



The Enterprise's Guide to Open-Source Database Solutions: Possibilities, Risks, and Success Stories

Michal Nosek
Senior Enterprise Architect

Agenda

1. Introduction
2. Benefits of open source database adoption
3. Requirements in the enterprise
4. MySQL/PostgreSQL/MongoDB ecosystems
5. Traps of Open Source



The software that has its source code disclosed.

Open Source software definition



1. Free Redistribution
2. Source code available
3. Derived Works
4. Integrity of The Author's Source Code
5. No Discrimination Against Persons or Groups
6. No Discrimination Against Fields of Endeavor
7. Distribution of License
8. License Must Not Be Specific to a Product
9. License Must Not Restrict Other Software
10. License Must Be Technology-Neutral

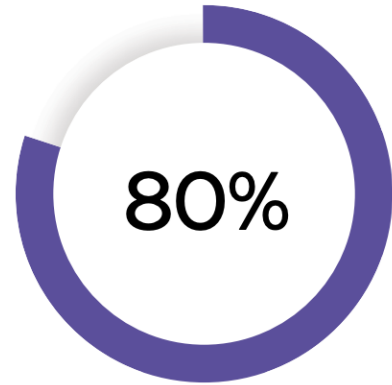
Open Source databases



CockroachDB

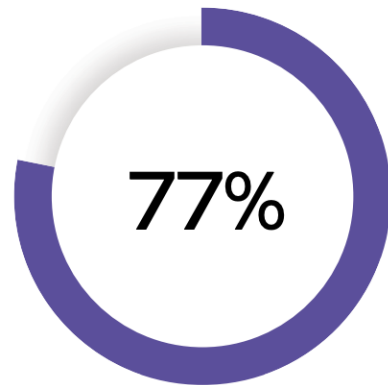


Open Source vs Proprietary



of IT leaders expect to increase their use of enterprise open source software for emerging technologies.

(APAC = 80%, EMEA = 80%, LATAM = 82%, U.S. = 80%)



of IT leaders have a more positive perception of enterprise open source than they did a year ago.

(APAC = 75%, EMEA = 79%, LATAM = 77%, U.S. = 77%)

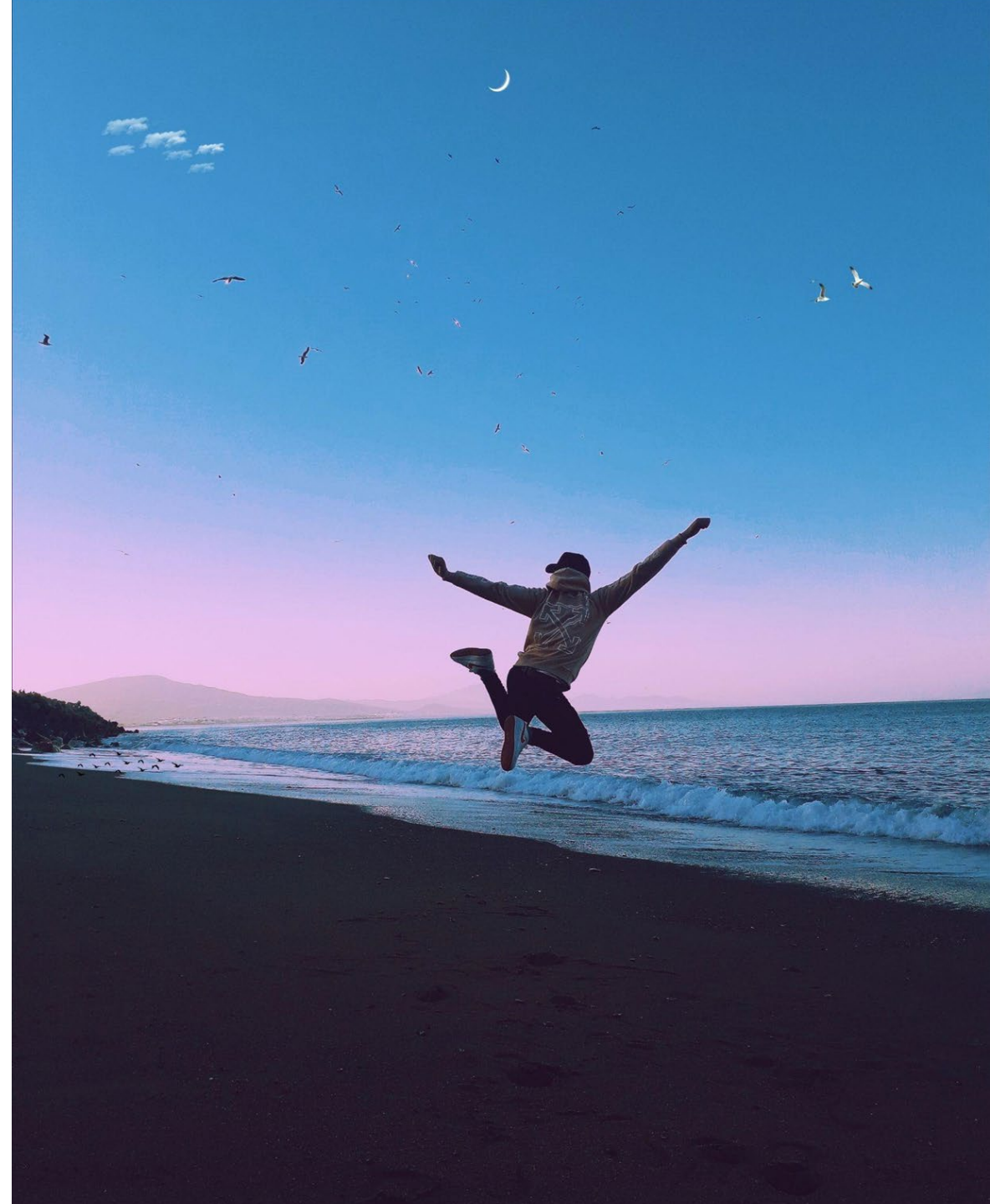
Source: <https://www.redhat.com/rhdc/managed-files/rh-enterprise-open-source-report-f31123-202202.pdf>



