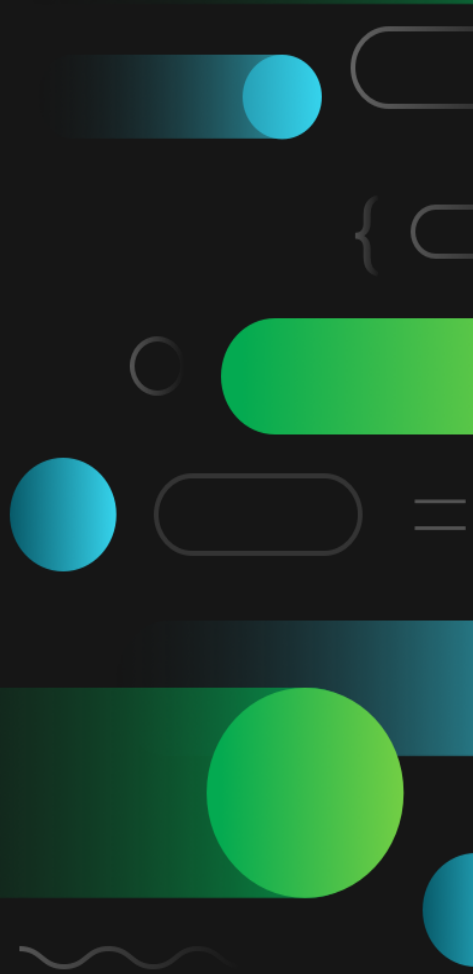
Abstracting Heavy Lifting: How Kubernetes Speeds Up Multi-Cloud Delivery

Rob Zuber

CTO, CircleCI

@z00b



circleci
300k developers
12+ million builds/month
25k+ organizations

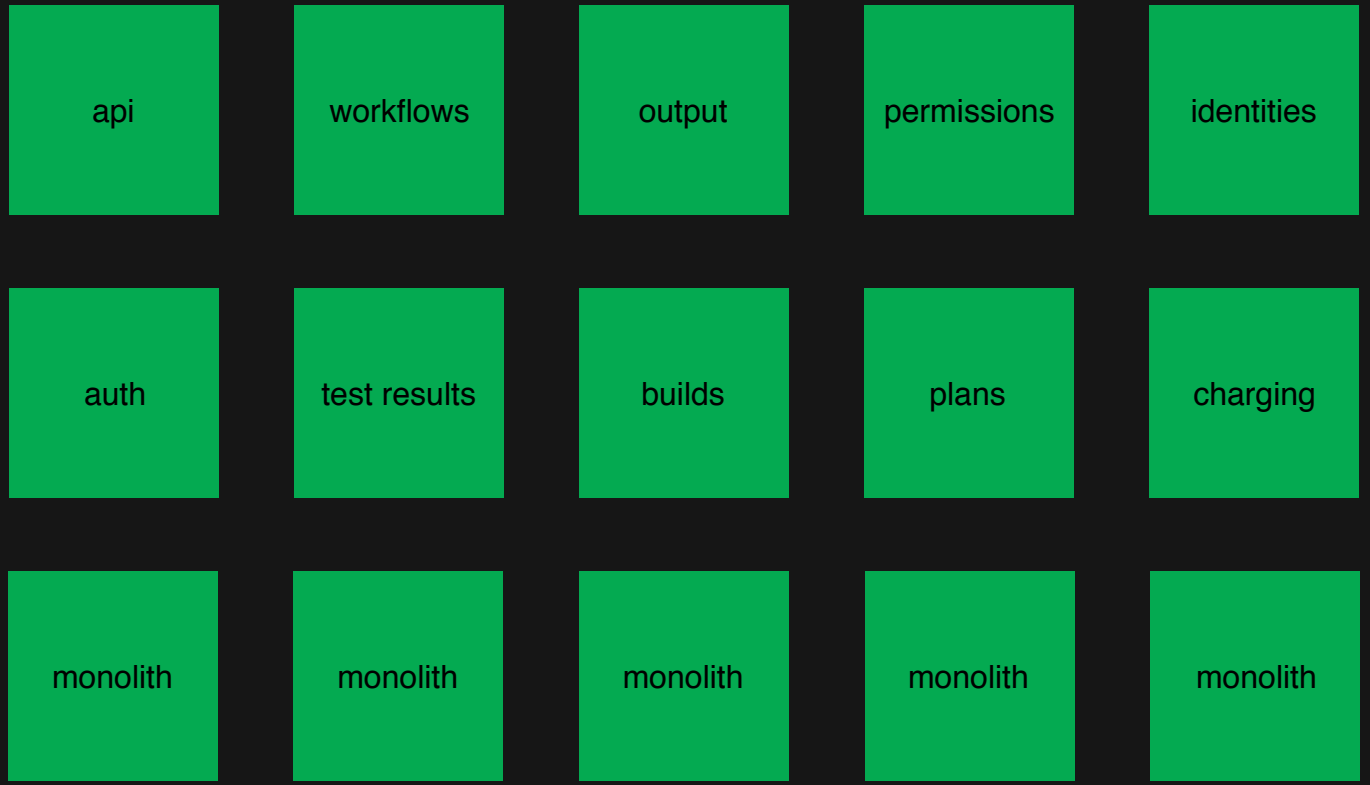
7 Years Earlier....

