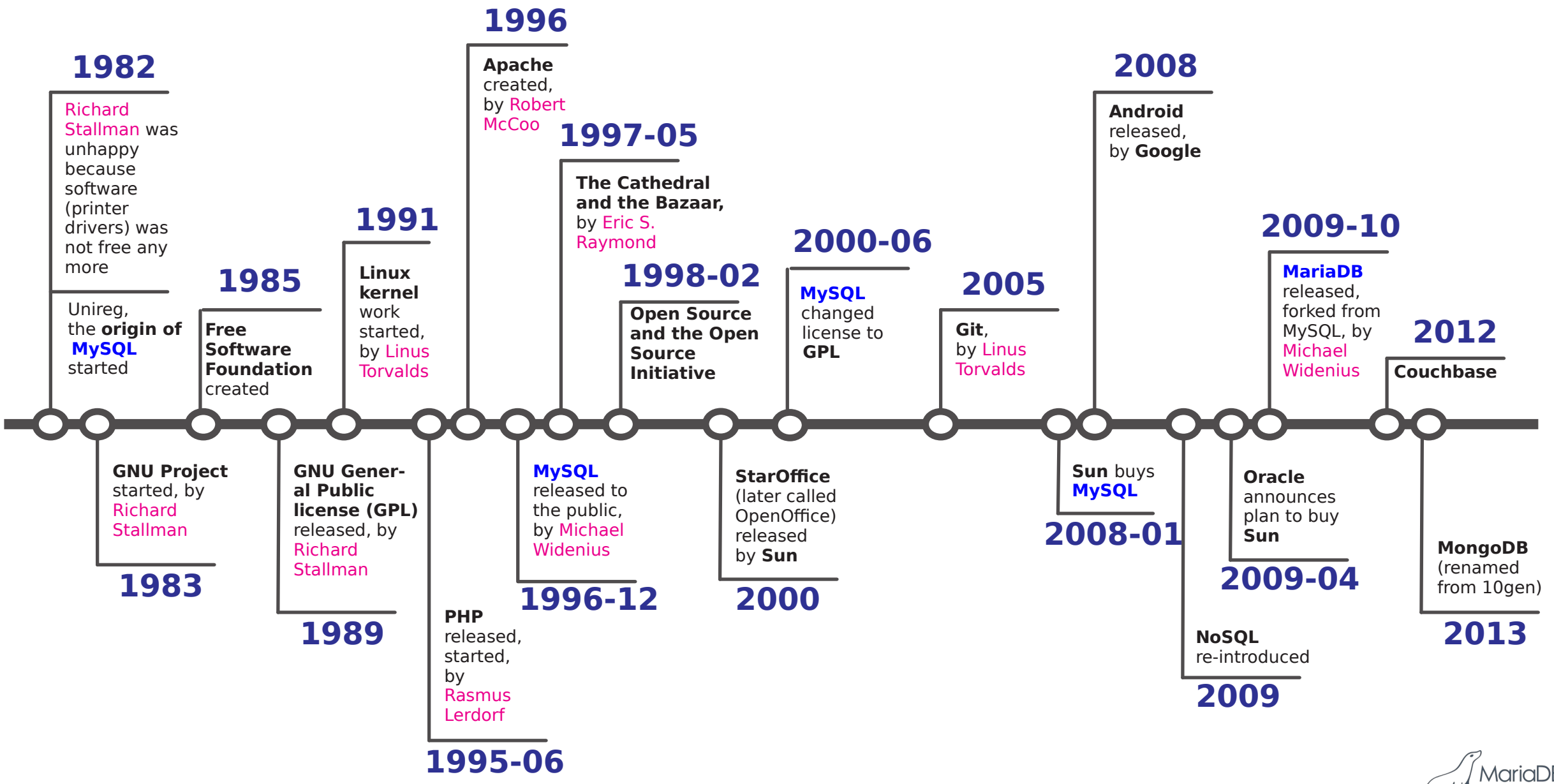
MySQL-MariaDB History talk

China tour

November, 2019

Michael Widenius
CTO @ MariaDB

Open Source timeline



MariaDB

A long time ago…
Monty and My

MariaDB

The origin of a virtual company

Working from home since 1981

MariaDB

The namesake of MaxDB and MaxScale

Max at our summer house (no electricity)

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Celebrating 10 years of MySQL and PHP

