

Wordle

Distributed Systems – Challenge Task Presentation

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Agenda

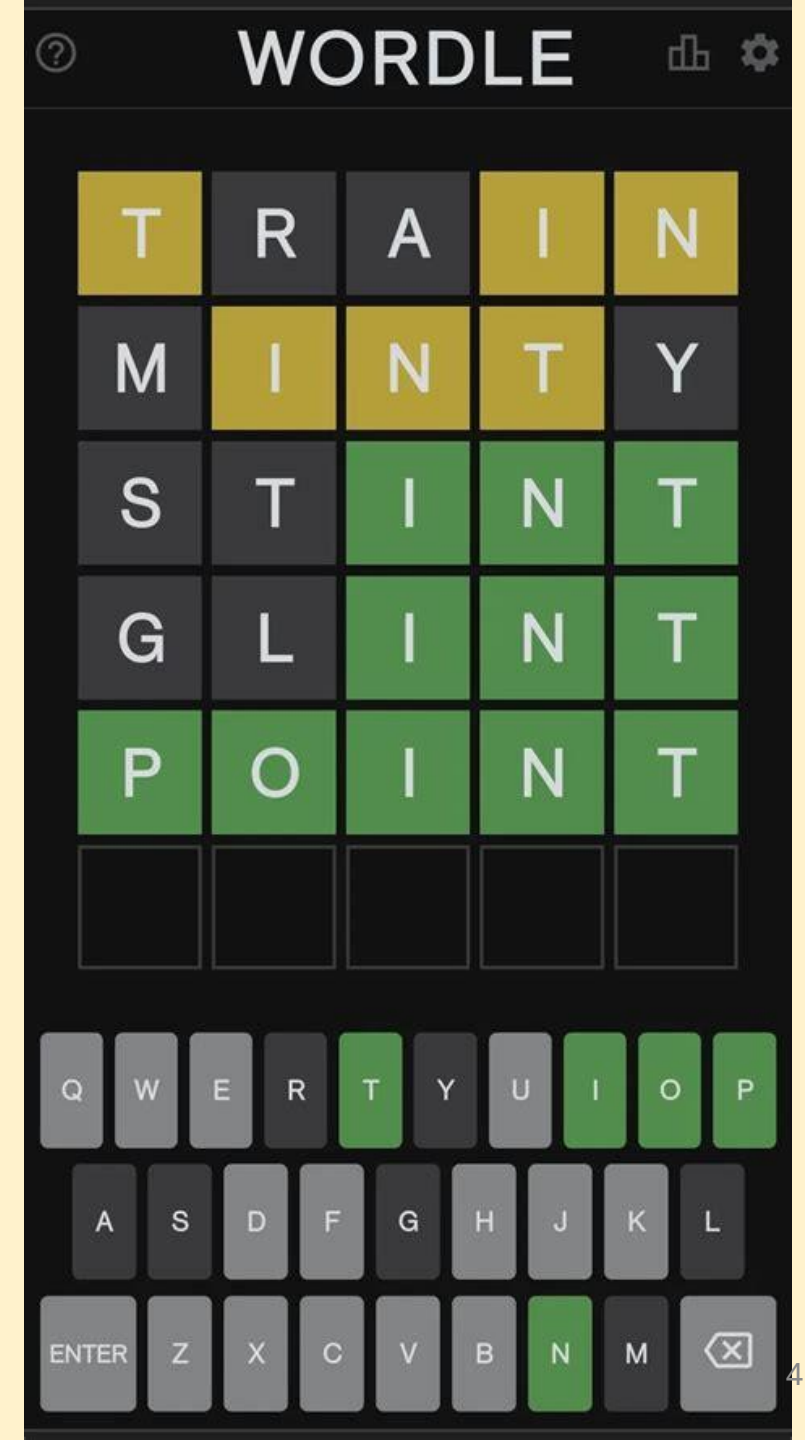
1. Introduction
2. Infrastructure
3. Design Decisions
4. Findings
5. Demo
6. Conclusion

Introduction

Infrastructure
Design Decisions
Findings
Demo
Conclusion

What is Wordle

- Web-based word game
- Six attempts to solve a five-letter word
- Colours are hints
- One word per day



Why Wordle

- Simple Front-end
- Logic runs in the browser
- Easily extensible → WebSocket, database
- Focus on setting up distributed system