"Cloud"

"Cloud"

"Server"

REPLICATED

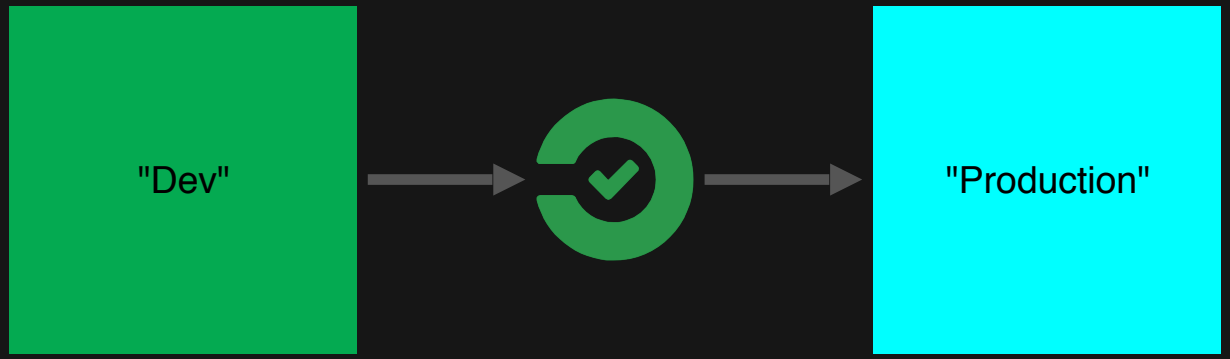

api
workflows
output
permissions
identities
auth
test results
builds
plans
charging
monolith
monolith
monolith
monolith
monolith

"Now we've got 2 problems"

"Now we've got n^2 problems"

