



KubeCon



CloudNativeCon

North America 2018

CI/CD in lightspeed with K8s & Argo CD

Billy Yuen & Parin Shah



Agenda



KubeCon



CloudNativeCon

North America 2018

- Intuit's DevOps Journey
- Deployment Comparison
- Intuit's Modern SaaS Platform
- Why Argo CD?
- Demo

Intuit mission



turbotax



quickbooks



proconnect



mint



KubeCon



CloudNativeCon

North America 2018

Powering Prosperity Around the World



Who we are



KubeCon



CloudNativeCon

North America 2018

1983

Founded



1993

IPO



8,900

Employees



21

Locations



**\$6B
FY18**

Revenue



50M

Customers



Intuit's DevOps Journey



KubeCon



CloudNativeCon

North America 2018

	Development	Deployment	Infrastructure
Data Center	PD	Ops	PI
AWS Spinnaker	PD	PD	PD
AWS Modern SaaS	PD	PD	SRE/DevOps

Our Goals



KubeCon



CloudNativeCon

North America 2018

	From	To
Recoverability (mins)	<30	<3
Release cycle time (days) (PR to deploy)	5	1
Release frequency (days)	<7	<1

Deployment Comparison



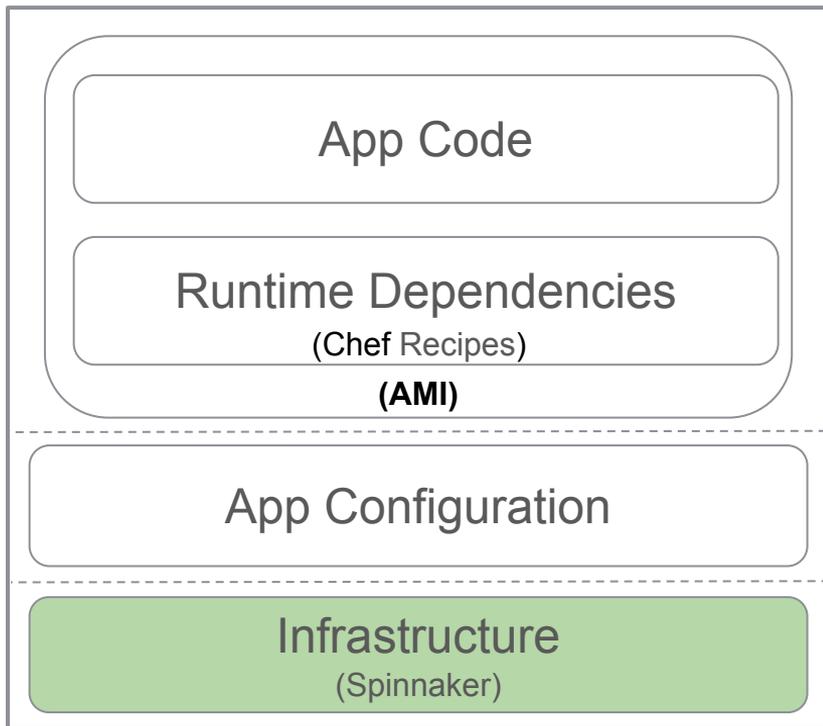
KubeCon



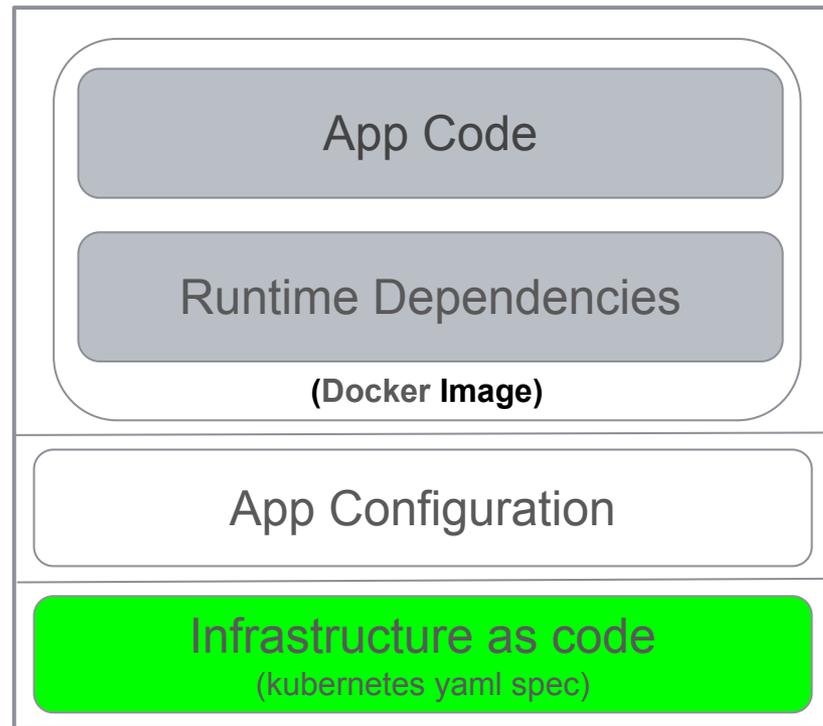
CloudNativeCon

North America 2018

From



To



Intuit Modern SaaS Platform



KubeCon



CloudNativeCon

North America 2018

Developer Portal

Service Onboarding



Service Monitoring



Service Management



Github
(Apps as Code)



IBP 2.0 Jenkins
(CI/d)



JFrog
Artifactory



Quality
Frameworks



(TDS, Overwatch, TrinityJS,
Hubble...)

