



PERCONA UNIVERSITY

Empowering Open Source Database Innovation Worldwide



**2025
HYDERABAD, INDIA**

IN PARTNERSHIP WITH:



HEXA CLUSTER



PERCONA



Welcome



Peter Zaitsev,
Founder at Percona
March 4, 2025

In partnership with



HYDERABAD, INDIA 2025

*Empowering Open Source Database Innovation
Worldwide* 

Special
Thanks
to our
Partners and
Organisers

EDITH PUCLLA



VITALIJ POGURELSZKIJ



AVINASH VALLARAPU



HEXA  CLUSTER



OpenSource^{DB}
Your Trusted Data Partner



DRAPER
STARTUP HOUSE

 **PERCONA
UNIVERSITY**

HYDERABAD, INDIA 2025

*Empowering Open Source Database Innovation
Worldwide* 

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Percona Sales Person

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Bring Percona University to Your City!



WE ARE HIRING

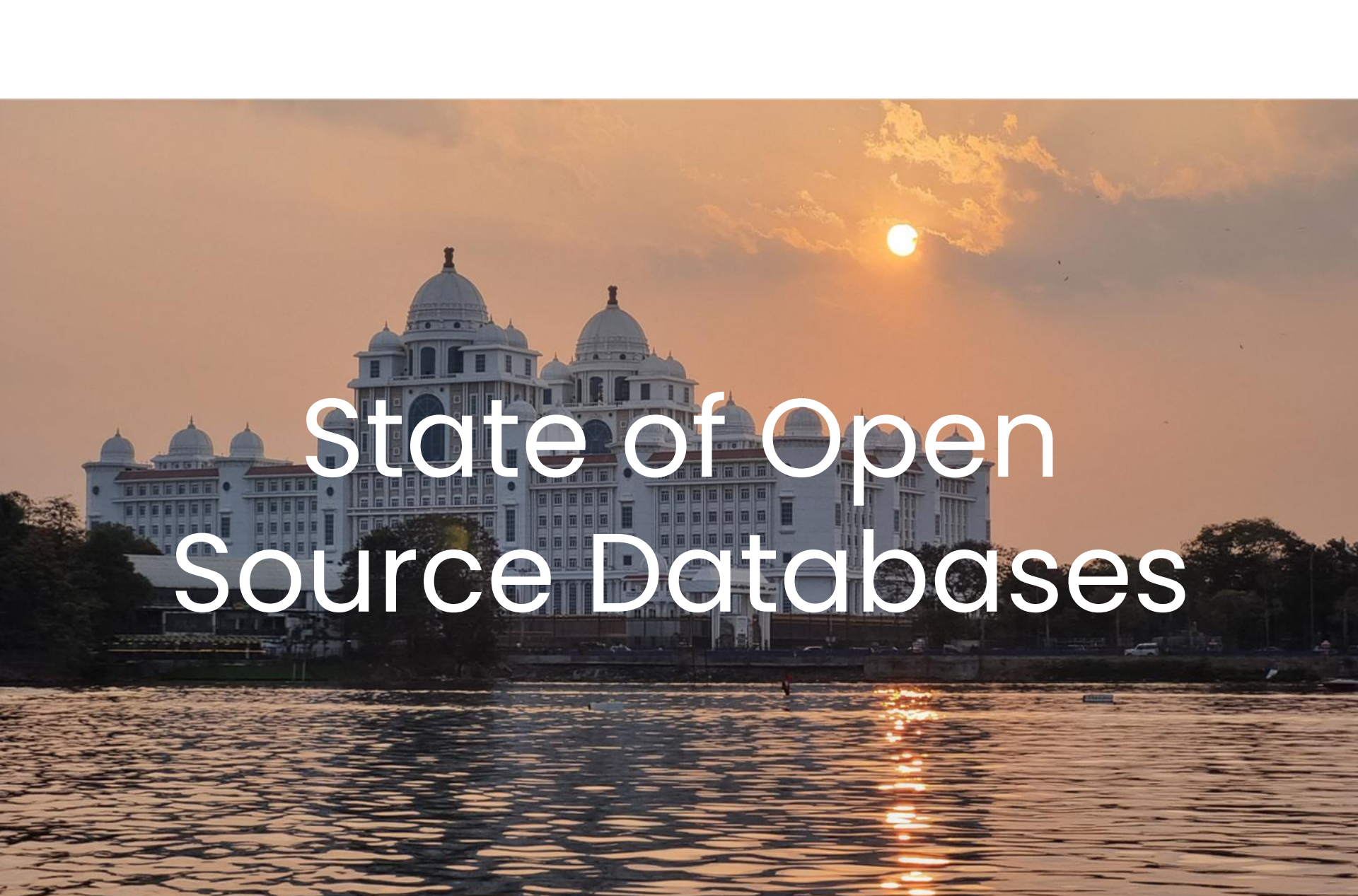
We are **hiring**.
Check our openings.



Current openings include:

- Senior Software Engineer (PostgreSQL)
- Support Engineer (PostgreSQL)
- Platform Engineer
- ...and more!





