Building and operating a learning platform on Kubernetes

ABOUT ME

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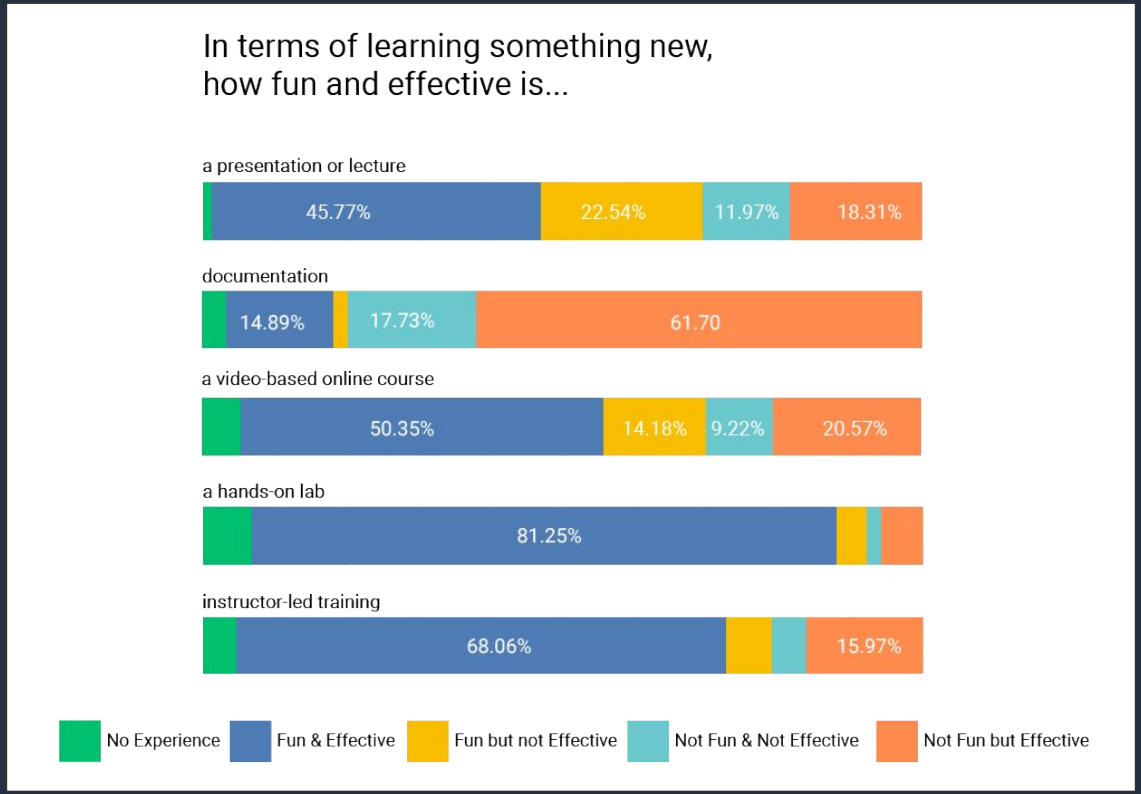
instruqt

What is Instruqt?

Instruqt is an IT-focused e-learning platform that uses a gamified, challenge-driven approach for learning new technology.


In terms of learning something new, how fun and effective is...
a presentation or lecture
45.77%
22.54%
11.97%
18.31%
documentation
14.89%
17.73%
61.70
a video-based online course
50.35%
14.18%
9.22%
20.57%
a hands-on lab
81.25%
instructor-led training
68.06%
15.97%
No Experience
Fun & Effective
Fun but not Effective
Not Fun & Not Effective
Not Fun but Effective

