The database trends that are transforming your database infrastructure forever
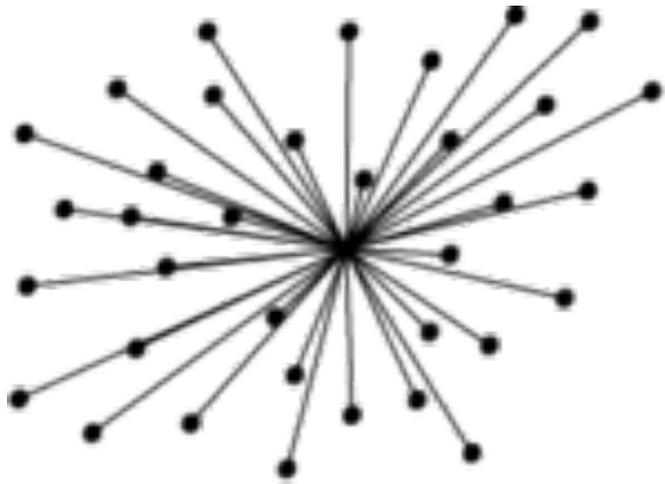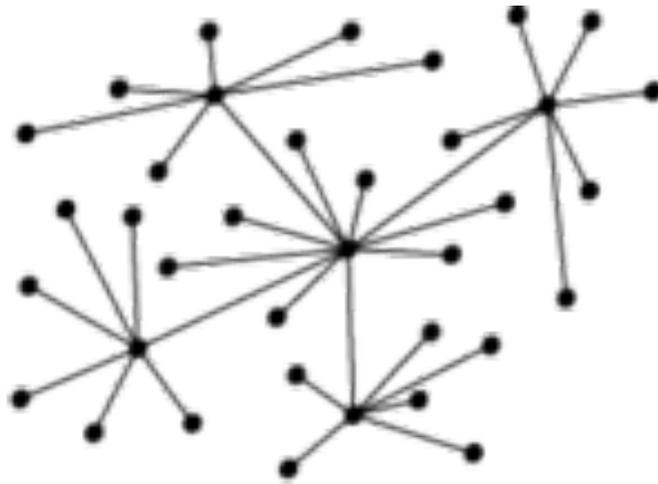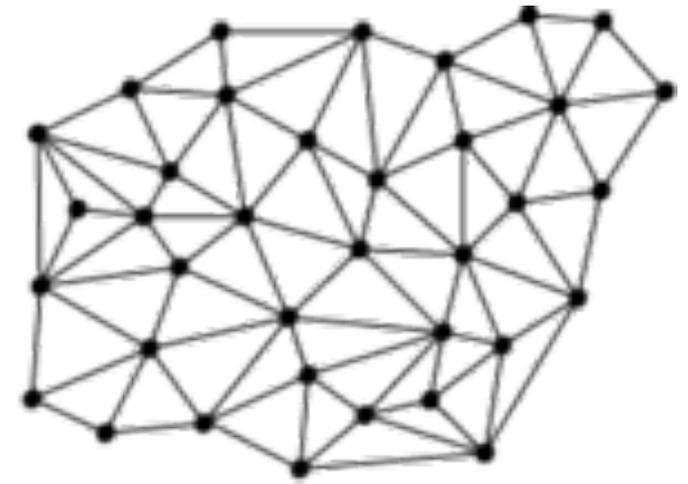

