



CNCF Project Focus

Episode #1

Knative

Vendor-Neutral Serverless on Kubernetes



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You are paying for idle time

Your Kubernetes pods run 24/7. But your APIs are **idle** nights and weekends.

You're paying for servers that do **NOTHING** most of the time.

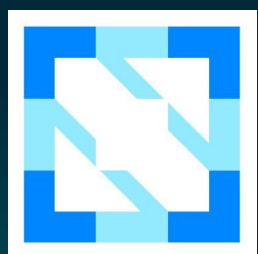
Knative fixes this. Scale to zero = \$0 when idle

And it runs **ANYWHERE**

→ AWS, Azure, GCP, on-premise ...

→ No vendor lock-in

CNCF Graduated September 2025



Cloud Native
Computing Foundation

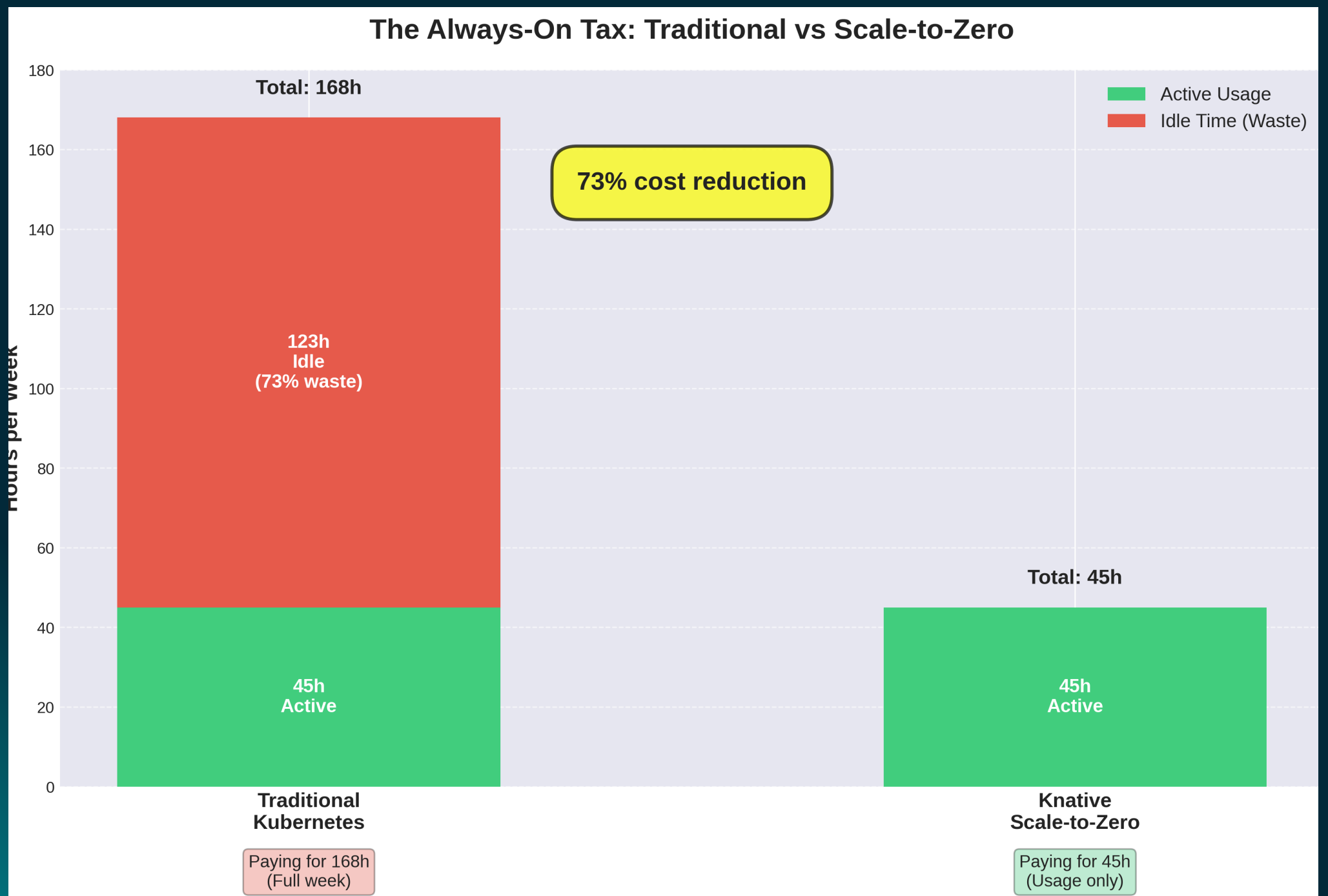


Example: traditional K8s Deployment

- Minimum replicas: 3 pods
- Running 24/7/365 even when:
 - 2 AM: Zero traffic
 - Weekends: Zero users
 - Holidays: Zero requests
- 📊 Most business APIs are idle outside working hours
- 📊 Development environments: used < 40 hours/week, billed 168h
- 📊 You pay for capacity "just in case"

Example: Trading API

Trading APIs active 9h–18h weekdays
= 45 hours used / 168 hours billed



Knative: vendor neutral serverless

➤ What is **Knative**?

CNCF Graduated **serverless platform** for **YOUR** Kubernetes cluster.