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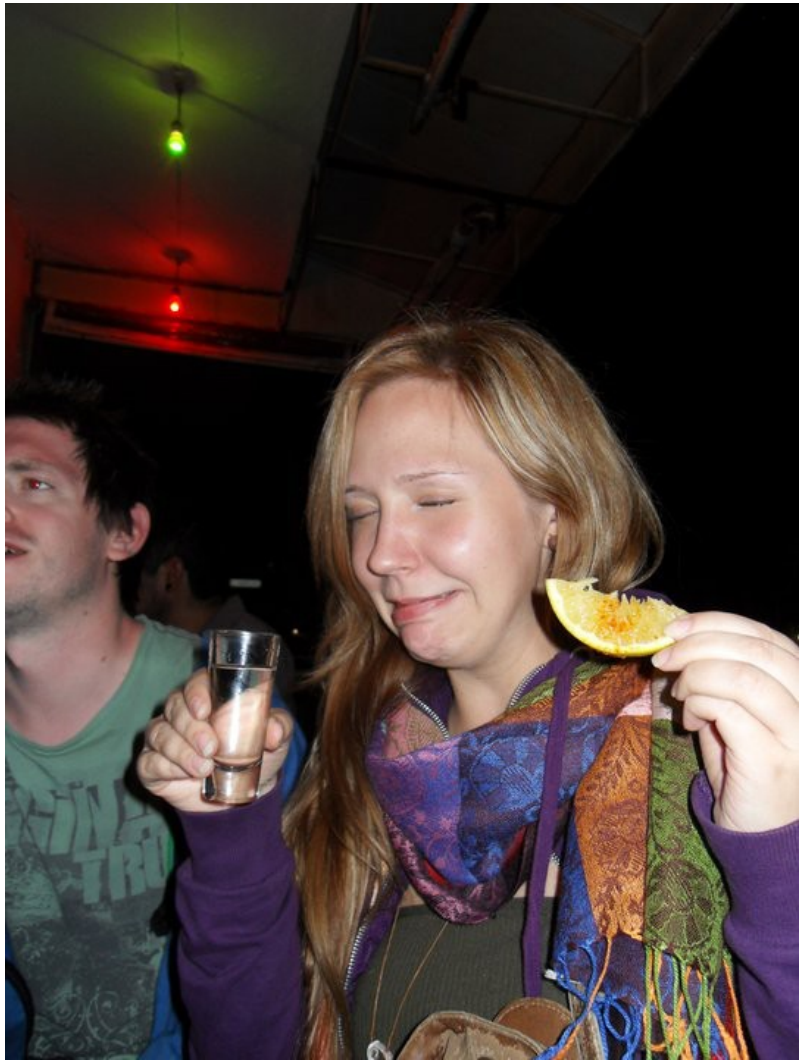
The origin of MySQL



Taking in investors is a learn experience

The origin of MySQL

Then we came into strange company

MariaDB

The origin of MySQL

Which scared some of us a bit...

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The origin of My(SQL) and Maria(DB)

Fortunately there is someone else that can continue

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The origin of Maria(DB)

It's a hard job taking over a success

MariaDB

The origin of Maria(DB)

But we are confident we can pull it off

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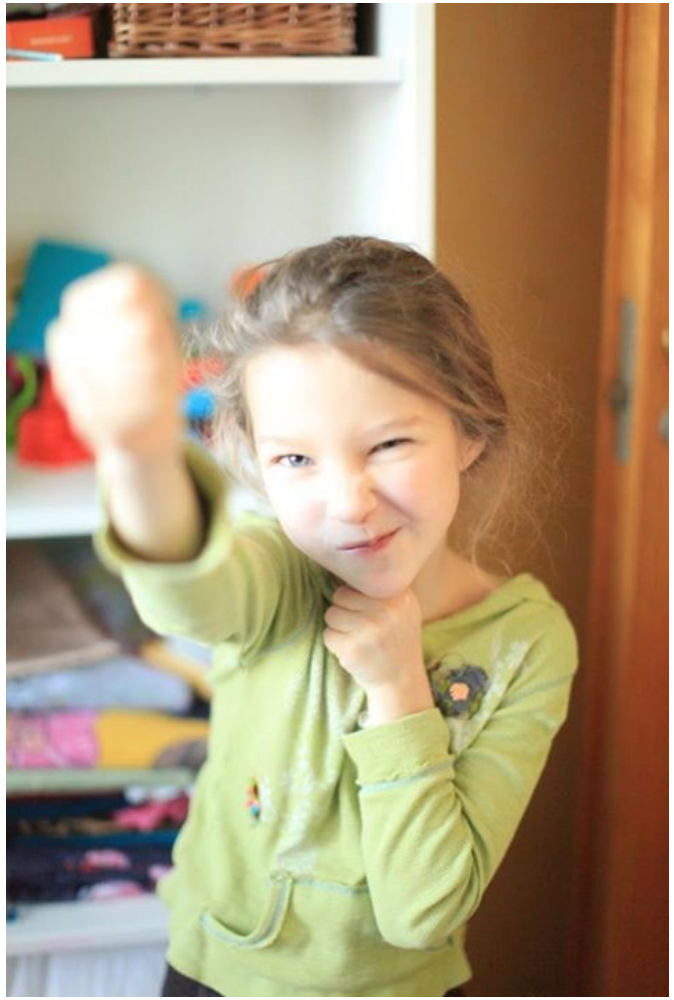
The animals that support us