We believe (we are biased):

- Open source is a better choice
- Investing into open source pays back
- You can achieve your goals with OSS

All software we provide is open source.



A large, stylized, light orange letter 'A' is positioned on the left side of the slide, partially overlapping the text area. It has a thick, rounded stroke.

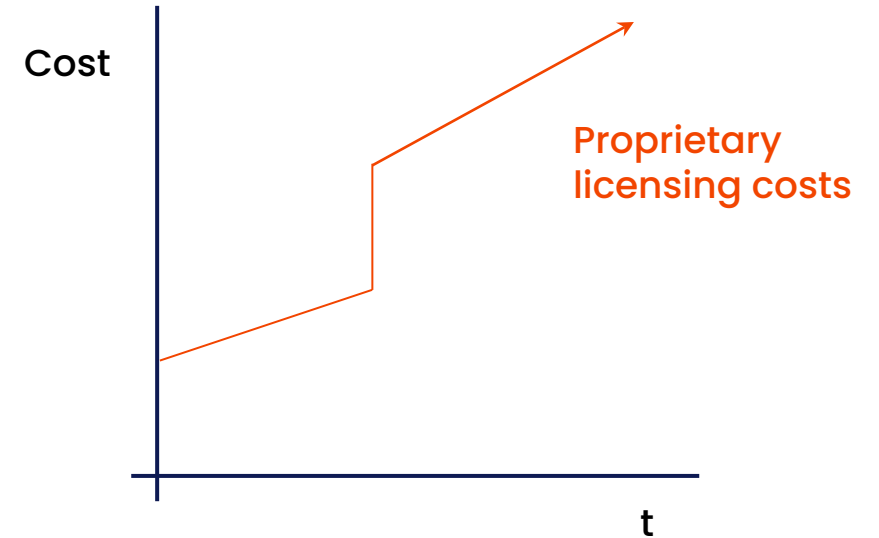
Benefits

The most important ones.

1. Lower TCO

Database TCO:

- **License (perpetual or subscription)**
- **Ongoing support fee**
- Implementation/Migration
- Infrastructure
- Maintenance
- Downtime costs
- ...