State of Open Source Databases



HYDERABAD, INDIA 2025

*Empowering Open Source Database Innovation
Worldwide* 

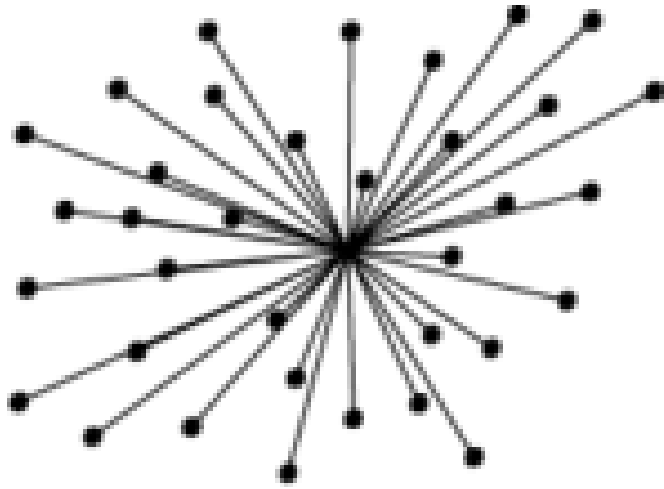
In partnership with



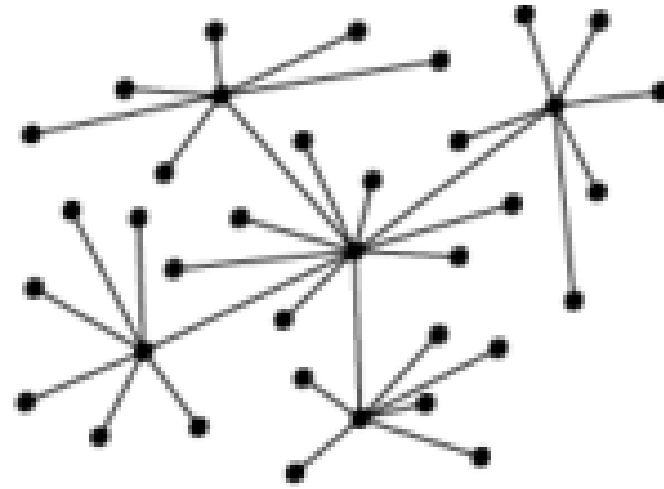
HEXA  **CLUSTER**

A glowing lightbulb is centered in the frame, set against a background of a sunset or sunrise with warm orange and yellow hues. The lightbulb is illuminated from within, casting a soft glow. The word "Innovation" is written in a large, white, sans-serif font across the middle of the image, partially overlapping the lightbulb. The overall composition is simple and evocative, symbolizing ideas and progress.

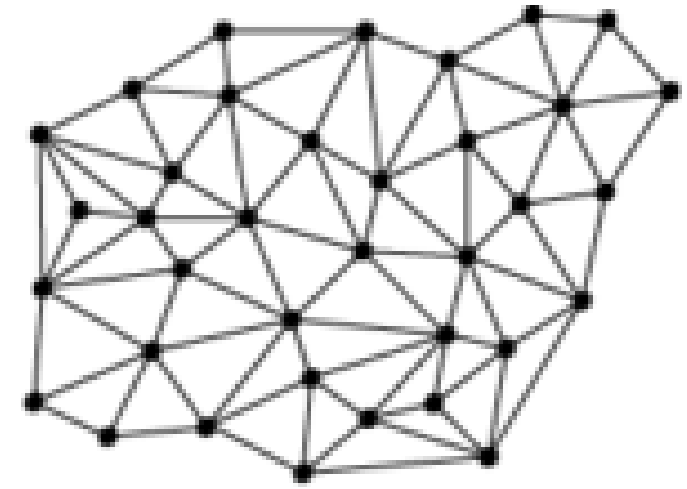
Innovation



centralised



decentralised



distributed

Distributed Databases



Separation of Storage and Compute

Serverless



HTAP – Hybrid Transactional Analytical Processing





Data Pipelines

Multiple Databases

Microservices

Developers Authority

Cloud



**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



Vector Search

**Technology Supporting building
applications which use AI**



AI Algorithms do not work with words and Images inside



They work with Vectors



Objects encoded to Vector form called "Embeddings"



Finding Similar Vectors is a key task



Traditional Database Algorithms do not handle it well

What's Up with Vectors

<https://manticoresearch.com/blog/vector-search-in-databases/>

Specific Tasks



Pattern Recognition



Semantic Search



RAG – “Retrieval Augmented Generation”

Vector search support in databases

Opensource vector dbs

Milvus	2019
Vespa	2020
Weaviate	2021
Qdrant	2022

Opensource dbs and search engines

PostgreSQL	2021
Lucene	2021
Opensearch	2022
Redis	2022
SOLR	2022
Cassandra	2023
Typesense	2023
Clickhouse	2023
Manticore Search	2023
Meilisearch	2023
MariaDB	In progress
MySQL	Not yet

Non-open source dbs

Elasticsearch	2019
Oracle	2023
MongoDB	2023

Clouds

Pinecone	2019
Amazon Elasticsearch / Opensearch	2020
Google Cloud Platform	2021
Alibaba Cloud AnalyticDB	2023
Azure	2023
Amazon DocumentDB	2023
Cloudflare Vectorize	2023

The background features two large, solid orange shapes. On the left, a triangle points towards the center. On the right, a parallelogram is oriented vertically. The text is centered between these two shapes.

What Is the Biggest
Factor Impacting
Open Source Now?

Many will Say:
Cloud



**Maximize and
Simplify
Adoption**

**Change
Opportunities
for Monetization**

Cloud Impact

A close-up portrait of Marten Mickos, a man with short brown hair and blue eyes, wearing a white shirt. The background is a solid light gray. A dark gray rectangular box is overlaid on the left side of the image, containing white text.

