speed and parallelism. Puma is a small library that provides a very fast and concurrent HTTP 1.1 server for Ruby web applications.</p>
	<p><b>Pros</b></p> <ul style="list-style-type: none"><li>▲ 44 Nginx integration</li><li>▲ 36 Great for rails</li><li>▲ 21 Fast web server</li><li>▲ 19 Free</li><li>▲ 15 Lightweight</li></ul>	<p><b>Pros</b></p> <ul style="list-style-type: none"><li>▲ 2 Convenient</li><li>▲ 1 Free</li><li>▲ 1 Multithreaded</li></ul> <p>Why do you like Puma?</p> <div><input type="text" value="Why do you like Puma?"/></div>

# A radically new Ruby web server

Phusion Passenger 5 (codename "Raptor")



- Normally one process can process one request.
- Multithreading can allow us to have multiple requests in a single process.
- Passenger does not have multithreading in free version while puma does.

But overall Phusion Passenger 5 claims to be upto 4 times faster than other app servers.



## Techniques We Can Use

Dockerize Rails app and Nginx – separate containers

Dockerize Rails app and Nginx – single container

Dockerize Rails app into container and run Nginx on host



Push, pull and run Docker image on another host

# Achievement and Progress

1. Set up infrastructure using Terraform.
2. Installed Docker on ec2.
3. Figured out a way to run Vcliq using docker locally.
4. Pushed the Vcliq to EC2 and tried to build the docker image, all processes completed

```
test | use ctrl-c to stop
test | 2018-09-14 09:36:43 +0000: Rack app error handling request { GET / }
test | #<ActionView::Template::Error: Webpacker can't find vendor.js in /vcliq-web/public/packs-test/manifest.json. Possible causes:
test | 1. You want to set webpacker.yml value of compile to true for your environment
test | unless you are using the `webpack -w` or the webpack-dev-server.
test | 2. webpack has not yet re-run to reflect updates.
test | 3. You have misconfigured Webpacker's config/webpacker.yml file.
test | 4. Your webpack configuration is not creating a manifest.
test | Your manifest contains:
test | {
test | }
```

# Nginx Config

/etc/nginx/sites-enabled/nginx.conf:

```
upstream puma_sample_rails_docker_app {  
    server 127.0.0.1:3000;  
}  
  
server {  
  
    listen 80;  
  
    client_max_body_size 4G;  
    keepalive_timeout 10;  
  
    error_page 500 502 504 /500.html;  
    error_page 503 @503;  
  
    server_name localhost puma_sample_rails_docker_app;  
    root /var/www/sample_rails_docker_app/public;  
    try_files $uri/index.html $uri @puma_sample_rails_docker_app;  
  
    location @puma_sample_rails_docker_app {  
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;  
        proxy_set_header Host $http_host;  
        proxy_redirect off;  
  
        proxy_pass http://puma_sample_rails_docker_app;  
        # limit_req zone=one;  
        access_log /var/log/nginx.access.log;  
        error_log /var/log/nginx.error.log;  
    }  
  
    location ^~ /assets/ {  
        gzip_static on;  
        expires max;  
        add_header Cache-Control public;  
    }
```

# About Terraform



## INFRASTRUCTURE AS CODE

Define infrastructure as code to increase operator productivity and transparency.

### COLLABORATE & SHARE

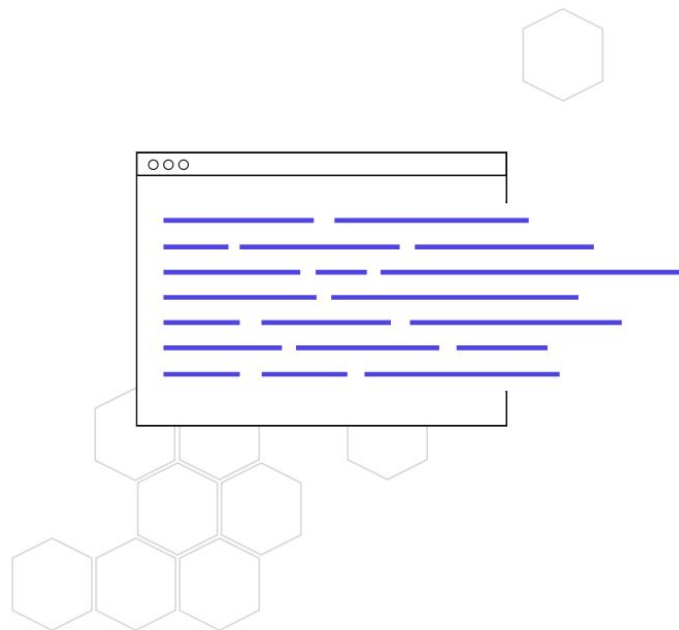
Terraform configuration can be stored in version control, shared, and collaborated on by teams of operators.

