Just enough Docker

Modernize your traditional applications and more

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Opinions are our own, they don’t represent the views of our employers

Legacy Application

Manual infrastructure

Physical server.

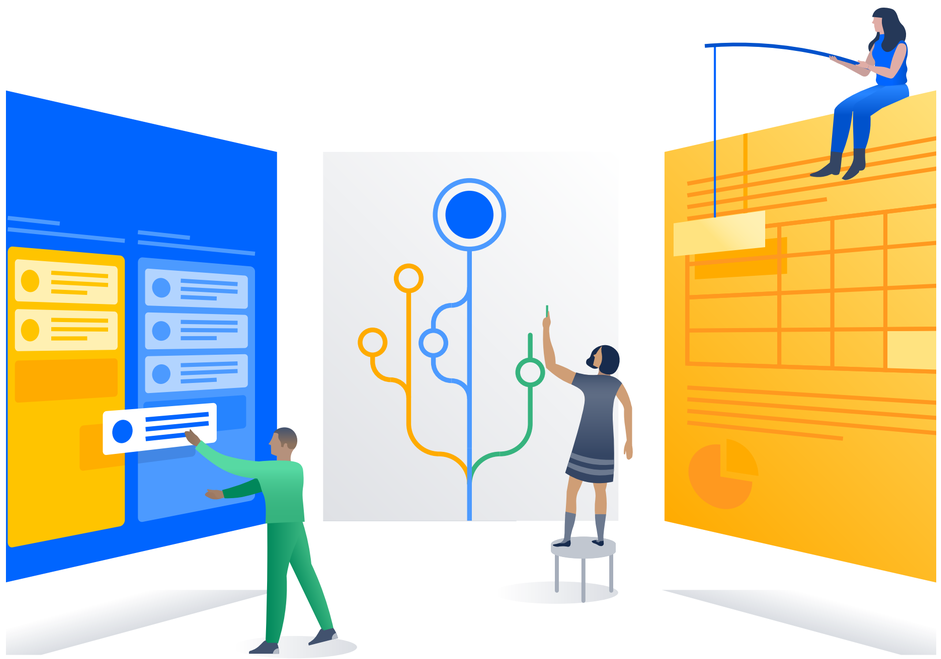
Manual operations

Deployment, upgrade and troubleshooting is all done manually by the application administrator.

Not Replicable

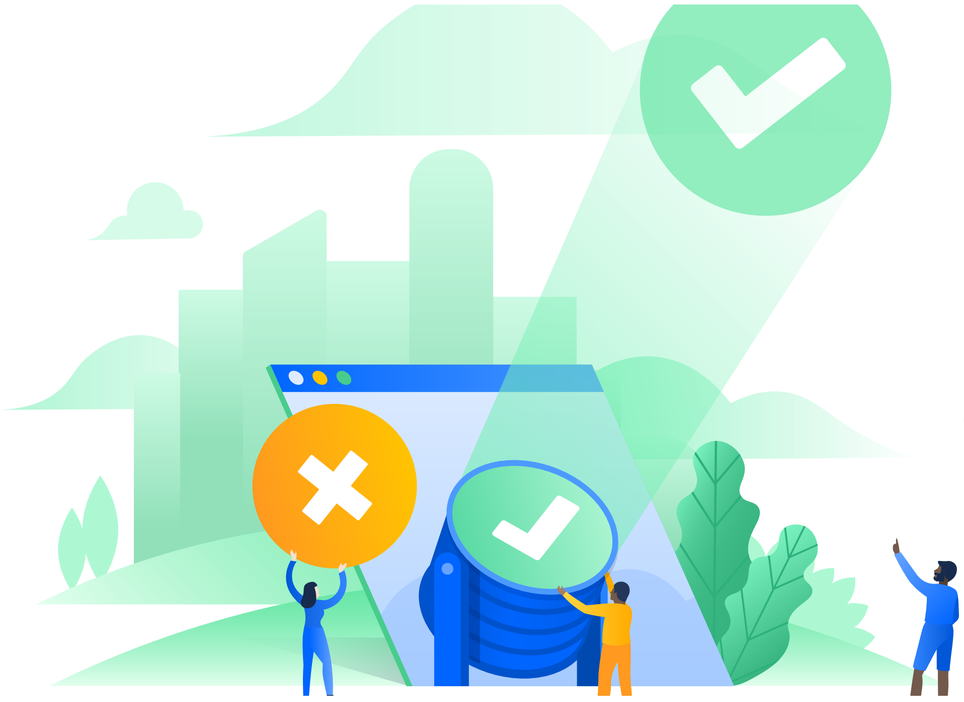
Can’t create new environments automatically.

