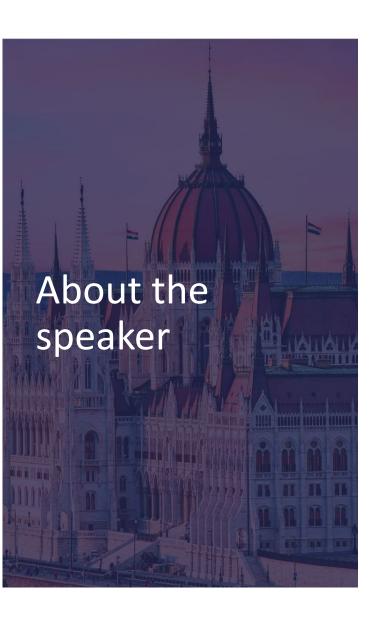




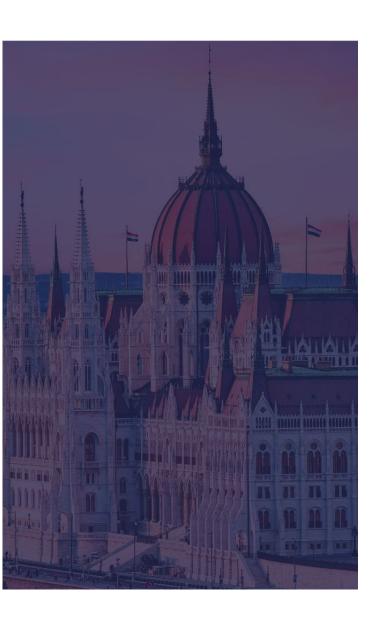
Open Source Databases Meetup





- Focusing on Cloud Native solutions and market trends
- Discussing cloud transformation with community and customers
- Believe in open-source as a better foundation for business success
- 8 years in open-source (AlmaLinux, Percona)

2 © 2024 Percona



- Using Kubernetes for development?
- Databases on Kubernetes?