Peter Zaitsev,
Founder,
Percona
Nov 4th, 2022

Innovation

centralised   decentralised   distributed

Distributed Databases

Separation of Storage and Compute

Serverless
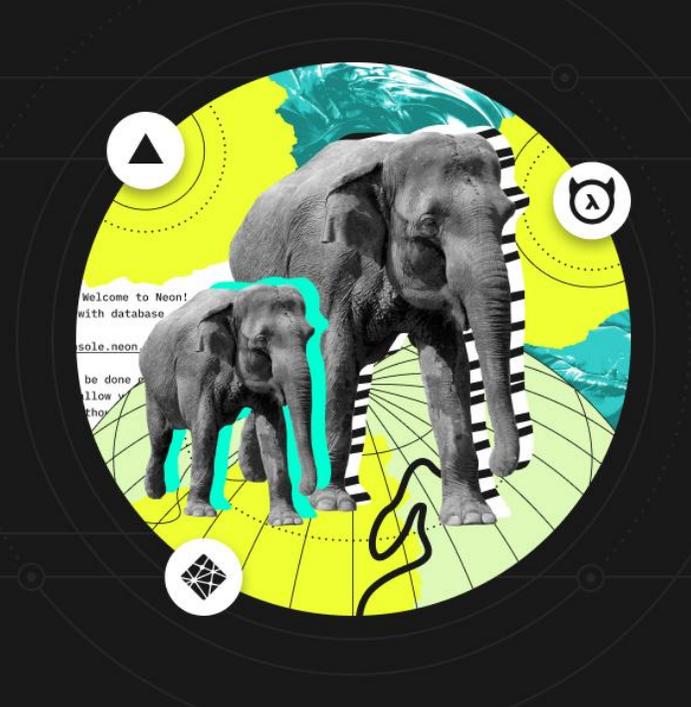
Neon – Follows both of those trends

ZERO-OPS BACKEND FOR WEB AND MOBILE APPS

Not just Relational Any More

Time Series

Graph

Data Structures

Different Models

Multi-Model

Some Databases Support Multiple Data Models, Some even Talk Different Languages/Protocols

Shapechangers

Clickhouse can speak PostgreSQL and MySQL Protocols

VictoriaMetrics has InfluxDB and Graphite API

FerretDB allows to use PostgreSQL as if it were MongoDB

Babelfish turns PostgreSQL in MS SQL Compatible Database

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What Is the Biggest Factor Impacting Open Source Now?

Many will Say:
Cloud

Really ?

DBMS
of the
YEAR
2021

snowflake

DB-Engines.com

https://db-engines.com/en/blog_post/93

Maximize and Simplify Adoption

Change Opportunities for Monetization

Cloud Impact

Remember…

Marten Mickos: "Open Source Is Not a Business Model"

Hijacking GPL

Open Source Software Authors who did not want others to build commercial solution on their software could use GPL…. Not any more

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Open Source Ownership and Governance