### EVOLVE YOUR INFRASTRUCTURE

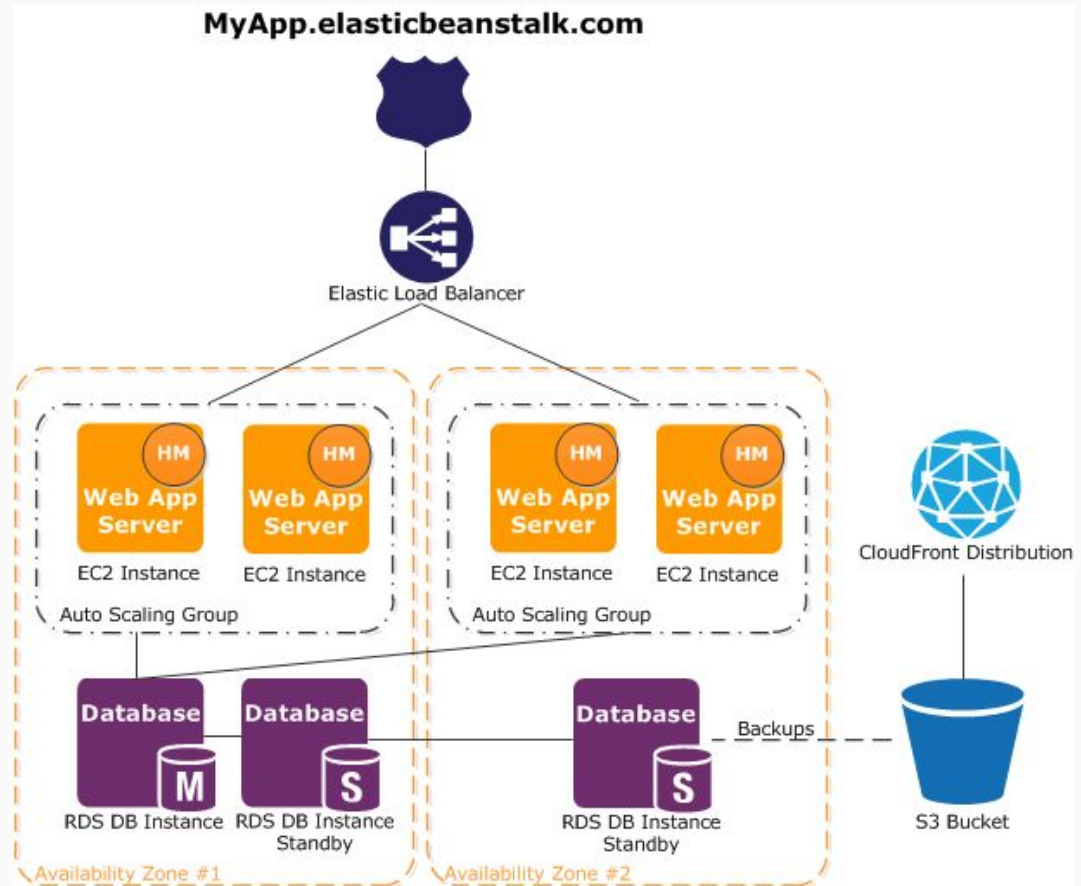
Track the complete history of infrastructure versions.

### AUTOMATION FRIENDLY

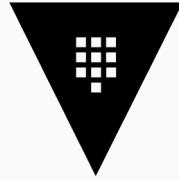
If it can be codified, it can be automated.



