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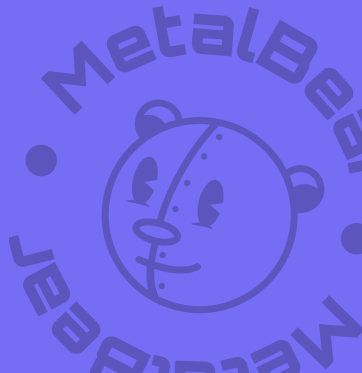
by MetalBear

Mirror Mirror on the Wall,

How Many Kubernetes Environments Are Enough After All?

Arsh Sharma | MetalBear 🐻



“We’re going cloud native!
Let’s run our production workloads on Kubernetes. It’ll make everything scalable and portable.”

\+ Production Cluster

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“Wait, pushing directly to production is risky. We need a safe place to test changes before they go live.”

+ Production Cluster
+ Staging Cluster

“Staging deployments take time. To run tests earlier, let’s spin up dedicated Kubernetes environments for CI before staging.”

+ Production Cluster
+ Staging Cluster
+ CI Cluster

“Even with CI and staging, devs are bottlenecked.
Each team wants its own dev environment that mirrors production.”

+ Production Cluster
+ Staging Cluster
+ CI Cluster
+ Few Dev Clusters

“Static environments aren’t enough. We need ephemeral, on-demand Kubernetes environments for every PR or feature branch to maximize speed and isolation.”

+ Production Cluster
+ Staging Cluster
+ CI Cluster
+ Few Dev Clusters
+ A lot more Dev Clusters

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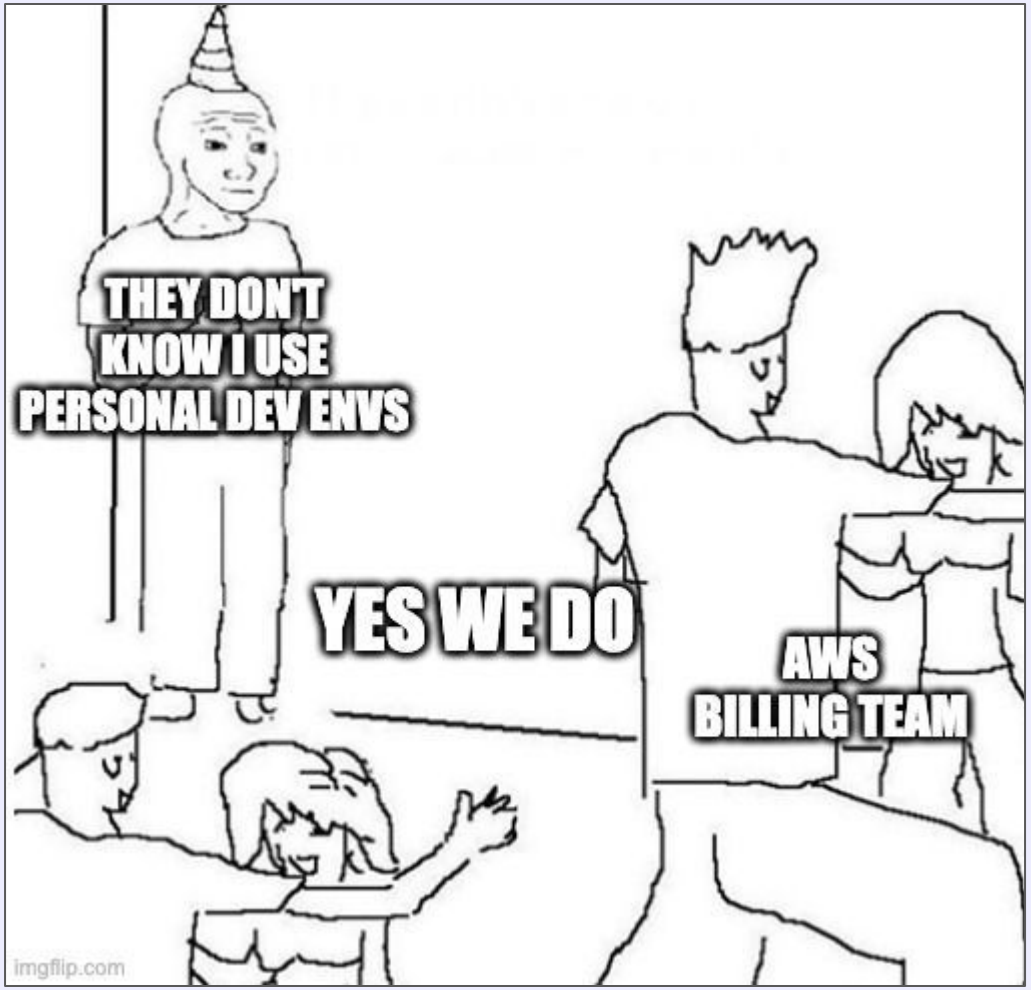