We have some 50+ animals that Maria takes care of

MariaDB

Maria then and now



MariaDB

My today

MariaDB

Monty's early years

- Bought one of the first programmable calculators (Texas Instrument 58) in 1975
  - 512 bytes programmable memory
- Saw the first 'personal computer', an ABC 80, in 1978
  - 4 MHz, 8 k ROM, 8 k ram memory

MariaDB

Monty's early years

- Put asphalt on streets in Helsinki to get money to pay for half of the ABC 80 (father paid for other half).
- They also sold Pet and Apple II, but I choose ABC 80 because it's BASIC was MUCH faster.
- Met **Allan Larsson** in Sweden (3rd founder of MySQL)
- Wrote/adopted a lot of games (clones of Space Invaders, Pacman, Missile Command etc) in assembler

Monty's early years

- Upgraded to ABC 800 + disk station in 1980
  - 4 MHz, 32 k memory

Monty's early years

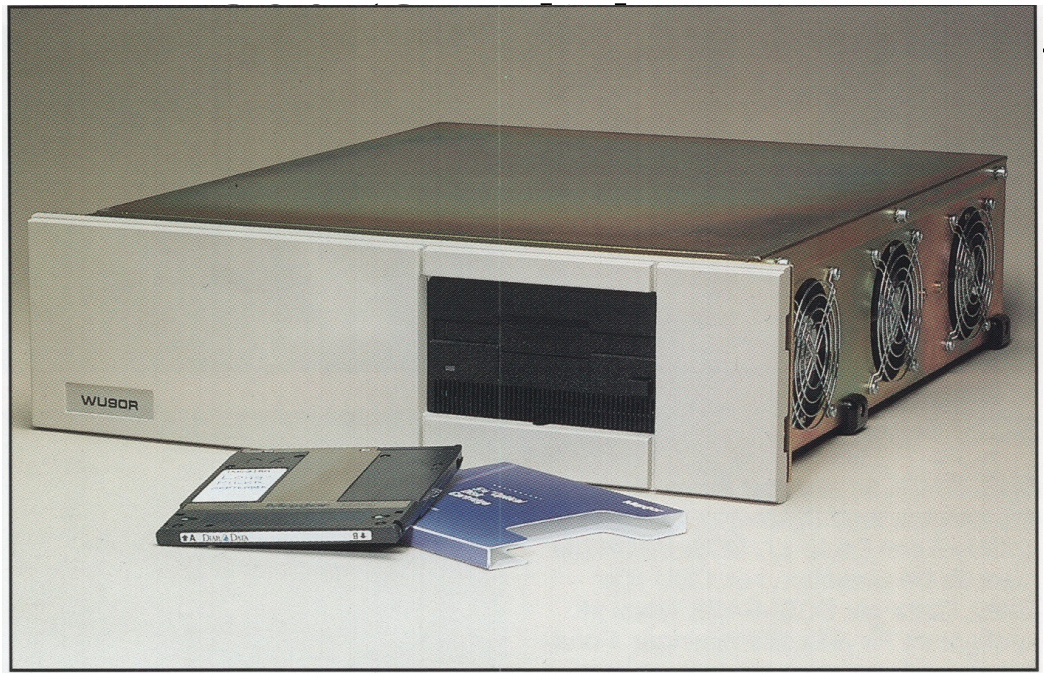
- Wrote on the ABC800
  - Word processor
  - Hard disk controller
  - Tape backup software
  - One-card-computer multi-task operating system
    - 3 MHz, 16 k memory

Monty's early years

- Took summer job 1981 at Tapio Laakso Oy
  - Converted computer programs (book keeping, payroll etc) from Cobol to 'modern personal computers' like TRS-80 running Microsoft basic.
  - Noticed that most of the programs was very similar.
- Started to study in Technology university in Otaniemi in 1981
  - There was no computer science department back then so I choose to study Technical Physics
  - I worked in parallel while studying. After 2 years I stopped studying as I already had a full time job doing software development.

