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North America 2023





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How We Optimized Developer Productivity with Telepresence

Frank Gu, Voiceflow

About Me



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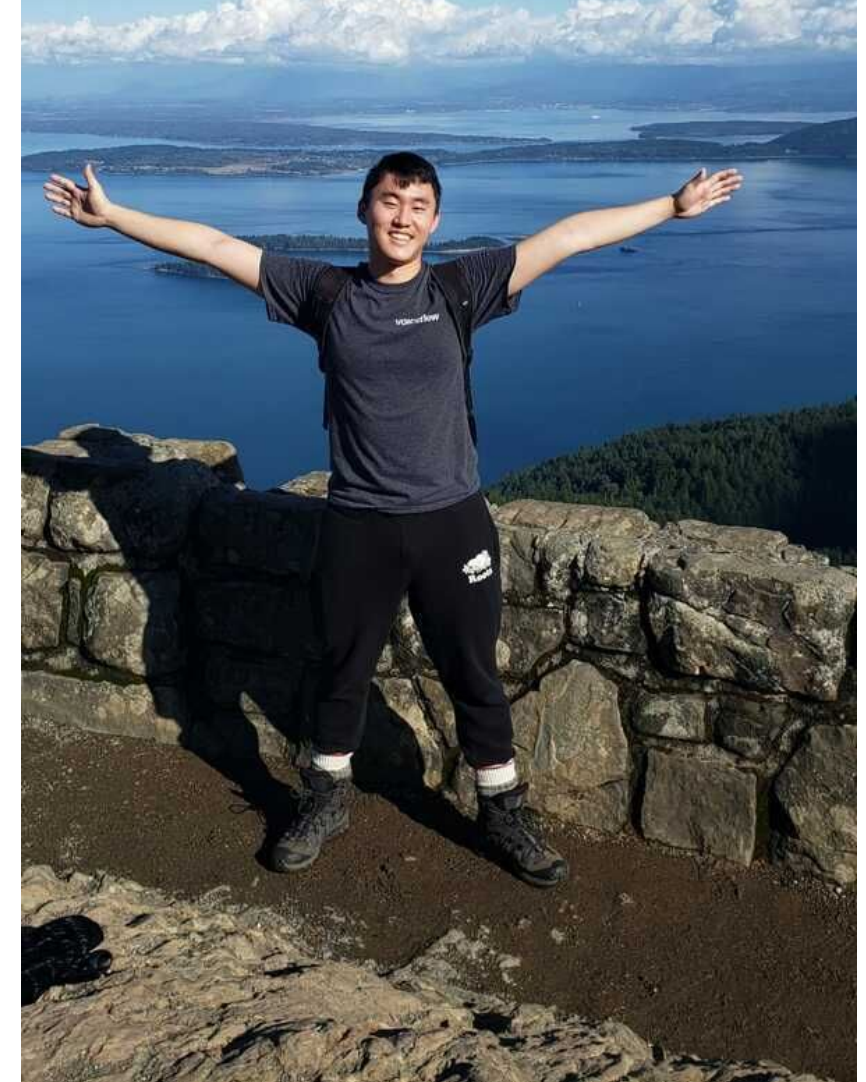


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- 10 years of “full-stack” experience
- Licensed pilot
- Director of Engineering @ Voiceflow
- Hat enthusiast

Voiceflow



Agenda



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- The Problem
- Potential Solutions
- Telepresence into K8s
- Demo
- Key considerations

