Go Meetup
DevOps Tooling

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Introduction

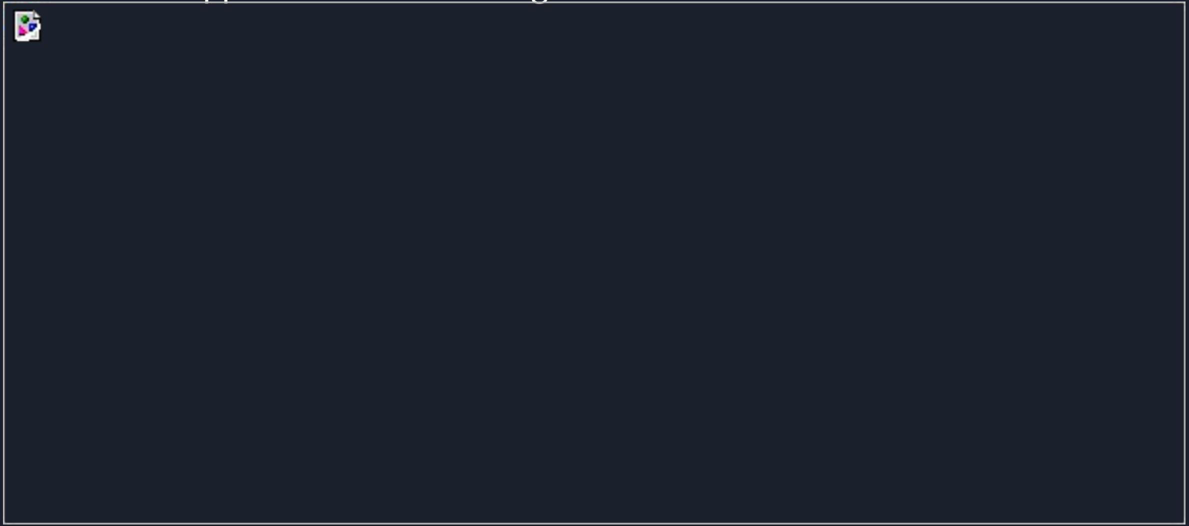
- DevOps Tool Showcase
- Writing Custom Tools to Accomplish Specific Tasks

But first, let’s examine a common problem for any large scale (many servers) systems.

Controlling SSH Access

Use SSH Public Key Authentication to escape frequent password rotation and low quality passwords.

Starts off simply…
But what happens when the team grows and the number of servers increase?



Then one of those team members leaves your company...

SSH Access Using Signed Certificates

Using Signed SSH Certificates instead of Public Key Authentication

Key Benefits of Signed SSH Certificates

1. No need to copy everyone’s public key onto the server
   This also means that there is no need to remove public keys to revoke access

2. Signed SSH Certificates have an expiry
   By using short Certificate TTL, and controlling access to the SSH Key Signing server, you can efficiently revoke access to all servers

DevOps Tools Showcase

Packer

- Builds Image (AMIs, GCE Images, Vagrant, etc…)

Vault

- Secret Management

Terraform

- Manages Cloud Resources (AWS, GCP, Azure, etc…)

Vault - SSH Key Signing

Vault can:

- Store Static Secrets
- Generate Dynamic Credentials
  - (AWS) IAM STS Tokens
  - (AWS) IAM Service Account Key
- Sign
  - SSH Public Keys
  - Certificate Signing Requests

Packer - Building Immutable Images

Packer can build images by:

- Running commands (e.g. *apt-get install docker-ce*)
- Copying files onto image

Packer works on a variety of image platforms

- Windows/Linux
- Major Cloud Providers Images

Packer Specification: github.com/marcboudreau/go-devops-talk/packer/server.json

Terraform - Provisioning Cloud Instances

Terraform manages:

- Graphs of interdependent resources
- State of resources
  - What’s been provisioned
  - Resource attributes (coded vs. actual)

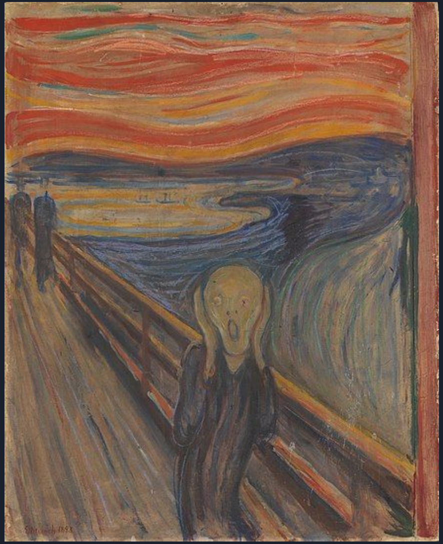
Terraform project: github.com/marcboudreau/go-devops-talk/terraform/

Demo

Using Go to Build Custom Tools

Let’s Automate the Previous Workflow with…

A bash script



Making it more robust results in...

Writing a tool in Go allows:

- Easy to support many platforms
- Easy to import packages from other tools
- Easy to distribute

My Custom Tool Does:

- Requests a Signed SSH Cert from Vault
- Establishes an SSH session to forward Docker socket