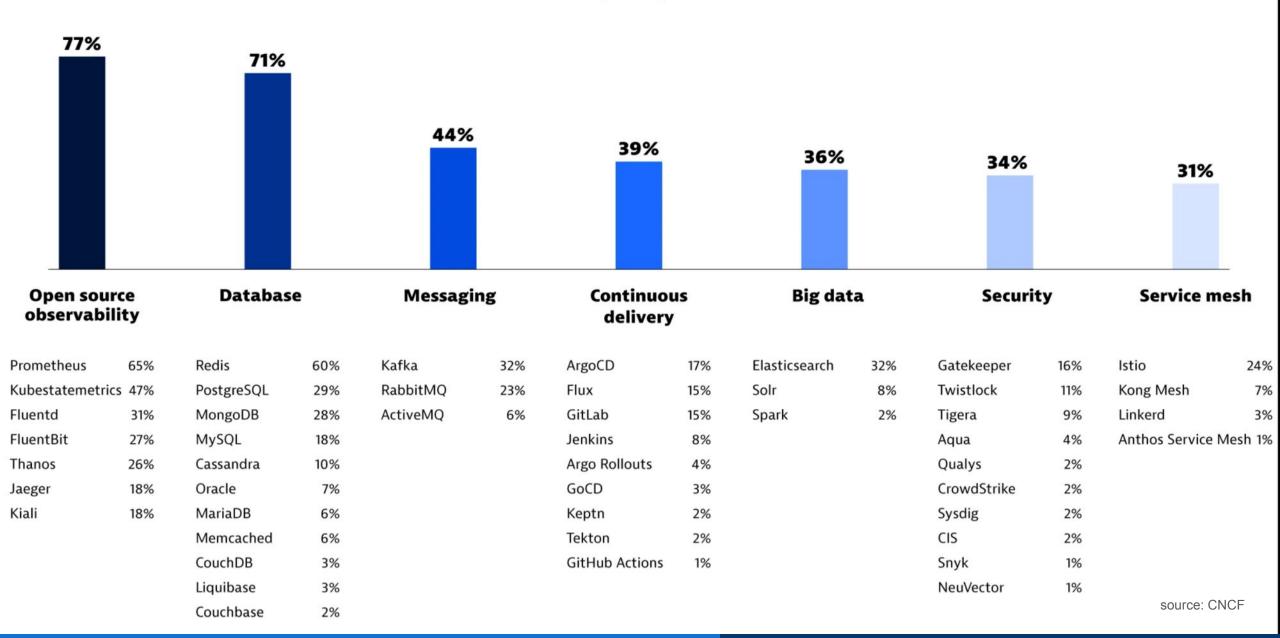


### Storage Strategy: Challenges And Impact



#### **Technologies used in Kubernetes environments**

Percentage of organizations





Factor	K8S DB (+automation)	Traditional DB
Impact of Change	with greater Flexible	
Pressure on Resources	with Precise resource allocation	
Information Silos	with Portability	
Reduce Cost	with Elastic Scalability	
Manage Risk	with Automation	
Improve Service	with Self-provisioning	



#### Open-source alternative to Public DBaaS



- hard to switch to alternatives
- storing data outside the organization
- geographical limitations
- data-compliance requirements