The Container Workflow

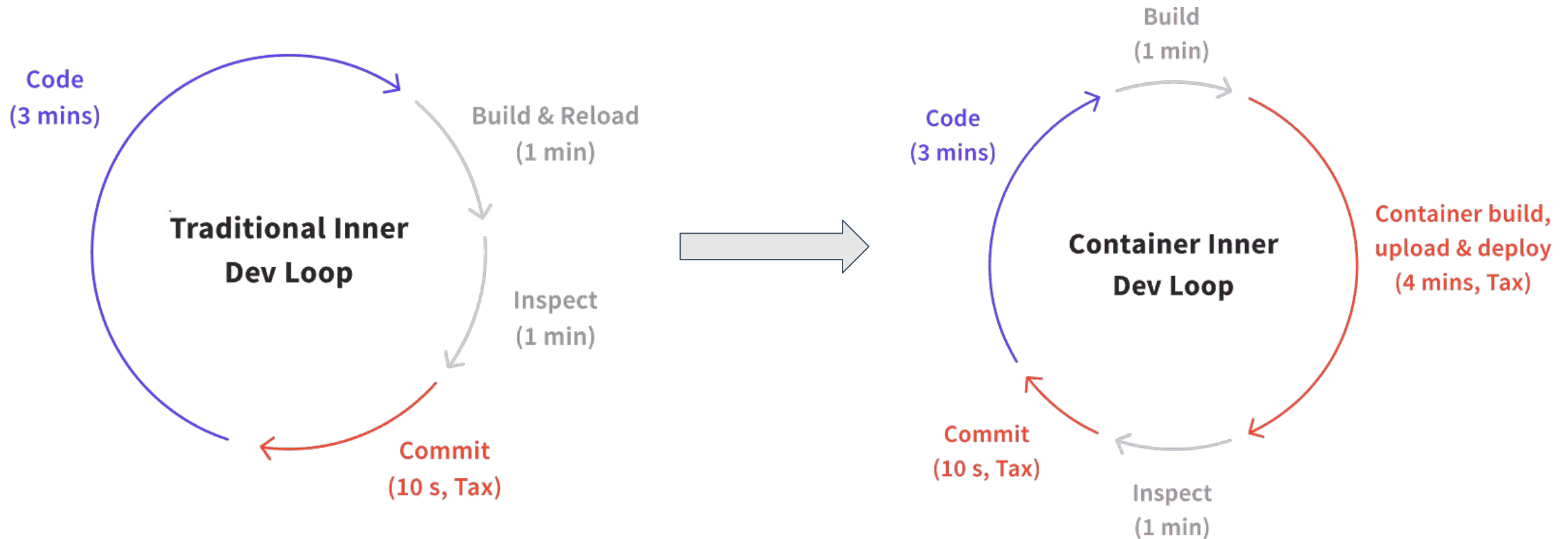


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Our Problem(s)



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“But this worked on my machine!”

“Can you send me that config/secret file you used?”

“I’m waiting for the CI pipeline to run my changes...”

“Can you give me a demo of your PR changes?”

“My computer can’t run all the required services!”



Dev / Prod
Parity



Change Review
Process



Resource
Limitation

Our (old) Dev Loop - 15m / it

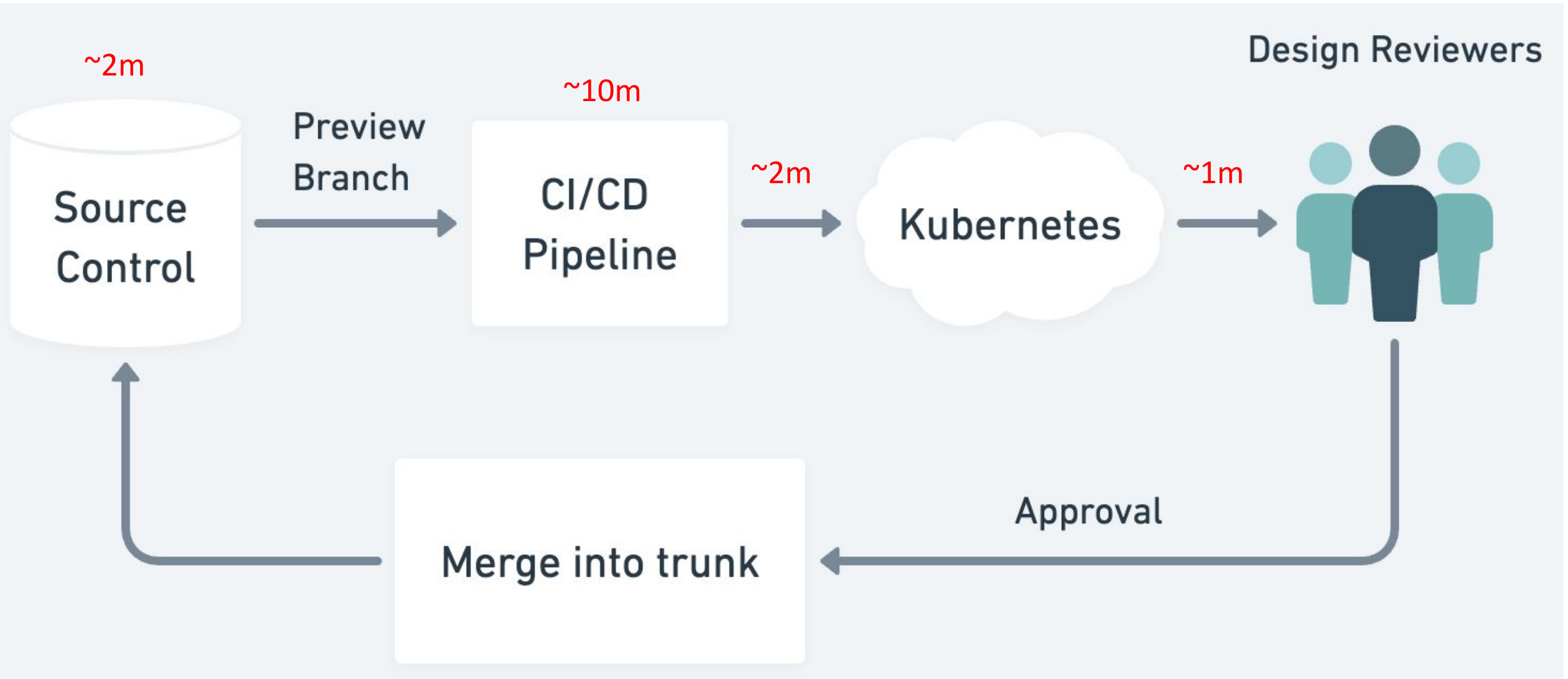


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Potential Solutions



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- Using a vendor's code preview solution -> **insufficient customization**
- Running a cluster locally -> **others can't (easily) access the instance**
- Map local files into the a dummy pod in the cloud and execute the code
-> **lack of dev-prod parity**



[Source](#)

