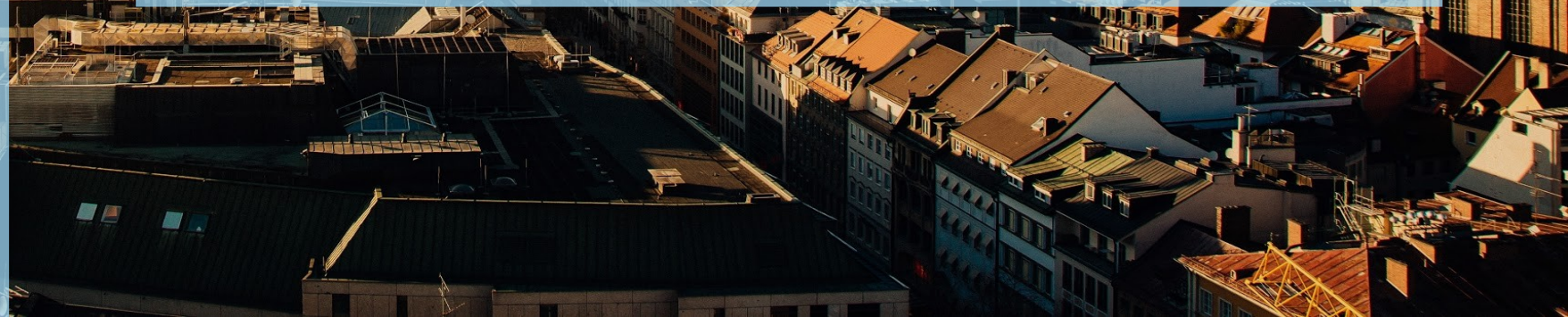
Kubernetes Community Days
MUNICH 2022

SPONSORS

celonis
solo.io
REPLY LIQUID
UNIKUBE
ISOVALENT
x-cellent technologies
CloudPirates
PURE STORAGE
portworx by Pure Storage
camp to camp INNOVATIVE SOLUTIONS BY OPEN SOURCE EXPERTS
SysEleven
HETZNER
white duck The Azure Cloud Experts

Speaker: Valentin Knabel
Company: x-cellent technologies GmbH

Getting Started with Acorn



About me

metal-stack

metal-stack.io

metalstack cloud

metalstack.cloud

Valentin Knabel

Email valentin.knabel@x-cellent.com

GitHub @vknabel

Twitter @vknabel

Agenda

1. About Acorn
2. Prerequisites
3. The Acornfile
4. Development
5. Real World

Why another tool?

- deployment
- environments
- complexity

Acorn’s answers

- designed for applications
- Acornfile
- Acorn Image
- arguments

How does Acorn work?

- Acorn CLI
- API Server
- Controller
- Buildkit
- Internal Registry

Prerequisites

For Acorn

Acorn CLI

- `brew install acorn-io/cli/acorn`
- `curl https://get.acorn.io | sh`
- `scoop install acorn`

Kubernetes Cluster

- Ingress Controller
- Storage Class
- Admin privileges

Installing Acorn

```
❯ acorn install
      Running Pre-install Checks
      Installing ClusterRoles
      Installing APIServer and Controller (image
ghcr.io/acorn-io/acorn:v0.3.0)
      Installing Traefik Ingress Controller
      Waiting for controller deployment to be available
      Waiting for API server deployment to be available
      Running Post-install Checks
      Running Post-install Checks
      Installation done
```

The Acornfile

By example

github.com/vknabel/kcd-munich-2022-acorn

Server Container

```
containers: {
    server: {
        build: context: "."
        dependsOn: ["db"]
        ports: publish: "3000/http"
        env: {
            DATABASE_HOST: "db"
        }
    }
}
```

Database Container

```
containers: { // ...
    db: {
        image: "postgres"
        ports: "5432/tcp"
        dirs: {
           "/var/lib/postgresql/data":
             "volume://pg-data"
        }
    }
}
```

```
volumes: {
    "pg-data": {}
}
```

Defining Secrets

```
secrets: {
    "db-name": type: "token"
    "db-username": type: "token"
    "db-password": type: "token"
}
```

Using Secrets

```
// in containers.server
env: {
  DATABASE_HOST: "db"
  DATABASE_NAME:
    "secret://db-name/token"
  DATABASE_USERNAME:
    "secret://db-username/token"
  DATABASE_PASSWORD:
    "secret://db-password/token"
}
```