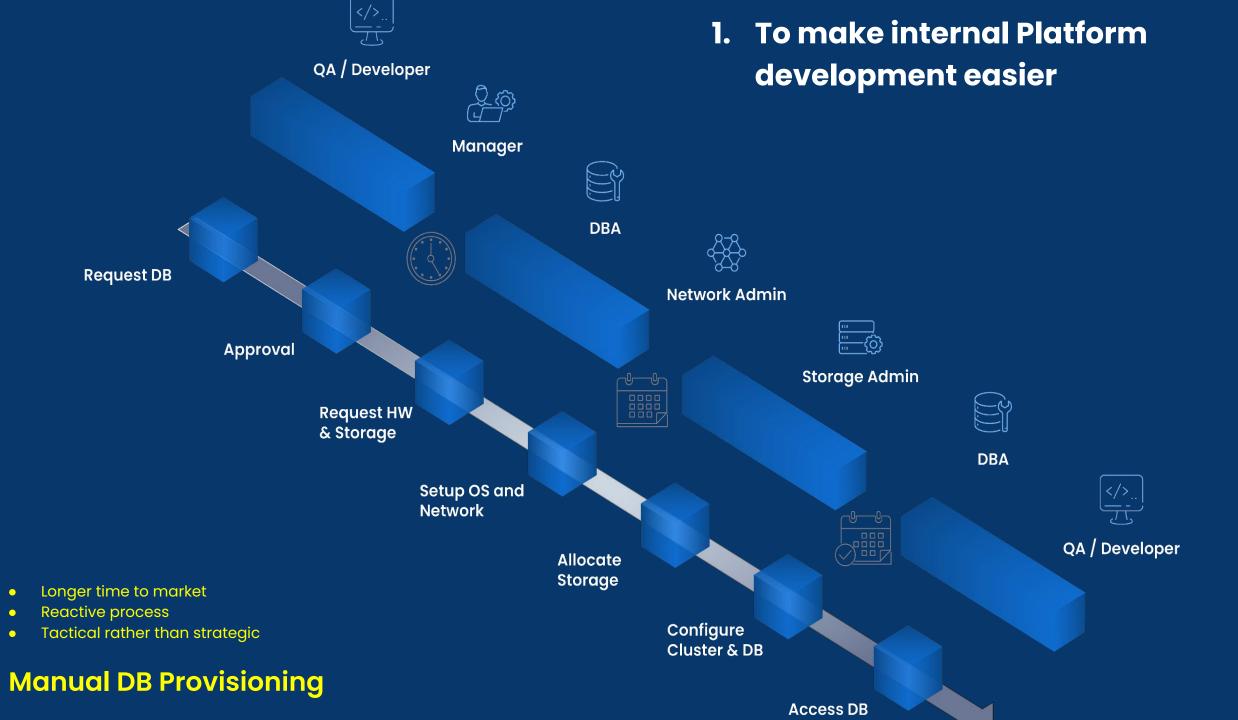




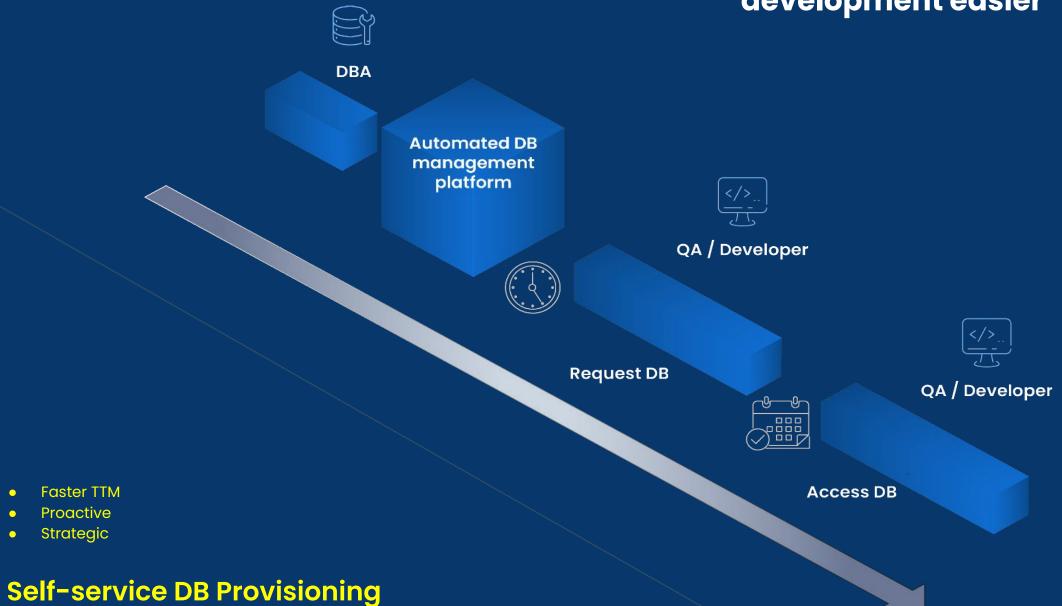
#### **Cost-effective alternative to Public DBaaS**

Cloud and region	DBaaS	K8s (pay-as-you-go)	K8s (reserved instances 3y)
	3-node RS (2vCP	PU, 8GB RAM, 40GB storage)	
AWS us-east1	\$4,730	\$2,666	\$1,204
Azure centralus	\$5,256	\$2,450	\$1,049
GCP us-east1	\$3,854	\$2,796	\$1,393
	4x3-node RS (64vCPL	J, 256GB RAM, 2TB storage eac	h)
AWS us-east1	\$555,822	\$355,086	\$159,674
Azure centralus	\$626,515	\$366,672	\$162,575
GCP us-east1	\$525,755	\$379,376	\$198,303