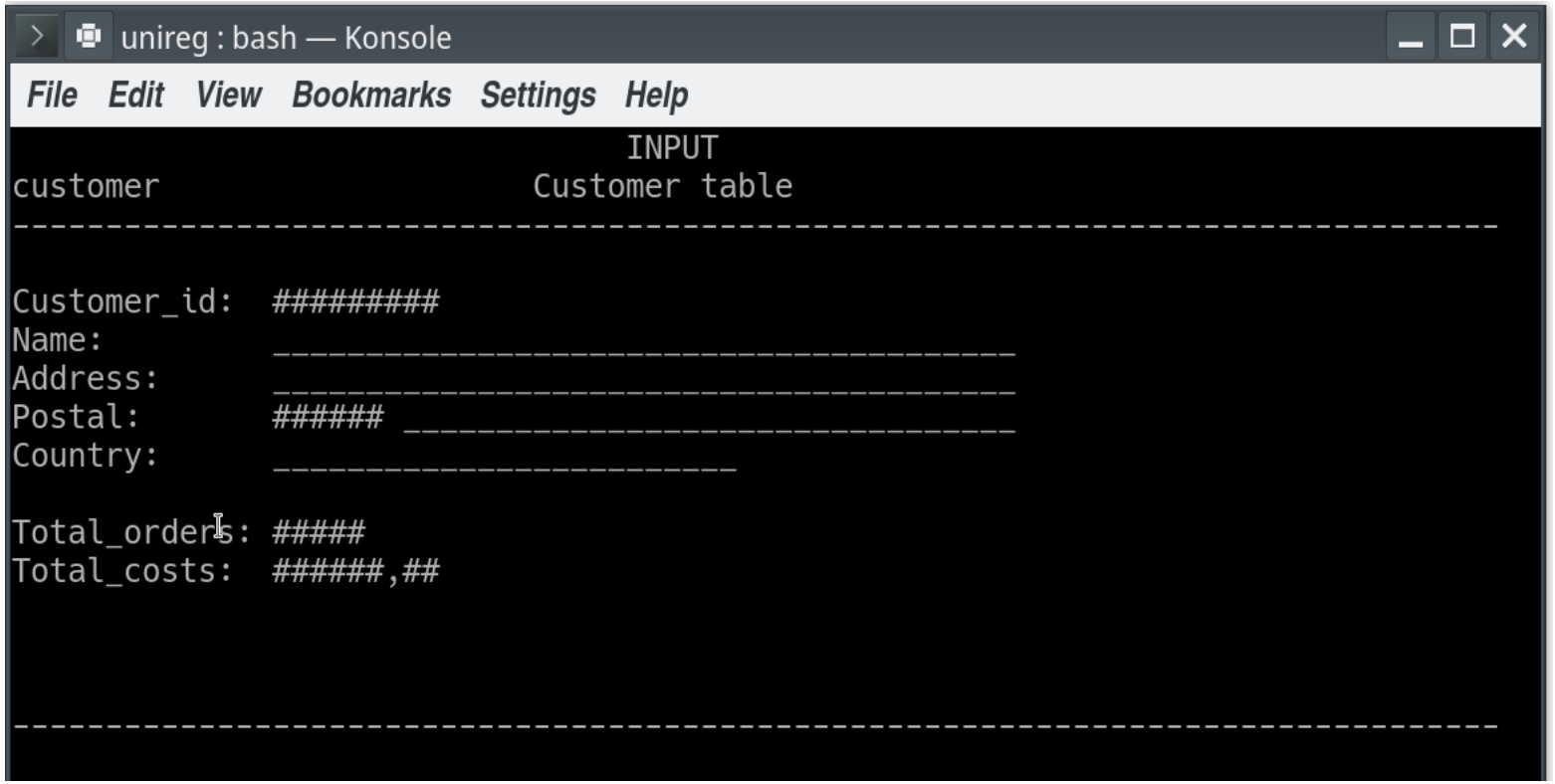
Monty's early years

- Allan Larsson wanted me to write some programs based on a database program but I found it was too cumbersome to use and impossible to maintain.
- Wrote Unireg (base of MySQL code) during winter of 1981
  - First in BASIC on the ABC 800
  - Rewrote it in C [illegible] uter with 2M of ram) in 1983



MariaDB

The birth of Unireg (origin of MySQL)



- Tables created by “painting input screen”
- Same for printer layouts

MariaDB

Monty's early years

- Met **David Axmark** in Sweden. Started to work actively with **Allan Larsson** developing software for customers.
- Did a lot of development of Unireg on Sun Sparcstation (40 MHz, 24M of memory) before moving in 1996 to Linux and standard hardware.