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Downsides to having multiple Kubernetes environments

- **Cloud bill** is bigger than the GDP of some countries
- **Managing** all those **environments** becomes the sole job (read: headache) of the DevOps team now
- Developers age a year every time they **wait** for an **ephemeral environment to spin up**
- More **YAMLs** than an IKEA manual

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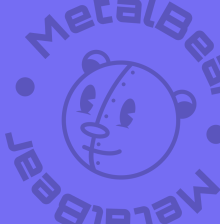
What if you could just use your existing staging environment?

(for both Dev and CI)



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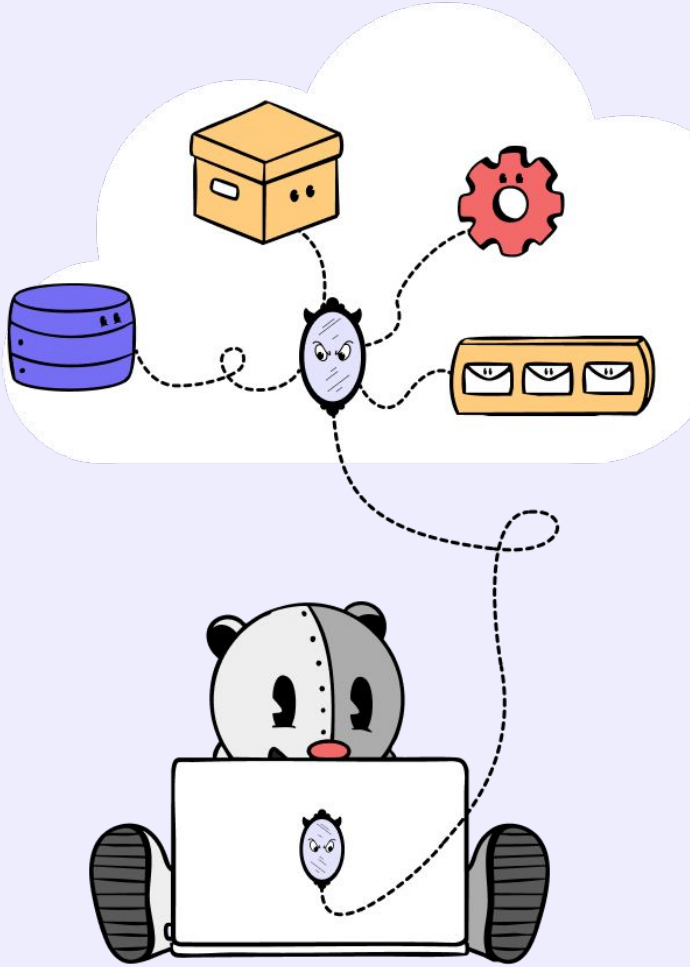
Lets you run **local processes in the context of a Kubernetes environment**.

Get the benefits of running your service on a cloud environment (e.g. staging) **without actually going through the hassle of deploying** it there, and without disrupting the environment by deploying untested code.