Introduction

Infrastructure

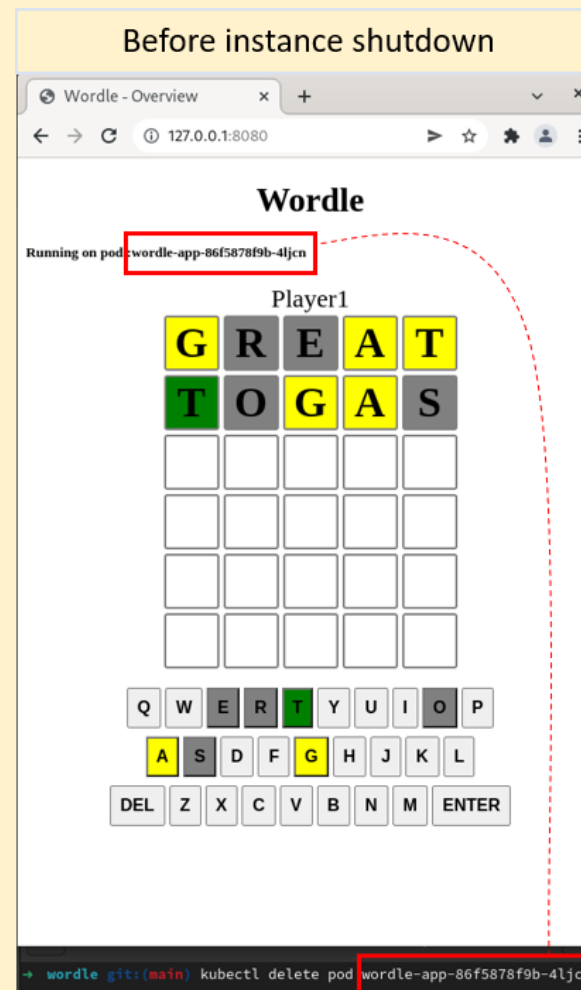
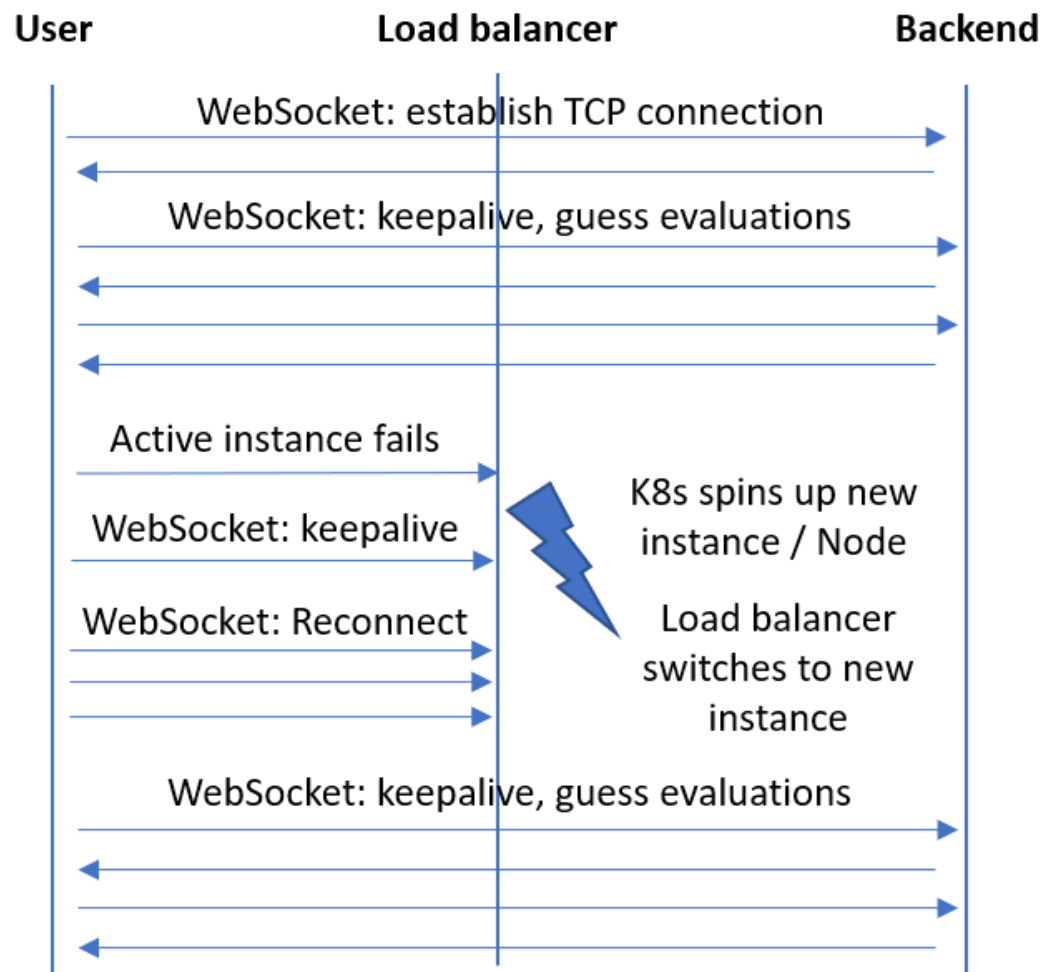
Design Decisions