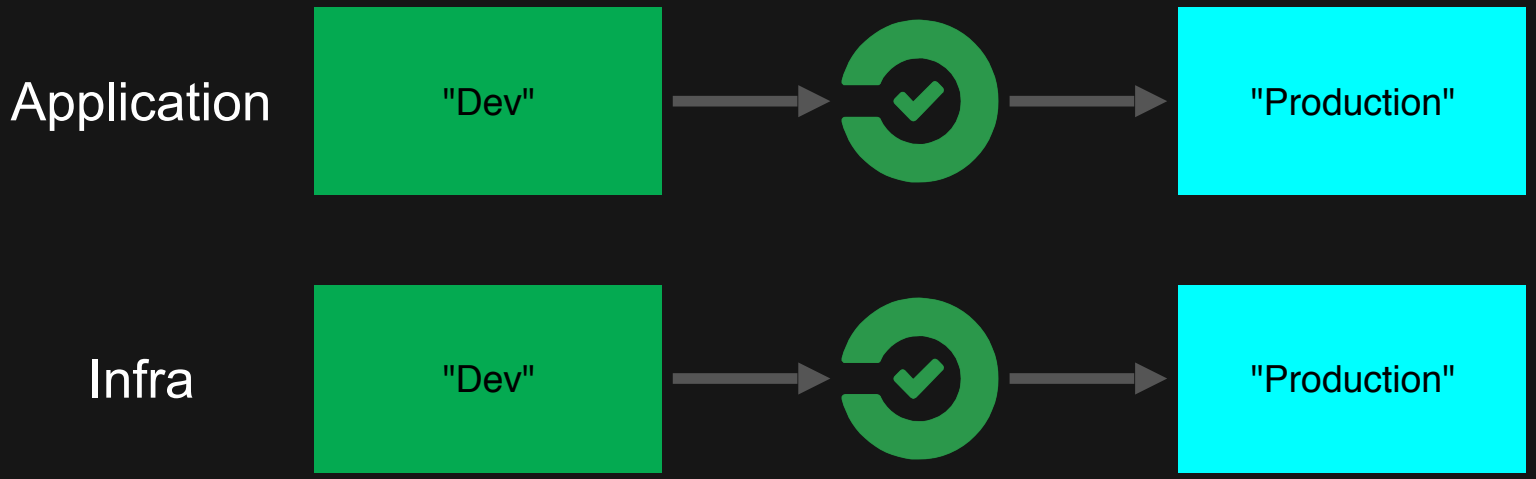
Developers

Operators



Developers

Operators

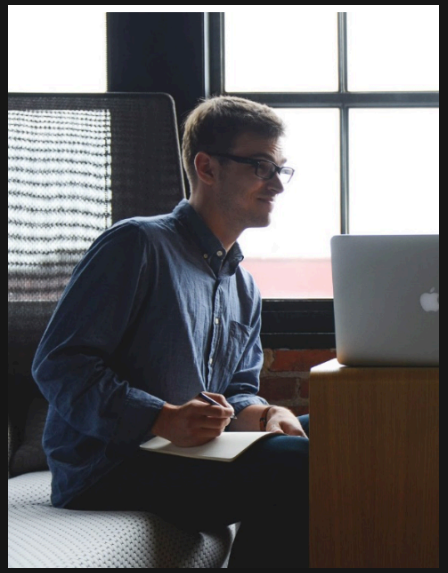

Application
"Dev"
"Production"
Infra
"Dev"
"Production"

IN RECOGNITION OF $1B+ IN VALUE CREATION
PTC
SOUNDVIEW
INTERWOVEN
selectica
TRADEX
CYRAS
Netcentives
CircleCI 完全に理解
"I completely understand Ci
can do CircleCI a little"

What We've Learned

1. Understand your customer
2. Focus on your core competencies
3. Use abstractions to isolate change
4. Use abstractions to reduce complexity

Understand Your Customer



The CircleCI Server Customer

- Sophisticated development shop

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- Sophisticated development shop
- Experienced with k8s