Remember...

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

Open Source Ownership and Governance

- Foundation Driven (Multiple Vendors)
- Single Vendor Driven

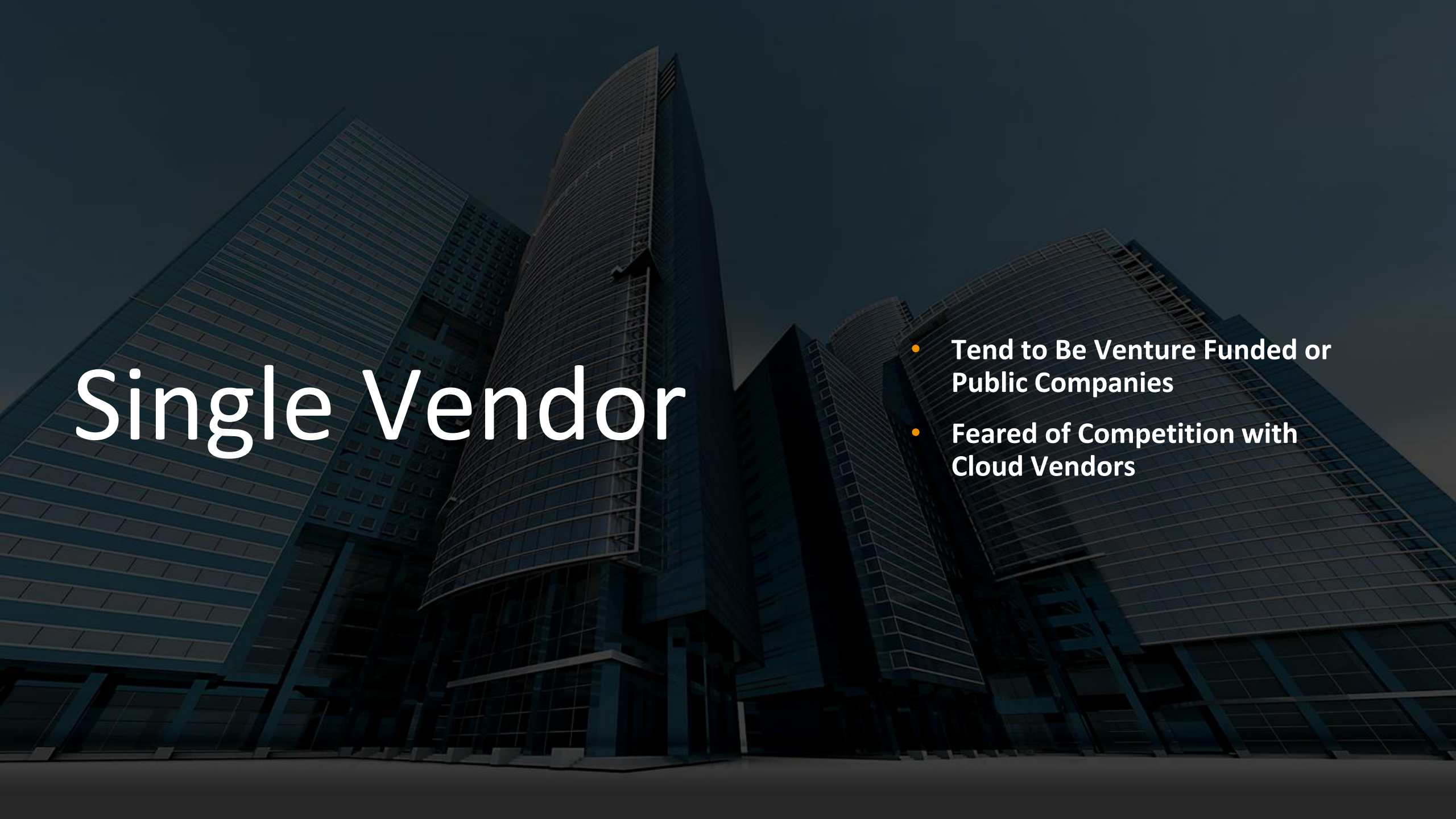


**CLOUD HELPS TO
ACCELERATE ADOPTION**



**CLOUD CHANGES WHO
CAPTURES THE VALUE**