Scale-to-Zero = cost optimization

- 0 pods when idle = \$0 cost
- Auto-scale 0→N→0 based on traffic



Vendor neutral by Design

- Works on ANY Kubernetes (AWS, Azure, GCP, OpenShift...)
- Zero lock-in. Same API everywhere
- No proprietary serverless pricing

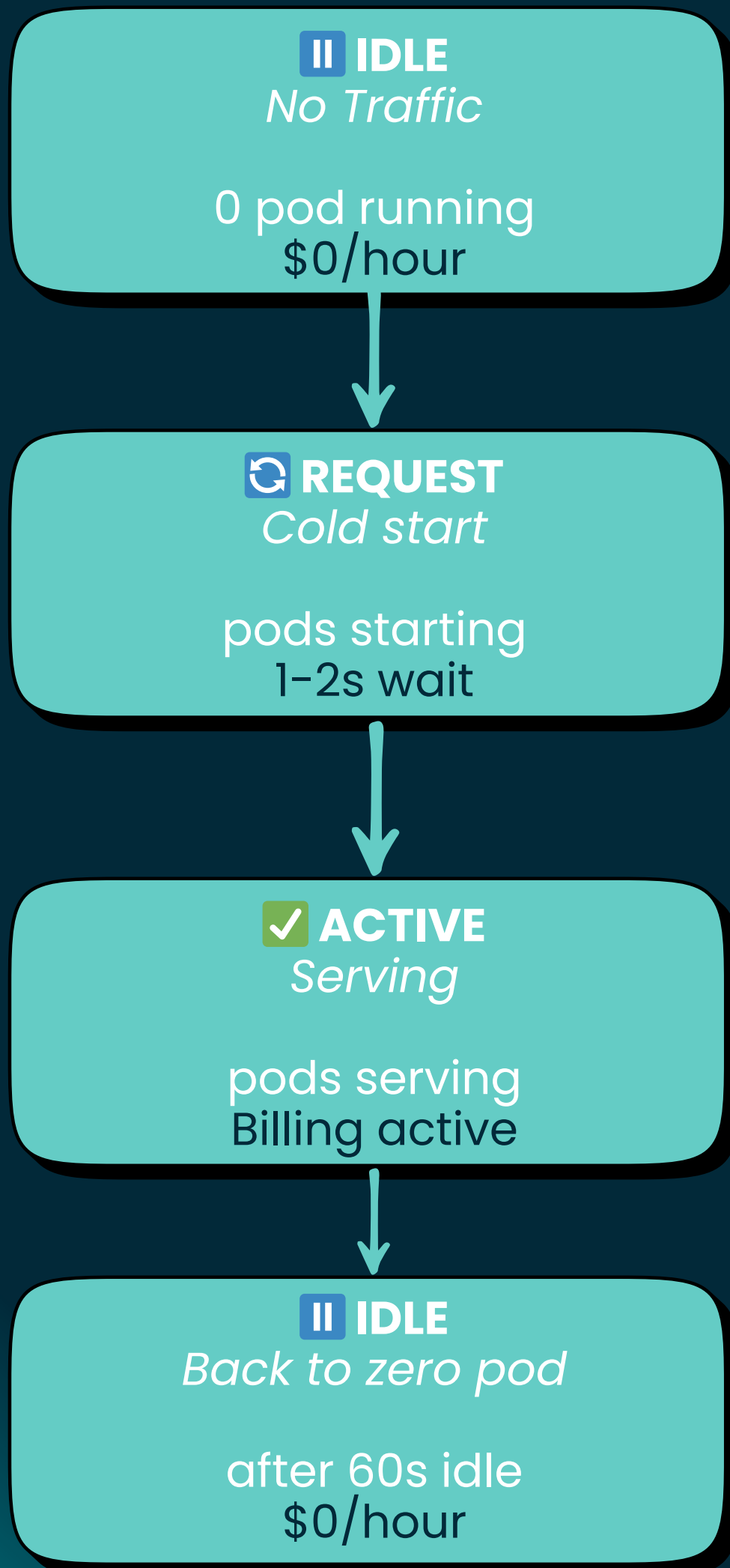


Two core components

Serving: Auto-scaling HTTP workloads (0→N)

Eventing: CloudEvents-based event processing

How does the Scale-to-Zero work ?



Calculate YOUR savings

⚠ Knative is **FOR**:

- ✓ HTTP APIs (REST, webhooks)
- ✓ Event-driven functions
- ✓ Request/response workloads
- ✓ Services with idle periods
- ✓ Batch processing (scheduled jobs, ETL)

✗ Knative is **NOT** for:

- ⊘ Databases (always-on, stateful)
- ⊘ Message queues (persistent)
- ⊘ WebSockets (long connections)
- ⊘ Ultra-low latency (<100ms cold start)

Traditional Cost: $\text{services} \times \text{replicas} \times 168 \text{ hours/week} \times \text{cost}$

Knative Cost: $\text{services} \times \text{replicas} \times \text{usage hours} \times \text{cost}$

Explore my learning toolkit



github.com/christian-dussol-cloud-native/knative/

Educational GitHub Repository

What's Inside:

- ✓ Cost calculator (Python)
- ✓ Demo examples
- ✓ **Kyverno** governance policies
- ✓ Complete Knative setup scripts