Argo CD
(GitOps)



Olympus
(SSO & AWS Roles)



IDPS
(Secrets)



Appdynamics
(Monitoring)



Wavefront
(Monitoring)



Splunk
(Logging)



PagerDuty
(Alerts)



NetGenie
(Certs)



ServiceNow
(CM)



Intuit Kubernetes Service (IKS, IKSM)
(Core Kubernetes with Intuit Network & Security policies & best practice
Continuous Operations
(Monitoring, Analytics, Remediation)



Security &
Compliance



Multi-Cluster
Service Mesh



AWS

(IaaS - ALB/NLB, RDS, DynamoDB, ElastiCache ...)

EKS
Elastic K8S
Service

AWS
Service Broker



Intuit Modern SaaS Platform



KubeCon



CloudNativeCon

North America 2018

Developer Portal

Service Onboarding



Service Monitoring



Service Management



Github
(Apps as Code)



IBP 2.0 Jenkins
(CI/d)



**JFrog
Artifactory**



**Quality
Frameworks**



(TDS, Overwatch, TrinityJS, Hubble...)

Argo CD
(GitOps)



Olympus
(SSO & AWS Roles)



IDPS
(Secrets)



Appdynamics
(Monitoring)



Wavefront
(Monitoring)



Splunk
(Logging)



PagerDuty
(Alerts)



NetGenie
(Certs)



ServiceNow
(CM)



Intuit Kubernetes Service (IKS, IKSM)

(Core Kubernetes with Intuit Network & Security policies & best practices)

Continuous Operations

(Monitoring, Analytics, Remediation)



**Security &
Compliance**



**Multi-Cluster
Service Mesh**



AWS

(IaaS - ALB/NLB, RDS, DynamoDB, ElastiCache ...)

**EKS
Elastic K8S Service**

**AWS
Service Broker**



Spinnaker Pros

- Excellent UI to monitoring EC2 fleet status
- Store Infrastructure metadata in DB (no need for CFN)
- Support Immutable AMI image
 - Easy rollback
 - Easy to re-deploy to any environment

Spinnaker Cons



KubeCon



CloudNativeCon

North America 2018

- UI is ASG/EC2 centric (Does not support k8s resources)
- Does not embrace Infrastructure as Code
- With AMI:
 - Bakery with Chef recipes ~ 15 minutes
 - Require EC2 start up for deployment

No native K8s CD solution to support

- Generation of yaml for each environment
- Embrace GitOps for environment changes
- Comparison between Kubernetes vs Deployment Git Repo
- UI tool to support common devops operations like:
 - Rollback
 - Re-deploy
 - Synchronize

Argo CD



KubeCon



CloudNativeCon

North America 2018

- Environment Specific Yaml Overrides
- Excellent UI to monitor a fleet of components
 - Kubernetes Service
 - Side cars
 - Pods
 - Replicas Set
 - Deployment

Argo CD Adoption



KubeCon



CloudNativeCon

North America 2018

Main Use Cases

- Software development and delivery - CI/CD
- Open source project



BLACKROCK



Interline

intuit



And many more ...

DEMO



KubeCon



CloudNativeCon

North America 2018

APPLICATION DETAILS

Applications / validation-prod

Logout

164 DAYS ACTIVE

2 DAYS SINCE LAST SYNCHRONIZED

synchronization SUCCEEDED AT 2018-11-15T23:03:07Z

- Refresh
- Sync
- History
- Delete

validation-prod (application)

prod-validation (deployment)

prod-validation-ingress (ingress)

prod-validation (service)

prod-validation-58f4b6fd4b-bldtv (pod) running 3/3 containers ready

prod-validation-58f4b6fd4b-jqrd7 (pod) running 3/3 containers ready

prod-validation-58f4b6fd4b-xgrgb (pod) running 3/3 containers ready

prod-validation (endpoints)

Blue Ocean Jenkins



KubeCon



CloudNativeCon

North America 2018

- Customizable pipelines through Jenkinsfile (Code)
- Complete CI/CD view
- Enable Parallel Deployment (HA/DR)
 - Classic Jenkins Pipeline with Spinnaker in AWS US-West 2 Region
 - BO Jenkins with Argo CD in AWS US-East 2 Region

Spinnaker vs Intuit Modern SaaS



KubeCon



CloudNativeCon

North America 2018

	Spinnaker	Intuit Modern SaaS
CI Build Time	~ 14 mins	~ 4 mins
Code Deployment Time	~ 90 mins	~ 20 mins
Release Time	~ 18 mins	~ 3 mins
Rollback Time	~ 18 mins	~ 3 mins



KubeCon

CloudNativeCon

————— **North America 2018** —————

Thank You