- **Foundation Driven (Multiple Vendors)**
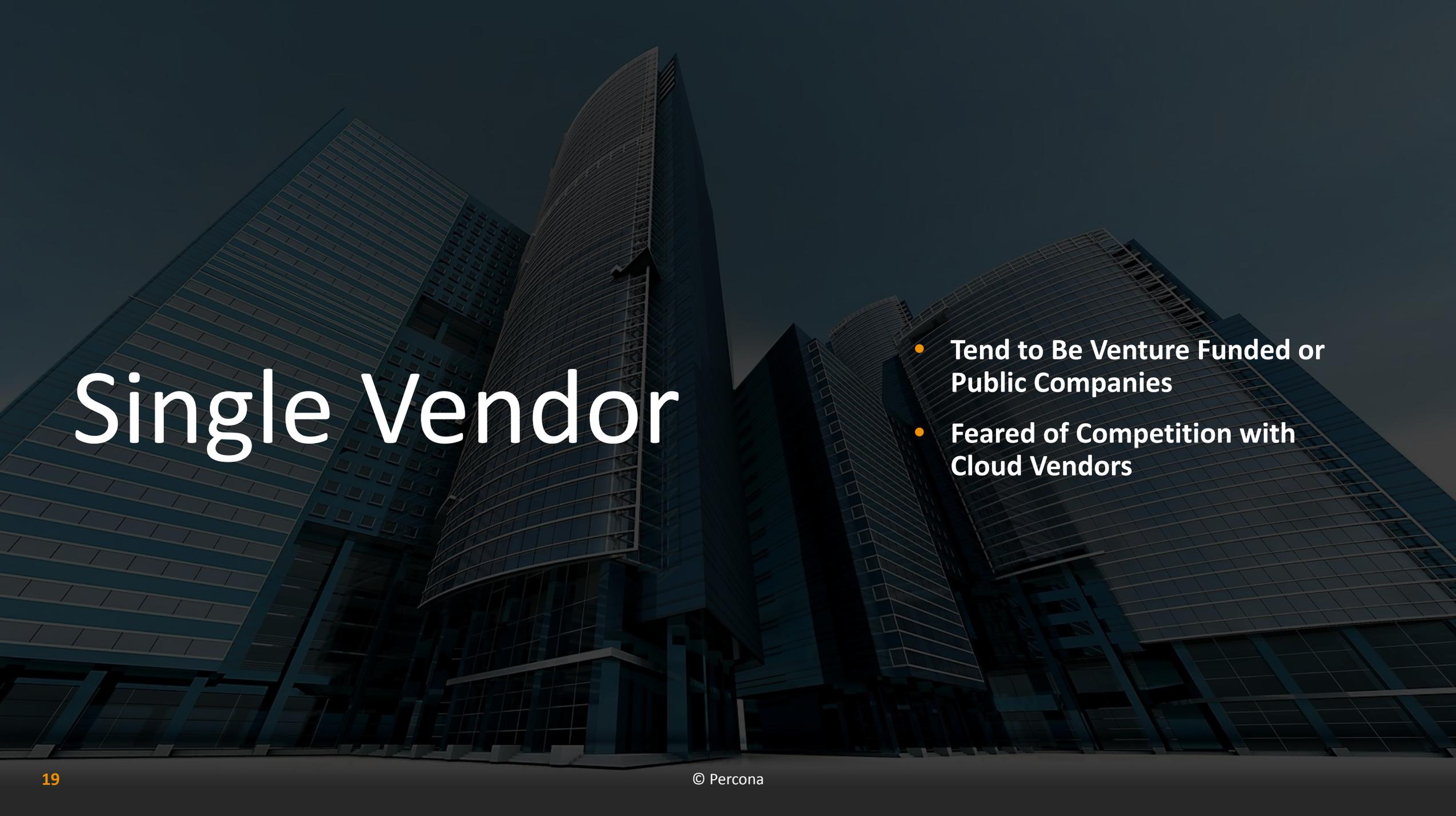
- **Single Vendor Driven**

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CLOUD HELPS TO ACCELERATE ADOPTION

CLOUD CHANGES WHO CAPTURES THE VALUE

Foundation Based Open Source

Single Vendor

- **Tend to Be Venture Funded or Public Companies**

- **Feared of Competition with Cloud Vendors**

Fully or Partially Abandoning Open Source Licenses

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Database as a Service.

Primary Goal of the License Change?

- **Creating Monopoly on DBaaS Market**

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STATE OF ART SIMPLICITY

HIGH LEVEL OF AUTOMATION

MAXIMIZES DEVELOPERS FOCUS ON APPLICATION

Why DBaaS?

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What Is the Problem with Monopoly on DBaaS?

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No Different from Proprietary Software

Using DBaaS is a very different skill compared to rolling your own database setup

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Cloud

Proprietary Clouds bring Great **Usability** at Great **Cost**

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Not All Is Lost

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Have We Been Here Before?

2000s

2020s

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Operating Systems

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Open Source Catches Up Again