What We Need



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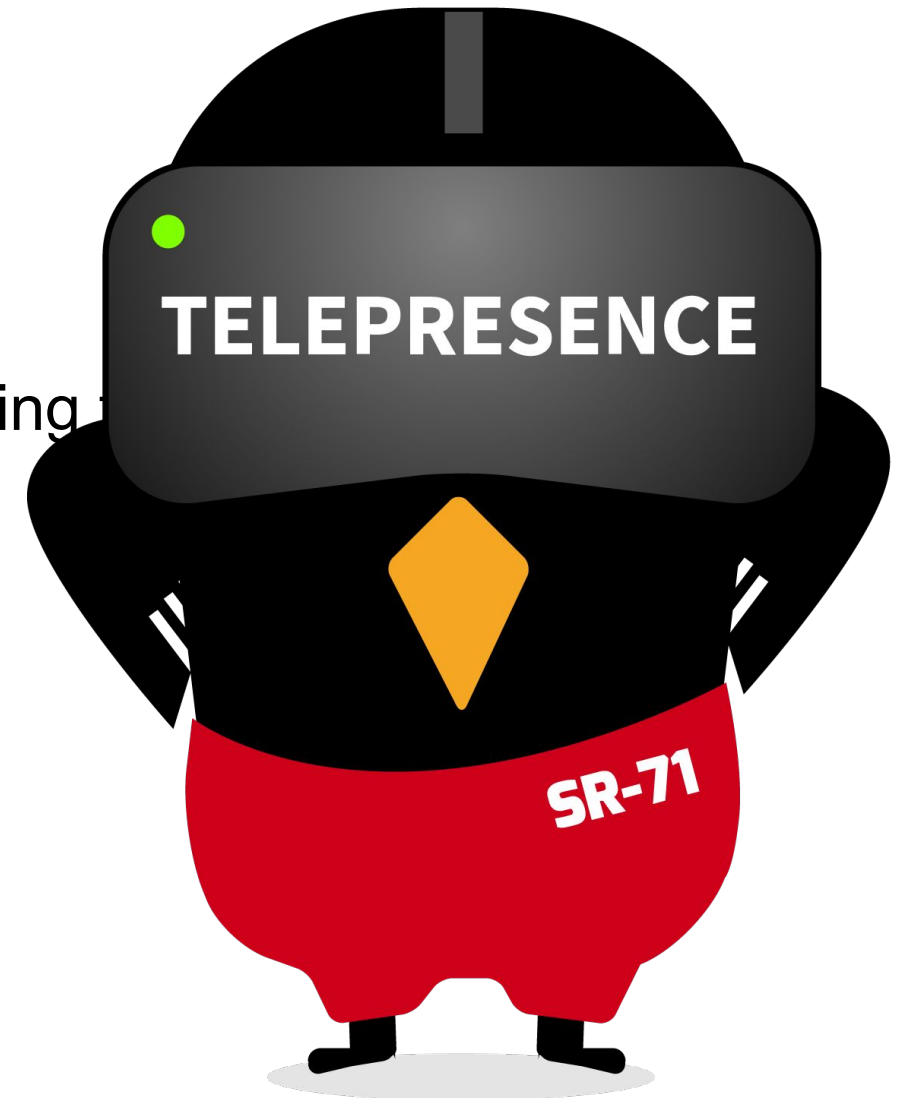


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- Run a service locally
- Map cloud configurations into local service
- Communicate with other cloud services
- Pretend that my local machine was a pod running

If only there was a way to proxy traffic between K8s and local machine...



Telepresence into K8s



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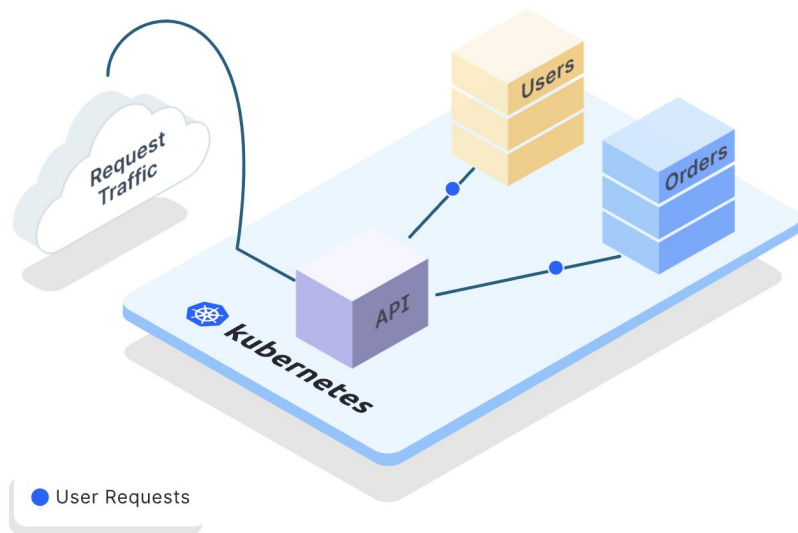