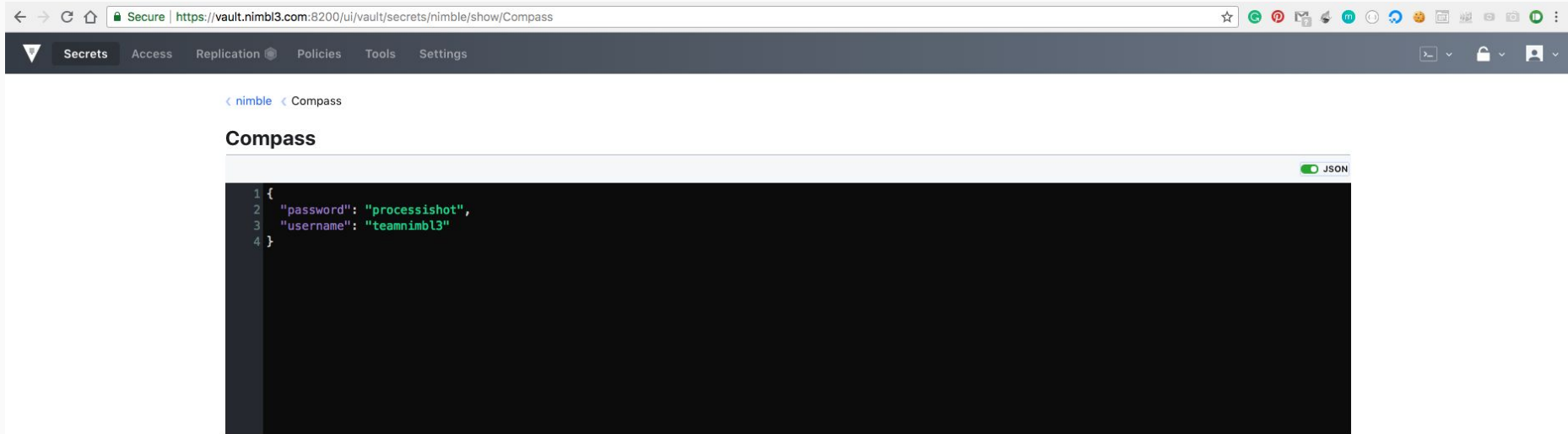
# What can it do?



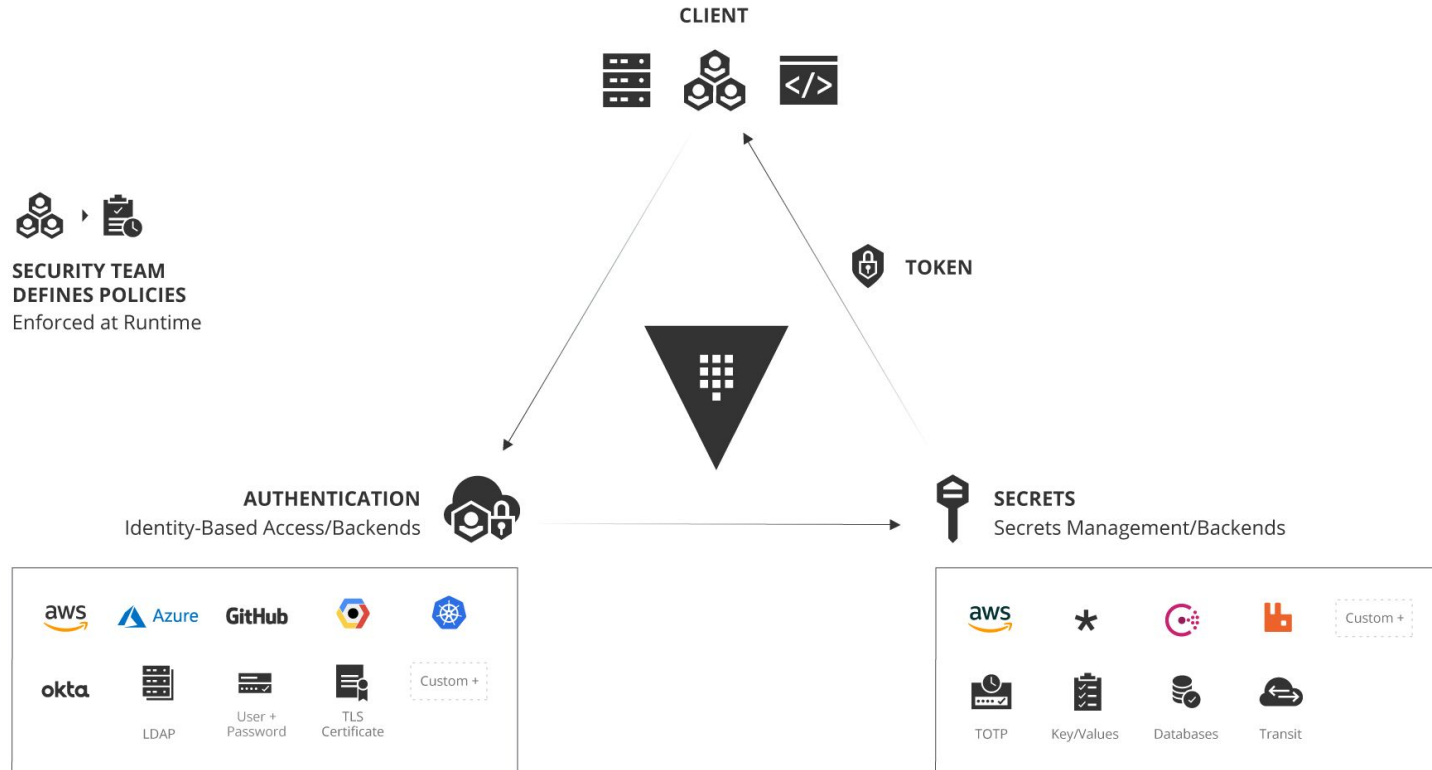
# What is Vault?