aws

- **Lock-in with Cloud Vendor**
- **Use Proprietary Solutions**
- **Highly Differentiated Cloud**
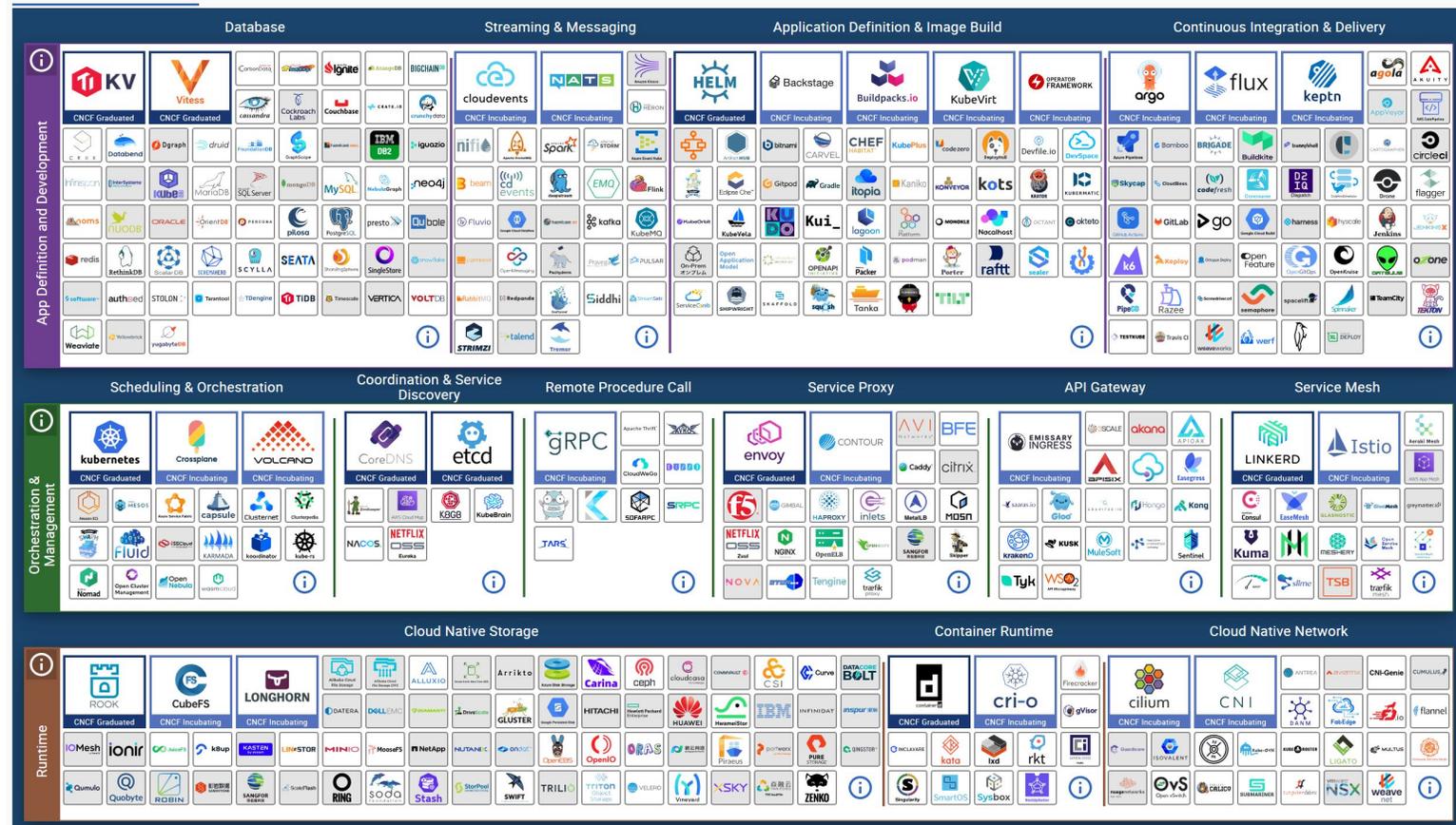- **Hostage**
- **No Vendor Choice**

CLOUD NATIVE COMPUTING FOUNDATION

- **Freedom to Run Anywhere**
- **Use Open Source**
- **Cloud Is Commodity**
- **Customer**
- **Choice of Vendors**

