





# Bringing Back Production from Scratch in Under 1 Hour Using kOps, ArgoCD and Velero

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#### about.me







- Staff DevOps Engineer
- Distinguished YAML Engineer
- Asks too many questions



- HangOps Slack
- Kubernetes Slack
- Platform Engineering Slack



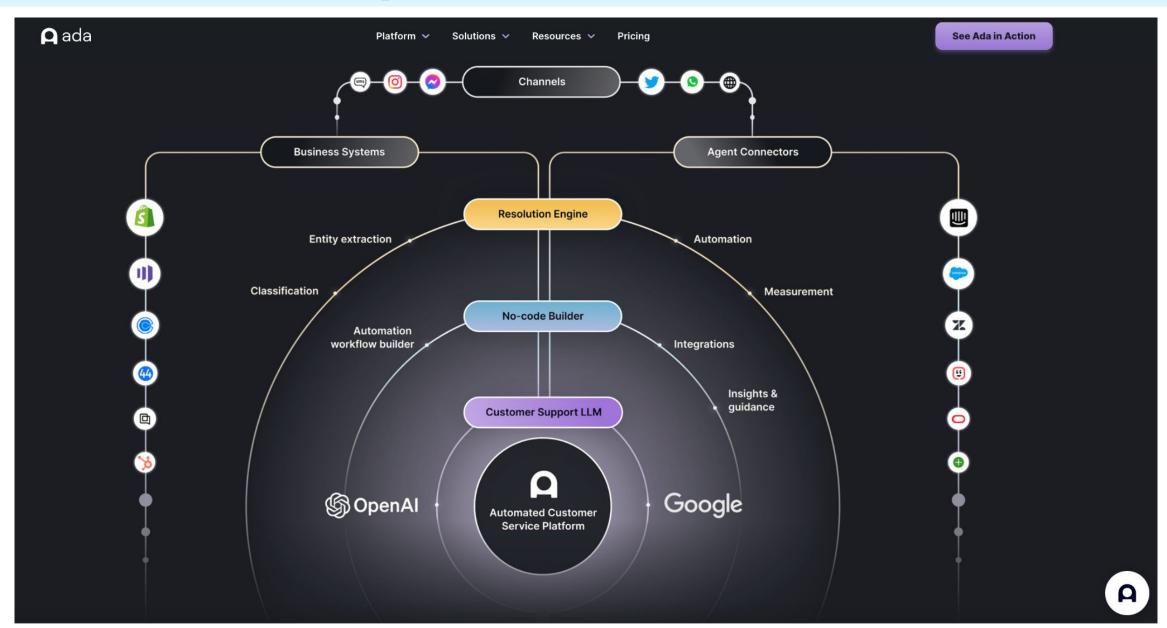






# About Ada - https://ada.cx





#### The Incident





- End of the Day
- Problem had been occurring for a few days
- Deployments Failing
- Isolated to a single cluster.

# kOps - Kubernetes Operations





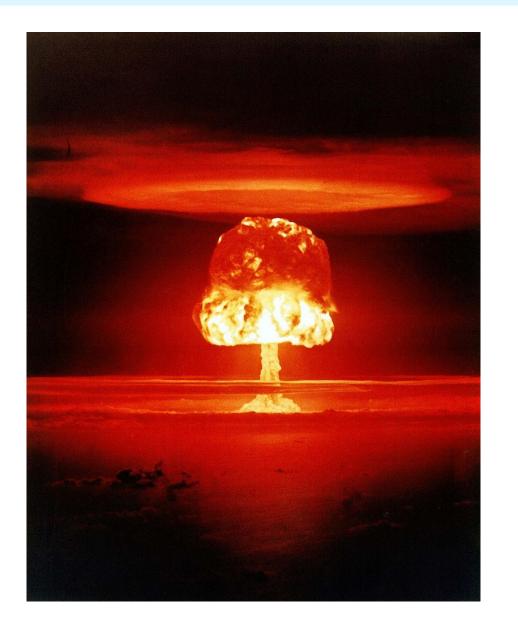
- \$ kops create cluster
- \$ kops update cluster

