

Migrating to Open Source Databases

Best Practices

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About Presentation

Reasons to migrate to Open Source Databases

Understanding Open Source

Migration Best Practices

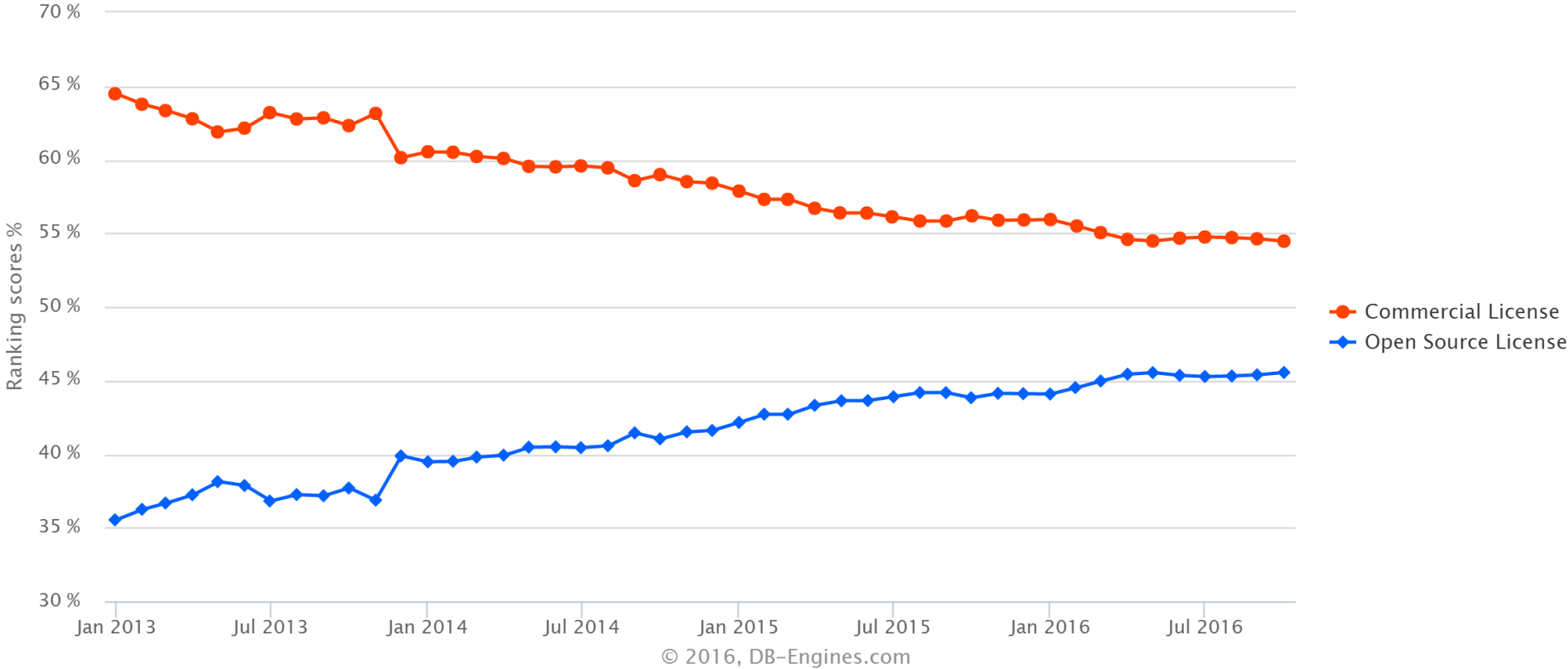
Issues to be aware about

Talk about High Level Strategy

Will not talk about specific challenges converting Stored Procedure Syntax from Microsoft SQL Server to MySQL

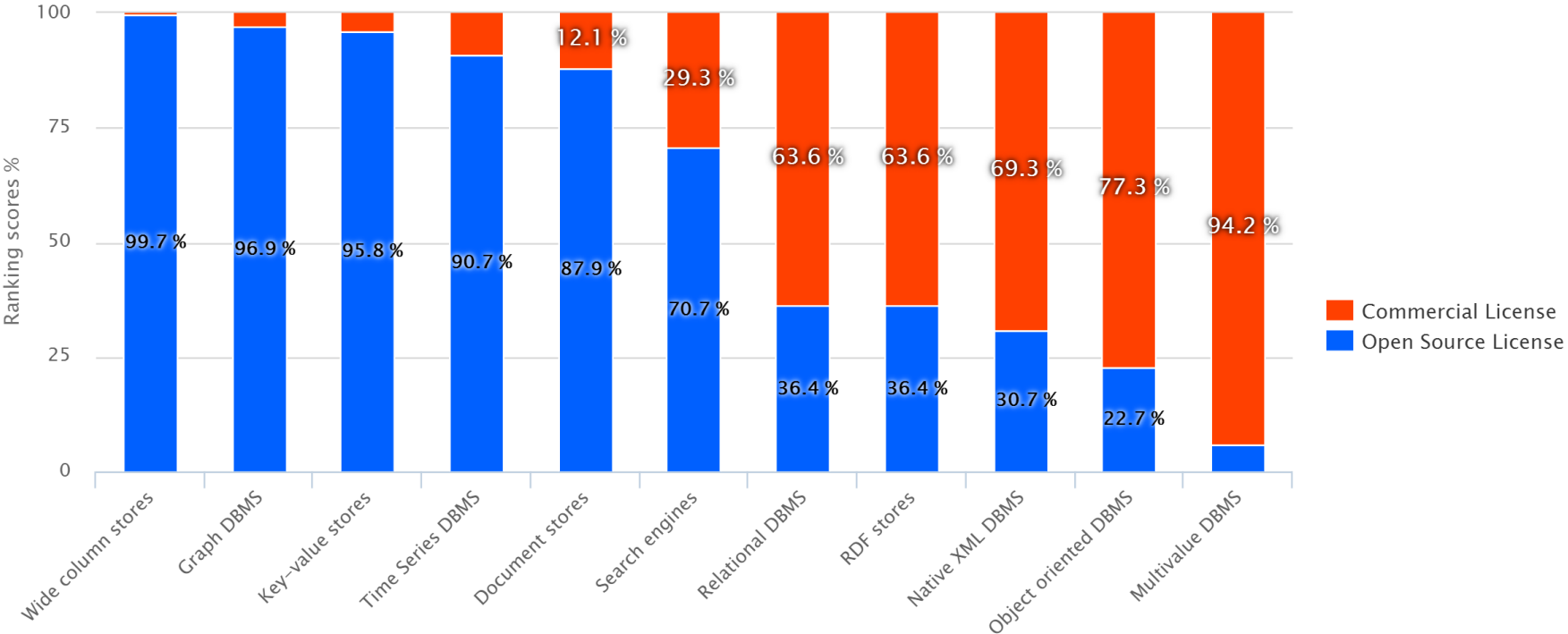
Why move to Open Source Database ?