Foundation Based Open Source



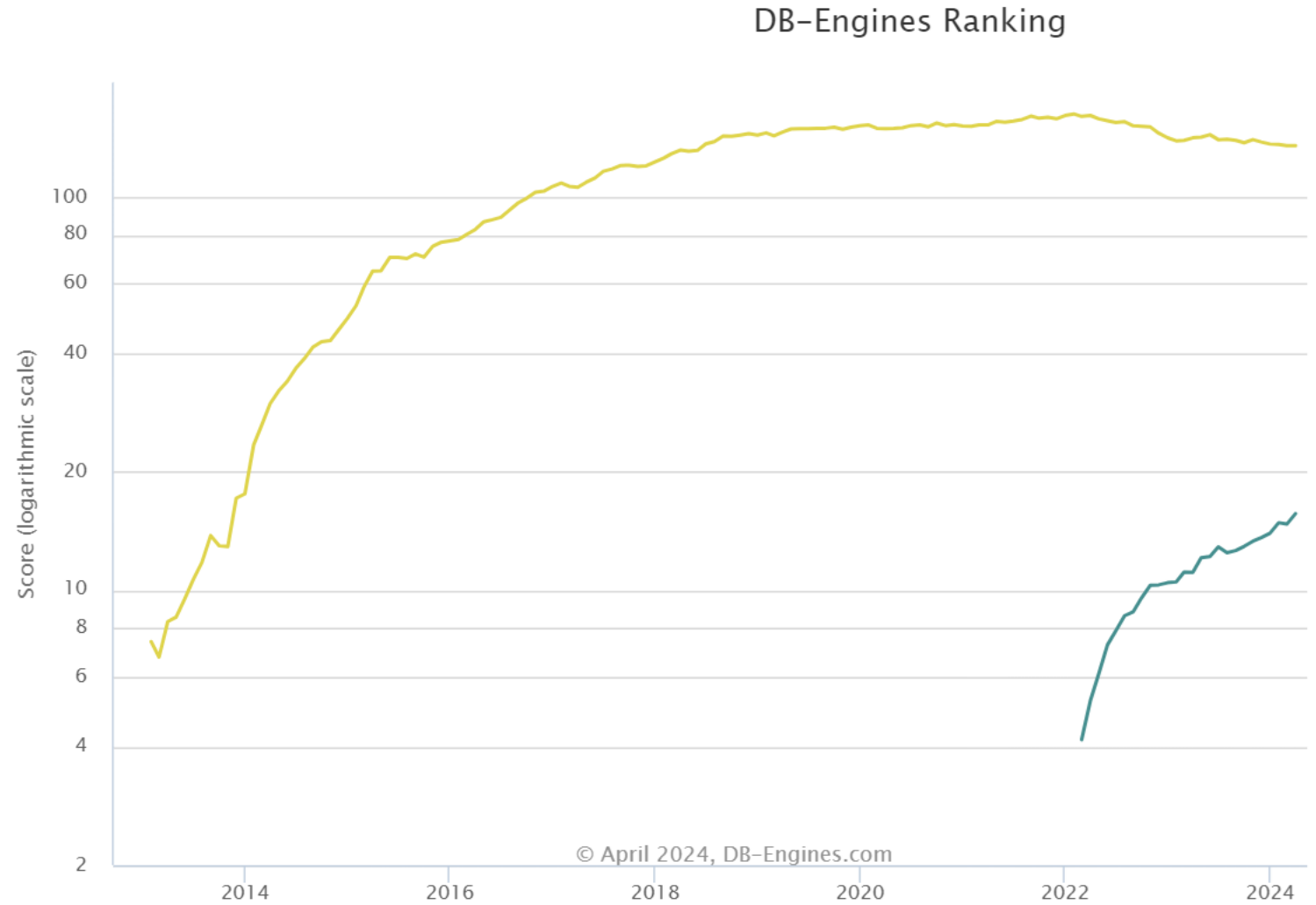
Single Vendor

- Tend to Be Venture Funded or Public Companies
- Feared of Competition with Cloud Vendors

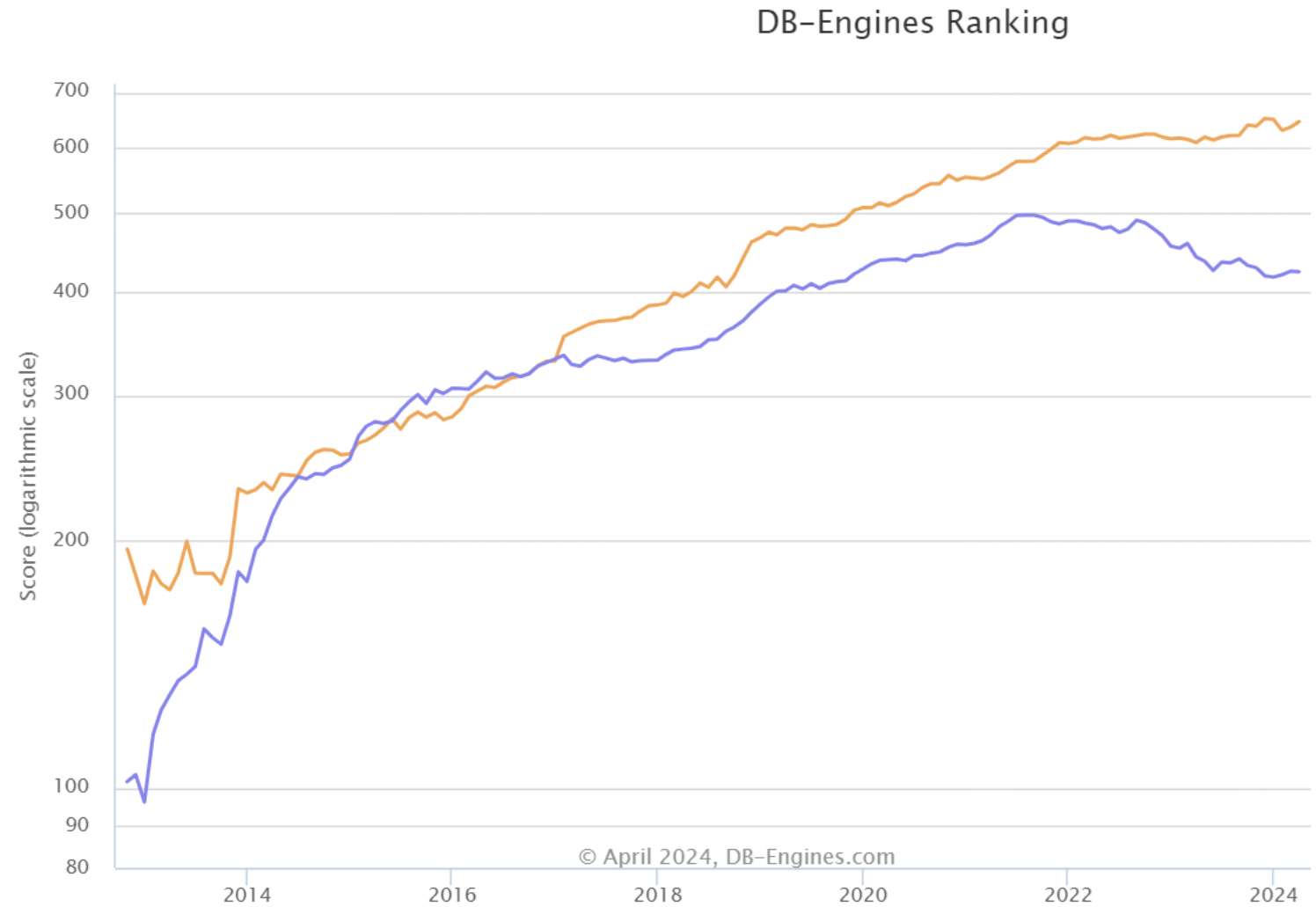
Fully or Partially Abandoning Open Source Licenses