MariaDB

(Very brief) MySQL history

- Added SQL interface to Unireg and renamed it MySQL in 1994.
- MySQL released December 1995 under dual licensing.
- MySQL Finland Ab took in investment and hired Mårten Mickos (2001).
- Made an agreement with SAP and released MaxDB 2003
- **Oracle bought the InnoDB engine 2005**.
- MySQL Ab was sold to Sun in March 2008 for 1 billion $
- Monty & others left Sun in Feb 2009 to work on Maria engine in Monty Program Ab.
- Oracle started to acquire Sun (including MySQL) in April 2009

MariaDB

(Very brief) MySQL history

- Original MySQL developers starts focusing on MariaDB.
- MariaDB foundation was created in 2012
- MariaDB is replacing MySQL in most distributions in 2013.
- Monty Program Ab merged with SkySQL in April 2013
- SkySQL Ab renamed to MariaDB Corporation in October 2014
- Monty joined MariaDB Corporation as CTO in January 2016
- 2018 MariaDB has replaced MySQL in almost all OS

Why MySQL was released as Free Software

- David Axmark and Monty had been using Free software for 10 + years and wanted to give something back
- MySQL was our first program suitable for wider usage
- We earned money mainly by doing software development and consulting:
  - **Releasing MySQL under open source would not harm our income**
- We choose to do **dual licensing** to be able to work full time on MySQL
  - Second project with dual licensing (ghostscript was the first)
  - After 2 months we where profitable and could spend all time on developing and spreading MySQL.
- Nowadays I am advocating **Business Source** to companies who wants do create open source products but can't do dual licensing. See http://monty-says.blogspot.com/

MariaDB

Why MariaDB was created

“Save the People, Save the Product”

- To keep the MySQL talent together
- To ensure that a free version of MySQL always exists
- To get one community developed and maintained branch
- Work with other MySQL forks/branches to share knowhow and code

After Oracle announced it wanting to buy Sun & MySQL this got to be even more important.

MariaDB is guaranteed to always be open source

The MariaDB Foundation was created to ensure that anyone can be a **contributor** to the MariaDB project **on equal terms!**

The MariaDB Foundation is the **owner** of the main MariaDB server repositories on github

The Foundation can never to be controlled by a single entity or person

The Foundation is **not** about the MariaDB trademark or to decide upon the MariaDB roadmap!

MariaDB

MariaDB Foundation core members

The foundation are very grateful to it's 2013-2019 members:

- Booking.com (4 years)
- MariaDB Corporation (6 years)
- Alibaba (3 years)
- Tencent games
- Tencent cloud
- Visma (4 years)
- Development bank of Singapore (DBS) (3 years)
- IBM (2 years)
- Microsoft (2 years)
- Parallels/Odin (4 years)

MariaDB corporation

- Owner of the MariaDB trademark, except for 3 parts which the MariaDB Foundation owns.
- Employs 220+ people, of which 60+ are engineers working on MariaDB and related software (MaxScale, ColumnStore, Clustrix etc).
- Have the best MariaDB engineers & most of the MariaDB captains (people with write access to MariaDB source).
- Is the biggest driver of the MariaDB project.
- Sells support, subscriptions and tools around MariaDB.
  - (The MariaDB server is guaranteed to always be free software)
- Financially stable with recent investments from EIF, Alibaba and ServiceNow

MariaDB

Open development

- Anyone can participate in the MariaDB server development on equal terms
- All development plans are in the MariaDB Jira and the MariaDB Knowledgebase (KB)
- Anyone can get write access to the Knowledgebase or the code repository (if you are good enough)
- One source repository for all server features and all tests
  - MySQL is open core and main repository doesn’t have all features and lacks a lot of tests
- More secure as security bugs are fixed at once (not delayed to quarterly security releases)
- We use Zulip, a modern communication platform anyone can join and discuss with all the active MariaDB developers and other MariaDB users.
- There are a lot of developers of MariaDB in a lot of different companies

