Percona Server for MongoDB vs MongoDB Enterprise

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Adamo Tonete
@adamotonete

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Agenda

MongoDB Versions
Percona Server for MongoDB Version (PSMDB)
Feature Comparison
Percona Monitoring and Management (PMM)
Roadmap

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MongoDB Versions

MongoDB comes in 2 different versions:
  Community
  Enterprise

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MongoDB Community

Free and open source version of MongoDB

Works for most companies

Download and run

Open source: https://github.com/mongodb/mongo

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MongoDB Enterprise

Paid version of MongoDB

Includes Support and some additional features

Not entirely open source, requires a licence, not free for use

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Why use the enterprise version then?

MongoDB Enterprise version comes with some additional features such as:

- Kerberos & LDAP Authentication; LDAP Authorization
- Auditing
- Log Redaction
- Encrypted Storage Engine
- In-Memory Storage Engine
- MongoDB Compass Enterprise
- BI Connector
- SNMP protocol

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LDAP and Kerberos + LDAP authorization

For large companies or complex environments, managing users and permissions LDAP (or Active Directory) is a way to centralize user management, giving an individual permissions, or a user group.

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Auditing

For enhanced security and compliance, awareness of the operations the database is performing can be critical.

With an audit, it's possible to track operations such as user and index creation - at the database level.

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Log Redaction

Logs can have sensitive data. Depending on regulations, certain information may not be allowed to be saved in a log file.

Log redaction hides sensitive information, changing the values to a different character.

Encryption at rest

Most of the good-practice articles and security certifications (PCI/HIPAA/GDPR) require data to be encrypted "at rest".

With WiredTiger encryption all of the data is encrypted at the storage engine level and only a process with the expected key is able to read it.

The process of decrypting and encrypting is transparent to the final user.

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In Memory Storage Engine

Low latency storage engine that doesn't rely on the disk subsystem.
Completely ephemeral, once the database stops all the data is gone.
Sub millisecond latency, only for specific use cases.

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Compass Enterprise

Extended functionalities added to Compass Community. Some features that worth to be mentioned are

- Schema Analysis
- Real Time Server Stats
- Document Validation

https://www.percona.com/blog/2018/06/22/finding-the-right-direction-mongodb-compass-community-version/

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BI Connector

With the BI connector, any application that uses ODBC driver will be able to read data from a MongoDB server.

This is useful when ingesting data to a Business Intelligence application, or generating reports that requires tabular data.

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SNMP

Simple Network Management Protocol is available for MongoDB Enterprise. This protocol allows a monitoring system to gather information about the database in a very simple way.

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Percona Server for MongoDB (PSMDB)

Features comparison

Security	MongoDB Community	MongoDB Enterprise Advanced	Percona Server for MongoDB
LDAP Authentication	⊘	✓	✓
LDAP Authorization	⊘	✓	See Footnote [1]
Kerberos	⊘	✓	⊘
Auditing	⊘	✓	✓
Log Redaction	⊘	✓	✓
X509 Authentication	✓	✓	✓
SNMP	⊘	✓	⊘

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Features Comparison continued..

Engines	MongoDB Community	MongoDB Enterprise Advanced	Percona Server for MongoDB
WiredTiger Engine	✓	✓	✓
WiredTiger Hot Backup	⊘	✓	✓
WiredTiger Encryption	⊘	✓	See Footnote [2]
In-Memory Engine	⊘	✓	✓
MMAPv1 Engine	✓	✓	✓

https://www.percona.com/software/mongo-database/feature-comparison

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Features Comparison continued..

[1] **Percona Server for MongoDB only:** Requires an additional script that Percona can provide. Contact Support for assistance.

[2] **Percona Server for MongoDB only:** This feature uses the native operating system disk encryption.

PSMDB Features Review

- LDAP Authentication
- Auditing
- In-Memory Storage Engine
- Log Redaction
- Hot Backup

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What does PSMDB not have?

- Encryption at rest
- LDAP group authorization
- SNMP integration
- BI Connector

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Other open source solutions?

- Encryption can be done at OS level using LUKS or any other encryption software.

- LDAP group authorization is not available in PSMDB as the authorization is per user and not per group. The user must exist in the `$external` database.
- It is possible to sync LDAP users with PSMDB with scripting.

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Other open source solutions?

- SNMP integration is not available in PSMDB. However, PMM does offer plenty of useful graphs and is also open source.

- BI Connectors don't come with PSMDB. There are several connector options available, some are free whereas others are not.

