Zero-Downtime Dreams

Bringing Live Migration to Kubernetes

September 6, 2025
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HELLO

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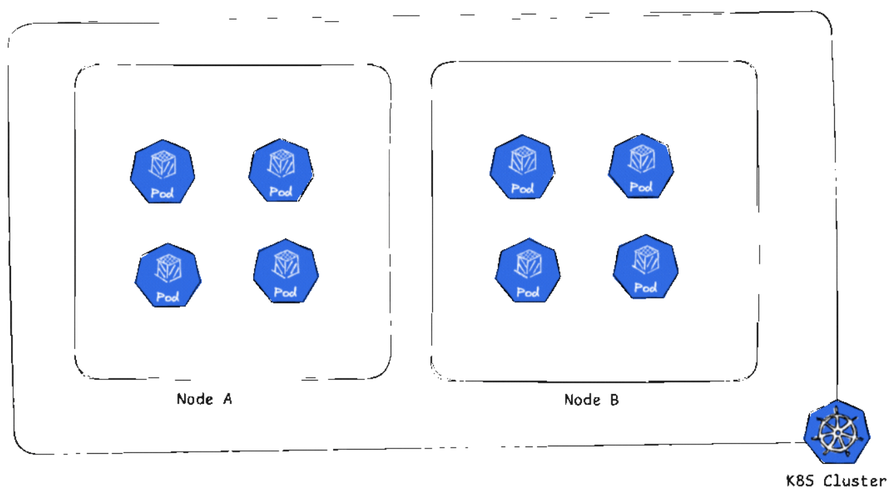
Live Migration



Container live migration is the process of moving a running container from one host server to another with minimal or zero downtime, allowing for continuous operation, uninterrupted service, and efficient resource management

Why does live migration matter?

Downtime costs

Users drop

SLAs break.

Databases

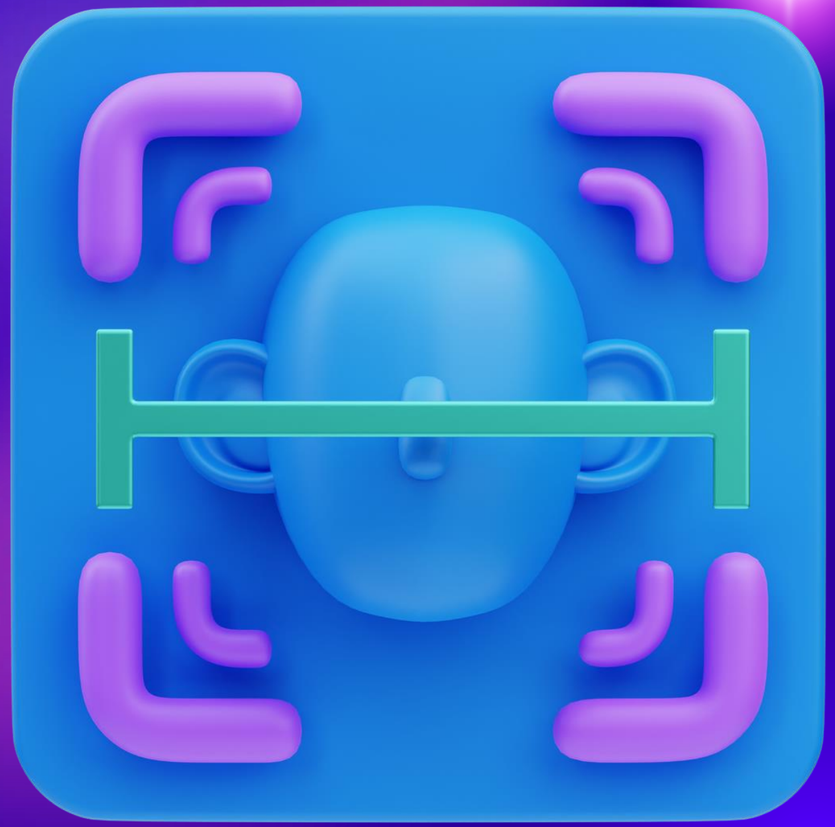
Long-running connections

ML / AI Workloads

Challenges of Live Migration

- Stateful vs Stateless: Stateless is easy (reschedule pods), but stateful is hard.
- Network Identity: Preserving IPs so TCP connections don’t break.
- In-Memory State: Migrating memory pages with minimal freeze.
- Kubernetes Defaults: No native mechanism for true zero-downtime migration.

DEMO TIME

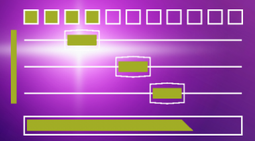


Let’s see Live Migration in Action

CAST AI's Approach

Core Techniques

DaemonSet



Controller

CRIU

Network Magic

TCP connections persist.

Pods retain their IP addresses during migration.

Benefits & Use Cases

- Zero downtime upgrades / node replacements.
- Preemptible & spot instance automation.
- Maintenance windows without service disruption.
- FinOps angle: Cost savings by moving workloads seamlessly.

Q&A

FAQ:

Available on :

Coming Soon :

THANK YOU FOR YOUR TIME

PING ME ANYTIME TO KNOW MORE