Easy upgrades

- MariaDB does not remove features
- Upgrades should take only a few seconds
- Upgrading from MySQL to MariaDB is easier than upgrading between two MySQL versions (disregarding MySQL 8.0)
- No dump and restore is ever needed between releases
- Data on disk is forward compatible
- All old MySQL and MariaDB clients works with older and newer versions of MariaDB

MariaDB & MySQL Compatibility

- User level (data, API, replication, configuration files..) compatible with MySQL
- Drop in replacement up to MySQL 5.7
- More plugins, more storage engines, more features, faster, better code quality.
- GPL-only server license.
- LGPL C, ODBC and Java connectors.
  - All MySQL connectors should work with MariaDB

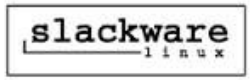
MariaDB

More frequent releases
(Release early, release often)

- MariaDB 5.1 (Feb 2010) Making builds free
- MariaDB 5.2 (Nov 2010) Community features
- MariaDB 5.3 (Apr 2012) New optimizer
- MariaDB 5.5 (Apr 2013) Merge MySQL 5.5
- MariaDB 10.0 (Mar 2014) Parallel replication
- MariaDB 10.1 (Oct 2015) Galera, Encryption
- MariaDB 10.2 (Apr 2017) Advanced features
- MariaDB 10.3 (May 2018) Compatibility, Spider
- MariaDB 10.4 (May 2019) Security, compatibility
- MariaDB 10.5 (GA: May 2020) Clustrix,

MariaDB is everywhere
(Most distributions don’t support MySQL anymore)

Linux Distributions



Cloud Services & Stacks

Millions Users in 45 Countries Trust Critical Business Data to MariaDB

Travel

amadeus · BOOKING.COM · Jetair · AIRFRANCE REGIONAL · Club Med · softvoyage · Bla Bla Car

Retail & Ecommerce

Toys"R"Us · Groupe Lactalis · QVC · buch.de · Verkkokauppa.com · Salomon · The Home Depot · otto group · PIXmania.com

Financial Services

PAYBOX SERVICES · First American Title · Swedbank · NH 농협 · Crédit Mutuel · Virgin money

Gvmt & Education

Le Gouvernement du Grand-Duché de Luxembourg · La Poste · New York University · Lockheed Martin · Harvard · Police Nationale · Deutscher Bundestag · NC State

Telecom

vodafone · elisa · Virgin mobile · mobilcom debitel · SK telecom · bandwidth · Gamma · swisscom · Alcatel·Lucent · Juniper Networks · orange

Technology & Internet

SAMSUNG · SIEMENS · Canon · MCAD · STMicroelectronics · 1&1 · Nimbuzz! · hp

Media & Social

EA · XING · FT Financial Times · Constant Contact · TALK · Disney · ZeniMax Media Inc. · craigslist · tumblr · Wikipedia

MariaDB

Customers and use cases

Paybox by Verifone

- Multi-terabyte DB
- 80M transactions / month

- 250 servers, 600G + 1.5T archive
- 10M travelers/quarter
- 4M transactions/ month

- ~14TB in MariaDB production clusters

believe digital

- 50+ Node Cluster
- Multi-billion rows
- 600 Million reads/second

ZeniMax MEDIA INC.

- Over 150 servers
- 150-200k queries / sec on Galera

Sprint

- 3 to 10 TB
- Over billion rows, most tables 100’s of millions of rows

sas

- 70 million rows per day
- 4 billion impressions per month

BOOKING.COM online hotel reservations

- Over 5 TB in Pay Per click application

bandwidth

- 6TB and millions of CDR's

MariaDB

Challenges with forking MySQL (1)

- Creating a team that could continue and take over MySQL
- Creating free documentation & forums
- Creating a free build & test environment (buildbot)
- Competing against a well know trademark (MySQL)
  - Visiting most open source trade shows
- Working with OS distributions to get MariaDB
- Keeping up with MySQL development
  - Lots of bugs found while doing monthly merges
  - Merging MariaDB 5.3 and MySQL 5.5 took 6 months
  - Adding new “must have” features (in MariaDB 5.3/5.5)
- Creating a developer community
  - Relatively easy as Oracle is not working with the community to get in their patches or handle their bugs

Challenges with forking MySQL (2)