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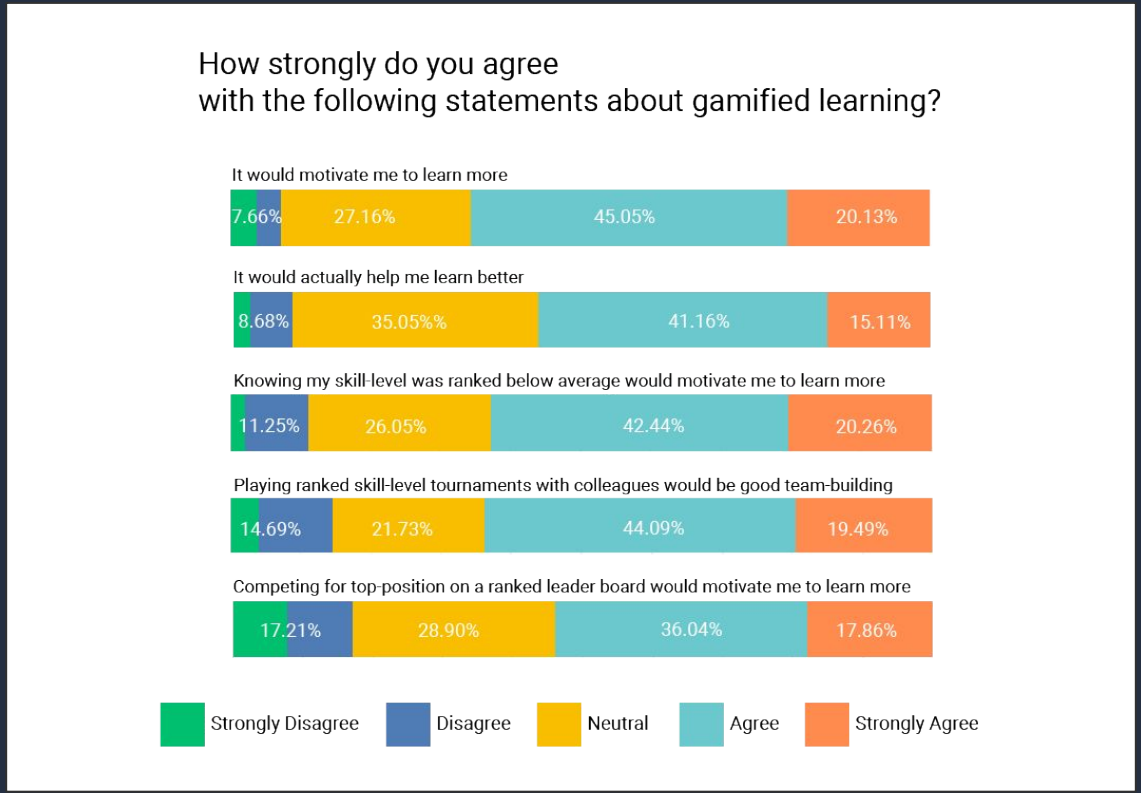

How strongly do you agree
with the following statements about gamified learning?
It would motivate me to learn more
7.66%
27.16%
45.05%
20.13%
It would actually help me learn better
8.68%
35.05%%
41.16%
15.11%
Knowing my skill-level was ranked below average would motivate me to learn more
11.25%
26.05%
42.44%
20.26%
Playing ranked skill-level tournaments with colleagues would be good team-building
14.69%
21.73%
44.09%
19.49%
Competing for top-position on a ranked leader board would motivate me to learn more
17.21%
28.90%
36.04%
17.86%
Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

Each user will get a sandboxed environment with real infrastructure to complete challenges in.

Platform demo

How did we build this platform?

How did we build this platform?

Google Cloud Platform

Terraform

Kubernetes
(GKE)