Cloud Application



Automated infra

Infrastructure and application can be deployed automatically via scripts (e.g. cloud formation templates).



Replicable

Application can be deployed to different environments, automatically tested via Jenkins, Bamboo or similar CI/CD system.

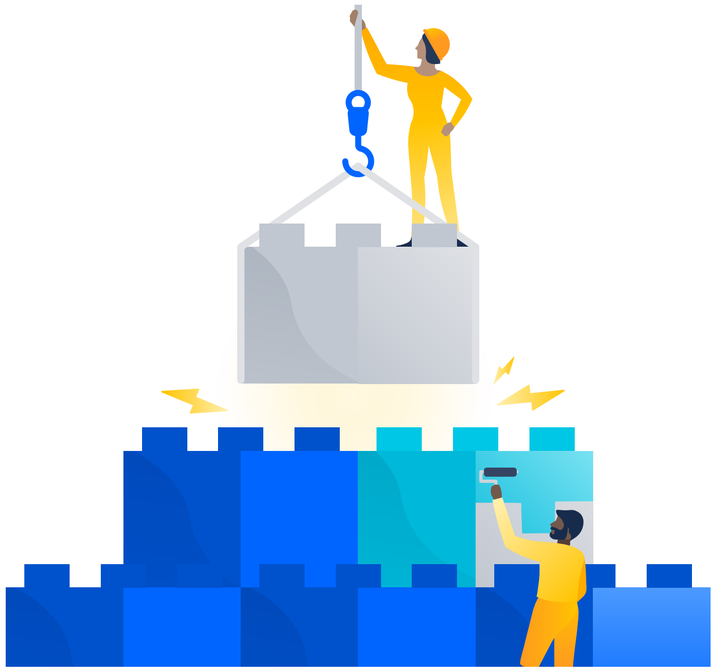
Highly available

Leverages different cloud services (Load balancer, scaling groups, dynamic DNS) to always be online.

Not Portable

Works in my machine!

Containerized Application



Container Runtime

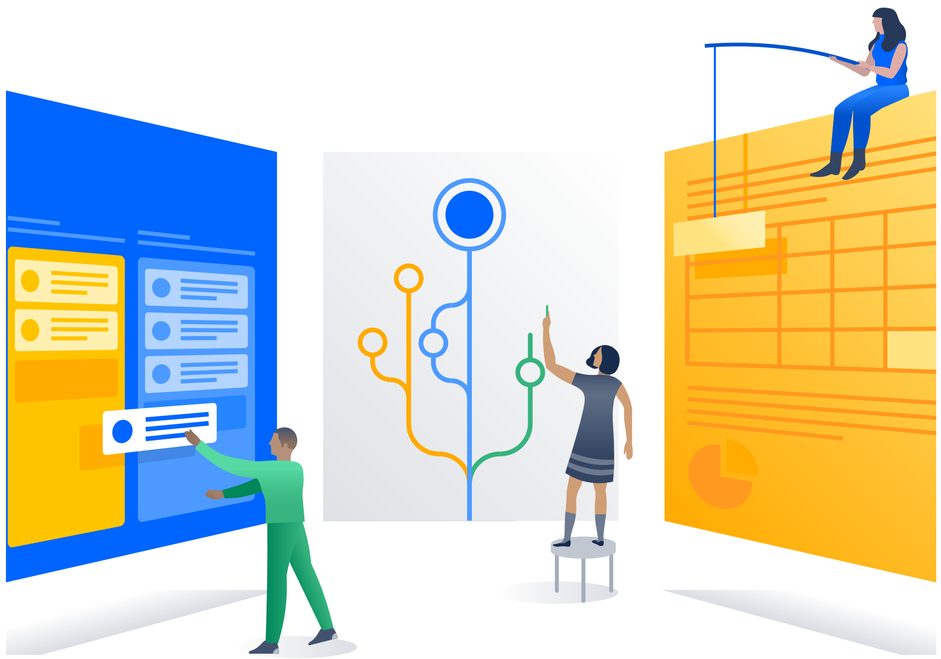
Unifying dev, ci, stage and prod environments.