1. Lower TCO

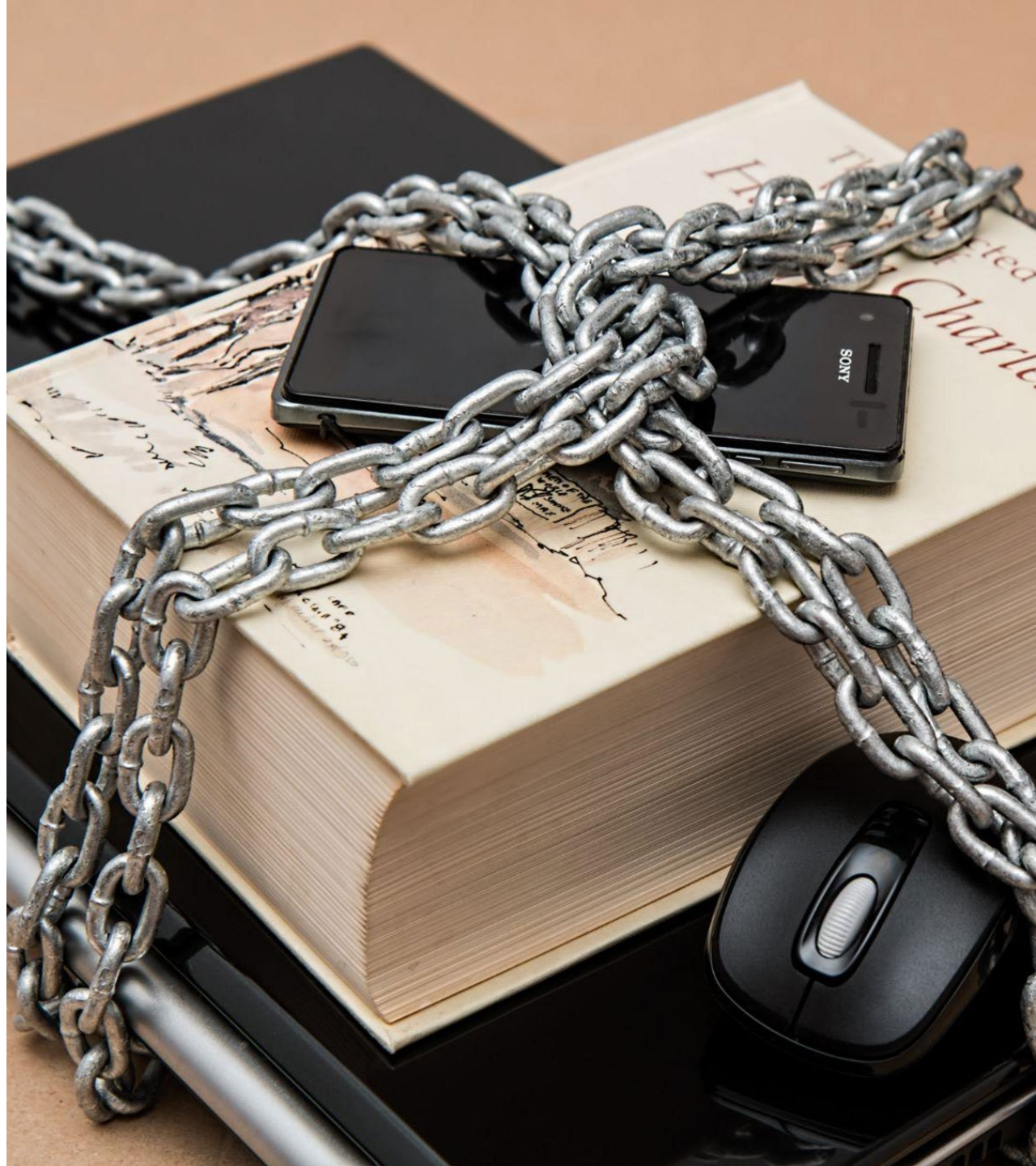
Is free license enough?

Open Source software does not have license fees but I need to pay for support if I run serious workloads