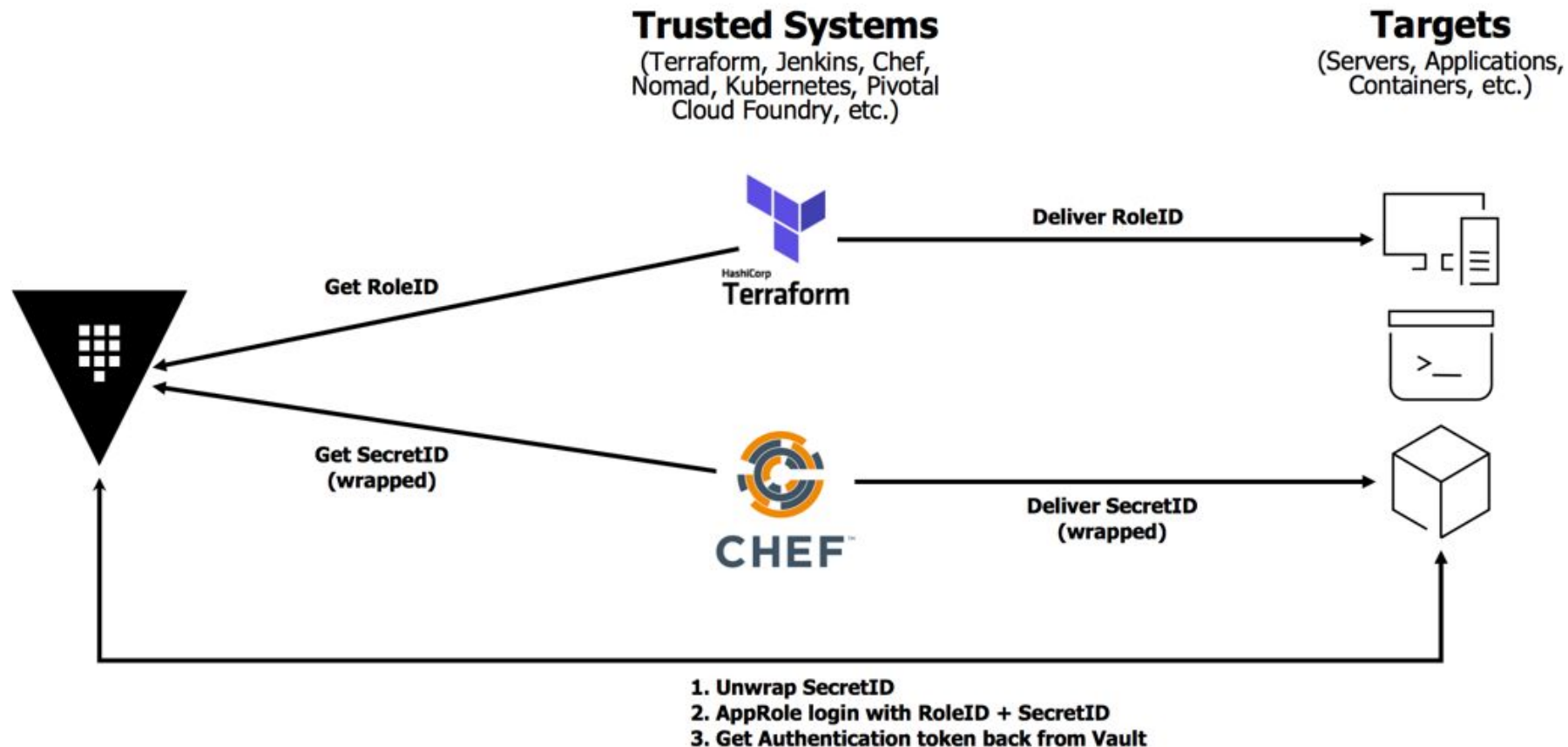
HashiCorp  
**Vault**



# Vault + AWS?



# Vault + AWS + Terraform





DEMO TIME

## Next Steps

- Driving more infrastructure setup like: AWS Route 53, ECS, ECR...
- Templating the setup so that we can move more projects over AWS easier and faster.

Complexity made simple

# Thanks!

Contact Nimbl3

[hello@nimbl3.com](mailto:hello@nimbl3.com)

399 Sukhumvit Road, Interchange 21  
Klongtoey nua, Wattana  
Bangkok 10110

28C Stanley St,  
Singapore 068737

20th Floor, Central Tower  
28 Queen's Road  
Central, Hong Kong

[nimbl3.com](http://nimbl3.com)