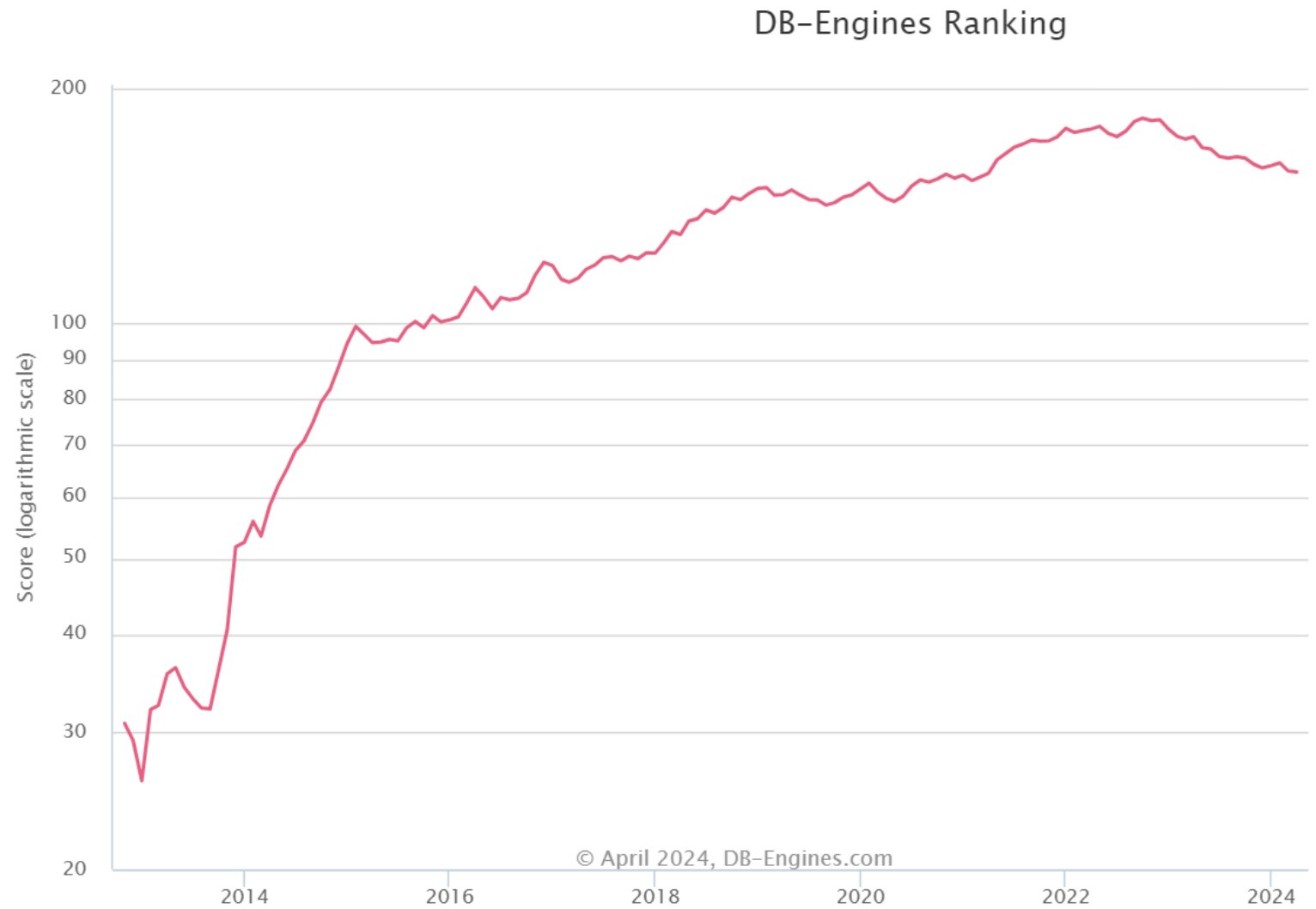
Elastic vs OpenSearch after Licence Change



MongoDB vs PostgreSQL



Redis



Linux Foundation is Stepping Up!