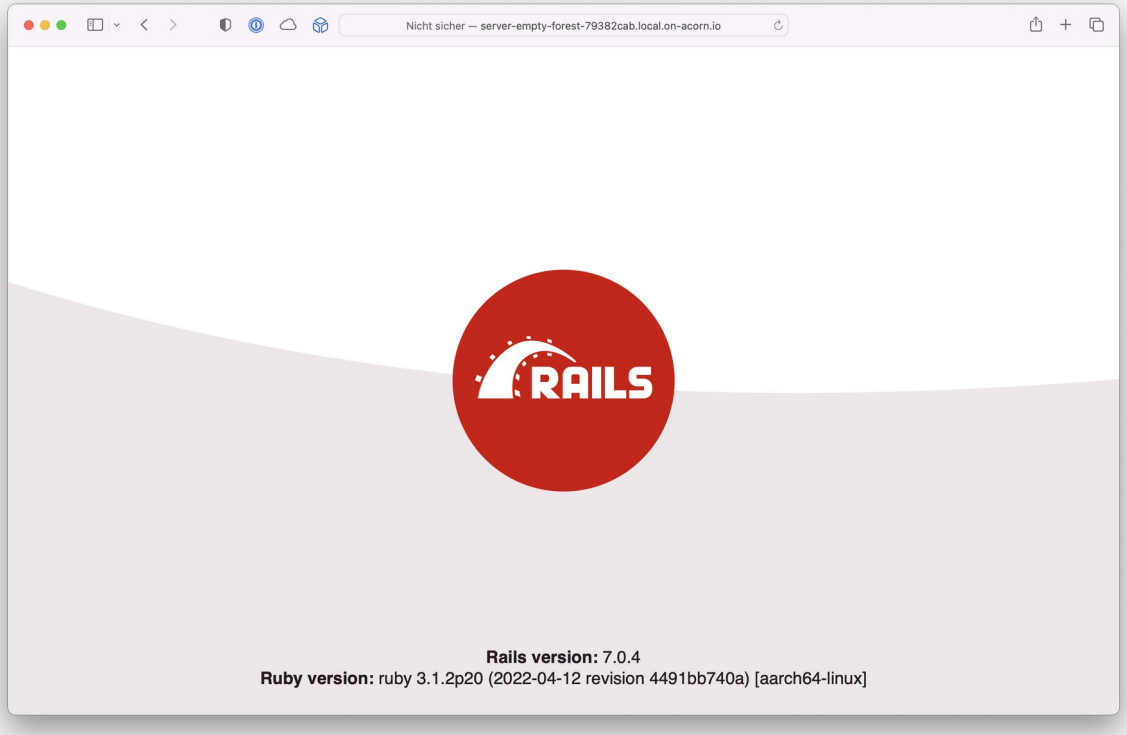
```
// in containers.db
env: {
  POSTGRES_DB:
    "secret://db-name/token"
  POSTGRES_USER:
    "secret://db-username/token"
  POSTGRES_PASSWORD:
    "secret://db-password/token"
}
```

github.com/vknabel/kcd-munich-2022-acorn

Running the Acornfile

```
❯ acorn run .
[+] Building 1.6s (5/5) FINISHED
[+] Building 40.6s (10/10) FINISHED
[+] Building 0.5s (5/5) FINISHED
lingering-cherry
…
STATUS: ENDPOINTS[http://server-lingering-cherry-1eeeca59.local.on-acorn.io
⇒ server:3000] HEALTHY[2] UPTODATE[2] OK
```

Running the Acornfile



Development

By example

github.com/vknabel/kcd-munich-2022-acorn

Linking the directories

```
containers: {
    server: { // ...
        if args.dev {
            dirs: {
                "/app": "./"
            }
        }
    }
}
```

```
❯ acorn run --dev .
❯ acorn run -i    .
```

Real World

Production and CI

Further topics

- `-o yaml` for GitOps
- `args:` and `profiles:`
- `scale:` and stateful services
- Ingress domains, paths and TLS
- Jobs and sidecars
- Labels and annotations
- Linking Acorn apps

Conclusion

On Acorn

Contact and Questions?

x-cellent technologies

metal-stack

metal-stack.io

metalstack cloud

metalstack.cloud

Valentin Knabel

Email valentin.knabel@x-cellent.com

GitHub @vknabel

Twitter @vknabel

github.com/vknabel/kcd-munich-2022-acorn