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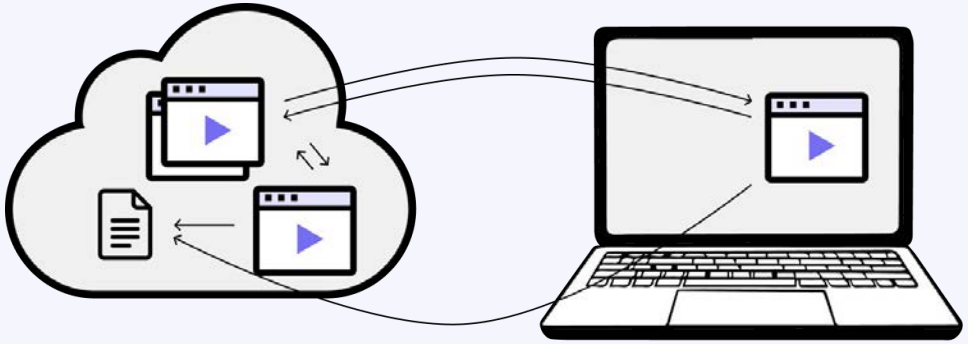
Application **runs locally**, but **traffic and data are from the cloud**



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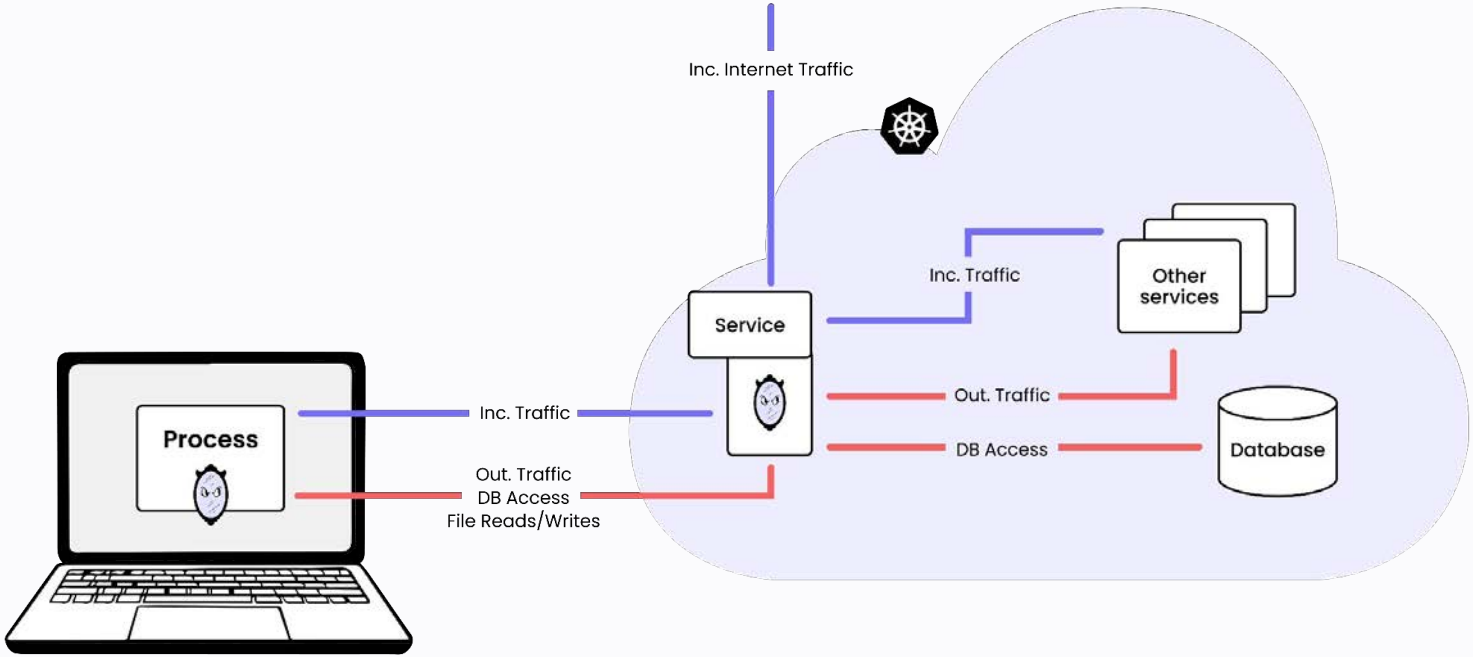
How does **mirrord** work?



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What does mirrord enable?