Container Images

Can be easily distributed across machines.

Lightweight

You can run a lot of containers on a single machine.



Automated deploys

How do we deploy our container-based application to the cloud?

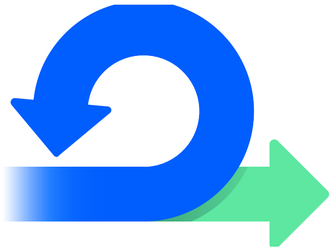
Good practices

Replicable

Test, stage and prod are the same

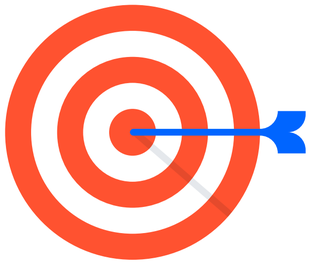
Immutable

Once deployed it doesn’t change



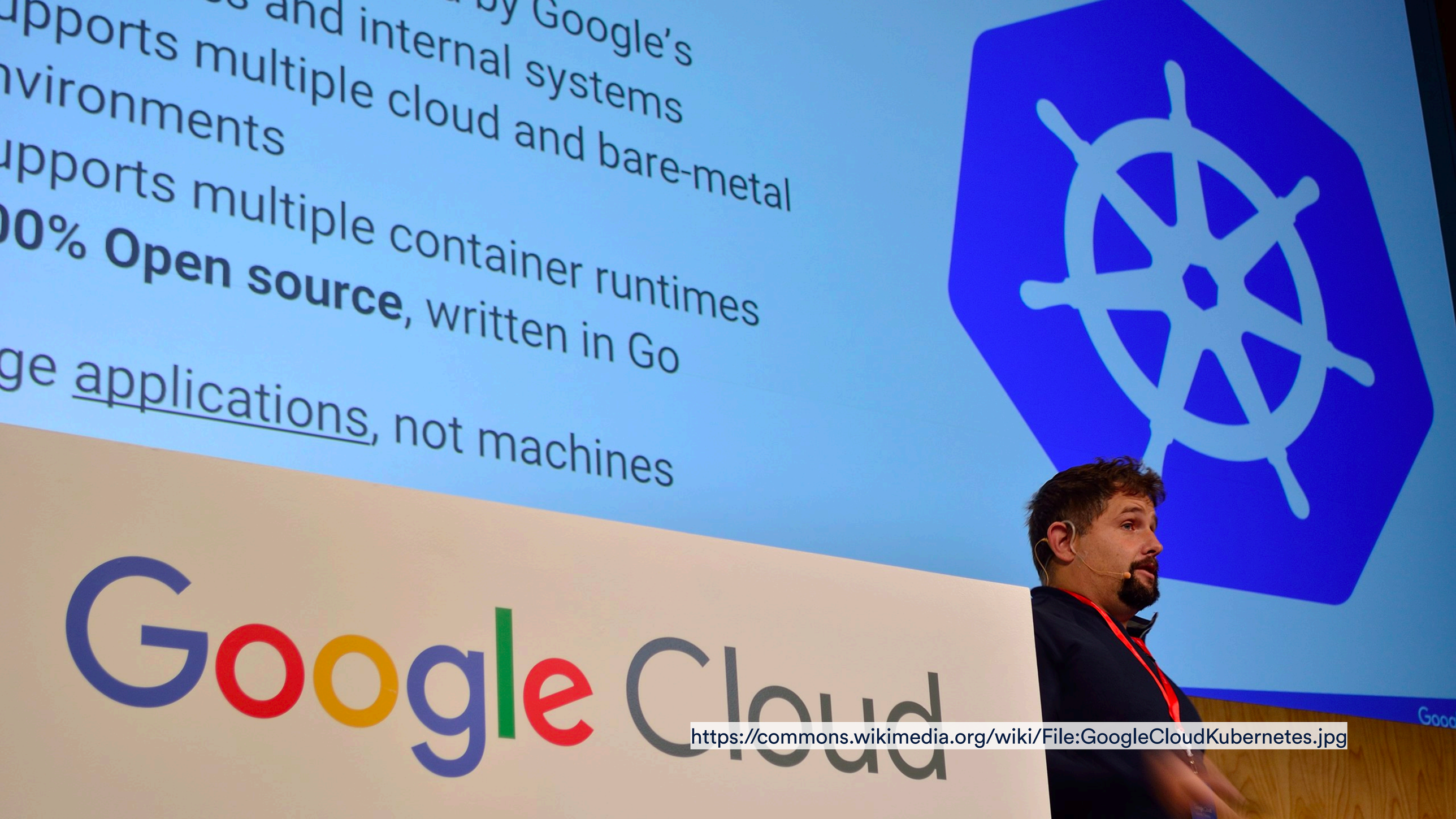
Available

Always online. Like water.