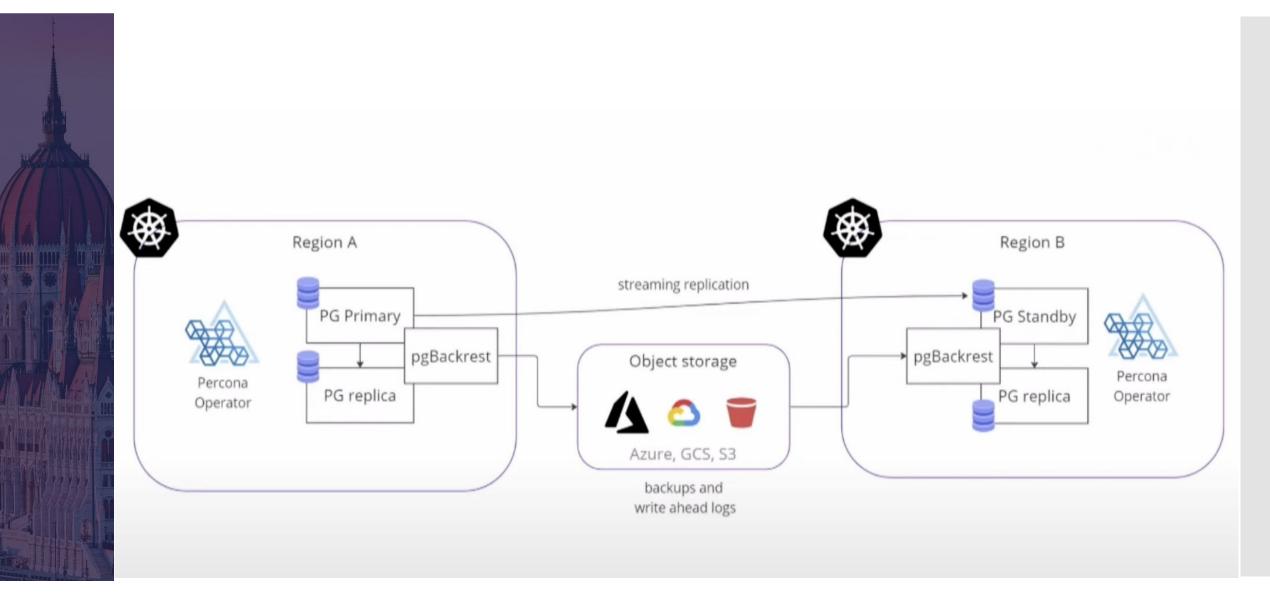




## 1. To make internal Platform development easier



#### Multi-cloud or Hybrid Cloud for Data Compliance and Cross-region





#### Elastic Scalability needs: Managing high traffic efficiently



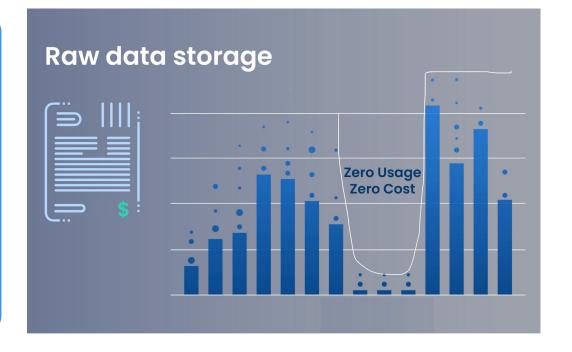
#### With Managed Solution

- Usage grows, and so do the expenses.
- Overprovisioning
- Unpredictable

#### With Elastic Scalability

- You paying just for actual usage
- Elastic scalability
- Cost efficiency and predictability