🥳 **Incoming traffic** mirrored to local

🥳 **Outgoing traffic** routed via cluster

🥳 **Traffic stealing** for targeted requests

🥳 **Reading and writing** remote files

🥳 **Environment variables** synced from cluster

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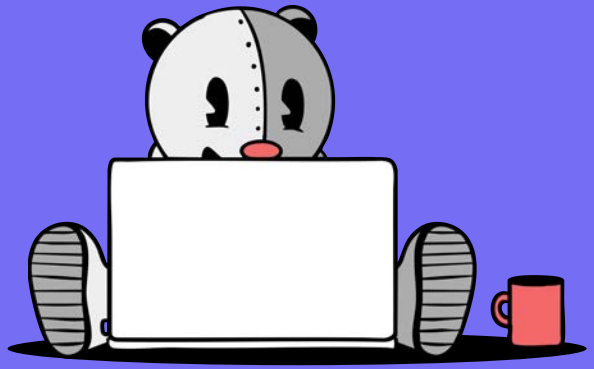
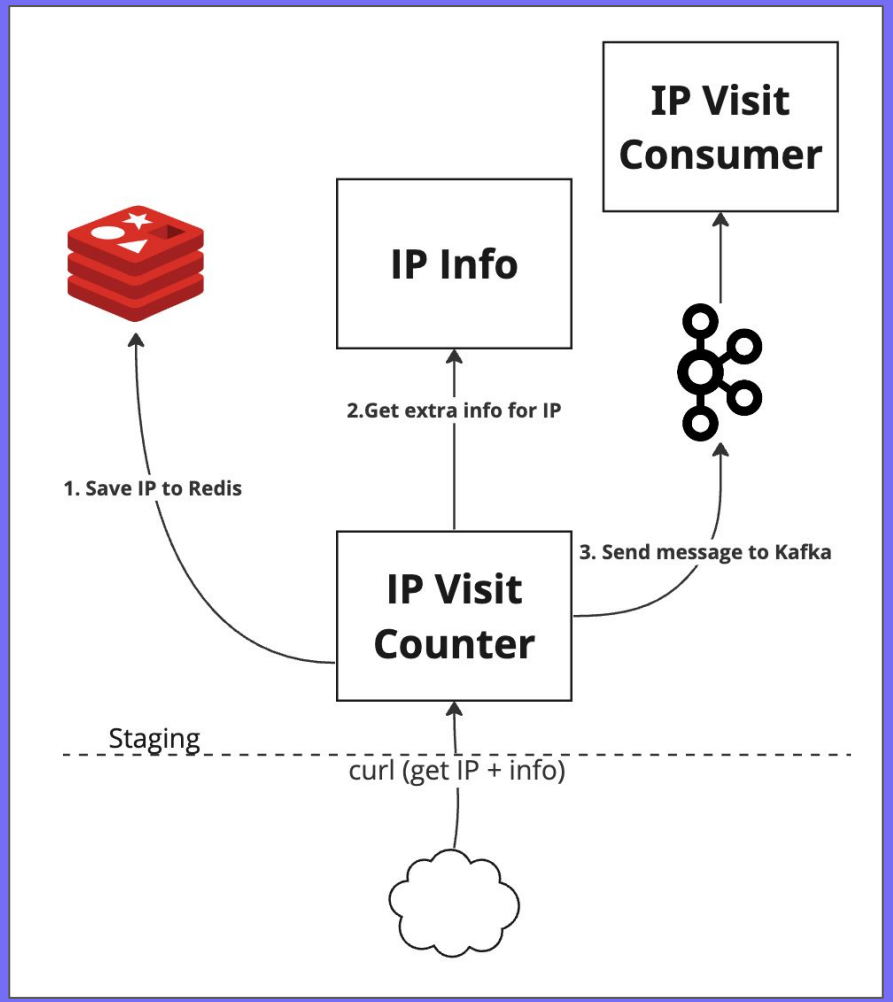
mirrord demo





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Common responses

"Stop lying!"

"What if my process writes to a DB?"

"How would that even work?"

"Can multiple people use it at the same time?"

"What if one person's changes break the environment?"