Traceable

Health and status at a glance



https://commons.wikimedia.org/wiki/File:GoogleCloudKubernetes.jpg

Kubernetes is not a deployment tool for containers, it's a different development paradigm

Kubernetes' main strength is optimizing your infrastructure utilization, but at a cost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OLIVES

But Kubernetes is not the only way. There are ways better suited for most use cases

For most use cases, we can use cloud native features to manage and deploy our applications

Cloud providers are very robust orchestrators, well fit for containerized applications

Cloud Containerized Application

VMs are the prime deployment unit for cloud, it integrates well and is secure

A container in a VM gives us the best of all worlds: replicable, immutable, available and traceable

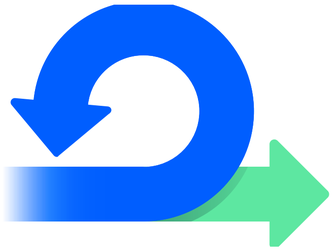
Good practices

Replicable

Test, stage and prod are the same.

Immutable

Once deployed it doesn’t change.



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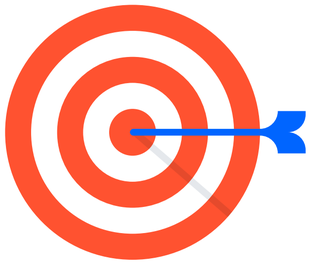
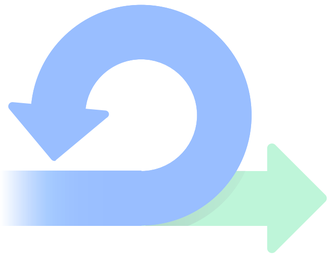
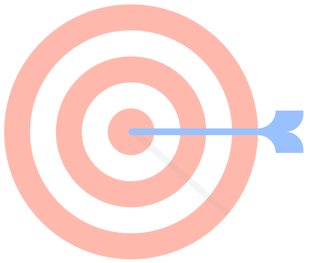


Traceable

Health and status at a glance.



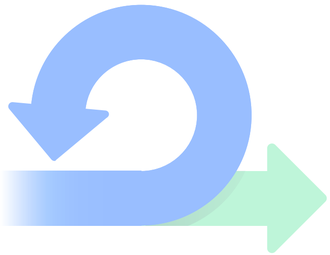


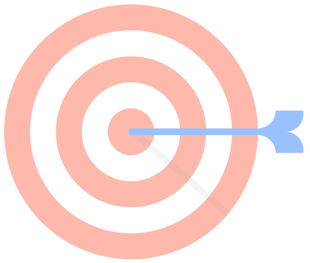
Replicable

Test, staging and production environments are the same, just different scale.

Containers are a great fit for this, they solve dependency and replicability for you.

Use tags and registries to make the same container available to different environments.





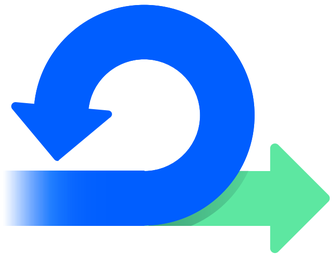
Immutable

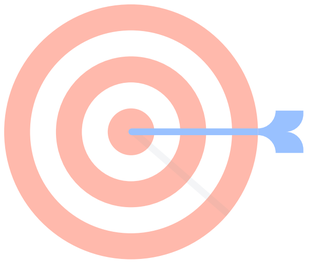
Once deployed, the application never changes.

Virtual machines are great artifacts for this.

Linux kit allows us to create minimalistic VMs. Faster to deploy, and smaller footprint.

Cloud formation (and similar technologies) to automate deploy and upgrade.





Available

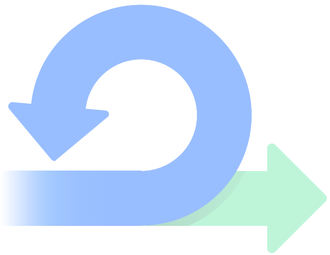
Application should always be available.