Findings

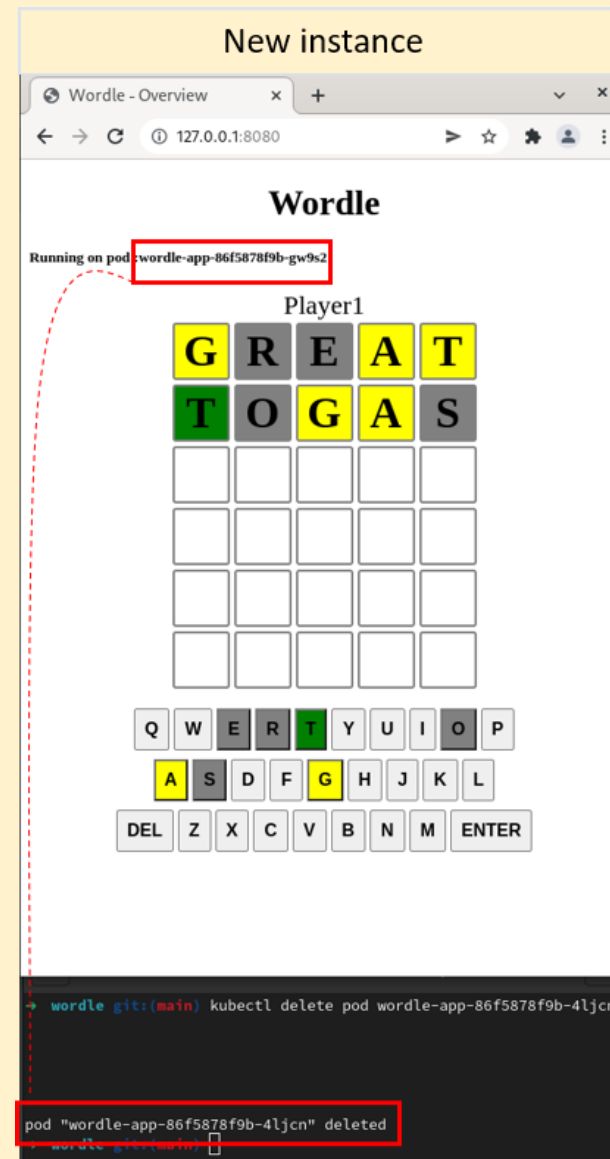
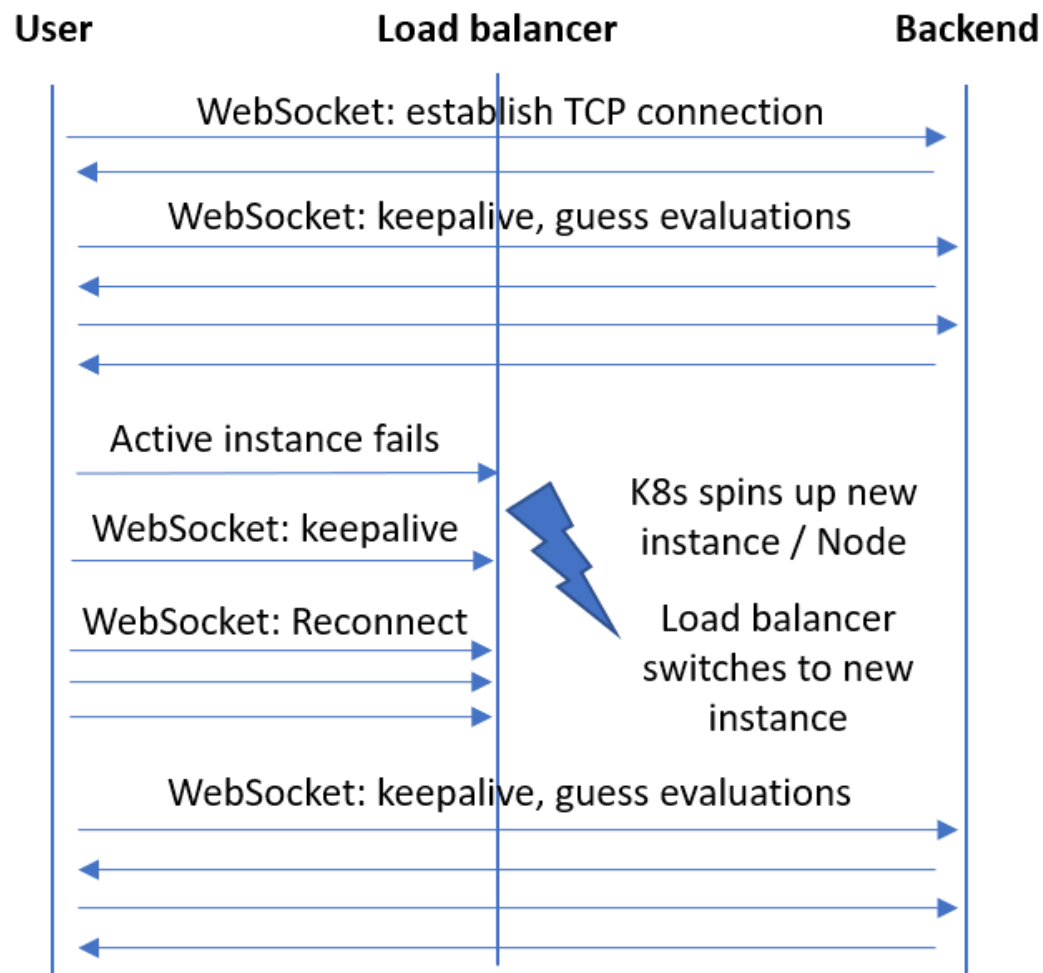
Demo