Go

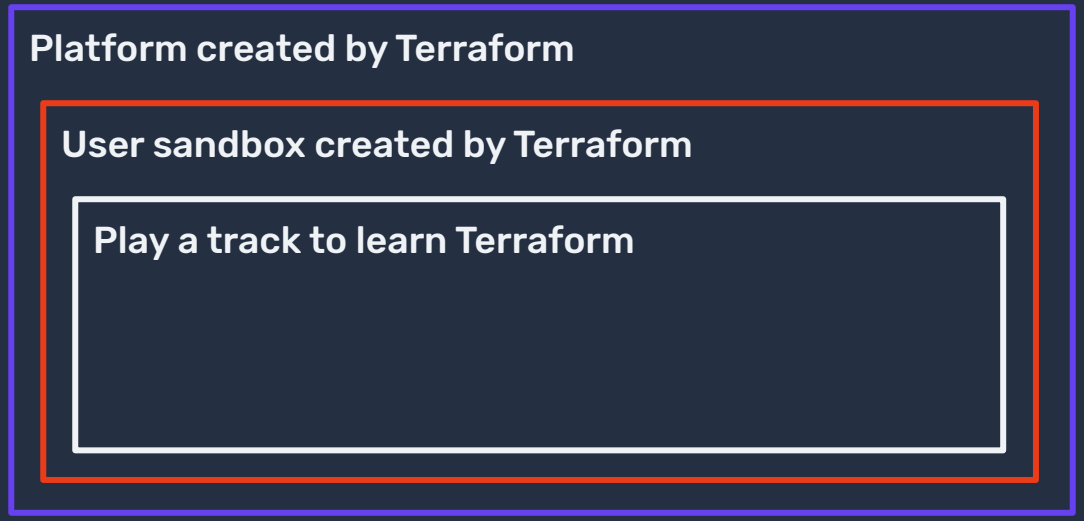
React

“Terraform is a tool for building, changing, and versioning infrastructure safely and efficiently. Terraform can manage existing and popular service providers as well as custom in-house solutions.”
- HashiCorp

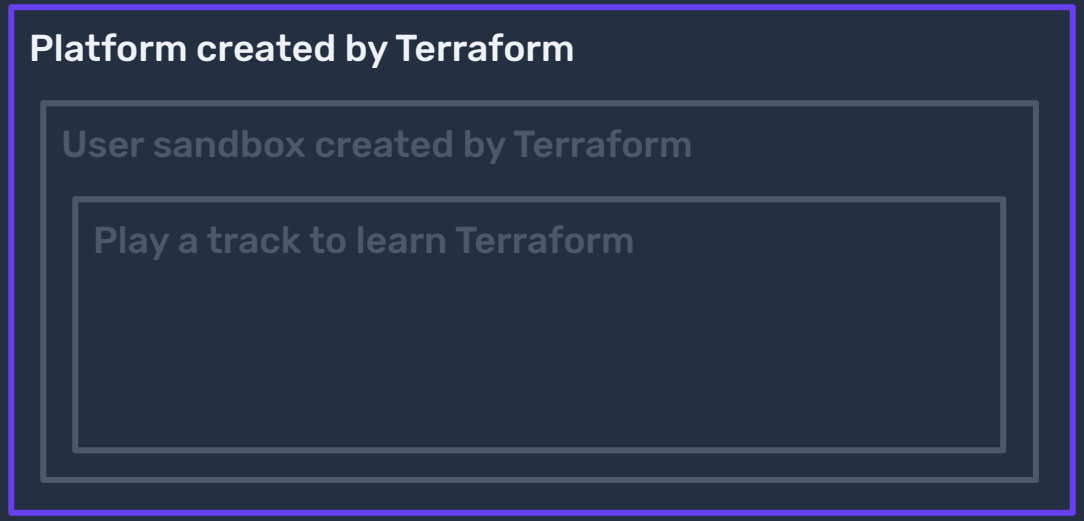
Terraform @ Instruqt

- Everything infrastructure as code
- Creates our entire production platform
- Creates all deployments, services, etc… on K8s
- Creates all user environments
- State stored in GCS buckets

Terraform @ Instruqt



Terraform @ Instruqt



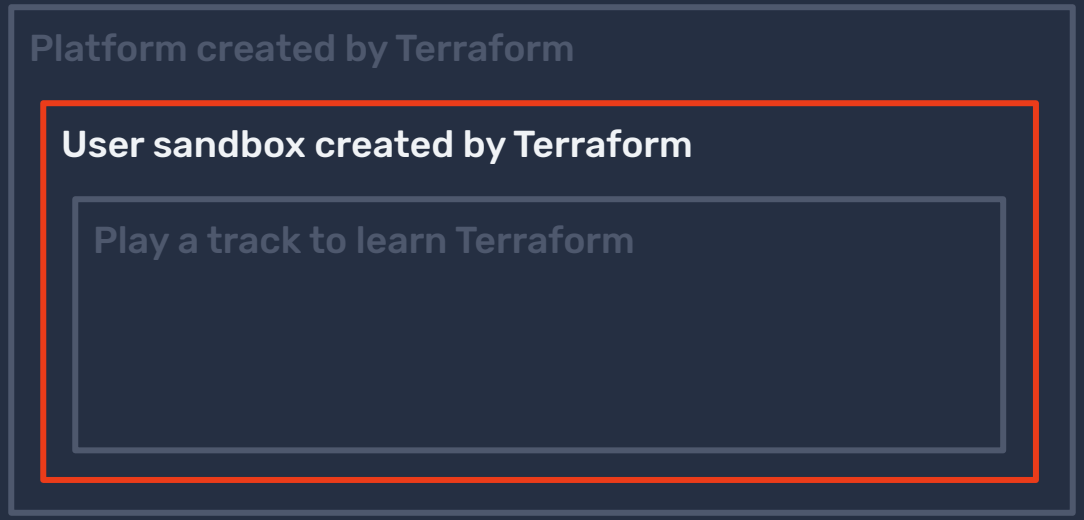
Describe the desired state of your Kubernetes cluster with Terraform