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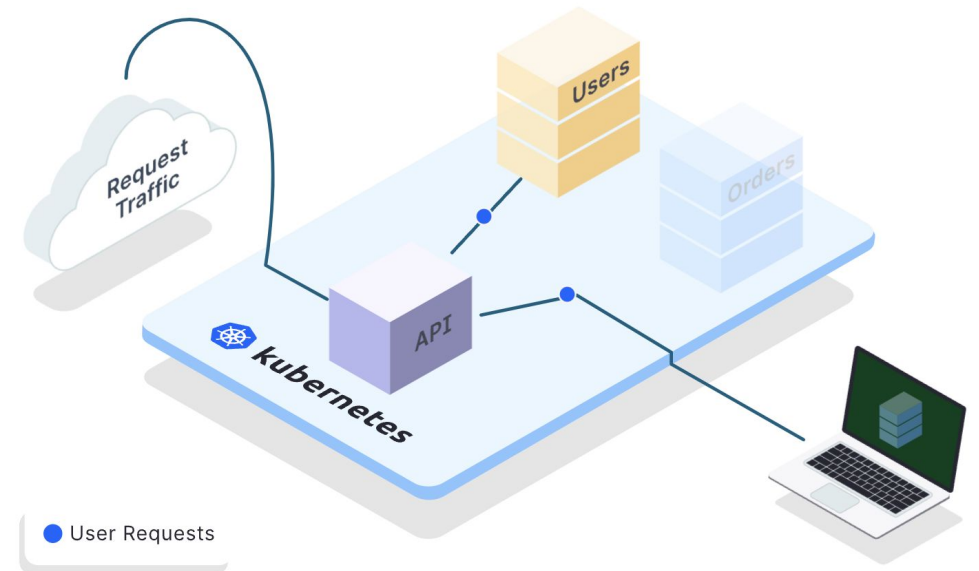
At a glance

No intercept



[Image Source](#)

Global intercept



[Image Source](#)

Traffic can now flow between K8s cluster and local machine!

Telepresence Architecture



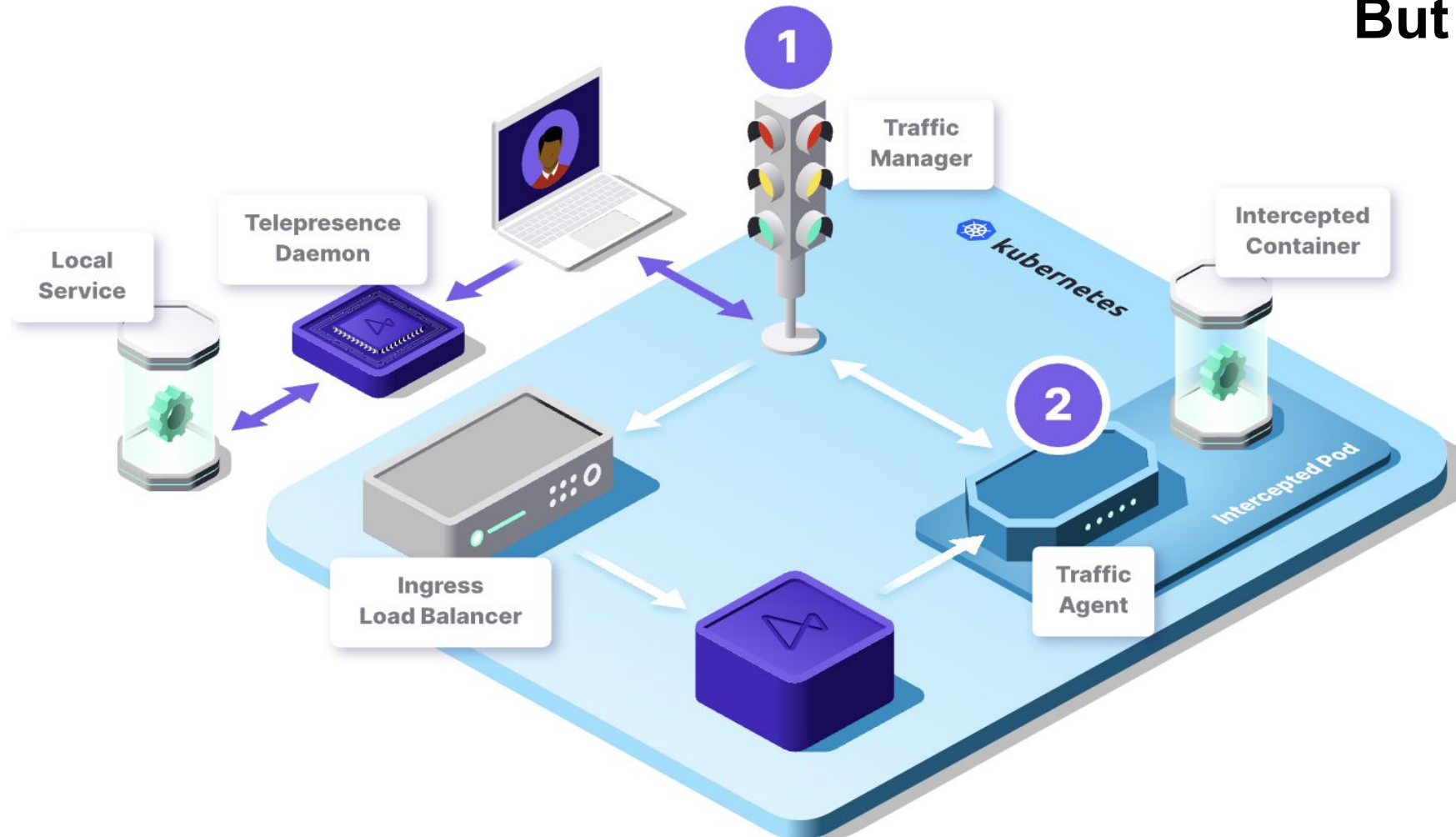
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But wait, there's more!