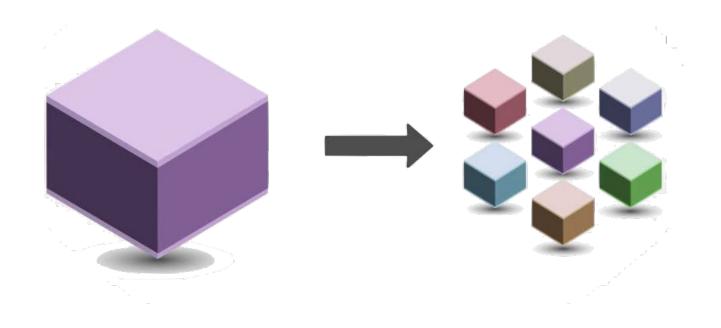




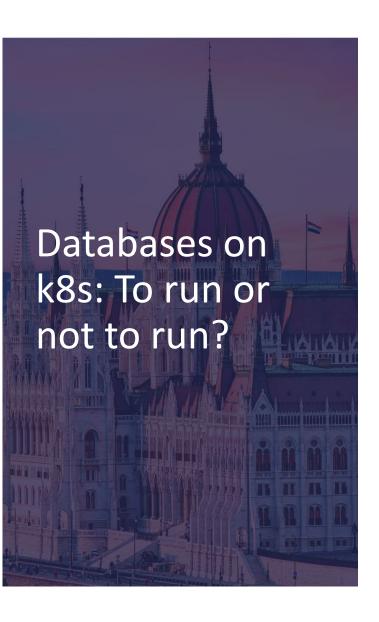


## Moving from monolithic to microservices: Legacy architectures modernization









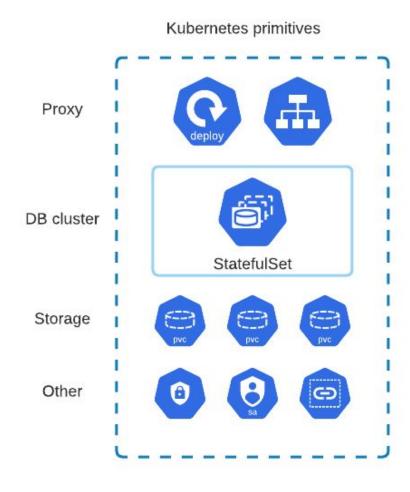
#### Cons:

- k8s is not for stateful app
- Pods goes up and down
- It is too complicated



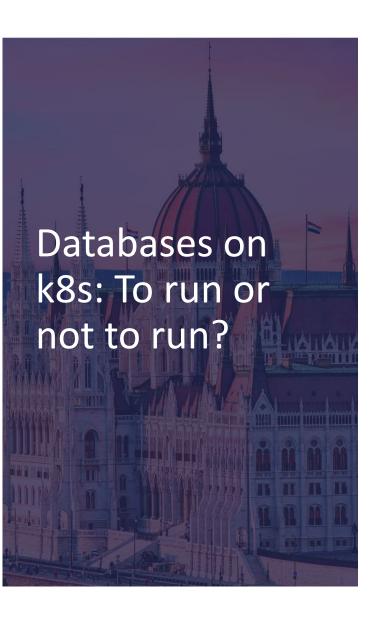
**15** © 2024 Percona

#### Databases on Kubernetes



- 1. Underlying Kubernetes
- 2. StatefulSet for Primary/Replicas
- 3. High Availability and failover
- 4. Disaster Recovery
- 5. Storage (PVC/Hostpath)
- 6. Services
  - a. Read/Write
  - b. Read Only
- 7. Connection Pooling
- 8. Configuration
- 9. Monitoring
- 10. Backups
- 11. Updates
- 12. Encryption
- 13. .....