Roll out new versions of your application using a continuous delivery pipeline

Terraform makes collaboration easy

Terraform demo

Terraform @ Instruqt

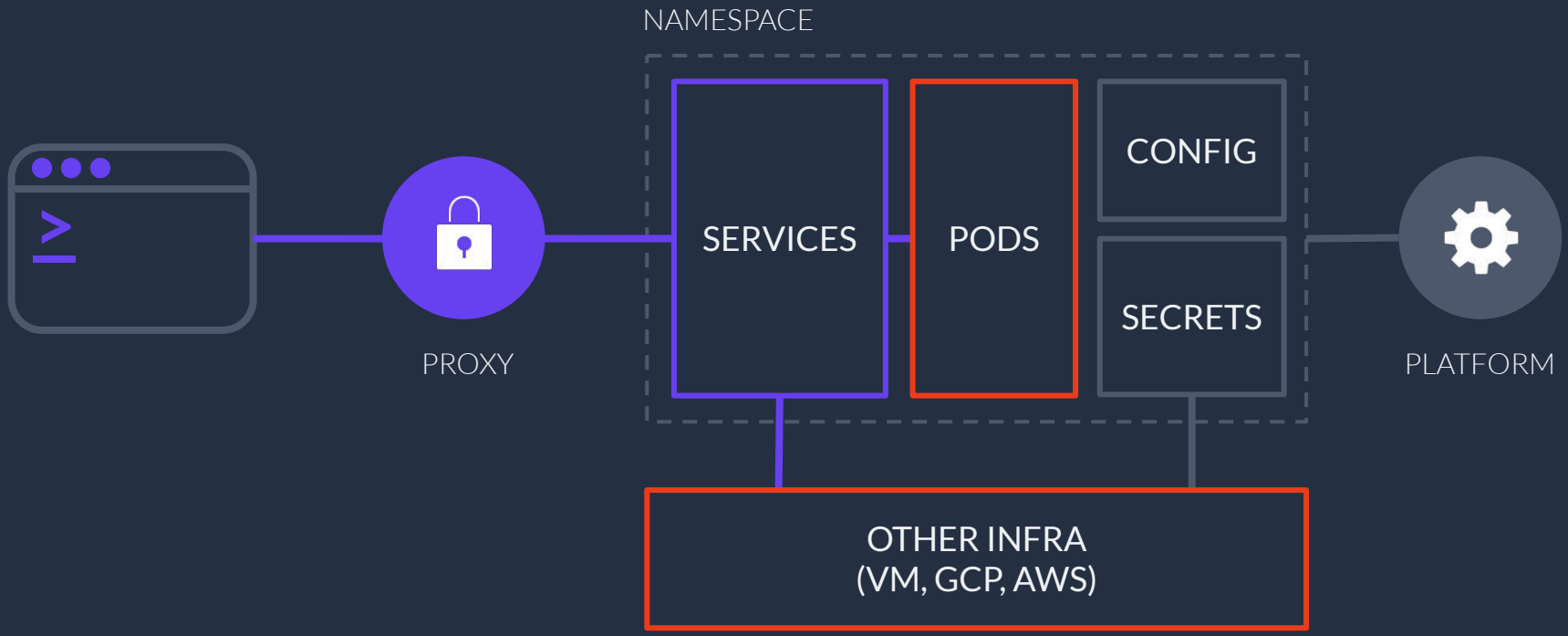


Each course has its own infrastructure needs. They can use Docker containers, Virtual Machine's or even entire cloud project.