- Finding a business model not based on licensing
  - Developer support (for advanced MySQL users)
  - Third level support via partners like SkySQL
  - Getting paid for adding features to MariaDB/MySQL
- No paying customers for the first 3 years
  - All major paying customers bought 3-5 year contracts to protect against price increases from Oracle
- Things changed after the MariaDB foundation was created and Monty Program merged with SkySQL
  - First years most customers was moving from MySQL to MariaDB
  - 2015 we started to see a lot of customers moving from Oracle and MSSQL to MariaDB

MariaDB popularity is increasing

- In December 2012
  - Wikipedia announced they are moving to MariaDB.
- In January-March 2013
  - DB at Mozilla blogged they have moved to MariaDB
  - Fedora voted 7-0 to make MariaDB the default MySQL database
  - OpenSuse 12.3 included MariaDB as default.
  - Slackware, Chakra Linux and Arch Linux has MariaDB as default.
- In April 2013
  - Google is basing their new SQL offerings on MariaDB
  - FusionIO is showing benchmarks with MariaDB.
- June 2013
  - RedHat announced it will include MariaDB in RedHat Enterprise.

MariaDB popularity is increasing

- December 2013
  - MariaDB was added to Debian and later included in Ubuntu
- 2014
  - RedHat Enterprise Linux 7, Suse Enterprise and Oracle unbreakable Linux has MariaDB as default
- In April 2015
  - Gartner puts MariaDB in the 1st (leader) quadrant
    - Open source databases are now used by 25% of the market
- In August 2015
  - MariaDB was ranked #9 as Finland's hottest startup and #2 in the Business software category
  - MariaDB announced on IBM System Z and Power 8
  - Amazon starts using MariaDB's C/ODBC and Java connectors