- Automates the provisioning of Highly Available Kubernetes clusters
- Ability to generate Terraform
- Supports zero-config managed kubernetes add-ons
- YAML Manifest Based API Configuration
- Templating and dry-run modes for creating Manifests
- Multi-architecture ready with ARM64 support

https://github.com/kubernetes/kops

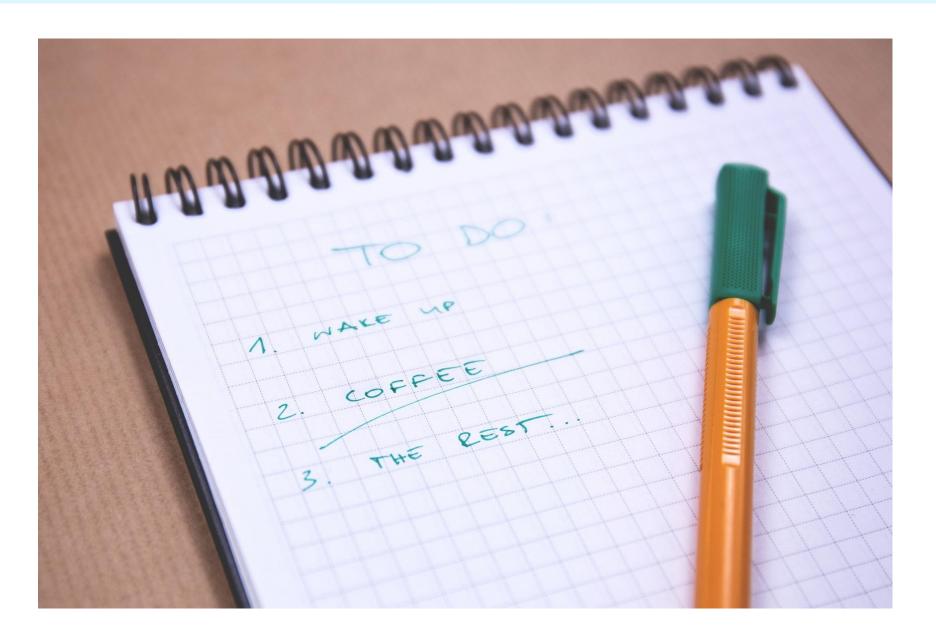
# Downtime, Panic, Alarms





# **Disaster Recovery Plan**





#### **Velero - Backup and Restore**





- Backup **Clusters**
- Scheduled Backups
- Persistent Volume Backups
- Disaster Recovery

\$ velero backup create

\$ velero restore create



# Start from scratch





# **ArgoCD - Continuous Delivery**





\$ argocd create app \$appName

\$ git push origin \$git0psRepo

- Automated deployment of applications to specified target environments
- Support for multiple config management/templating tools (Kustomize, Helm, Jsonnet, plain-YAML)
- Rollback/Roll-anywhere to any application configuration committed in Git repository
- Automated or manual syncing of applications to its desired state

https://github.com/argoproj/argo-cd/

# And it just worked...?





# All Systems Green





- Less than 2 hours total outage
- **41 Minutes** to bring up new cluster and get service restored.
- Many interdependent services

## Whodunnit?





#### **Lessons learned**

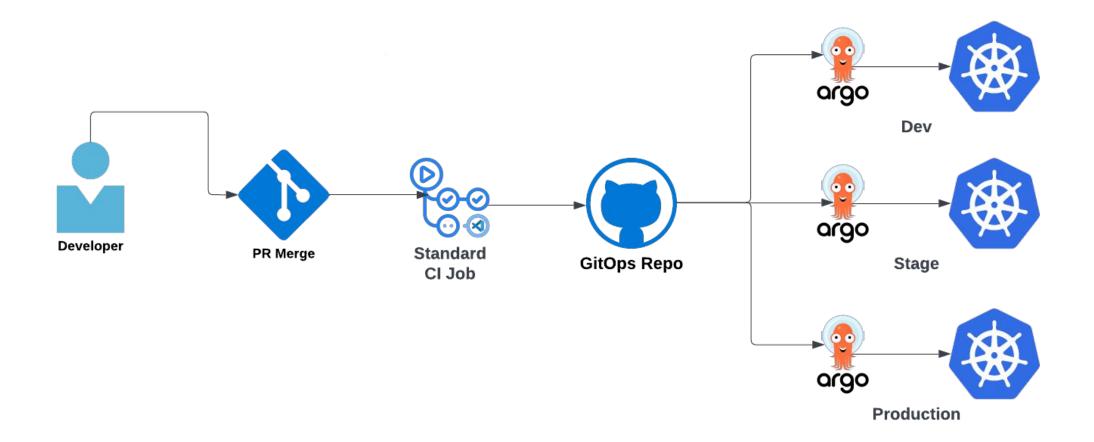


- Completing migration of tooling
- Be experts of your tools
- Always be practicing your Disaster Recovery.