Conclusion

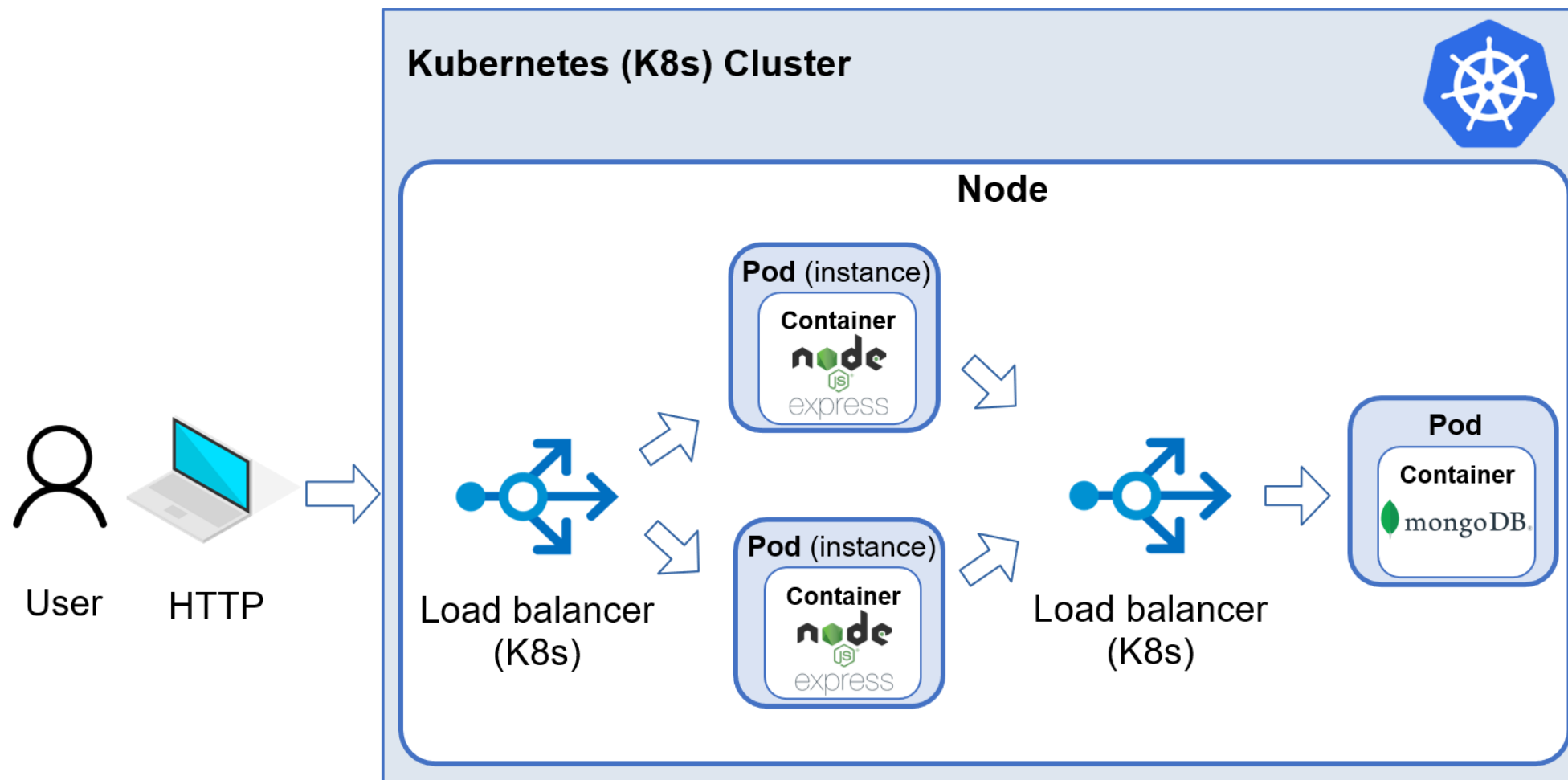
Message Flow (I)



Message Flow (II)