Sandboxed environments are created for users on-demand

Demo

TERRAFORM



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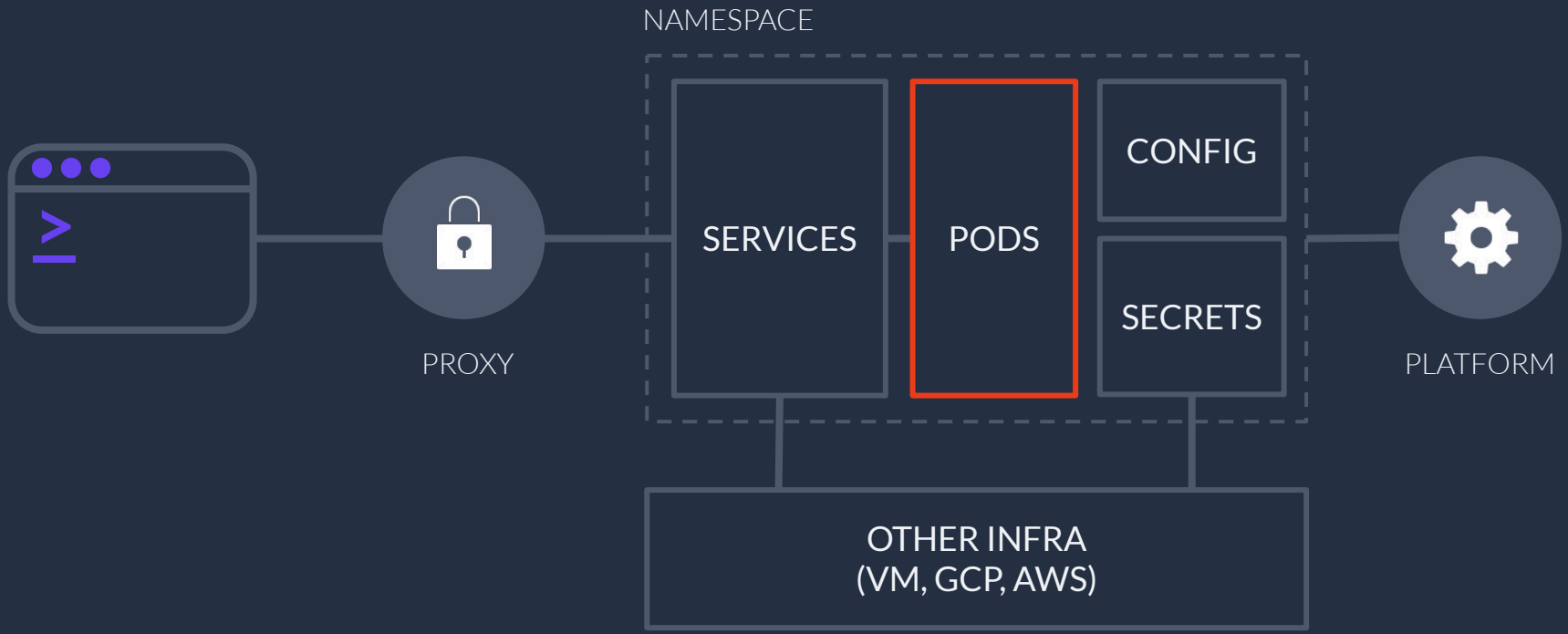
TERRAFORM



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Init containers start before the app containers are started