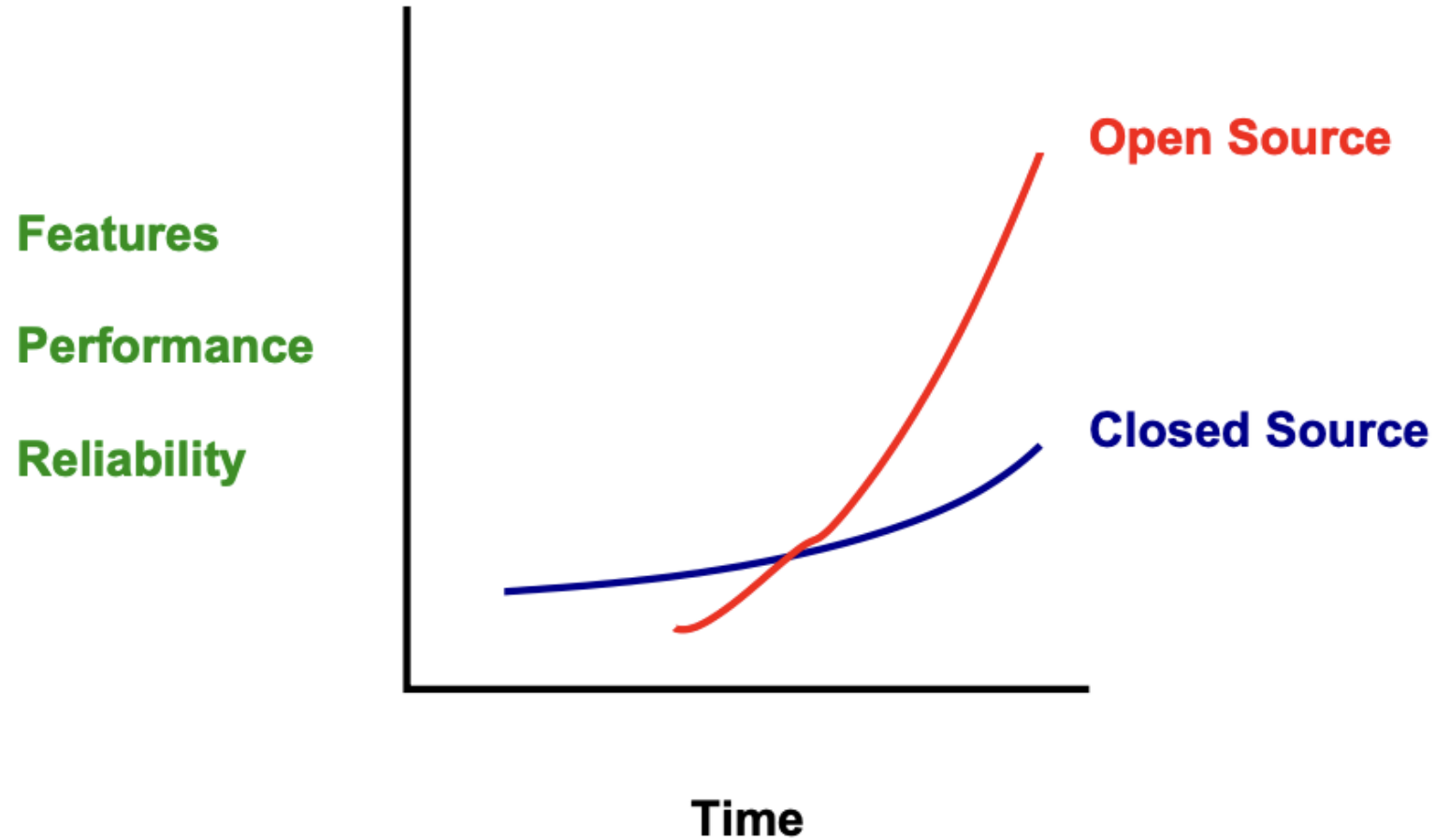
Anonymous Skeptic

2. No vendor lock-in

- Services (support) when you want it
- No vendor relationship possible
- Increased services quality
- Many vendors = better prices
- Deployment freedom



3. Open Source > Proprietary



Source: <https://momjian.us/main/writings/pgsql/forever.pdf>

3. Open Source > Proprietary



4. Security

The code is public, attackers can have at it and easily wreak havoc.

4. Security

~~The code is public, attackers can have at it and easily wreak havoc.~~

Transparently developed

Anyone can evaluate and fix

Impossible to hide

73% chose open source DBs because of security and control

Percona Open Source Database Survey 2023

89% of IT leaders believe enterprise open source is as secure or more secure than proprietary software