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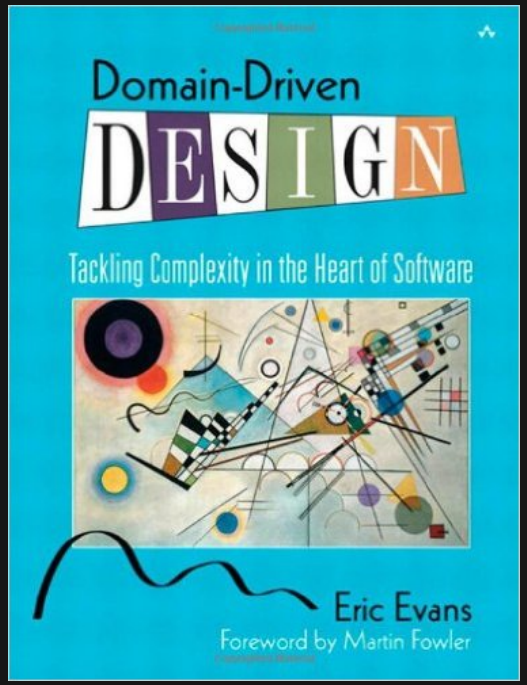
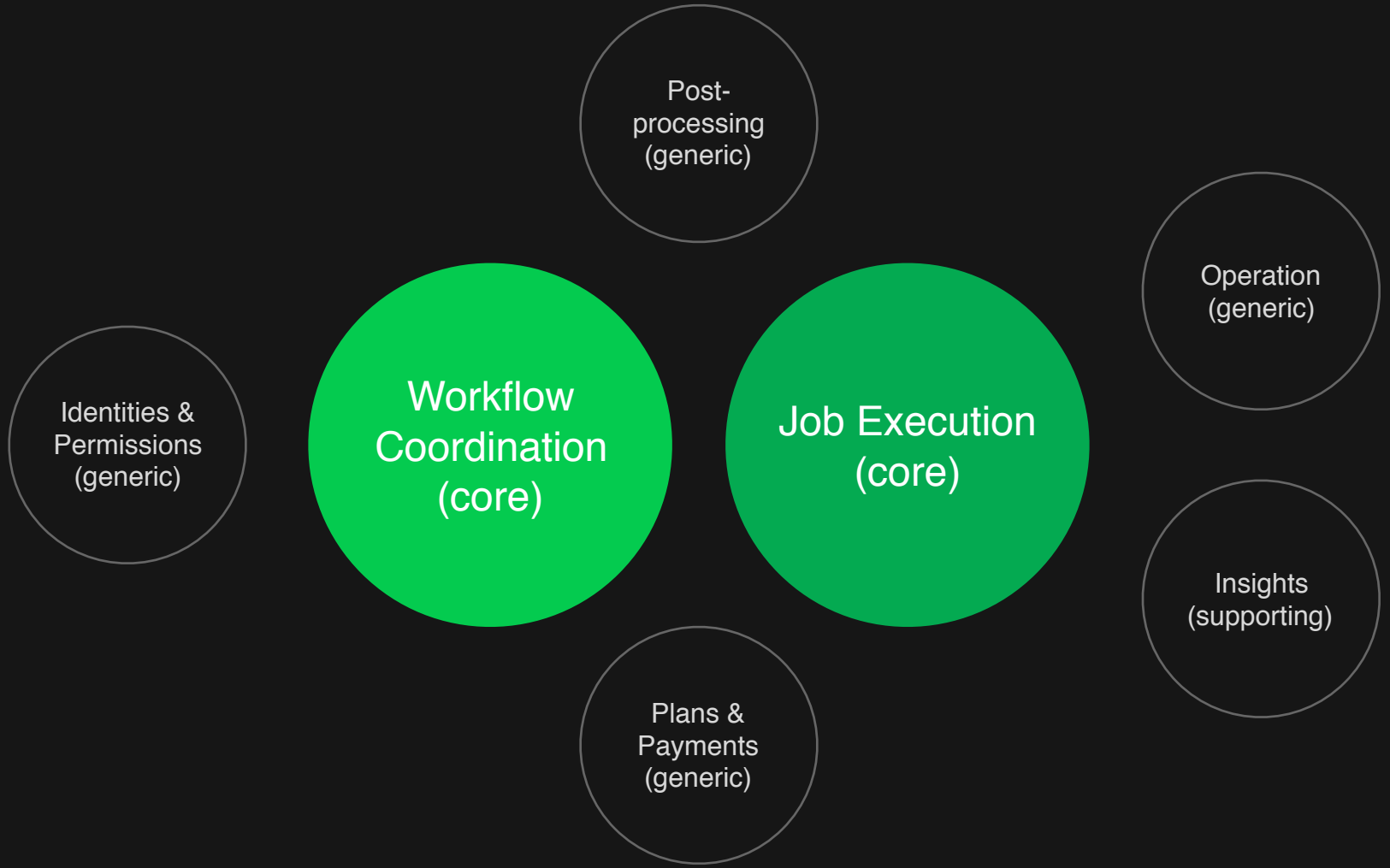
- Live upgrades > one-click

The CircleCI Server Customer

- Sophisticated development shop
- Experienced with k8s
- Live upgrades > one-click
- Operates like a multi-tenant cloud

Focus on Your Core Competencies


Domain-Driven
DESIGN
Tackling Complexity in the Heart of Software
Eric Evans
Foreword by Martin Fowler


Post-processing (generic)
Operation (generic)
Identities & Permissions (generic)
Workflow Coordination (core)
Job Execution (core)
Insights (supporting)
Plans & Payments (generic)