#### Cons:

- It is too complicated



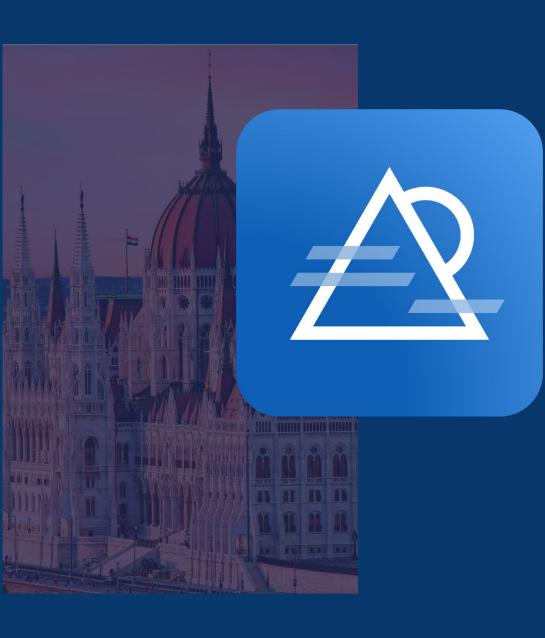








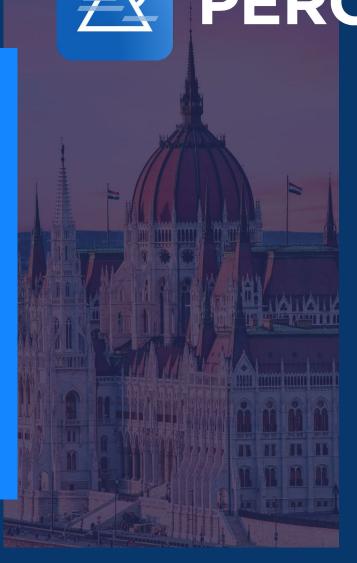




# PERCONA Everest



### **PERCONA Everest**

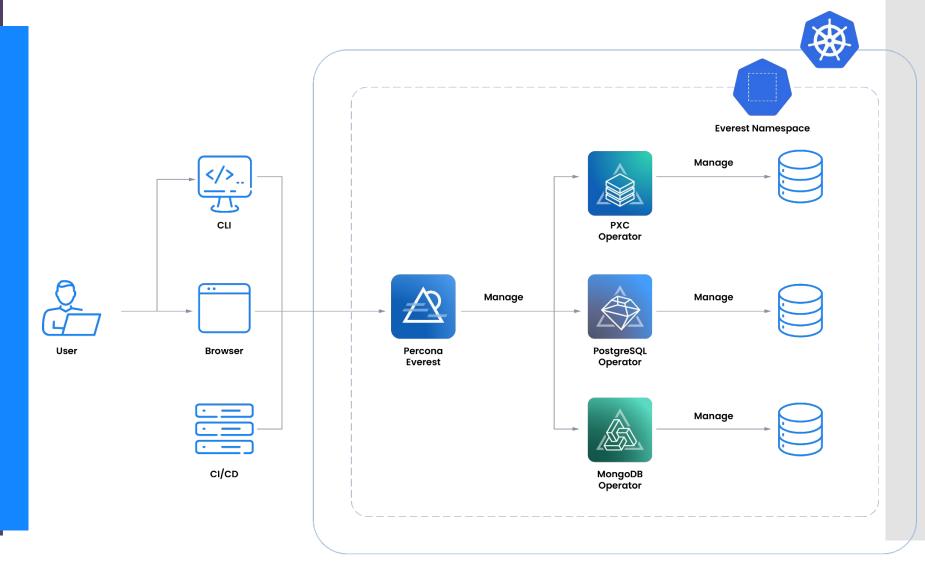


First open-source platform designed for automated database provisioning and management, supporting multiple database technologies with the freedom to host on any Kubernetes infrastructure: in the cloud, and on-premises.





### How Percona Everest works

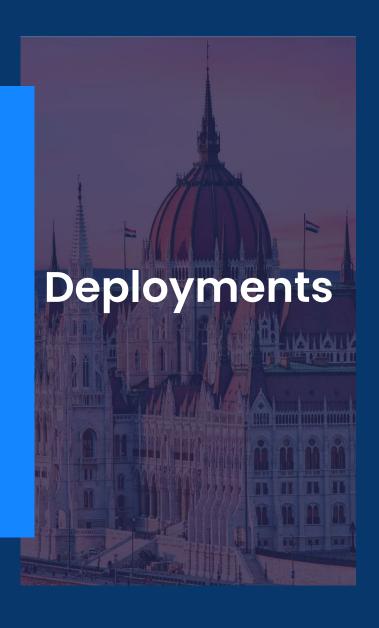






- MySQL
- MongoDB
- PostgreSQL
- More soon... Clickhouse, Valkey (Redis fork)