It is a Trend



Especially for New Generation Technologies

Popularity broken down by database model, October 2016



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It is Prudent

Lower Total Cost of Ownership

(3x-10x)

Software Vendor-Lock-In Risks

Other Reasons

Easier to attract and retain talent

Faster Innovation

Better Compatibility

What is Open Source ?

Some Clarifications are in Order

Open Source vs Free Software

Not the Same but often same in practice

Open Source Initiative

<https://opensource.org/osd-annotated>

Free Software Foundation

<https://www.gnu.org/philosophy/free-sw.en.html>

Free Software Definition

The freedom to run the program as you wish, for any purpose

The freedom to study how the program works, and change it so it does your computing as you wish

The freedom to redistribute copies so you can help your neighbor

The freedom to distribute copies of your modified versions to others

Open Source

Open Source in Spirit or Open Source in Marketing ?

Not Quite Open Source

Open Core

Eventually Open Source

Visible Source Code (No License)

Open Source Compatible

Not a Critique of the Business Models!

We have a lot more great software choices due to these!

Open Core

Open Source Community version and Proprietary “Enterprise” version with more features

Examples: MySQL, MongoDB

Good: Tend to have High Quality well maintained “Core” version

Bad: Some features get “reserved” for Enterprise version only

Eventually Open Source

Proprietary Version with expiration timer to become Open Source

Examples: MariaDB MaxScale (BSL license)

Good: No Features are Proprietary forever

Bad: Older version can be poorly maintained, unlicensed usage trap

Visible Source Code (No License)

Not every source code you can find (ie GitHub) has a license

Default – You have no usage rights

Open Source Compatible

Software Advertised As Open Source Compatible while not being one

Software and Cloud Based Services

Benefits: Scalability and Manageability

Drawbacks: Vendor Lock In can be Serious

Subscriber only Builds

Does not conflict with Open Source License

Source only is impractical to use for many users

Alternative third party builds can be available

Subscriber only Tools

Same License does not have to apply to all software

Monitoring and Management tools are often Proprietary

Examples: MySQL Enterprise Monitor, MongoDB Ops Manager

Contributes to Vendor Lock-In

Not All Open Source Licenses are the Same

Copyleft and Permissive ?

Relationships to Patents ?

Restrictions on use ?

Great Recent Article <https://writing.kemitchell.com/2017/03/29/OSS-Business-Perception-Report.html>

Open Source Governance

Community/Foundation

- Linux, Apache, OpenStack, PostgreSQL

Corporation

- MySQL, MongoDB

Migration Best Practices

Recognize Differences

Open Source Database will not be 100% the same as your favorite proprietary database

Like This



VS



Chose Technology or Technologies

Many Open Source Technologies are available

There is No Silver Bullet

Polyglot Persistence

**Using Multiple
Technologies within
same Data Infrastructure**

Choosing Right

Chose Minimal Feasible Set of Technologies

Choose the path well traveled

Choose Right Application

Not All Applications are Equally Feasible for Migration

Focus on Getting Early Wins not Largest Wins

Right Targets Right Way

Easy

- Simple
- Development Team Available
- Application Supports Open Source Database
- Enthusiastic Team

Hard

- Complex
- Uses Advanced Features
- No Source Available
- No More Maintained
- Team Against Migration

Right Team

Current Enthusiastic Team

Migration Team

Do not Do migration by the team interested in the Project
Failure

Ensure Management Commitment

Clear Management Commitment and Support is great

Changes always impact people careers

Are you good playing politics ? Is someone on your team ?

Two Approaches to Migration

Migrate
Existing
Application

Do as Part of
Application
Rewrite

Have Patience

Opportunities to Do Migration will present themselves

The Process from idea to “live” may take longer than you expect

Planning Migration

Feasibility Study

Proof of Concept

Scoping and Planning

Executing

Doing the Switch ?

Is this stop-switch-start cutoff ?

Is old system remains on the standby ?

Are both systems to operate at the same time ?

Data Sync issues

Tools for Migration

No Perfect Tools

Manage your expectations for anything but trivial applications

Mind Operational Best Practices Differences

Tools to keep in Mind

MySQL Workbench

Inspirer MnMTK

AWS Database Migration Service

SQLines Tools

Ora2PG tool for migrating to PostgreSQL

DBConvert

Chose Right Partners

Migration is a very specific skill different from greenfield development

Is your partner motivated in project success or failure ?

Different tasks in Migration require different skills

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Database Performance Matters