Architecture



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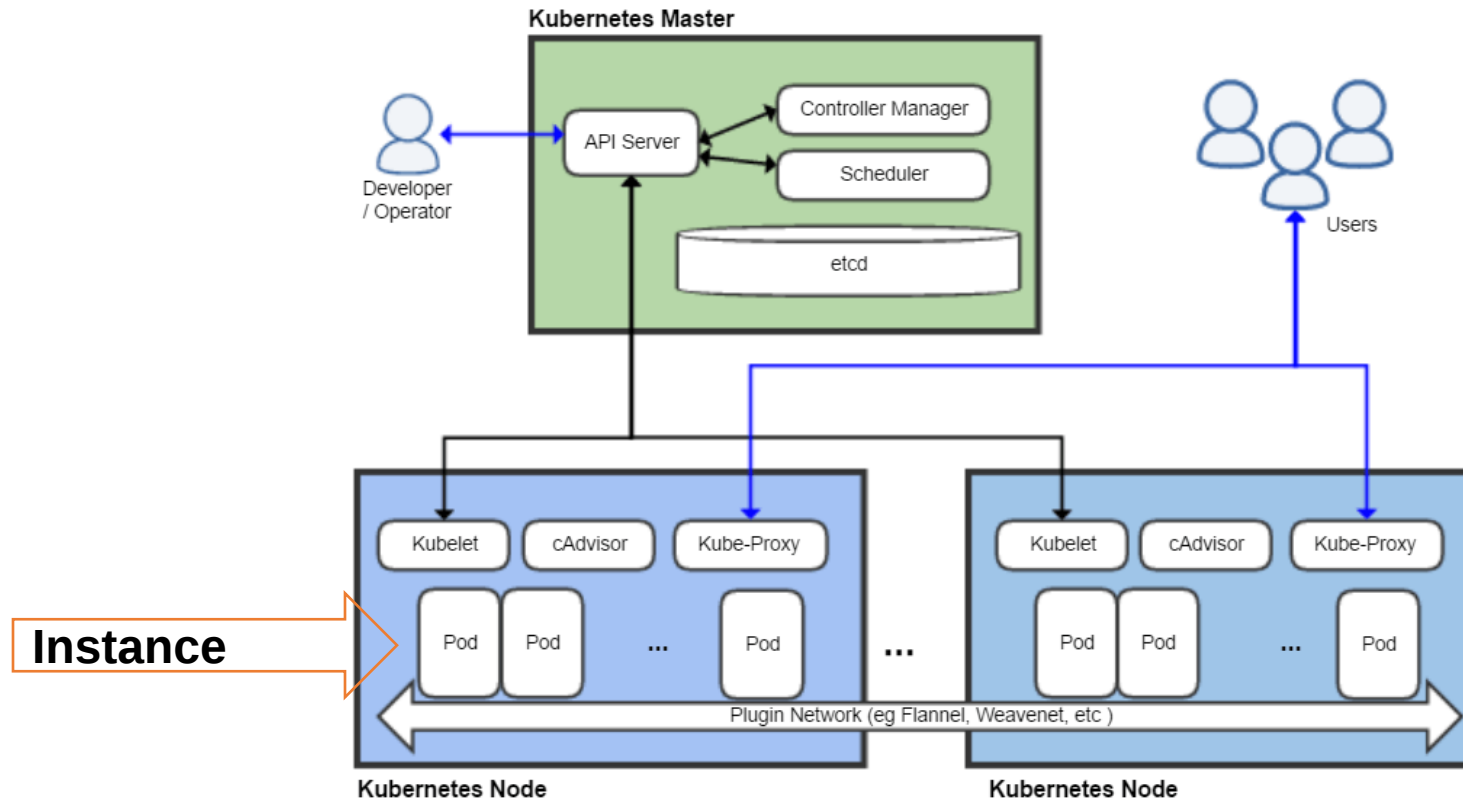
Findings
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Key Technology: Kubernetes (K8s)

- Originally developed by Google
- Open-source
- Automates deployment, scaling, and management of containerised applications
- Built-in load balancer
- Local setup: minikube
- Local deployment: Cloud Code



K8s Architecture



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Load Balancer

- Kube-Proxy load balancer
- WebSocket establishes TCP connection
- Theoretically: random Pod allocation for new TCP connections
- Practically: always newest instance

Webpack

- Plain HTML, CSS, TypeScript