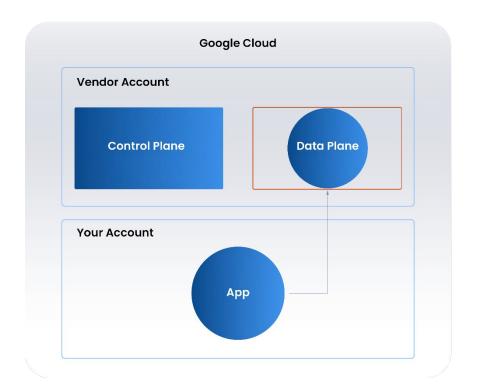


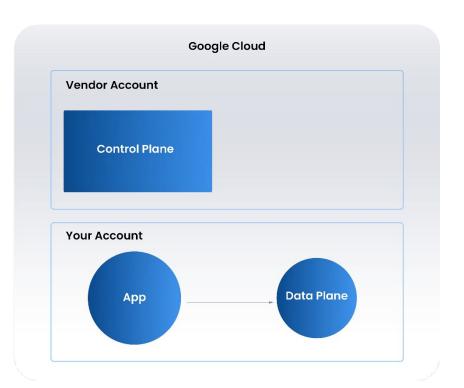
- Amazon Web Services
- Google Cloud
- OpenShift (any K8s)
- Kubernetes Vanilla
- Multi-Cloud and
- On-Premise



# Private Deployments And Customizable Database Setup:

- Control plane
- Data plane hosted privately by you





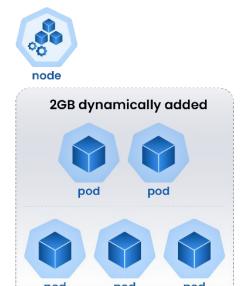


### **Autoscaling With K8s**

#### **Vertical Scaling**



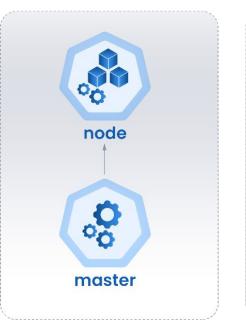
3GB reserved

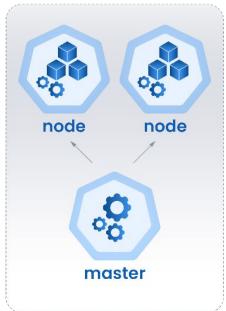


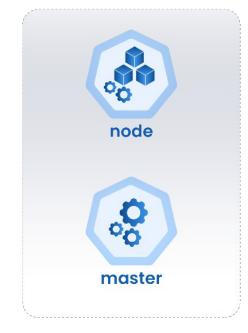
3GB reserved

#### **Horizontal Scaling**









under 70%

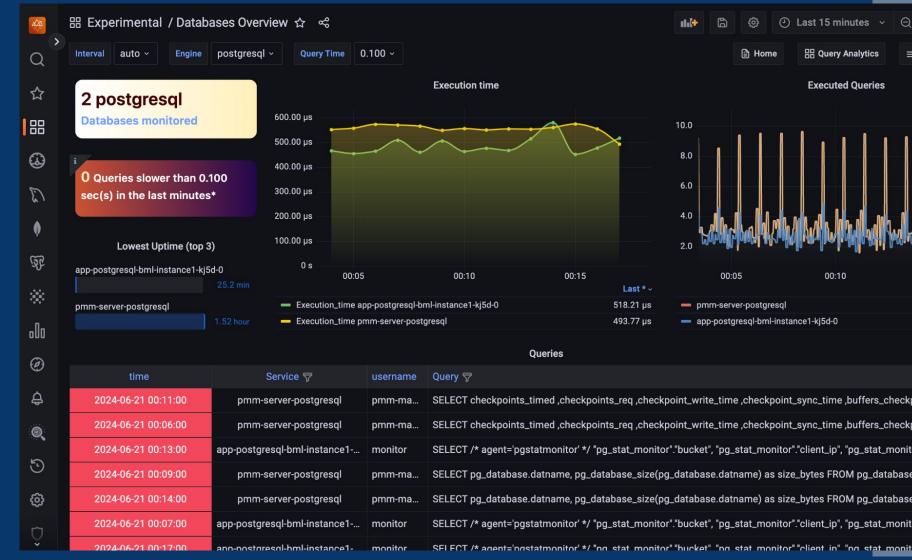




- Scheduled backups
- On-demand backups
- Point in time recovery
- Physical backups soon