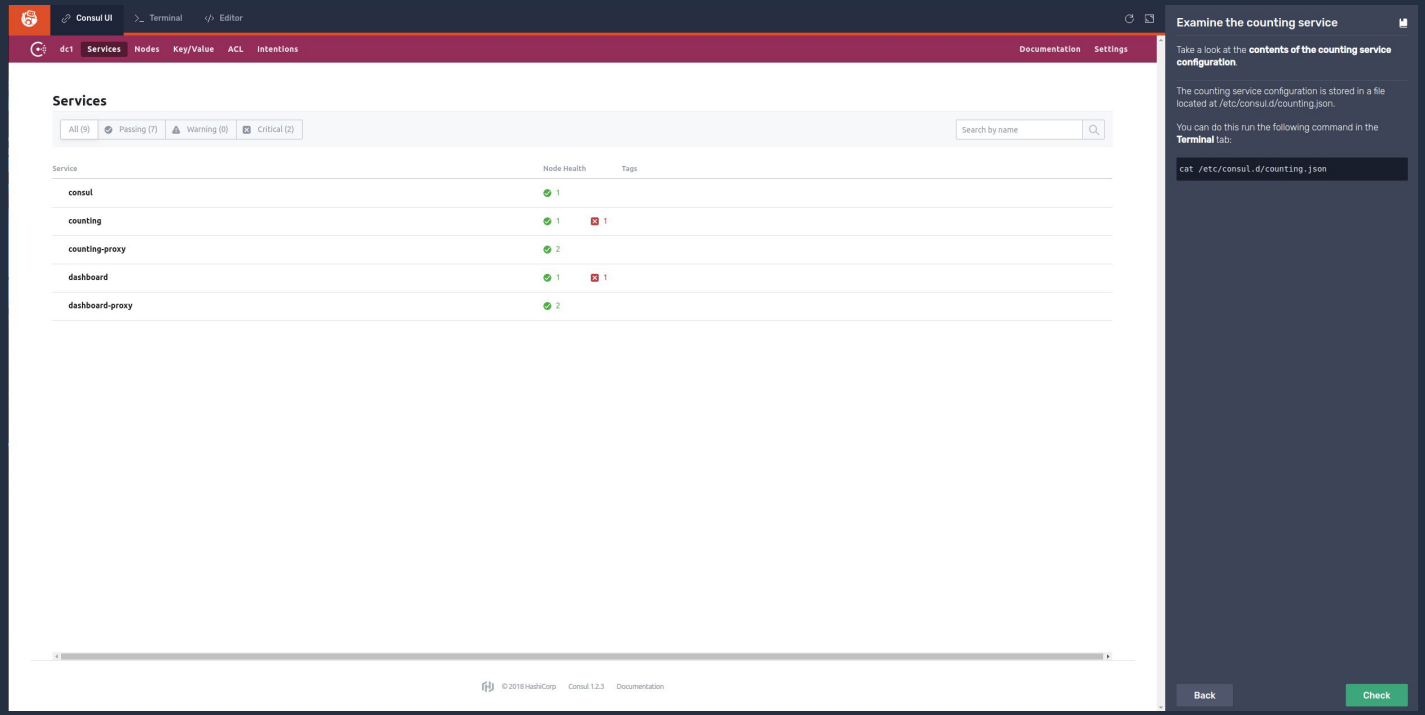
Init containers always run to completion.
Each init container must complete successfully before the next one starts.

Why use them?

INIT CONTAINERS

```yaml
apiVersion: v1
kind: Pod
metadata:
  name: myapp-pod
  labels:
    app: myapp
spec:
  containers:
  - name: myapp-container
    image: busybox:1.28
    command: ['sh', '-c', 'echo The app is running! && sleep 3600']
  initContainers:
  - name: init-myservice
    image: busybox:1.28
    command: ['sh', '-c', 'until nslookup myservice; do echo waiting for myservice; sleep 2; done;']
  - name: init-mydb
    image: busybox:1.28
    command: ['sh', '-c', 'until nslookup mydb; do echo waiting for mydb; sleep 2; done;']
```

END RESULT



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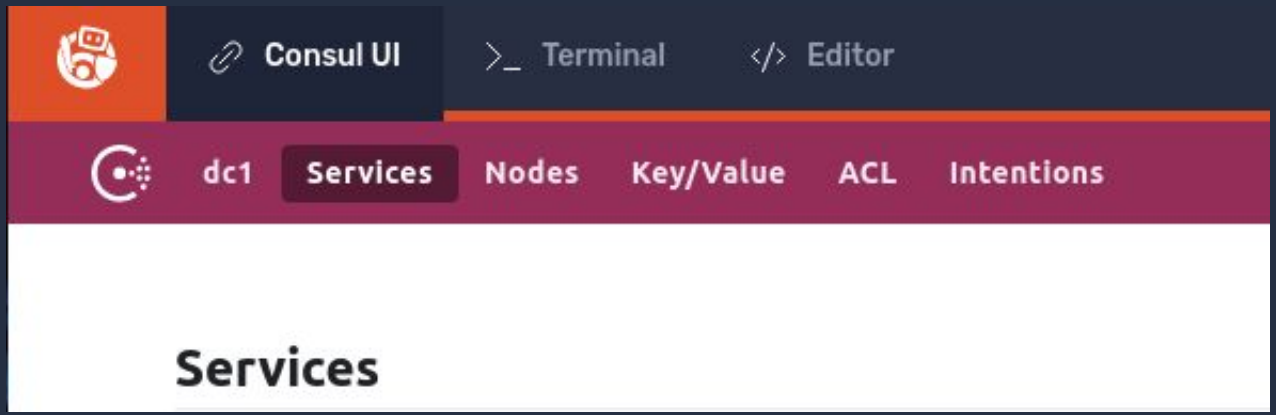
END RESULT



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LESSONS LEARNED

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We are hiring!

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Questions?

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