K8s-aware DNS

Volume mount

Environment
Variable injection



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DEMO TIME!!!



frankqu968/kubecon2023

Blessed be the Demo Gods. Please grant my demo safe passage

Problem Setup

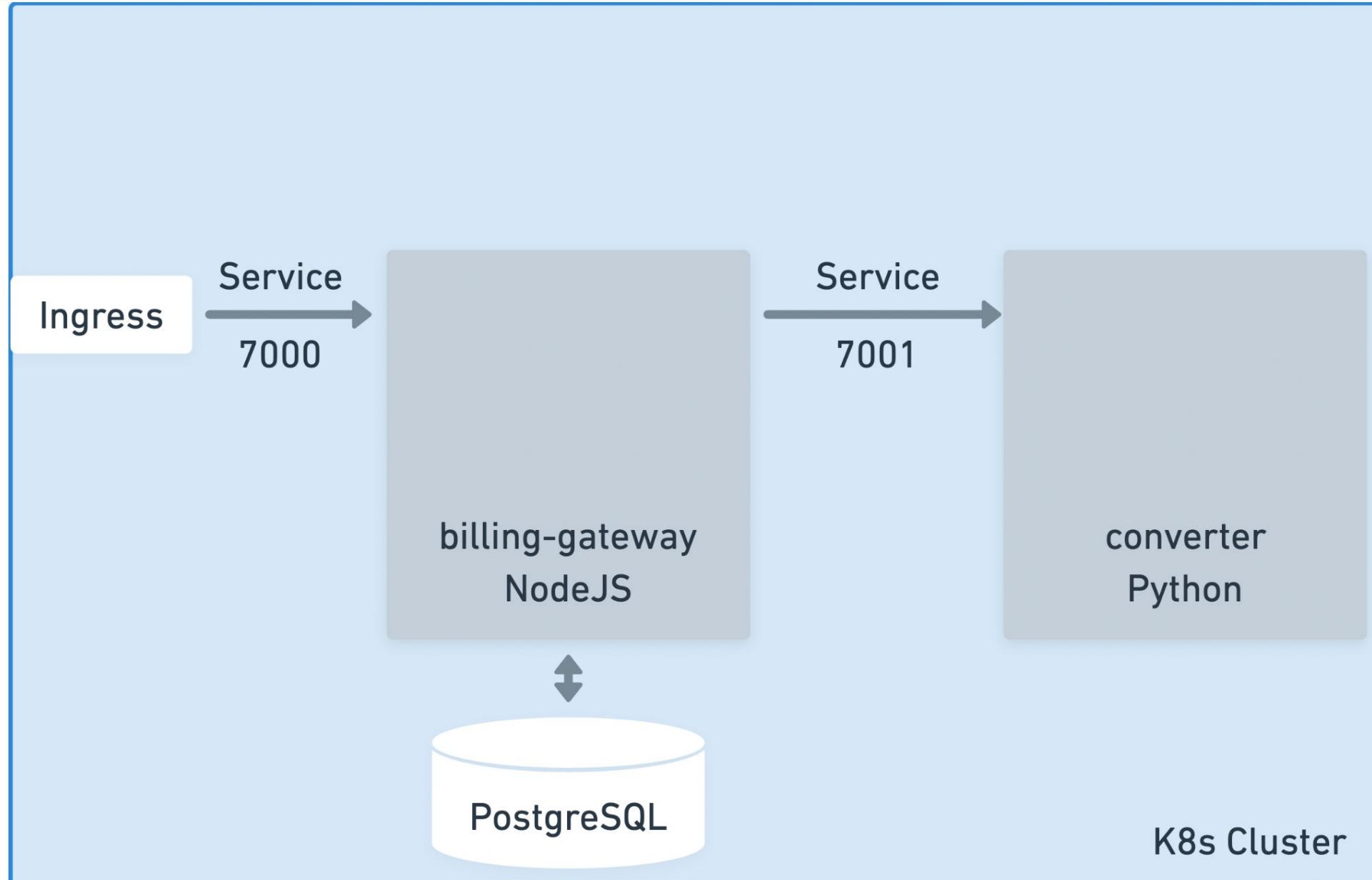


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Initial Deployment

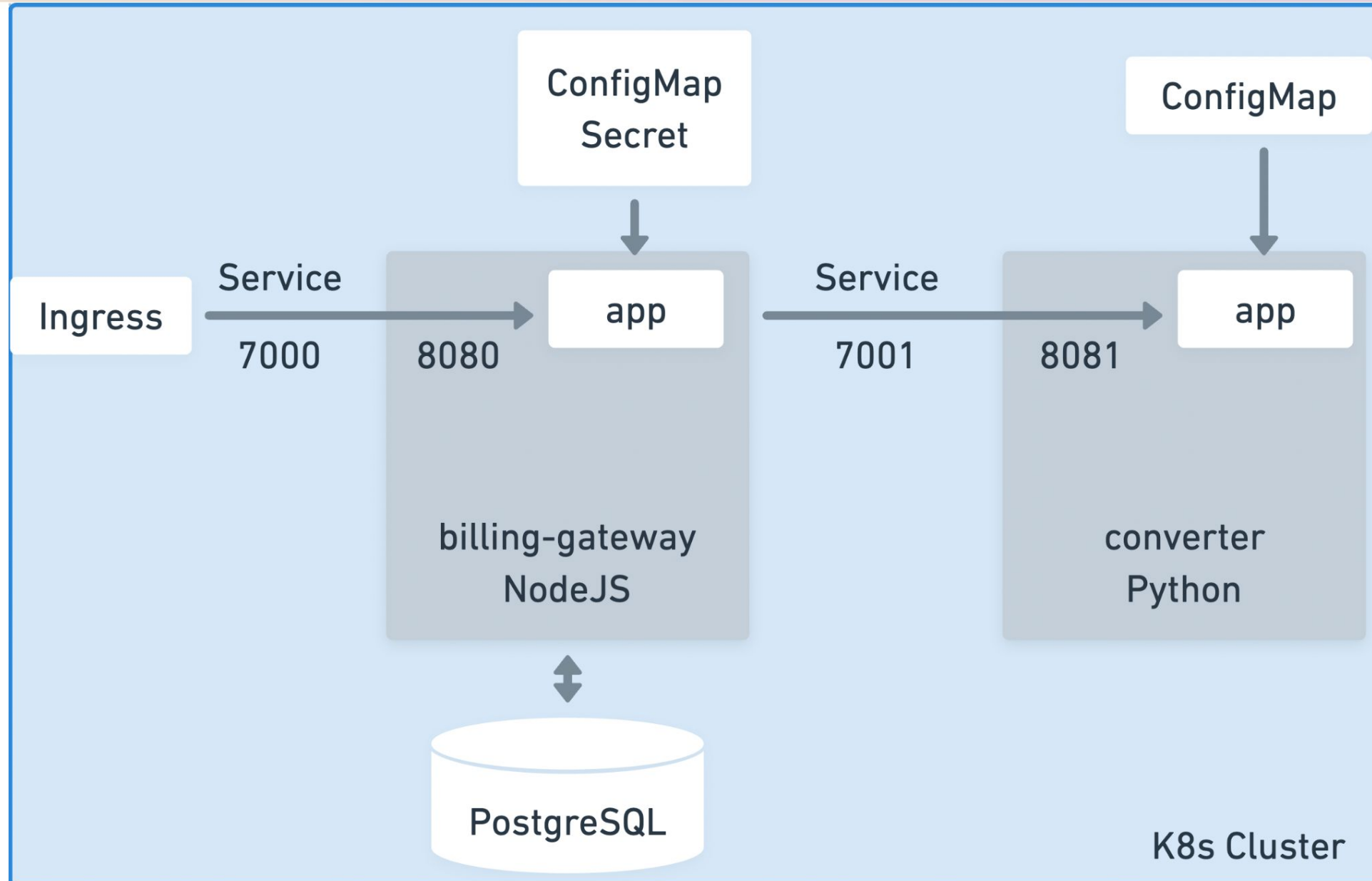


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Telepresence Agent Injection