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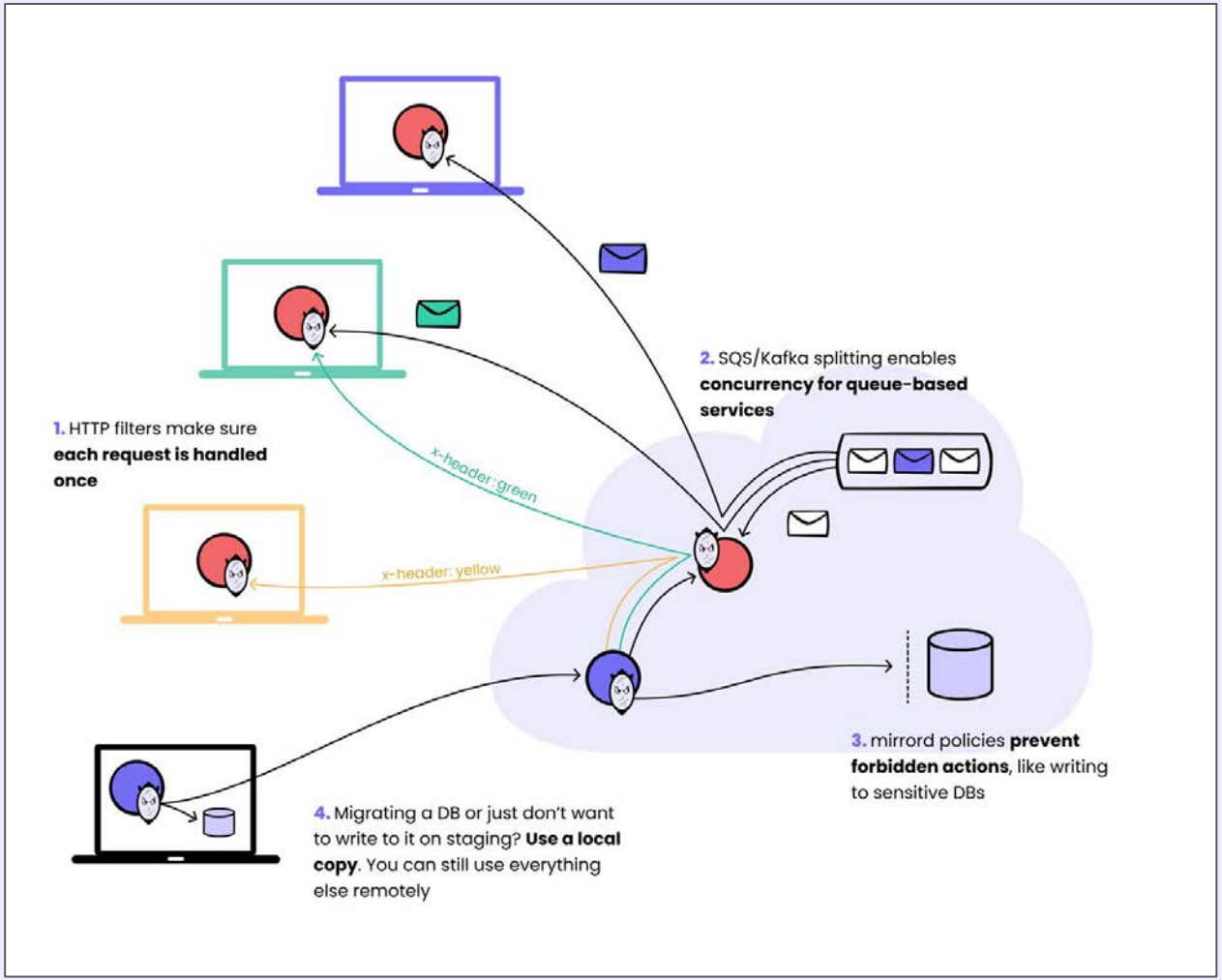
Sharing the cluster with mirrord



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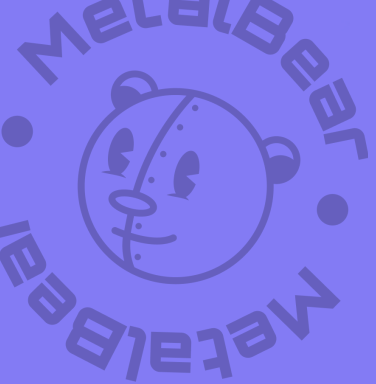
So, to sum up...

mirrord let's multiple devs **safely connect to the same staging cluster** and gives them a production like environment to test code in

mirrord CLI can be run in CI pipelines allowing you to **run CI tests in your shared staging environment**

Your cloud costs are lower, you ship faster, and your **devs are happier!**



https://metalbear.co/mirrord/

https://github.com/metalbear-co/mirrord

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Thank you!