RedHat State of Enterprise Open Source Report 2022

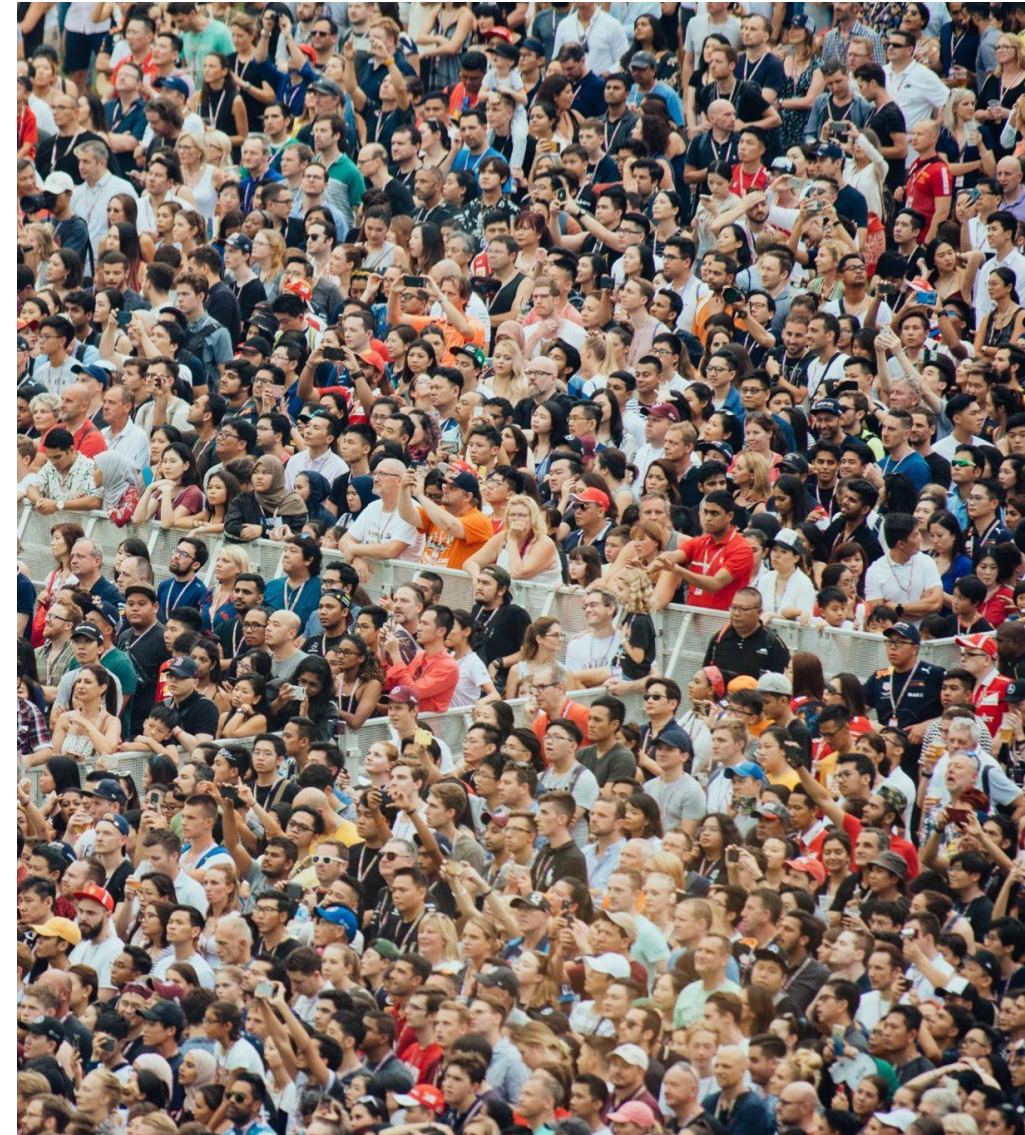
5. Freedom to innovate

- Skip lengthy procurement and buying process
- Deploy where you want, and how you want
- Modify, extend, optimize
- Test as long as you want
- Standardize only once successful



6. Large and rich community

- Multiple developers, not only users
- Issue resolution help
- Talent sourcing/pool
- Independent advice
- Learning materials and training



7. Open Source = Open Standards

- Cloud DBaaS compatible with upstream
- Linux distributions
- Kubernetes
- OpenTelemetry

Open source uses other open source!