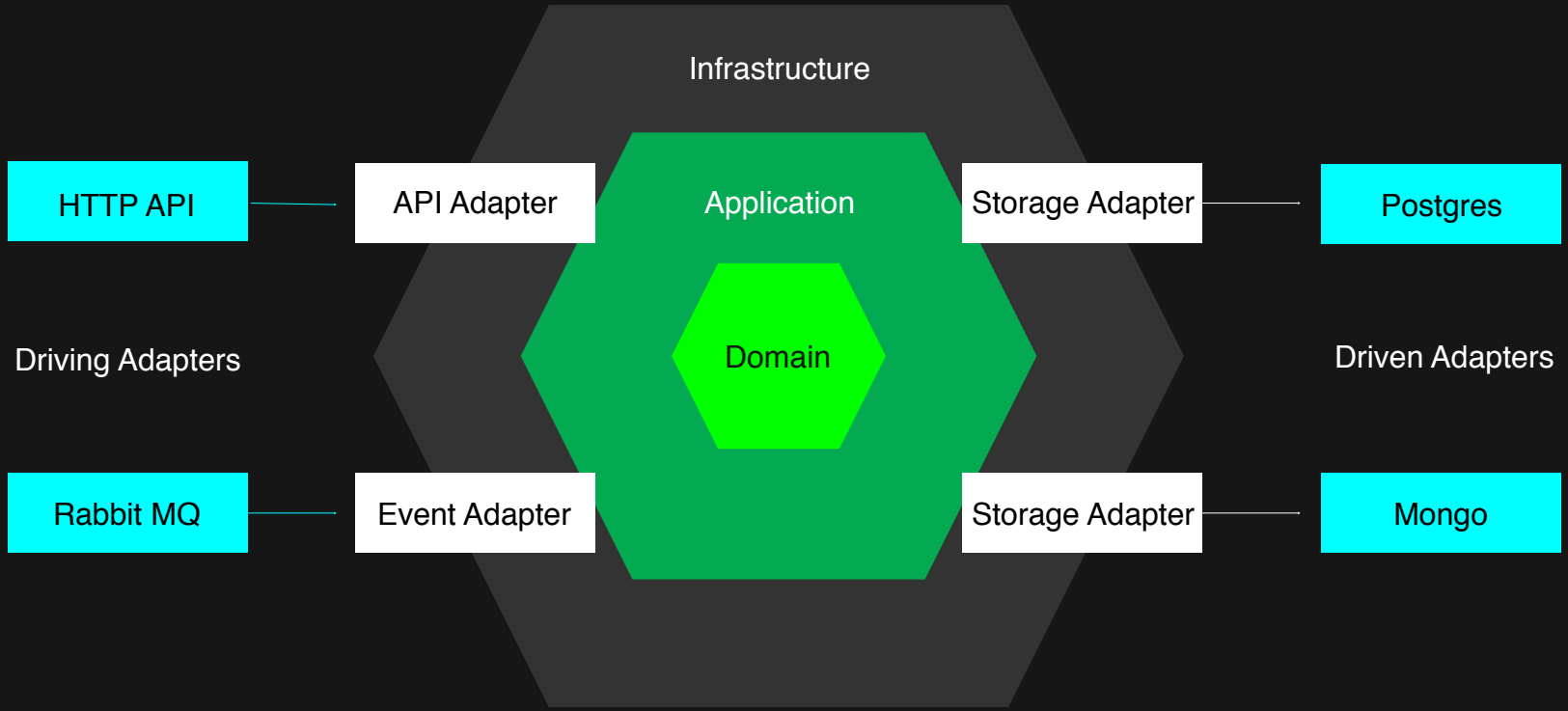
But what if we zoom in another level?

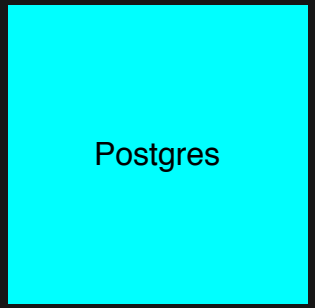
JOB EXECUTION

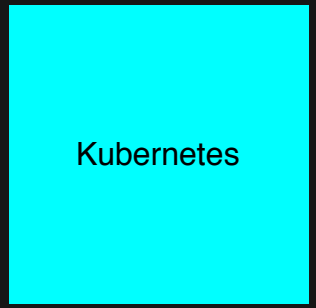
OPERATION

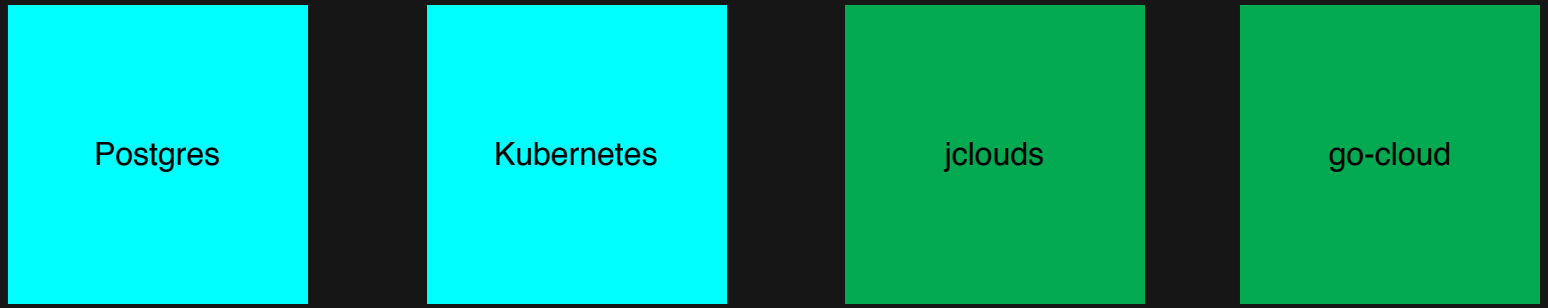
Container
Orchestration
(generic)
Upgrade
(core)
Observability
(generic)