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Cloud Native is Going Strong

https://landscape.cncf.io/

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Giving Cloud Its Originally Intended Role of Commodity Infrastructure
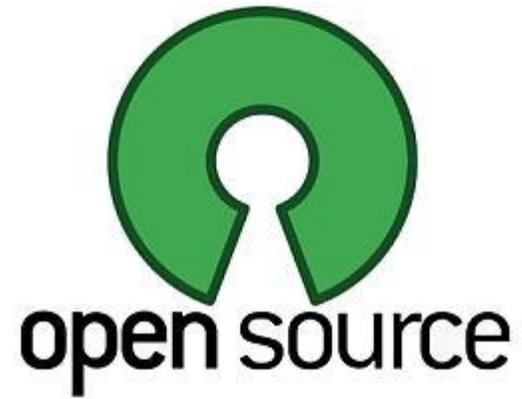

What is Cloud Computing?

An analogy: think of electricity services...

You simply plug into a vast electrical grid managed by experts to get a low cost, reliable power supply – available to you with much greater efficiency than you could generate on your own.

Power is a utility service - available to you on-demand and you pay only for what you use.

amazon
webservices™

© 2021 Percona

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So Do We Have

open source

DBaaS
Database as a Service.

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Not Yet…

But We're Taking Our Baby Steps
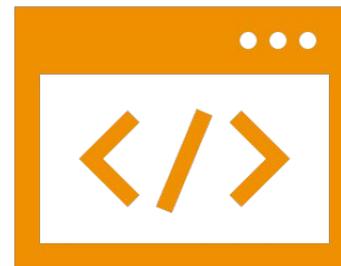
Kubernetes

- **Kubernetes is universally available**

- **Kubernetes is getting better for stateful applications**

- **Kubernetes Operators are available for most popular Open Source Databases**

© Percona

Day 1 and Day 2 Automation, Toil Reduction Similar to DBaaS

UX is Different, Requires Kubernetes Expertise

What's Up with Kubernetes Operators?

Is it Good Enough for You ?

Kubernetes with Operators is Easy and Powerful

https://per.co.na/PXCMinkube

Can We Build DBaaS on Kubernetes?

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Many Modern DBaaS Are Built This Way
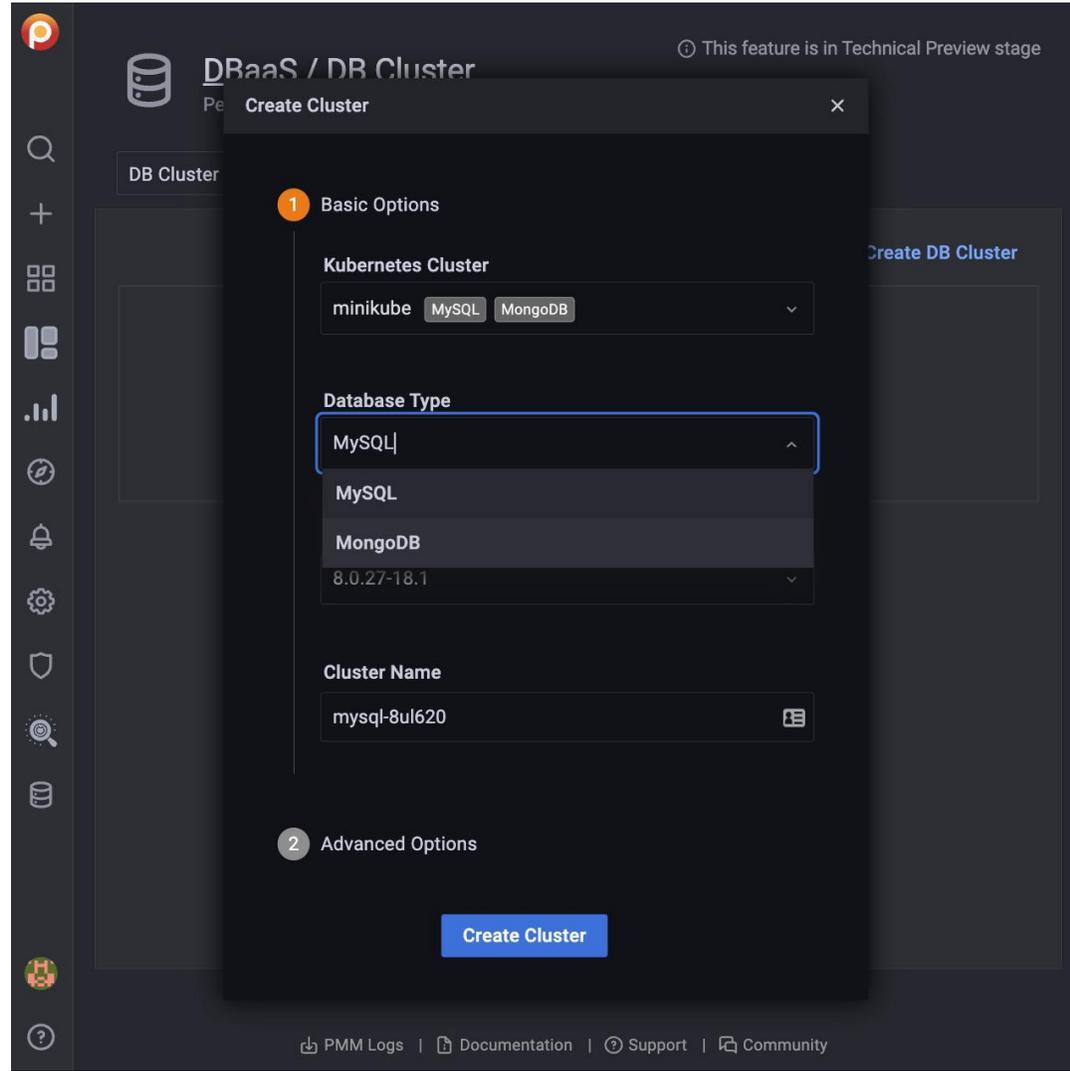
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Completely Open Source DBaaS