 SIGN IN / UP

The  Register®

DATABASES

Linux Foundation marshals support for open source alternative to Redis

7 

Follows the vendor's decision to overhaul licensing of the popular cache database

 [Lindsay Clark](#)

Wed 3 Apr 2024 // 11:15 UTC

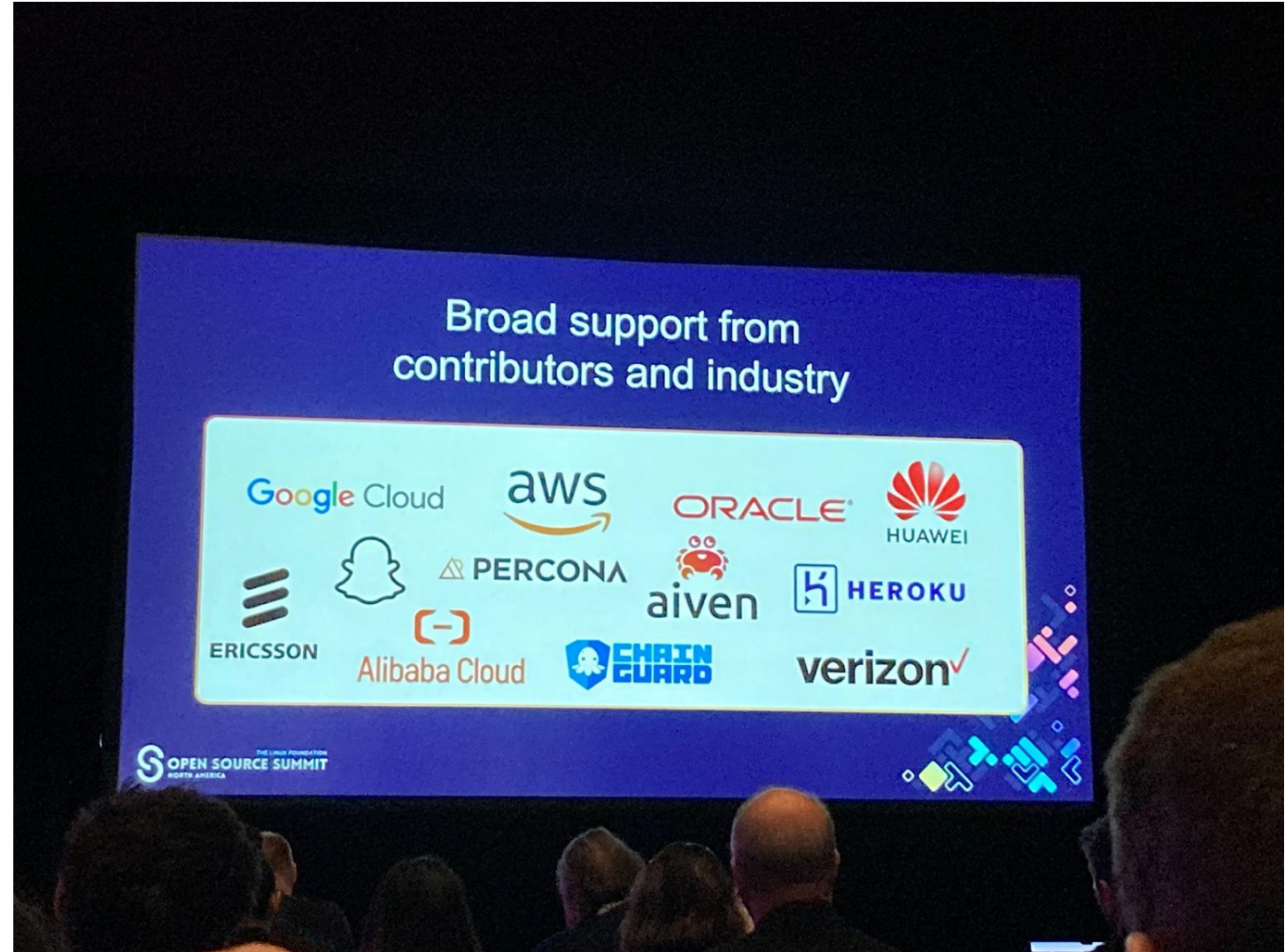


Cloud giants AWS, Google, and Oracle have come out in support of a Linux Foundation open source fork of Redis, the popular in-memory database frequently used as a cache, following changes to its licensing.