- Difficult to integrate packages and back-end code
- Bundle of single static asset
- More modern frameworks required

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Conclusion

- Wordle app runs stable
- Integrated technologies: Kubernetes, WebSocket, ...
- Some learnings: Load balancer, web framework
- Ideas for extensions: Gluster-FS, shared session, authentication, service-mesh ...
- Fun project!

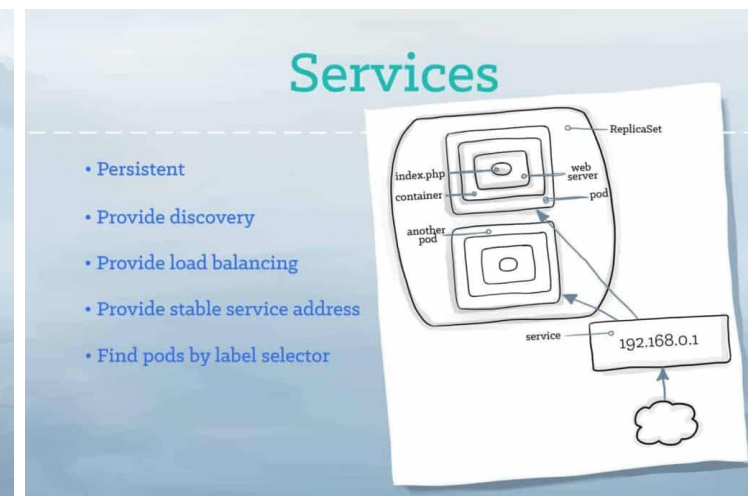
Recommended Literature



From the same publisher:

- Phippy Goes to the Zoo
- Admiral Bash's Island Adventure
- Phippy's Quest for Cloud Native Transformation and many many more...

<https://www.cncf.io/hippy/>



T H A N K
Y O U ! !