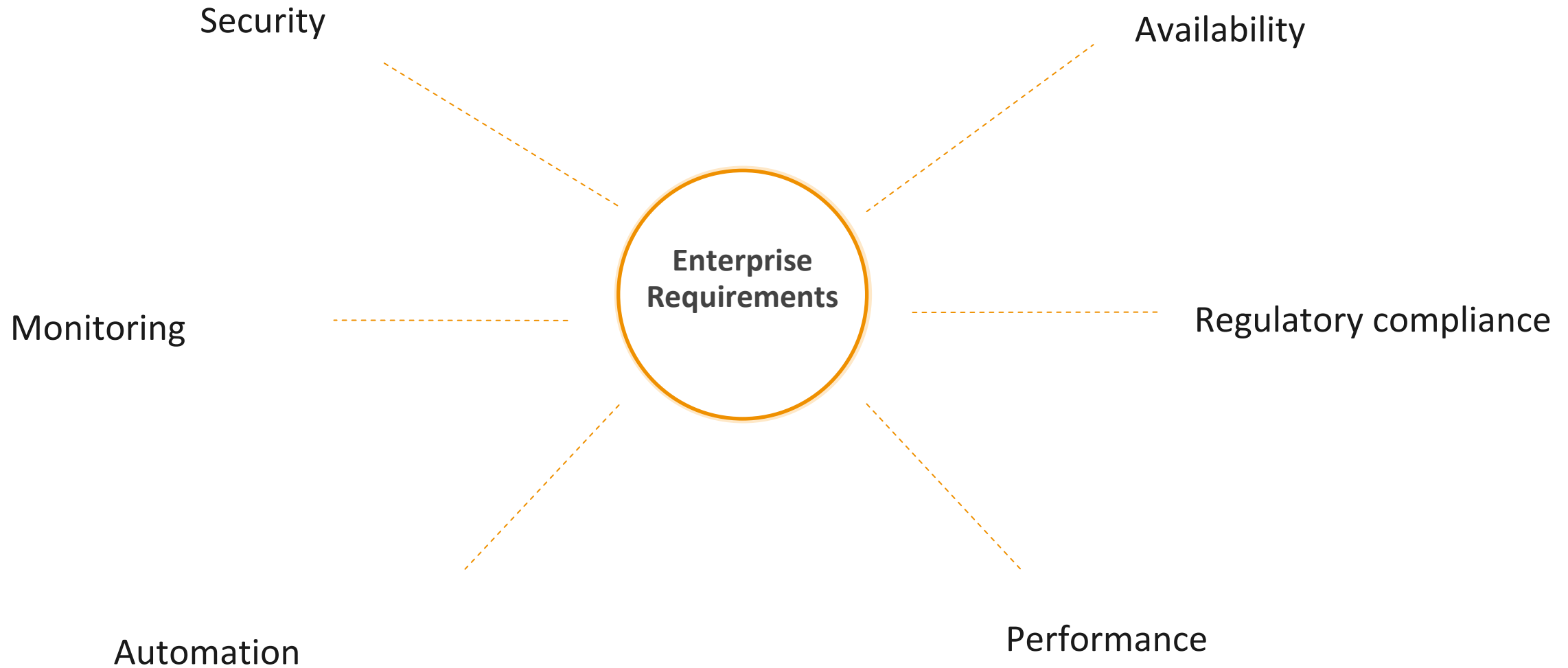




Requirements

In the enterprise world

Database tech requirements – enterprise





Ecosystems

MySQL, PostgreSQL and MongoDB

Overview

Owner: MongoDB, Inc.

License: SSPL

Current version: 6.0 (6.2)

First release: 2009

Cloud options (DbaaS)

MongoDB Atlas

Flavors

MongoDB Community Edition

MongoDB Enterprise Advanced

Percona Server for MongoDB

Interesting tools/projects

Percona Operator

Percona Backup for MongoDB

MongoDB Community Operator

Bitnami Helm Charts

Overview

Owner: Oracle
License: GPL
Current version: 8.0.33
First release: 1995

Cloud options (DbaaS)

AWS RDS (and Aurora)
Google Cloud SQL
Azure Database for MySQL
ApsaraDB RDS for MySQL
Oracle MySQL Service
Aiven for MySQL
Digital Ocean DBaaS

Flavors

MySQL Community
MySQL Enterprise Edition
MariaDB* (Enterprise)
Percona Server for MySQL

Interesting tools/projects

Percona Operator
Percona XtraBackup
PXC, Galera Cluster
Percona XtraBackup
Vitess (Planetscale)
TiDB (PingCap)
MyDumper
Orchestrator
ProxySQL
HeatWave

Overview

Owner:	Nobody (Community)
License:	PostgreSQL License
Current version:	15
First release:	1986

Cloud options (DbaaS)

AWS Aurora (RDS)	Crunchy Bridge
Google Cloud SQL	Aiven
Azure Database for Postgres	Instaclustr
AsparaDB for Postgres	EDB BigSQL
IBM DBaaS	

Flavors

Percona Distribution for PostgreSQL
Crunchy Postgres
EDB Postgres Advanced Server
Postgres Pro Enterprise
Cybertec PostgreSQL Enterprise Edition
Fujitsu Enterprise Postgres

Interesting tools/projects

Greenplum
Citus Data
Patroni
Percona Operator
pgBackRest
Barman
ora2PG
orafce
Babelfish
pg_stat_monitor
many more!

Community (Open Source) vs enterprise requirements

Requirements	MySQL Community Edition	PostgreSQL	MongoDB Community Edition
Security	YES	YES	YES
Availability	YES	YES	YES
Regulatory compliance	NO	YES	NO
Performance	YES	YES	YES
Automation	NO	NO	NO
Monitoring	NO	NO	NO
Backups	NO	YES	NO



Percona Solutions

Enterprise-grade Open Source software

Percona Solutions



PERCONA
Distribution for
MySQL



PERCONA
Distribution for
MongoDB



PERCONA
Distribution for
PostgreSQL

Percona Solutions



PERCONA
Distribution for
MySQL



PERCONA
Distribution for
MongoDB



PERCONA
Distribution for
PostgreSQL

Enterprise Level QA

Test and package for
everyone!

Enterprise Features

Bring in the enterprise
features companies need.

Critical Bug Fixes

Fix the bugs and make it
super perform.