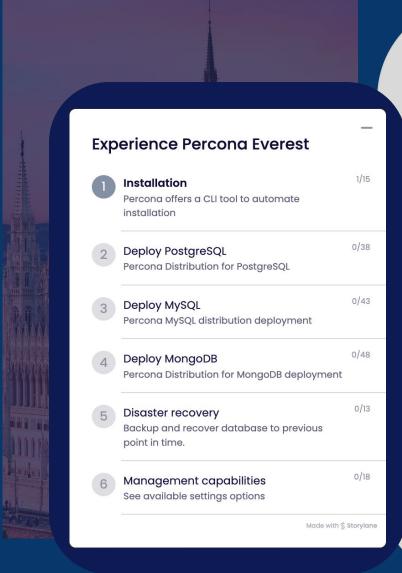


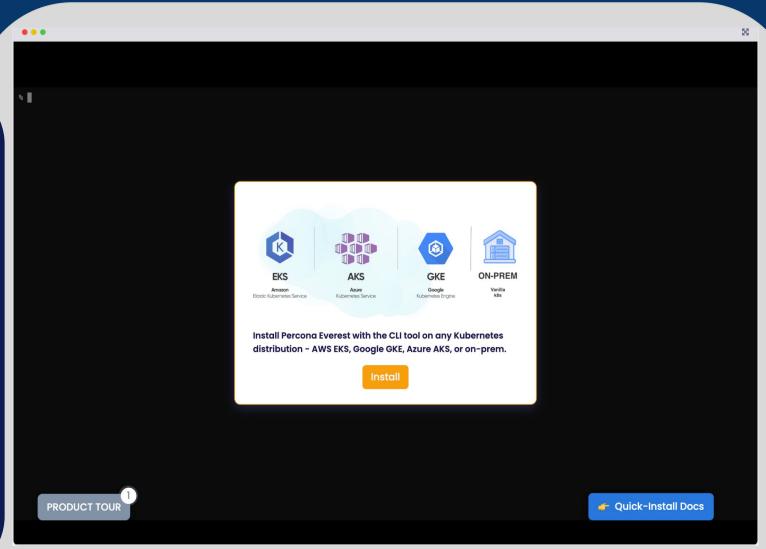




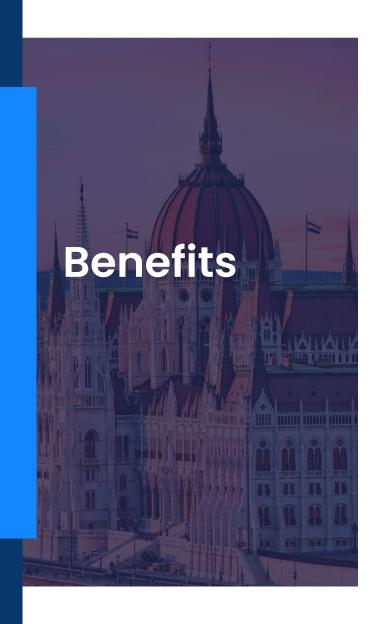
- Centralized configuration management
- Activity tracking and audit logs
- Policies definition and enforcement
- CLI management tool and REST APIs











- Database best practices codified
- Ready to integrate with your Platform
- Free from vendor lock-in
- Self-service for everyone
- Open and customizable
- Support from Percona and Community





### **Use Case: Platform Engineering**

**Industry:** Telecommunications, IT, Electronics

**Location:** Global (HQ in Finland)

Company size: large

A prime example of this is the private cloud - Nokia Enterprise and Services cloud (NESC). It has evolved from a basic laaS, to adding Kubernetes, to an extensive platform that provides a range of services to stakeholders within the company.

Kimmo Katajisto - Senior Cloud Platform Developer

"If Everest would exist 2 years ago we wouldn't build our own DBaaS solution"

# Thank you! Join