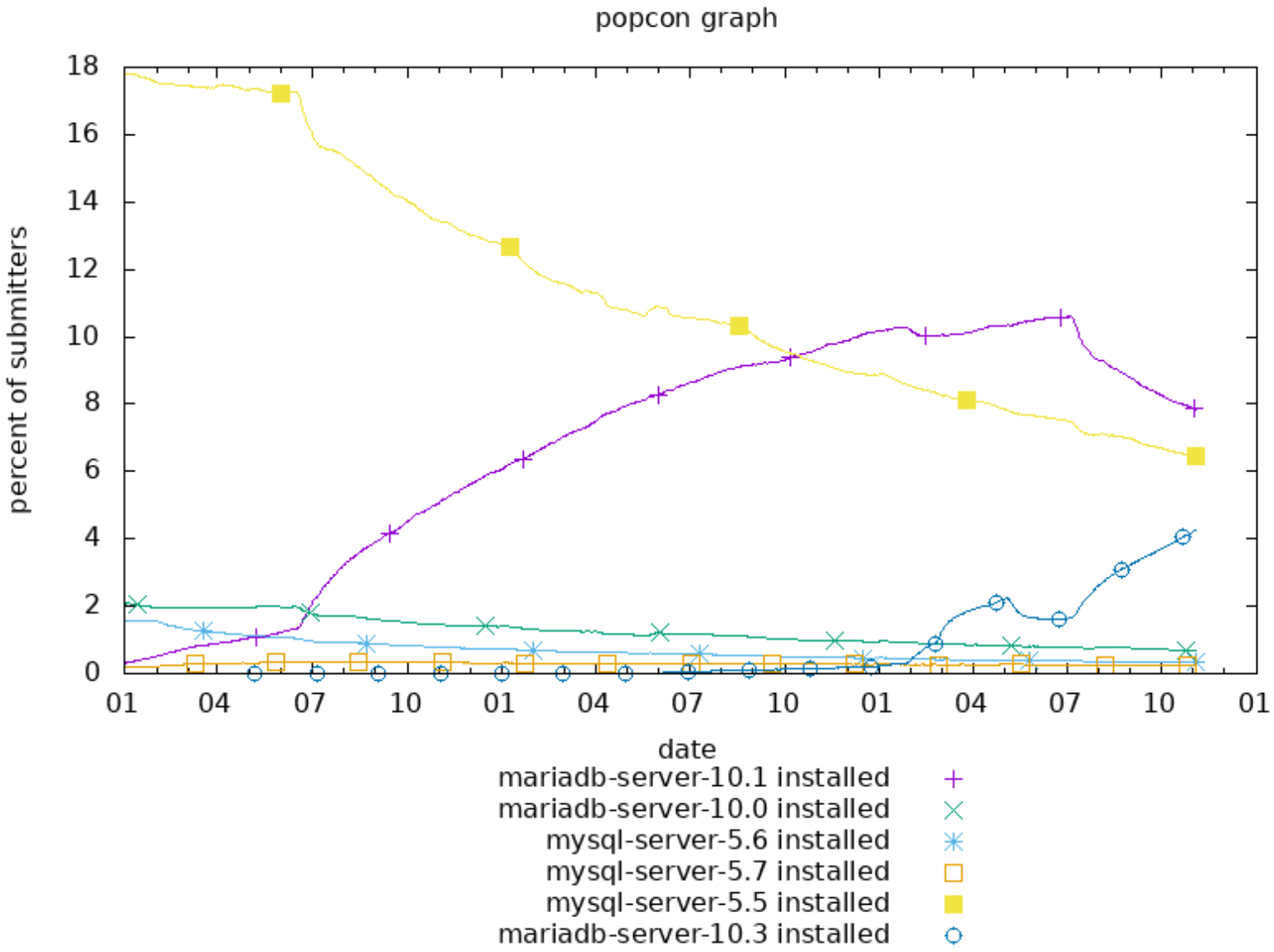
MariaDB

MariaDB popularity is increasing

- In February 2017
  - MariaDB was selected as **Database of the Year**, 3rd year in a row, in the Members' Choice awards at LinuxQuestions.org
- At June 14, 2017
  - Debian 9 is replacing MySQL with MariaDB
- December 2017
  - Microsoft joins MariaDB Foundation and offers MariaDB on Azure
- August 2018
  - Alibaba is offering MariaDB 10.3 on their cloud
- October 2018
  - MariaDB become more popular than MySQL by Debian users
- December 2018
  - Microsoft becomes platinum sponsor of the MariaDB Foundation

MariaDB

Debian popcon graph 2017-
2018-10 MariaDB overtook MySQL



MariaDB

There is a lot of others involved

- MariaDB corporation has to 220+ employees
- Many external contributors; Most features in MariaDB **5.2** and **10.1** were contributed by the community!
- Many of the advanced features in MariaDB 10.2 and 10.3 are sponsored features
- MariaDB has had more contributions the last 12 months than MySQL under it’s whole lifetime.
- In the mariadb.com/kb knowledge base (free MariaDB and MySQL documentation) we have now 6016 (mostly English) articles.
  - In March 2019 265 added/changed articles
- On Freenode #maria, 669 people wrote 10137 lines
- Github current statistics (March 2018)
  - 496 forks, 2513 stars, 183 contributors
  - 185,267 commits, 520 branches

MariaDB

Some notable contributors

• Multisource replication	Taobao
• Encryption	Google & Eperi
• Galera Cluster	Codership
• Atomic writes	FusionIO & Shannon
• Oracle	MySQL enhancements
• Connect	Olivier Bertrand
• MaxScale binlog	Booking.com
• Spider storage engine	Kentoku
• AliSQL patches	Alibaba
• TSQL patches	Tencent
• Webscale patches	Facebook, Google, Twitter
• MyRocks	Facebook

• Lots of others, listed in the Knowledgebase at mariadb.com

MariaDB

Reasons to switch to MariaDB today

- MariaDB is guaranteed to be always free!
- MariaDB is maintained by the people that originally created MySQL and has the best knowledge of the MySQL code.
- MariaDB is binary compatible (data and API) with MySQL up to 5.7, so its trivial to replace MySQL with MariaDB (minutes).
- Reasons to switch to MariaDB
  - **Faster queries** thanks to optimized InnoDB, ColumnStore, MyRocks, a much better optimizer and better replication
  - Open source development: **Anyone can be part of the development** at all stages. Developer meetings are public!
  - **More features** like true parallel replication, better statistics, dynamic columns, encryption and many storage engines.
  - **Less risk**, as MariaDB will not remove features (like MySQL is doing)

MariaDB

Summary: What made MySQL successful?

- We where using it (for data warehousing and web)
- Internet was new and everyone needed a web-optimized DB
- “Virtual company” made it easy to find good people
- New “free” license scheme (this was before Open Source)
- Free for most, a few have to pay
- Second program (ghostscript was first) to use dual licensing, MySQL first to do it with GPL.
- Very easy to install and use (15 minute rule)
- Released source and tested binaries for most platforms
- Friendly and helpful towards community
  - I personally wrote 30,000+ emails during the first 5 years to help people with using MySQL
- Waited with investments until product was “good enough”
- MySQL was a needed, stable and easy to use product with the right price

Thank you