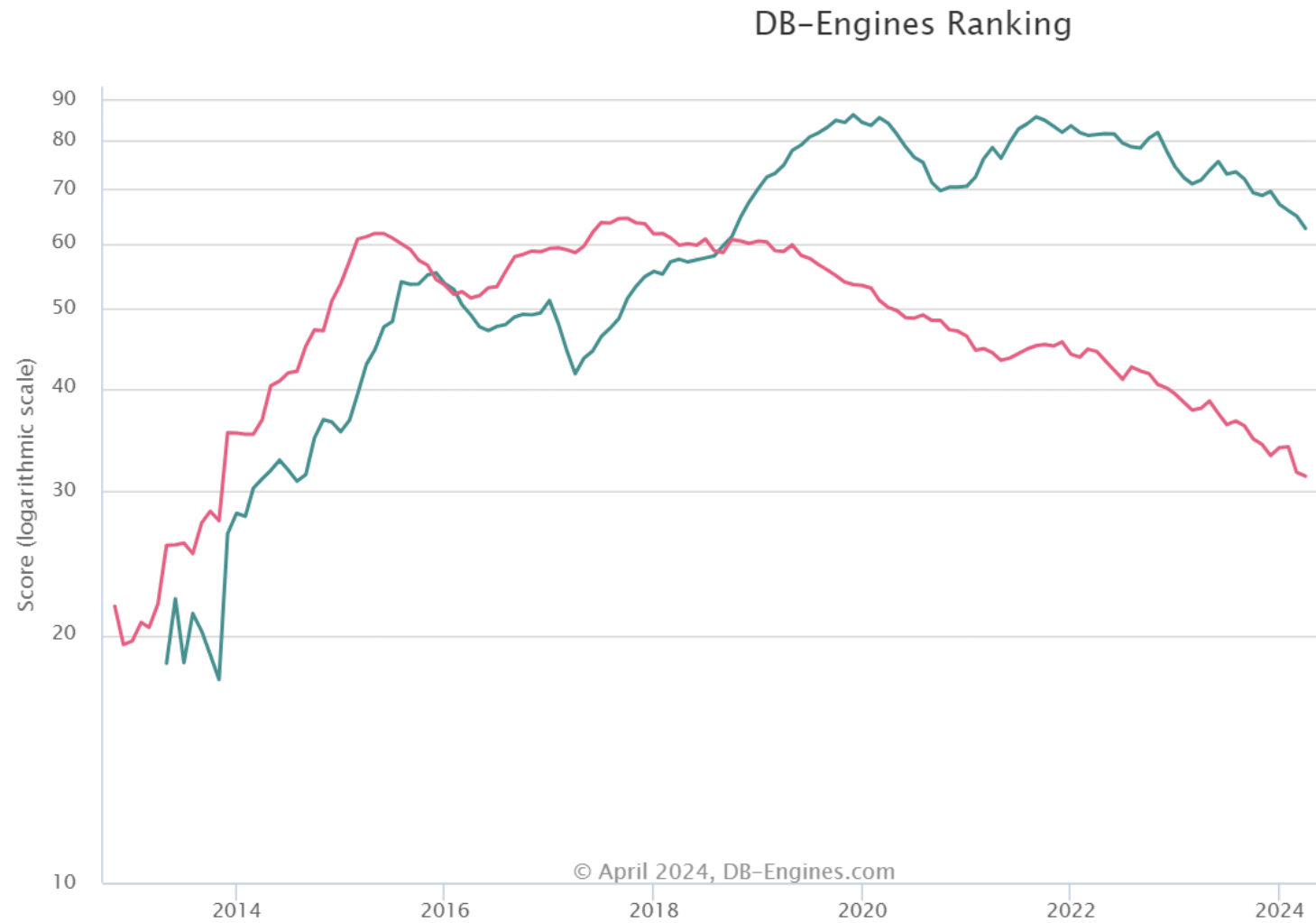
Last month, [Redis confirmed it was shifting its main key-value store system to a dual-license approach](#), imposing far more restrictive terms. Previously, the source code was available under the Berkeley Software Distribution (BSD) 3-clause license, which allows developers to make commercial use of the code without paying.

https://www.theregister.com/2024/04/03/open_source_redis_alternative/

Percona Joins the Effort!



Hive (Blue) and HBase





Database as a Service.

Primary Goal of the License Change?

- **Creating Monopoly on DBaaS Market**



STATE OF ART SIMPLICITY



**HIGH LEVEL OF
AUTOMATION**



**MAXIMIZES DEVELOPERS
FOCUS ON APPLICATION**

Why DBaaS?

What Is the Problem with Monopoly on DBaaS?

