

Orchestrate Application Deployment using Helm & Terraform

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> whoami



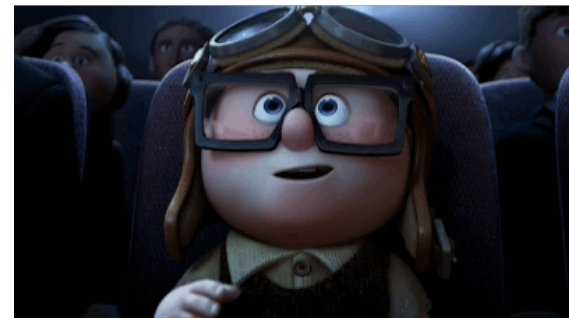
Agenda

- ❑ Introduction to use-case
- ❑ How to solve using a legacy approach?
- ❑ What's wrong with the legacy approach?
- ❑ How to solve using Terraform & Helm?

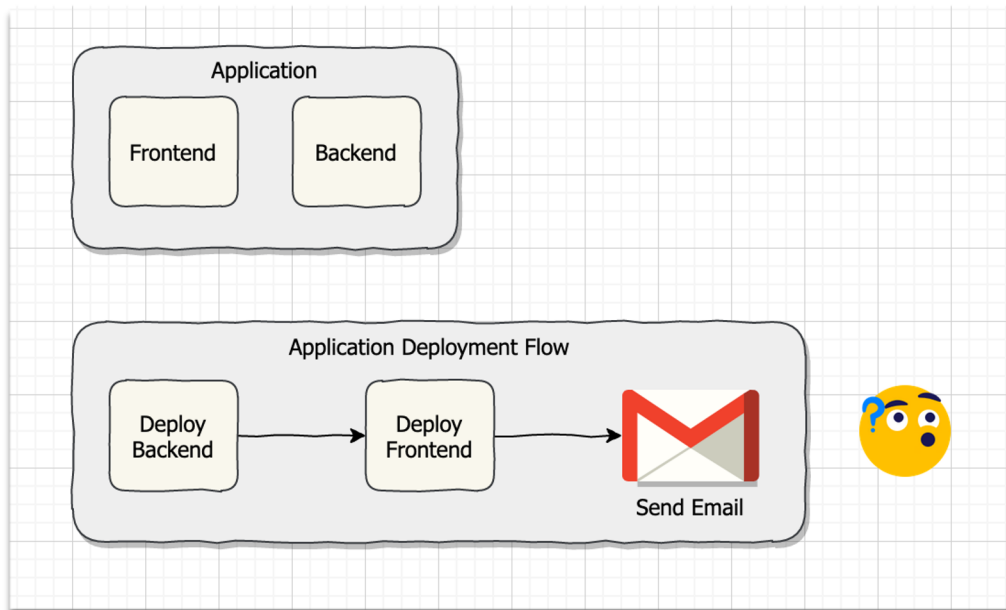


Prerequisites

- ☐ Kubernetes Cluster
- ☐ Helm 3
- ☐ Terraform 0.12
- ☐ Python3
- ☐ Mailtrap Account



Introduction to use-case



How to solve using a legacy approach?

- ☐ Use Helm dependencies
- ☐ Email script
- ☐ Script to orchestrate the flow





Helm Dependencies

```
— frontend_deps
  — Chart.yaml
  — charts
    — backend_deps
      — Chart.yaml
      — charts
      — templates
        — db-deployment.yaml
        — db-service.yaml
        — namespace.yaml
      — values.yaml
  — templates
    — phpmyadmin-deployment.yaml
    — phpmyadmin-service.yaml
  — values.yaml
```



Email Script

```
import smtplib
import sys
from socket import gaierror

sender = "from@email.com"
receiver = "to@gmail.com"

message = f"""\
Subject: Deployment Status
To: {receiver}
From: {sender}

Application deployed successfully."""

try:
    with smtplib.SMTP(smtp_server, port) as server:
        server.login(login, password)
        server.sendmail(sender, receiver, message)
except (gaierror, ConnectionRefusedError):
    print('Bad connection settings?')
```




Script to orchestrate the flow

```
#!/bin/sh

# Install Helm Chart

helm install application ./frontend_deps

# Send Email

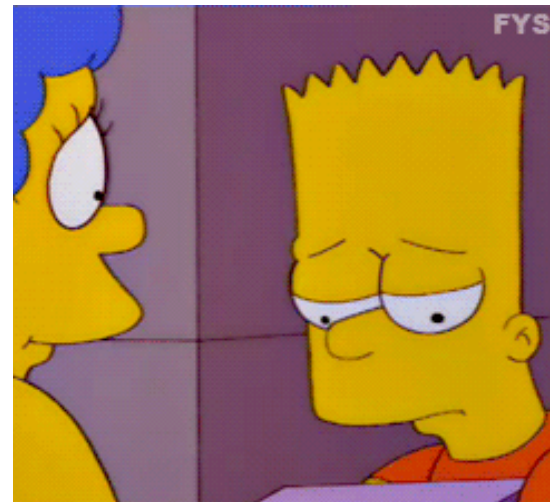
python3 mail.py
```

```
> sh ./deploy.sh
```



What's wrong with the legacy approach?

- ❑ The shell script is not the long-term solution as with more such use cases It will eventually become more complex. For example:
 - ❑ Error handling
 - ❑ Passing arguments
 - ❑ Rollback strategy
- ❑ Separate script for email. What if instead of an email I want to send SMS. This approach is not modular



How to solve using Terraform & Helm?

By using:

- ❑ Terraform as orchestration engine
- ❑ Helm Terraform Provider to install application
- ❑ Terraform local exec to execute email script



> cat main.tf

```
resource "helm_release" "backend" {  
}  
  
resource "helm_release" "frontend" {  
  depends_on = [helm_release.backend]  
}  
  
resource "null_resource" "sendemail" {  
  provisioner "local-exec" {  
  }  
  
  depends_on = [helm_release.frontend]  
}
```

> terraform apply



Get in touch...

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