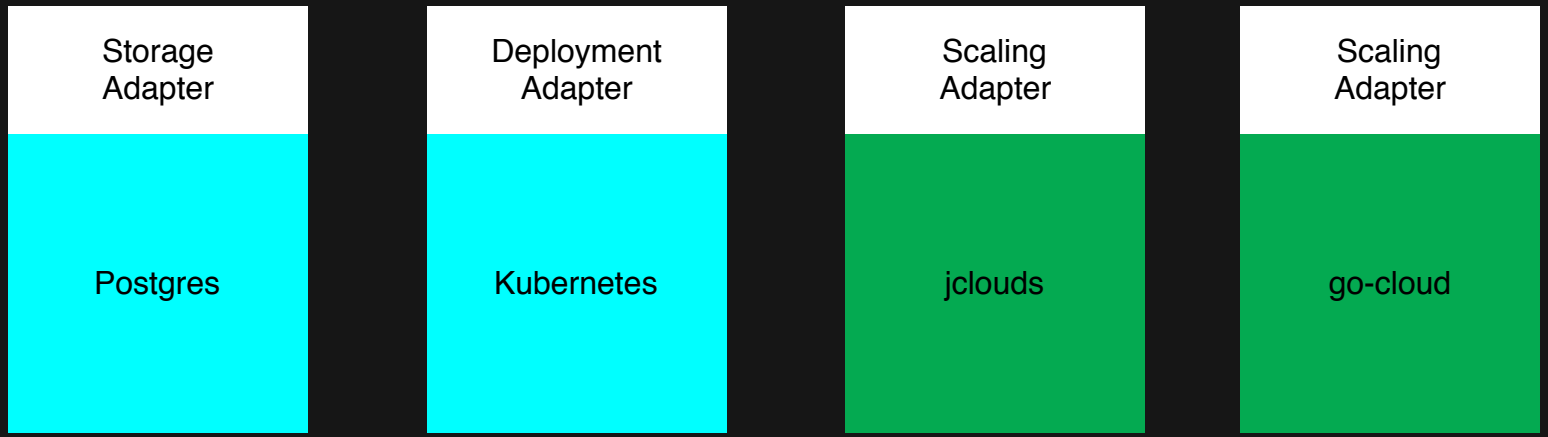
Use Abstractions to Isolate Change

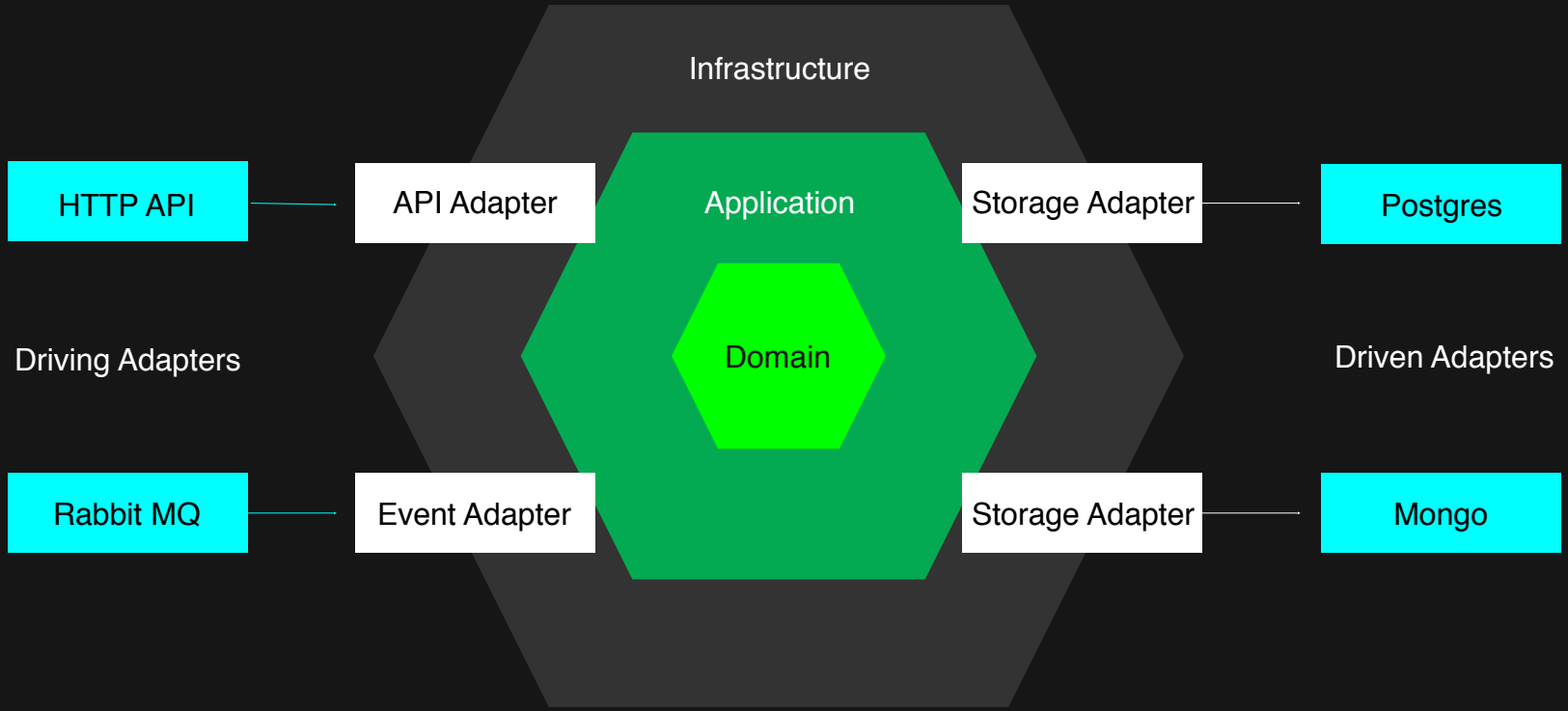

Infrastructure
HTTP API
API Adapter
Application
Storage Adapter
Postgres
Driving Adapters
Domain
Driven Adapters
Rabbit MQ
Event Adapter
Storage Adapter
Mongo


Postgres


Kubernetes


Postgres
Kubernetes
jclouds
go-cloud


Storage Adapter
Postgres
Deployment Adapter
Kubernetes
Scaling Adapter
jclouds
Scaling Adapter
go-cloud


