Chapter Conclusion

We'll end this chapter with a quick summary of what we have learned.

WE'LL COVER THE FOLLOWING

Summary

For synchronous microservices, Cloud Foundry's solutions are very similar to those of Kubernetes.

- **Service discovery** also works via DNS making it transparent for client and server. In addition, no code needs to be written for the registration.
- **Load balancing** is also transparently implemented by Cloud Foundry. If several instances of a microservice are deployed, the requests are automatically distributed to these instances.
- For the **routing** of external requests, Cloud Foundry relies on DNS and a distribution of the requests to the various microservice instances.
- For **resilience**, the Cloud Foundry example uses the Hystrix library. Cloud Foundry itself does not offer a solution in this area.

In addition, a PaaS provides a standardized runtime environment for microservices and can be an important antidote to the high level of operational complexity that microservices bring. Thus, a **PaaS enforces a standardization** that is often desirable in the context of macro architecture.

Compared to Docker or Kubernetes (chapter 13), a **PaaS provides less flexibility**. This can also be a strength due to the standardization that goes

hand in hand with reduced flexibility.

Modern PaaS also offers the possibility of **adapting the environment** with concepts like buildpacks or running Docker containers with arbitrary applications.

Benefits

- PaaS solves typical problems of microservices like load balancing, routing, and service discovery.
- Cloud Foundry introduces no code dependencies.
- PaaS cover operation and deployment.
- PaaS enforce standardization and are thereby the definition of a macro architecture.
- Developers only have to deliver applications. Docker is hidden.

Challenges

- Cloud Foundry requires a complete switch of the operation approach.
- Cloud Foundry is powerful, but also complex.
- Cloud Foundry provides a high degree of flexibility, however, compared to Docker containers this flexibility still has its limits.

The next chapter is an Appendix of installation guides that you might find helpful.