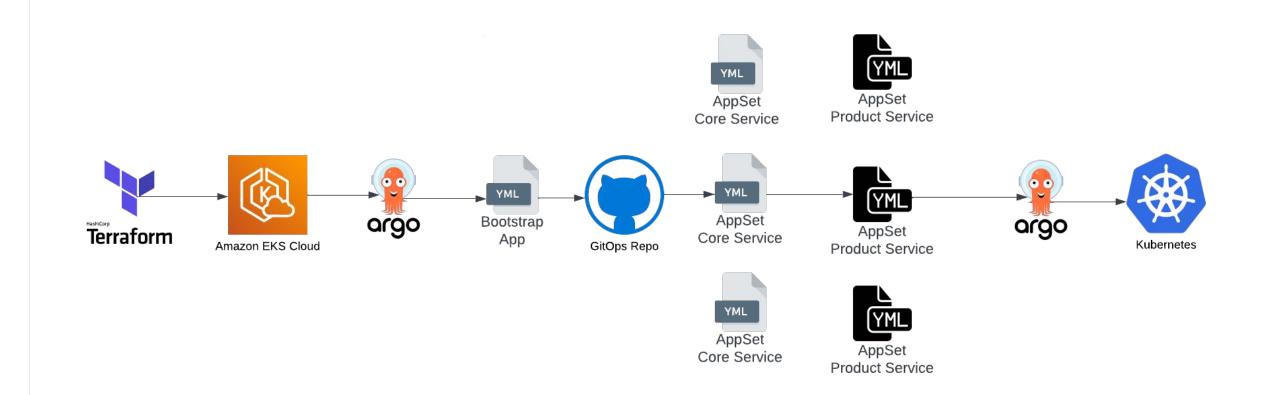
# **ArgoCD Everywhere**





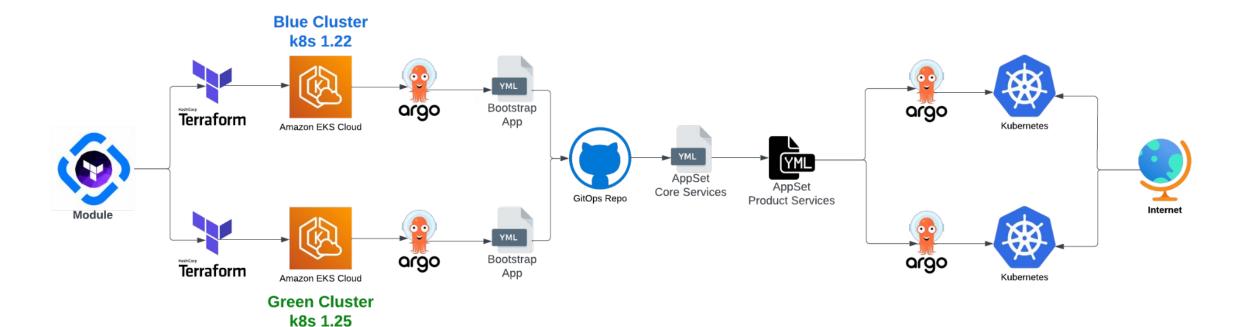
# **Experts at our Tools/Process**





## **Our DR is our Deployment Process**







**5 Years Running Kubernetes in Production** 



2 years of using ArgoCD in Production



1 year of refactoring our Cluster and App Deployment process

#### **Production Demo?**





- KinD Cluster
- ArgoCD managed by ArgoCD!
- Cert-Manager
- Ingress-Nginx
- Linkerd
- Emojivoto User Application

https://github.com/kzap/k8s-local

#### **Questions?**





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