- **Percona is building Open Source Database as a Service in Percona Monitoring and Management (PMM)**
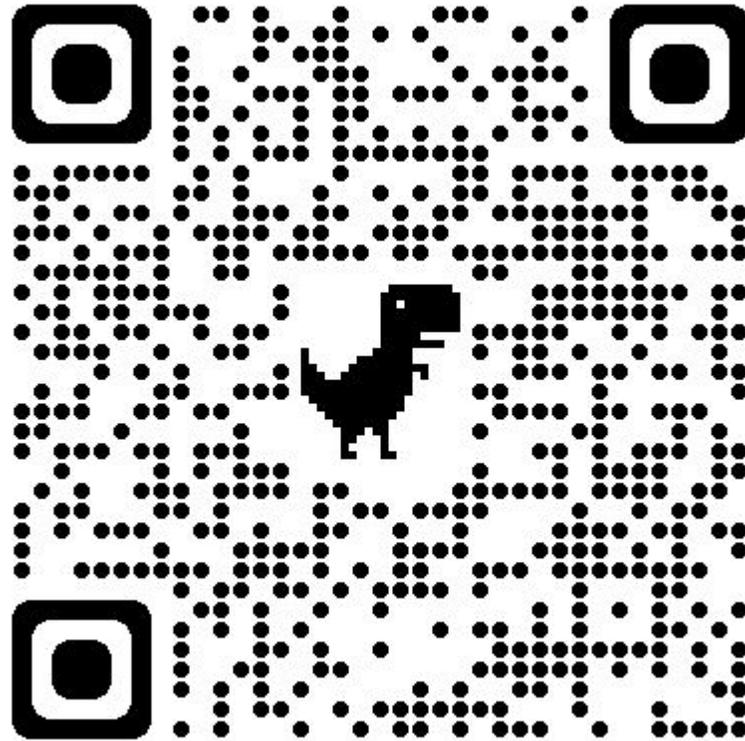
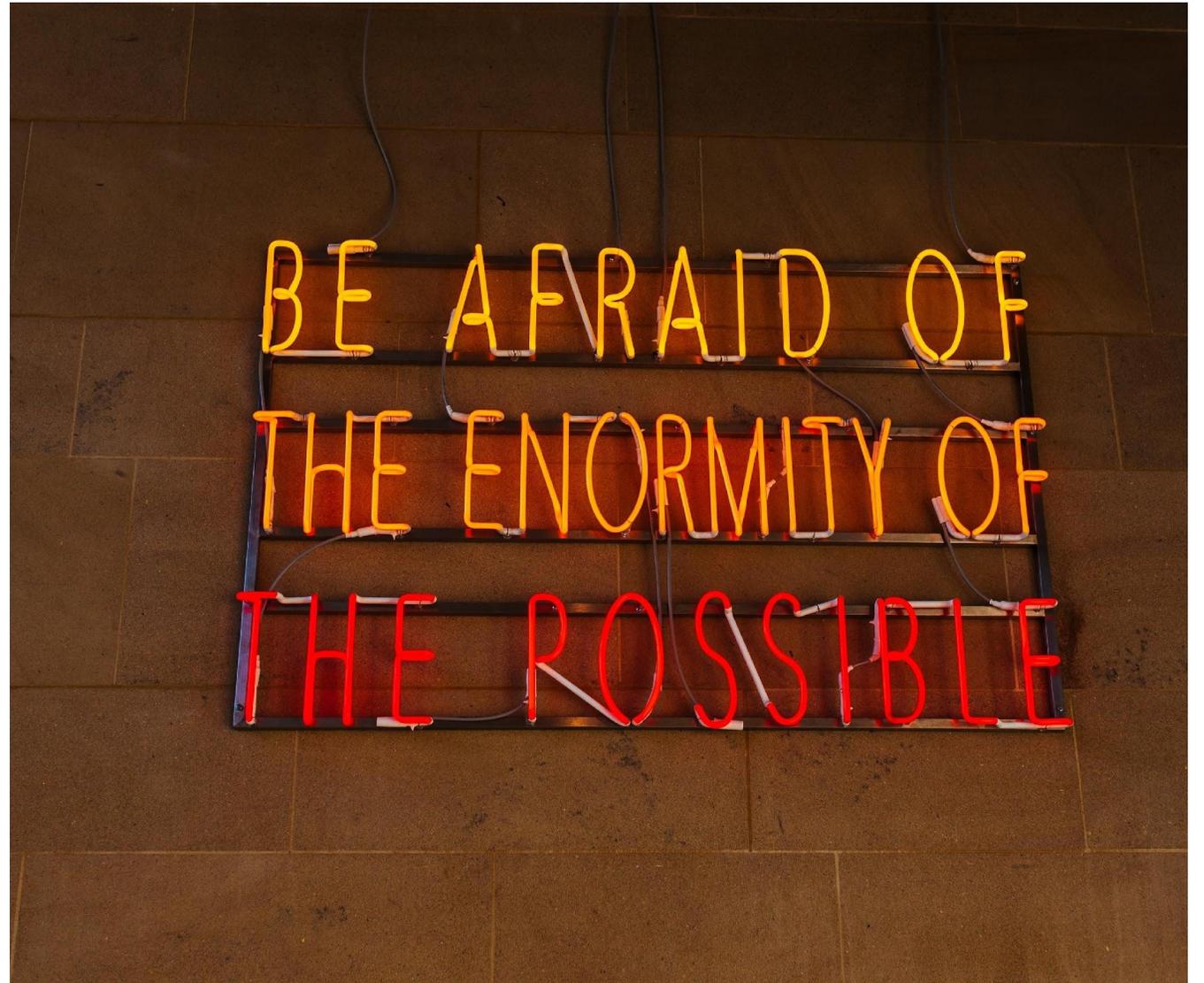- **We expect to be one of Many**

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Work in Progress…

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Explore DBaaS with free Kubernetes

https://per.co.na/TestDBaaS

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Can it be Done ?

Thank you, Let's Connect!

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https://twitter.com/PeterZaitsev

http://www.peterzaitsev.com

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