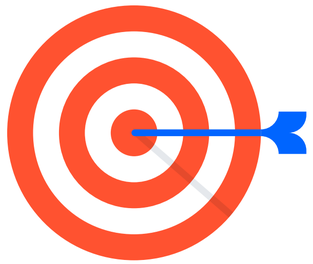
Even during upgrades or peak times.

Elastic load balancers and auto scaling groups can help with peaks and with failover.

CloudFormation and autoscaling groups for rolling upgrades.

Route 53 for blue/green deployments.





Traceable

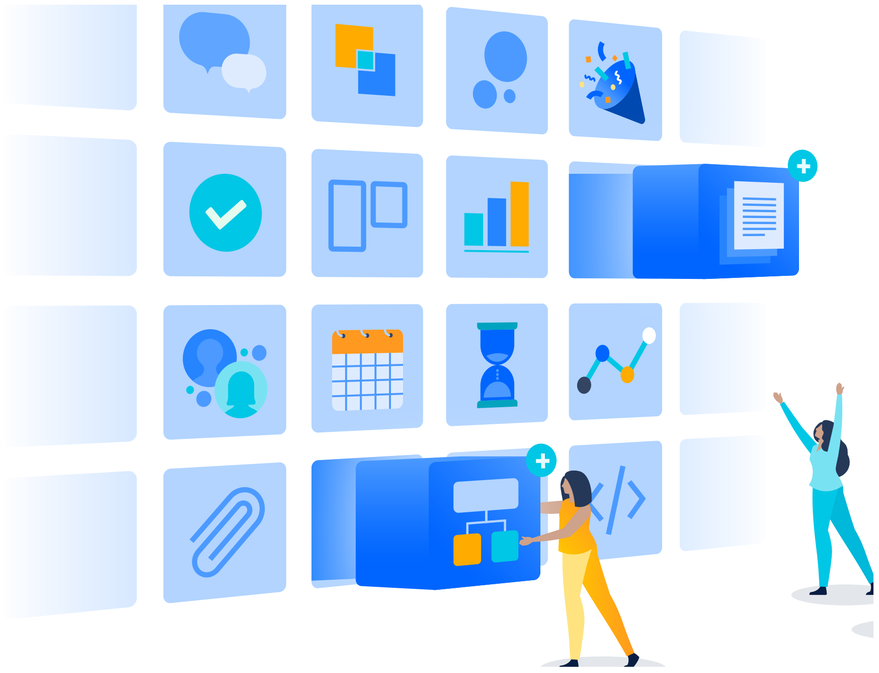
Know the state of your application at a glance.

Containers allows you to standardize log management. Just use Amazon CloudWatch Logs logging driver.

CloudWatch can be used to collect CPU, Memory and similar VM-level metrics.

VMs can be big and slow, but there's a lot of research into solving these problems

My VM is lighter (and safer) than your container: https://dl.acm.org/citation.cfm?id=3132763



But how do we do it?

CloudFormation, Terraform, Ansible and others can give your this.

Every team spends countless hours writing and maintaining scripts to deploy and upgrade their own applications

Time spent on this is time not spent on our core competencies.