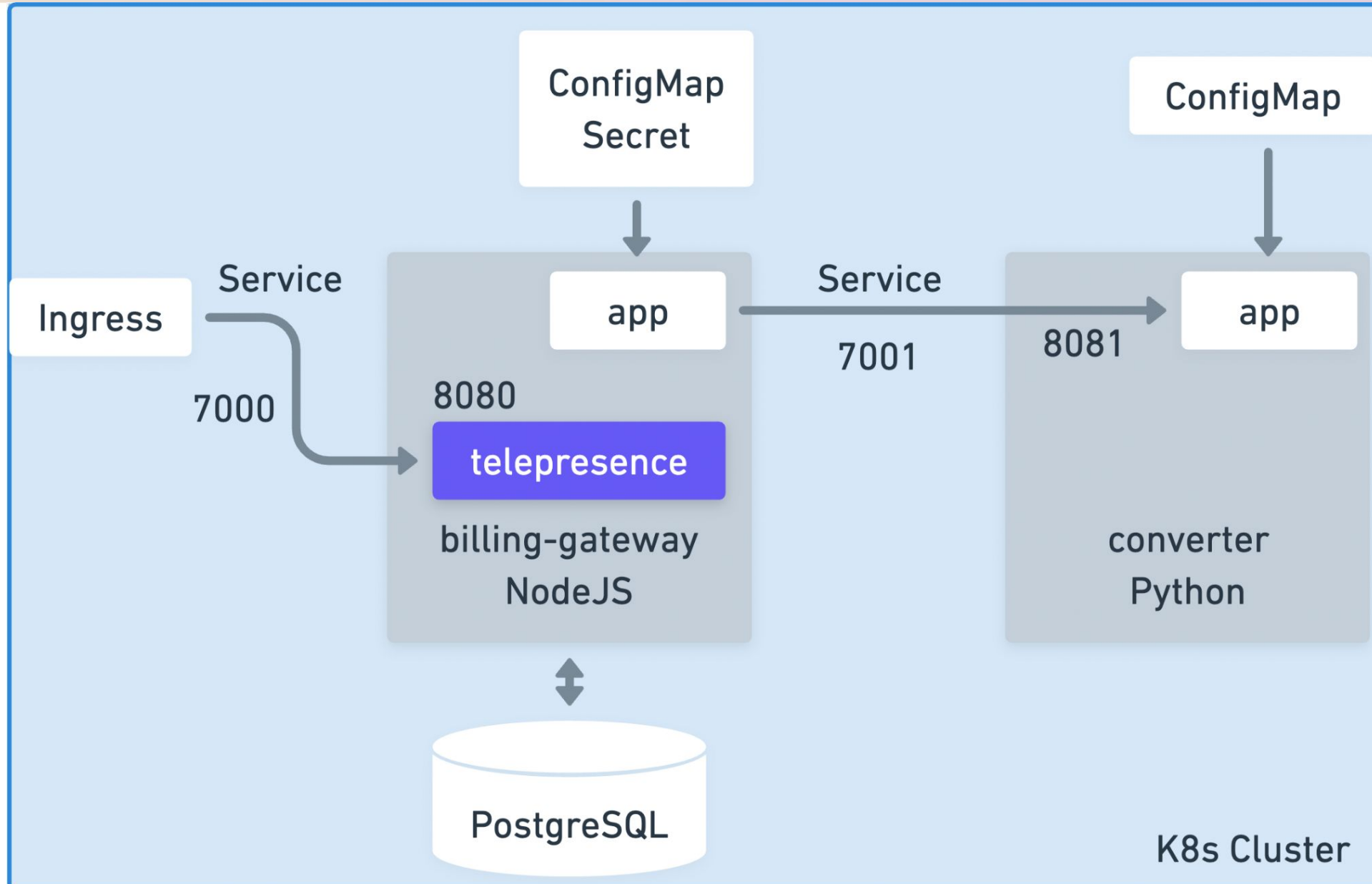


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One more Intercept!!!