MONOPOLY

No Different from Proprietary Software

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





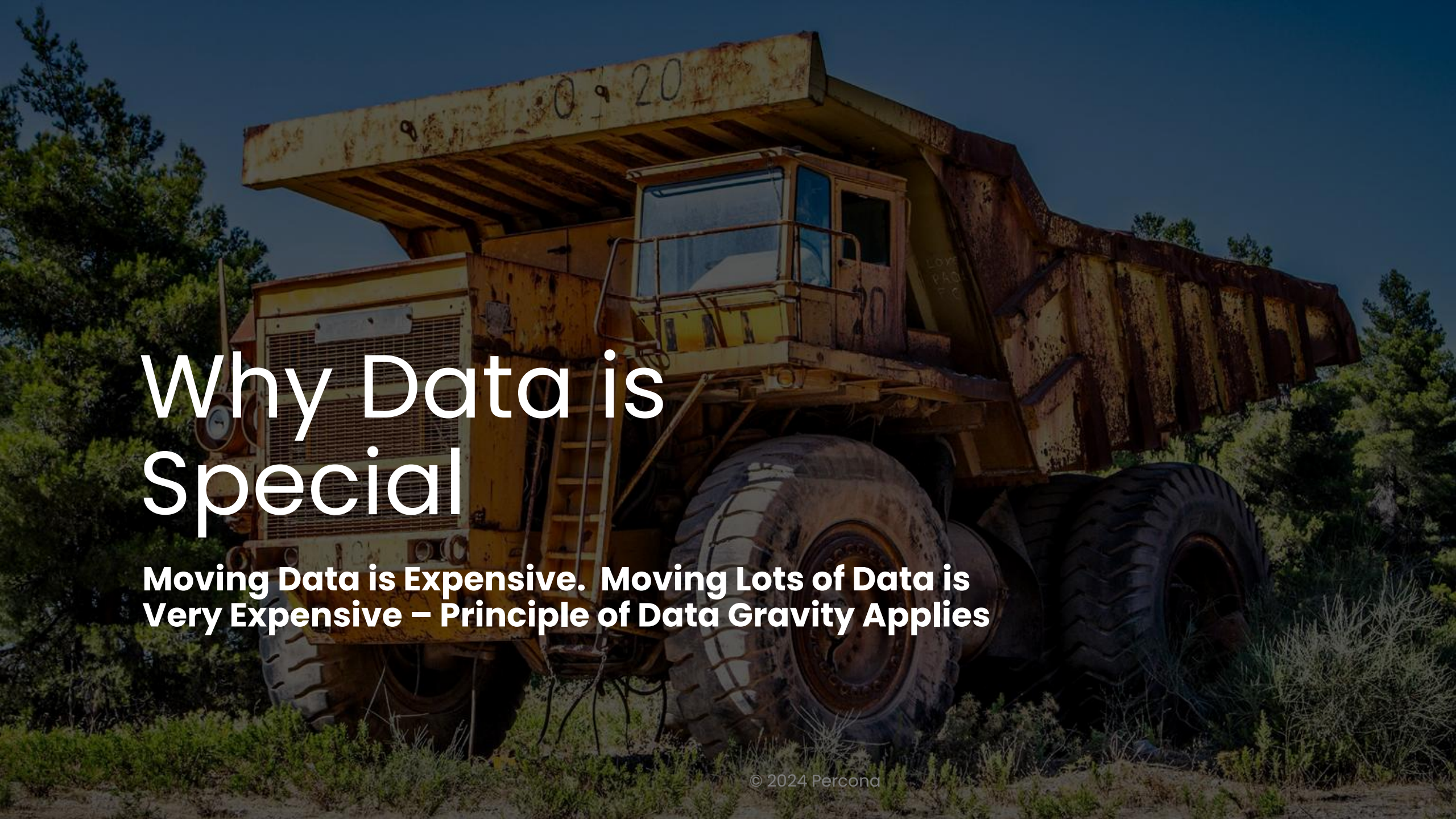
DBaaS Vendor Lock-In

It may not be so painful **now**, but it is going to be painful in the **future**



History Lesson

**Oracle used to Save its customer from IBM
Hardware Lock-in with Mainframe computers**



Why Data is Special

Moving Data is Expensive. Moving Lots of Data is Very Expensive – Principle of Data Gravity Applies

Not All Is
Lost



Have We Been Here Before?

2000s



2020s



Operating Systems



Open Source Catches Up Again



- **Lock-in with Cloud Vendor**
- **Use Proprietary Solutions**
- **Highly Differentiated Cloud**
-
-



**CLOUD NATIVE
COMPUTING FOUNDATION**

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



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.



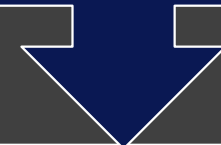
Kubernetes

kubernetes

Kubernetes is universally available



Kubernetes is getting better for stateful applications



Kubernetes Operators are available for most popular Open Source Databases



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



**UX is Different, Requires
Kubernetes Expertise**

What's Up with Kubernetes Operators?

Can We Build DBaaS on Kubernetes?



Database as a Service.



kubernetes

Many
Modern
DBaaS are
Built on
Kubernetes
Operators



Open Source DBaaS Experience with Percona Everest

The screenshot displays the Percona Everest web interface for configuring a new database. The interface is divided into several sections:

- Advanced Configurations:** This panel includes a progress bar at the top with steps 1 through 6. Step 5 is currently active. It contains a toggle for "Enable External Access" (disabled), a "Source Range" input field with the value "0.0.0.0/0", and a section for "Set database engine parameters" with a text area containing:

```
operationProfiling:
mode: slowOp
slowOpThresholdMs: 200
```
- Resources:** This panel is titled "Configure the resources your new database will have access to." It includes a "Number of nodes" selector with options "1 node", "2 nodes", and "3 nodes" (selected). Below this is a "Resource size per node" section with a "Custom" tab selected. The custom configuration shows:
 - CPU: 3 x 3 nodes = 9 CPU
 - MEMORY: 8 GB x 3 nodes = 24 GB
 - DISK: 250 GB x 3 nodes = 750 GBEstimated available resources are shown below each field: 12.142 CPU, 62.44959552 GB, and 750 GB respectively.
- DATABASE SUMMARY:** This panel provides a summary of the configuration. It includes:
 - 1. Basic Information:** Namespace: app, Type: PostgreSQL, Name: postgresql-dev, Version: 16.1, Storage class: standard-rwo.
 - 2. Resources:** Number of nodes: 3, CPU: 9 CPU, Memory: 24 GB, Disk: 750 GB.
 - 3. Backups:**
 - 4. Point-in-time Recovery:**
 - 5. Advanced Configurations:**
 - 6. Monitoring:** Enabled.

Navigation buttons include "Previous", "Cancel", and "Continue".

Summary



**Fantastic Pace
Innovation**



**Evolving Open
Source Models**



Great Future



Thank you! Let's Connect!

<https://www.linkedin.com/in/peterzaitsev/>

<https://twitter.com/PeterZaitsev>

<http://www.peterzaitsev.com>

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