Infrastructure
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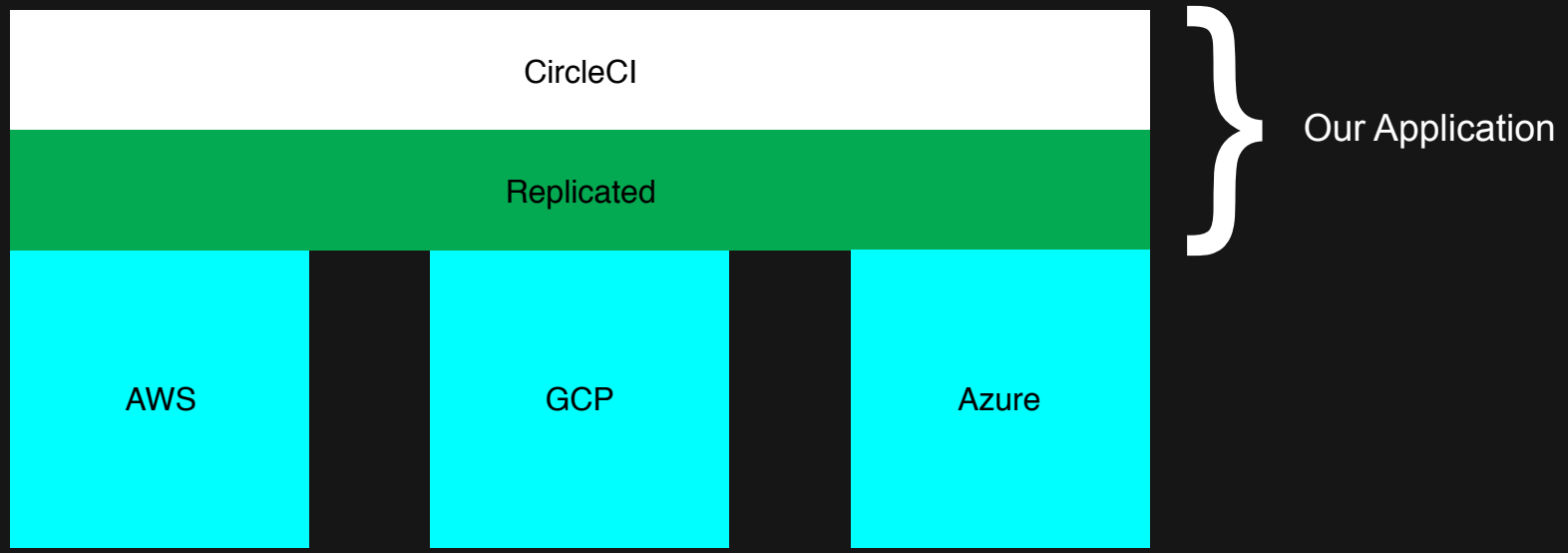
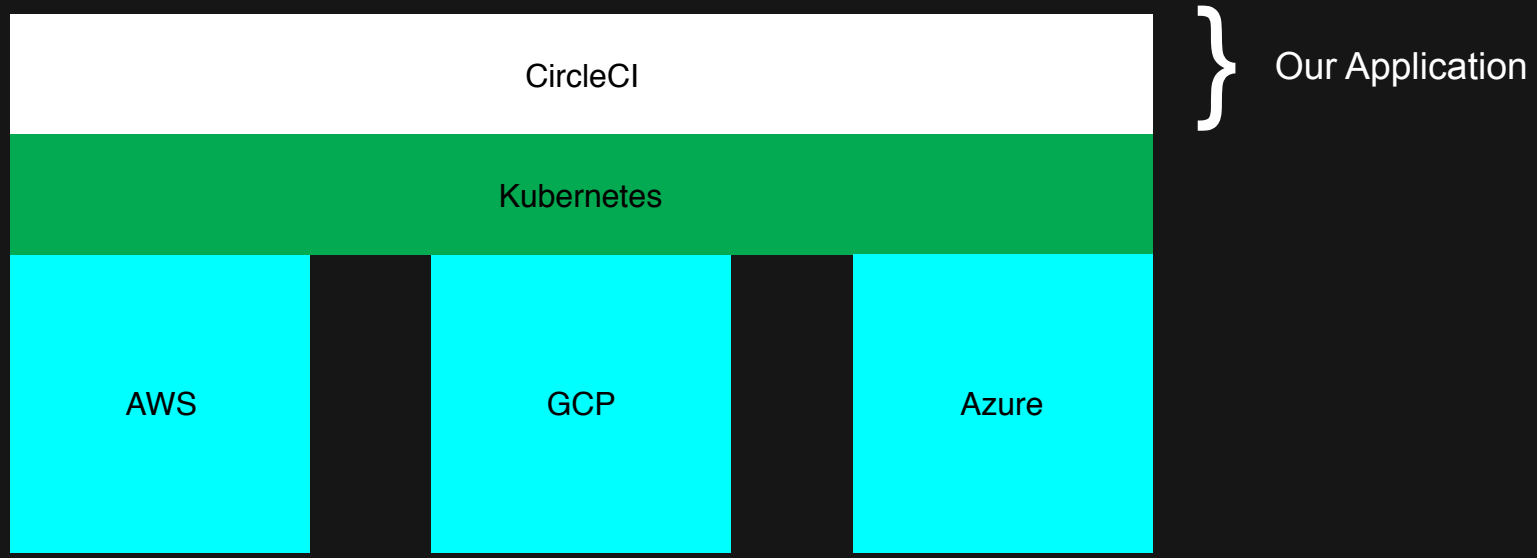
Use Abstractions to Reduce Complexity

"the greatest limitation in writing software is our ability to understand the systems we are creating"

John Ousterhout, *A Philosophy of Software Design*


CircleCI
Replicated
Our Application
AWS
GCP
Azure


CircleCI
Kubernetes
AWS
GCP
Azure
Our Application

Recap & Takeaways

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Thank you.

https://circleci.com/jobs