1. **No license fees**, free to use
2. **Enterprise features**, without the restrictions
3. **Binary compatible**, easy way in and out
4. **Deploy everywhere**, on-premises, cloud, hybrid

Percona Solutions – enterprise needs with open source software

Requirements	MySQL Community Edition	Percona Distribution for MySQL		PostgreSQL	Percona Distribution for PostgreSQL		MongoDB Community Edition	Percona Distribution for MongoDB
Security	YES	YES		YES	YES		YES	YES
Availability	YES	YES		YES	YES		YES	YES
Regulatory compliance	NO	YES		YES	YES		NO	YES
Performance	YES	YES		YES	YES		YES	YES
Automation	NO	YES		NO	YES		NO	YES
Monitoring	NO	YES		NO	YES		NO	YES
Backups	NO	YES		YES	YES		NO	YES

Percona Solutions – enterprise needs with open source software

Requirements	MySQL Community Edition	Percona Distribution for MySQL		PostgreSQL	Percona Distribution for PostgreSQL		MongoDB Community Edition	Percona Distribution for MongoDB
Security	YES	YES		YES	YES		YES	YES
Availability	YES	YES		YES	YES		YES	YES
Regulatory compliance	NO	YES		YES	YES		NO	YES
Performance	YES	YES		YES	YES		YES	YES
Automation	NO	YES		NO	YES		NO	YES
Monitoring	NO	YES		NO	YES		NO	YES
Backups	NO	YES		YES	YES		NO	YES



Traps

How to avoid failure

Open Source is trendy

Everyone wants to ride the open source wave



Open-core

It's open source software, but not open for enterprise usage.



Does my software need to be open sourced?



The (unfulfilled) cloud promise

Cloud is not a utility service anymore

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.



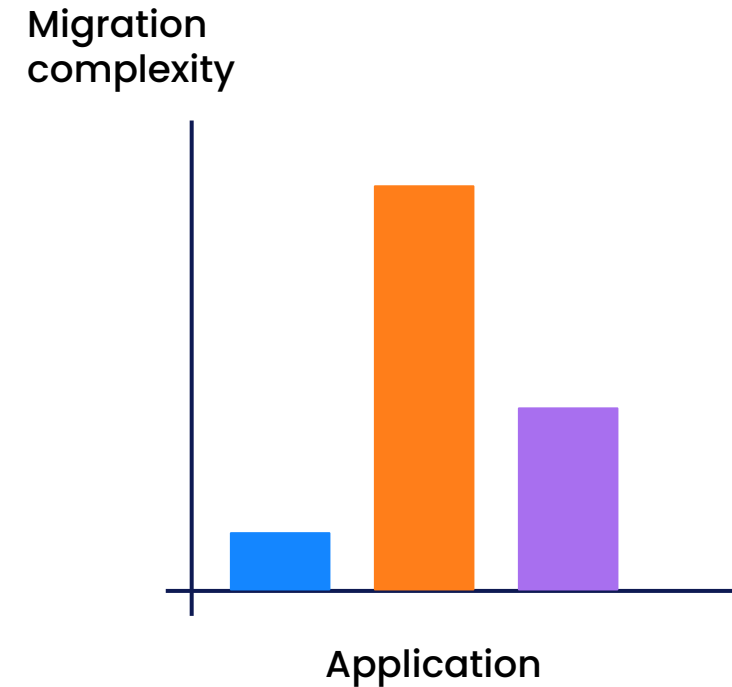
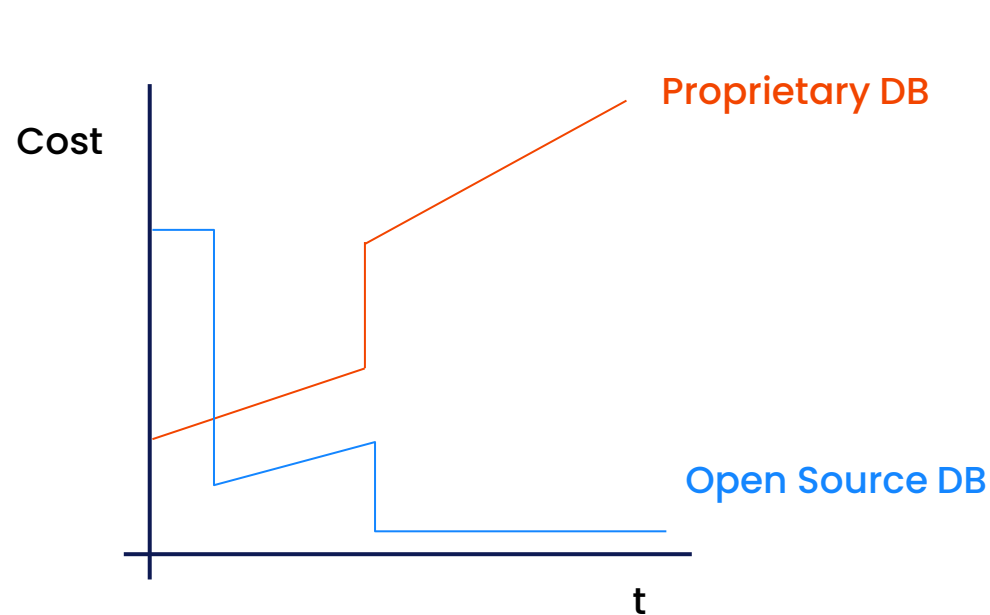
Let's build it ourselves