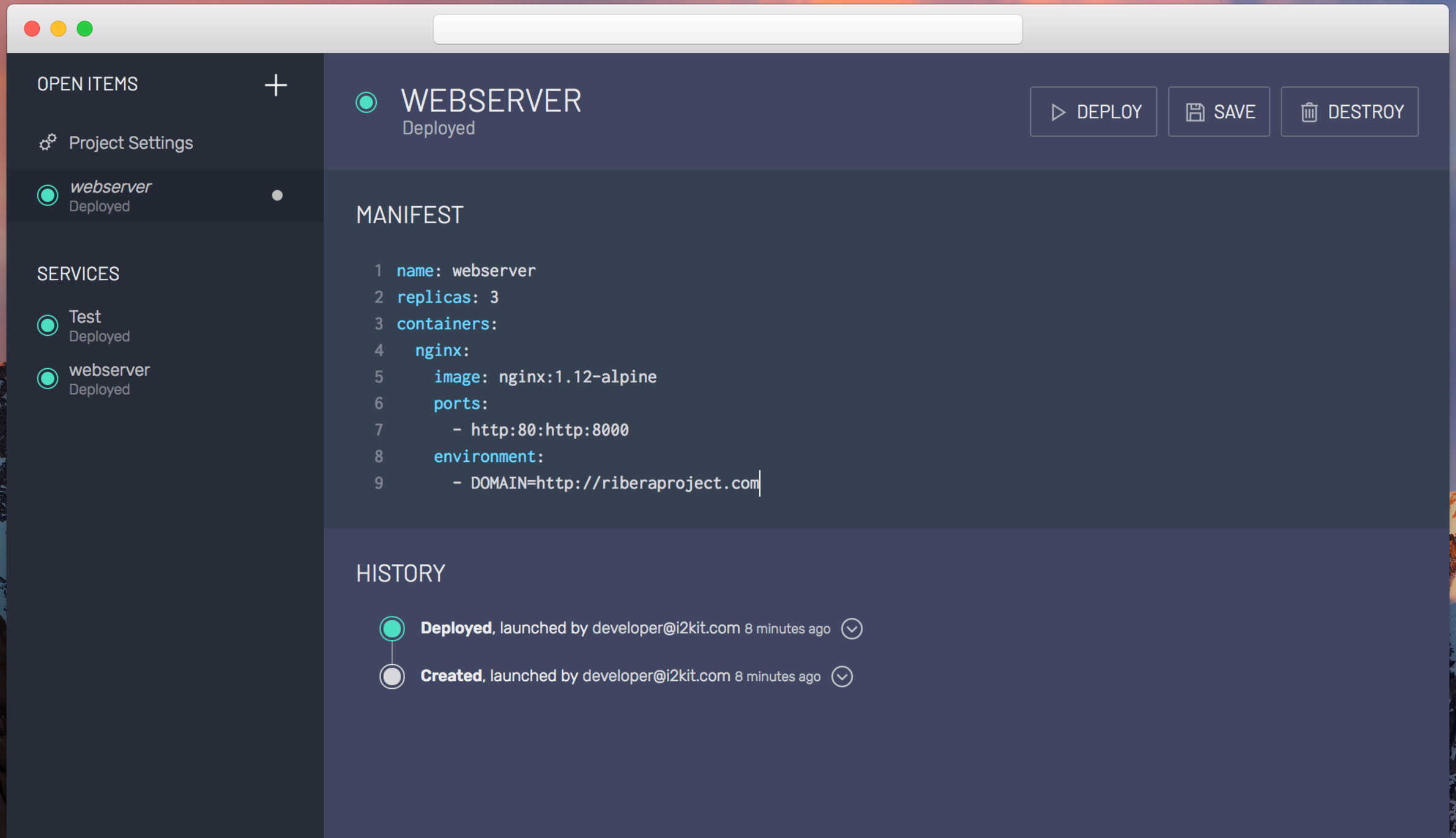
i2kit

WE WANT TO BENEFIT FROM THE POWER OF THE CLOUD

WE WANT A FORMAT WE'RE ALREADY FAMILIAR WITH

WE DON’T WANT TO MANAGE A CLUSTER

Our goal is to write a tool that will enable teams to describe application as manifests, and to generate deployment plans using all the available best practices


OPEN ITEMS
Project Settings
webserver
Deployed
SERVICES
Test
Deployed
webserver
Deployed
WEBSERVER
Deployed
DEPLOY
SAVE
DESTROY
MANIFEST
1 name: webserver
2 replicas: 3
3 containers:
4 nginx:
5 image: nginx:1.12-alpine
6 ports:
7 - http:80:http:8000
8 environment:
9 - DOMAIN=http://riberaproject.com
HISTORY
Deployed, launched by developer@i2kit.com 8 minutes ago
Created, launched by developer@i2kit.com 8 minutes ago

i2kit provides...

Replicable

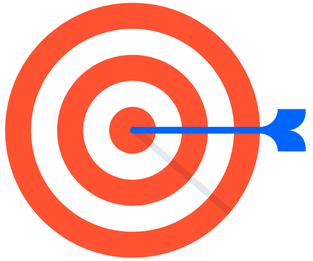
Same containers application manifest everywhere

Immutable

One Linuxkit-based VM for each container

Available

ELBs, ASGs and Route53



Traceable

CloudWatch logs and metrics

https://github.com/pchico83/i2kit

Thank you!

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