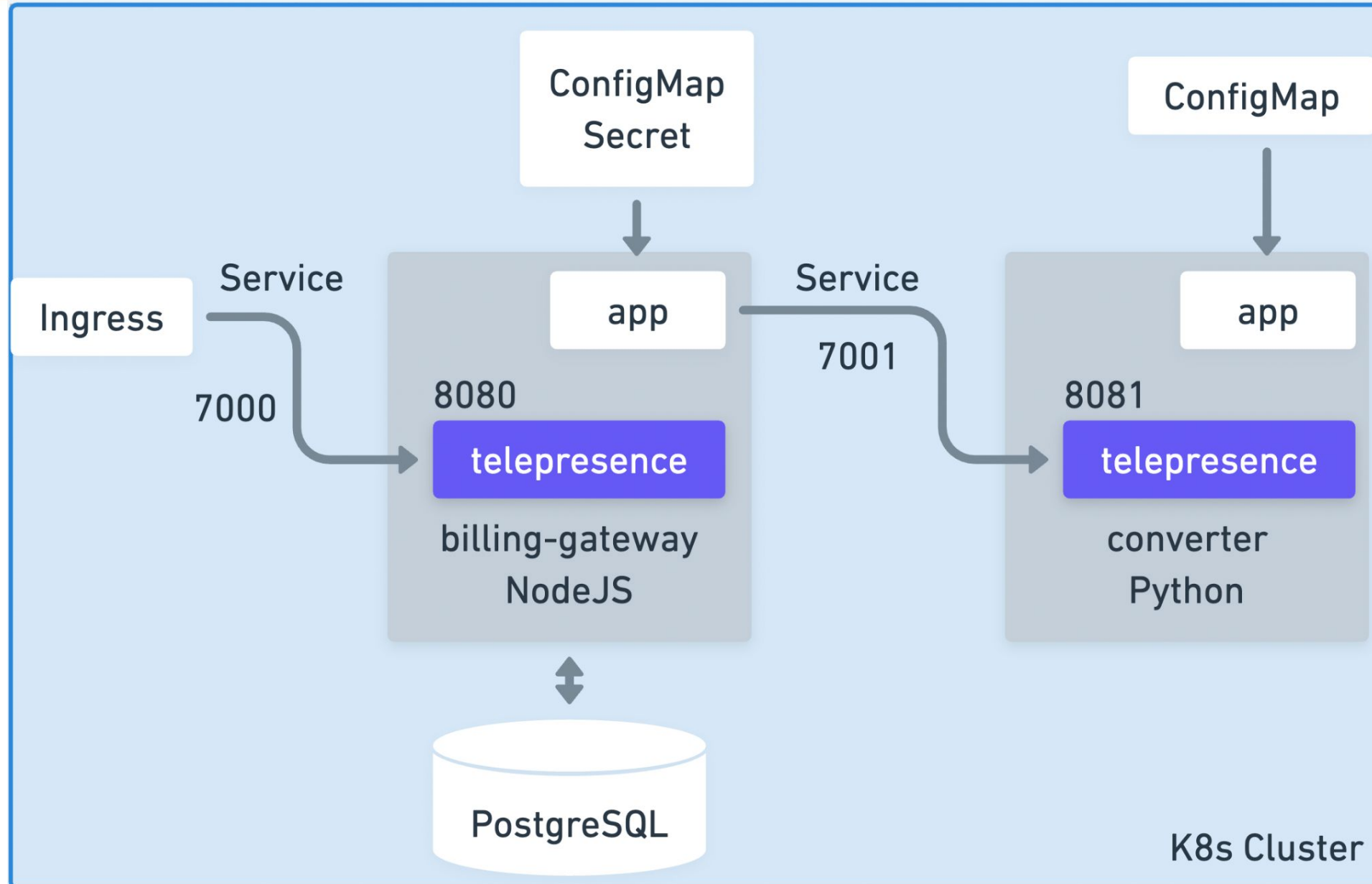


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Our (new) Dev Loop - 10s / it

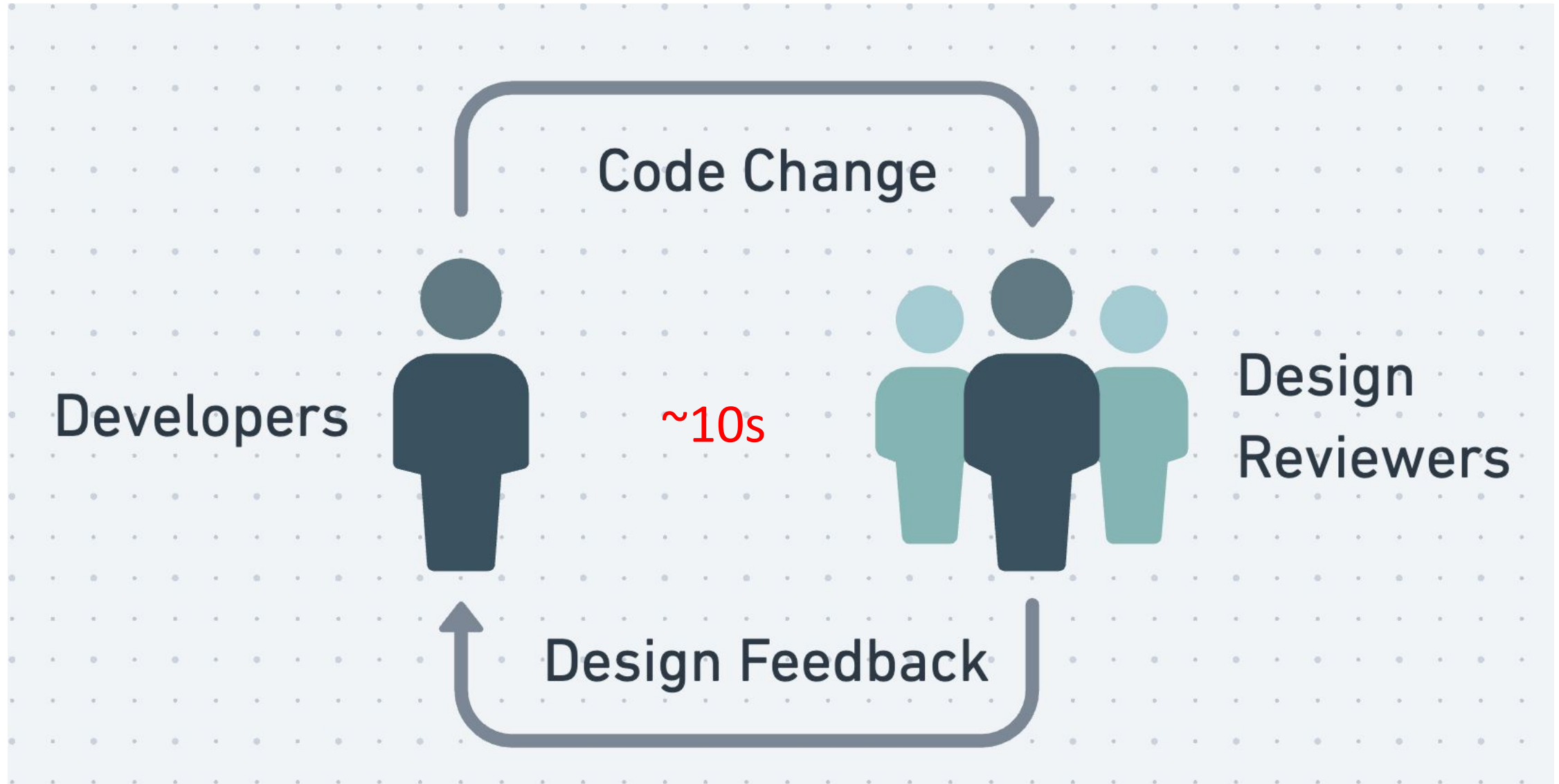


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Telepresence Considerations



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- Deployment Model
- Scale
- Security
- Robustness/Support
- Latency

Conclusion



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- Dev/Prod parity + Resourcing + Deploy/Review velocity are major concerns in k8s development workflows
- Telepresence proxies traffic and configurations between local machine and the k8s cluster
- Reducing the build/upload/deploy overhead enhances developer experience

Thank you for attending this session!



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Questions?



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