(And don't contribute back)



“Nobody gets fired for buying IBM/Oracle/MSFT”

Migrations cost a lot

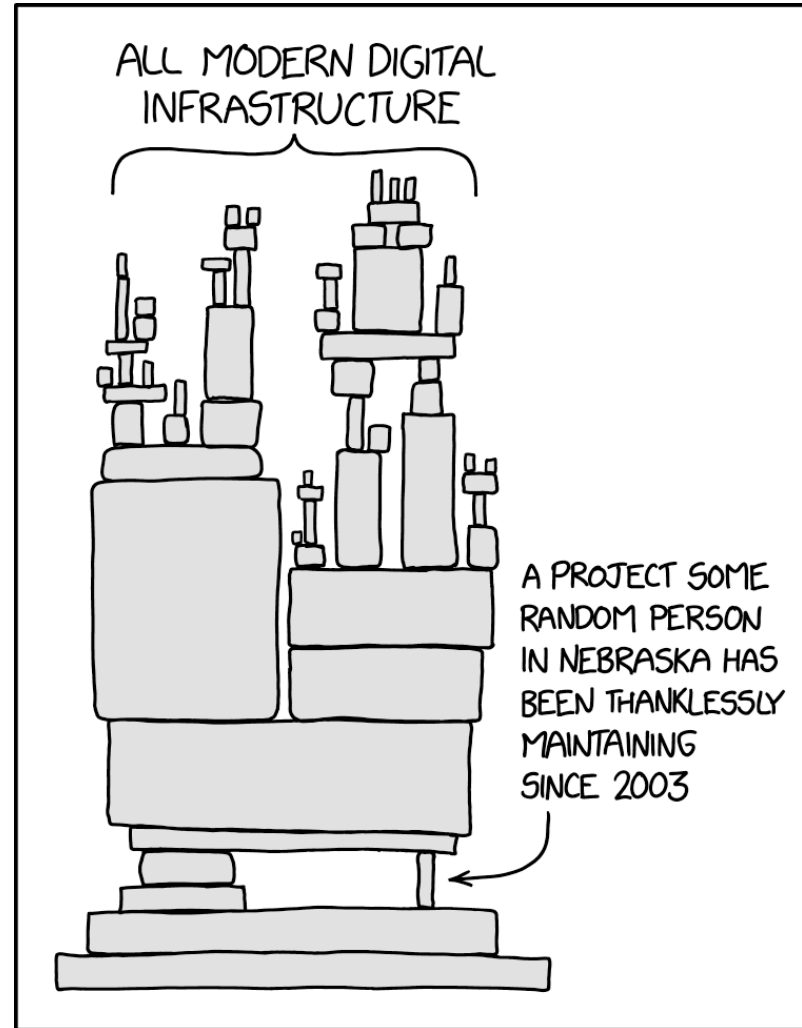


Open source is free

I need no budget



Not so-popular projects

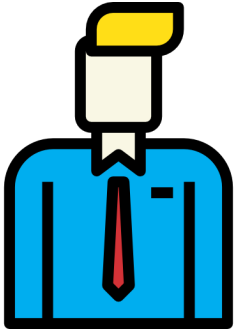


Source: <https://xkcd.com/2347/>



Closing remarks

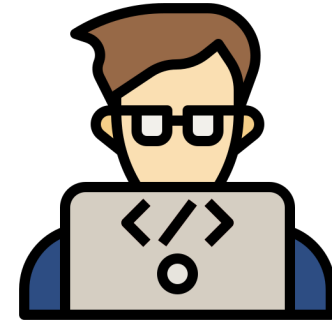
There's something for everyone



Manager



DBA



Developer

Key takeaways

1. Open Source Databases are more and more popular in enterprises
Data shows that popularity grows year over year.
1. Often times software called Open Source by a vendor is in fact Source Available
Disclosing source code doesn't make software open source – and benefits are not the same.
1. Open Source database adoption benefits are significant
From lower TCO, no vendor lock-in and security to quality and true freedom.
1. Percona Database Distributions cover needs of modern enterprises
You are not forced to buy proprietary licenses, even for the critical workloads.
1. The journey of Open Source database adoption is full of challenges
Open-core model, cloud lock-in, migration costs, abandoned projects and more.



PERCONA

Databases run better with Percona