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PSMDB only features

Hot Backup:

This is a backup command that will generate an exact copy of the database (binary copy) in a different folder in a very lightweight fashion.

```
> use admin
switched to db admin
> db.runCommand({createBackup: 1, backupDir: "/my/backup/data/path"})
{ "ok" : 1 }
```
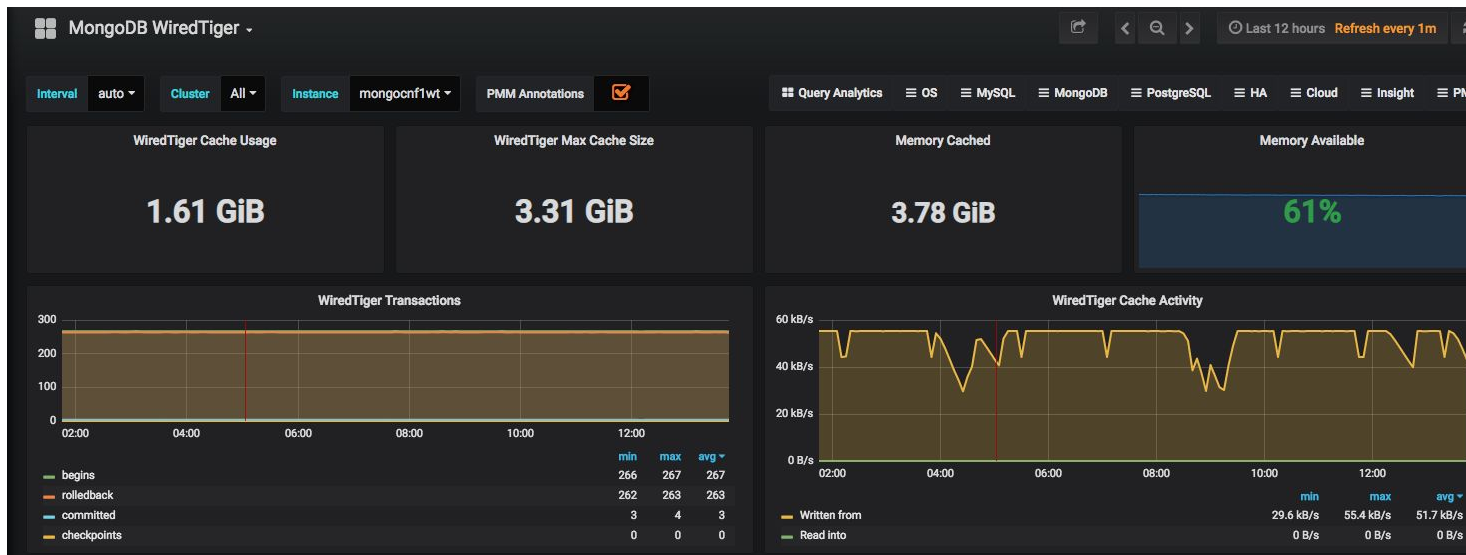
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PMM

PMM is an open-source platform for managing and monitoring MySQL and MongoDB performance and metrics.

It is based on Docker, Virtual appliances and AWS AMI and it is self hosted.

https://www.percona.com/blog/2018/07/05/configuring-pmm-monitoring-mongodb-cluster/

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PMM

https://pmmdemo.percona.com/graph/

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Schema Analysis

There are several open source projects to validate the MongoDB schema.

We suggest using Variety

https://github.com/variety/variety#core-maintainers

```
+---------------------+-------------------+-------------+----------+
| key                 | types             | occurrences | percents |
| ------------------- | ----------------- | ----------- | -------- |
| _id                 | ObjectId          |           5 |    100.0 |
| name                | String            |           5 |    100.0 |
| bio                 | String            |           3 |     60.0 |
| birthday            | Date              |           2 |     40.0 |
| pets                | Array(1),String(1)|           2 |     40.0 |
| someBinData         | BinData-old       |           1 |     20.0 |
| someWeirdLegacyKey  | String            |           1 |     20.0 |
+---------------------+-------------------+-------------+----------+
```

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Migration to PSMDB

PSMDB is binary compatible with MongoDB Enterprise and Community.

Just replace the binaries and you're all set.

Also rollback to community is easy, no vendor lock.

https://www.percona.com/blog/2016/06/17/mongodb-security-pay-enterprise-open-source-covered/

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Support ?

MongoDB Enterprise is tied with Support while PSMDB is free to use.

If you have questions use the community forum
https://www.percona.com/forums/

For a more details on our offerings and SLAs, please contact sales. I will keep this as a tech talk :)

Roadmap

- Encryption at rest
- LDAP authorization

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Q&A

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