MySQL-MariaDB story

St. Andrews 2012
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http://mariadb.com/
1) Who is Monty? Brief history
2) What led you into entrepreneurship?
3) How did you get started?
4) What challenges did you face in the beginning and how did you overcome them? Eg Convincing early employees to join you, raising seed & venture capital etc.
5) How did you handle the growth of your venture?
6) Liquidity event.
7) End of story (or is it?)
8) Where is MariaDB today
9) Challenges faced while creating MariaDB
10) Reasons for the success
At start: Lots of traveling and meeting interesting people
The origin of My (SQL)

Combined with working from home
The origin of My (SQL)

Things were good
We also made a MaxDB (based on SAP DB) and MySQL-max
The origin of My (SQL)

Even if there were some growing pains
The origin of My (SQL)

Then we came into strange company
The origin of My (SQL)

Which scared some of us a bit...
The origin of My (SQL) and Maria (DB)

Fortunately there is someone else that can continue
The origin of My

While My continues to travel
The origin of My Free as a bird
The origin of Maria (DB)

It's a hard job taking over a success
Like pulling out a rabbit from a hat
The origin of Maria (DB)

Just charm is not enough
But we are confident we can pull it off
The origin of Maria (DB)

So lets be happy that...
We still can put our trust in the creators of MySQL
• Monty put asphalt on streets in Helsinki to afford first computer
• Started with “Kaj and Monty Programs” in 1977.
• Unireg (base of MySQL code) was started 1981.
• MySQL code was released December 1995 under dual licensing.
• MySQL Finland Ab took in investment and hired a new CEO, Mårten Mickos, in 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.
• Oracle started to acquire Sun (including MySQL) in April 2009.
• Original MySQL developers starts focusing on MariaDB.
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
The challenges of growing

- During 1995 – 2000 we grow from 2 to 15 people
  - All developers; No sales people, marketing people or lawyers
  - MySQL Ab was a virtual company (no offices) from day 1

- Getting the MySQL name out
  - We were very lucky; Web was emerging and everyone needed a free database
  - PHP & Perl developers were spreading the news about MySQL
  - Monty wrote more than 30,000 emails helping people with MySQL
  - David was visiting conferences; Spent probably more time on airplanes than home

- After the 3'rd year we started to be approached by investors
  - Best early offer was 50M USD in 1999
  - However, we didn't want to sell the whole company and “loose all control” at once

- We spent 5 years developing MySQL until “good enough”
Why the MySQL founders took in investors

- Internal challenges to manage everything with 15 people
  - We needed more people to handle support, documentation, administration, HR and sales
- Customers and users were demanding more features
  - We needed to hire more developers
- Increased competition from databases like PostgreSQL

Three choices:
- Continue as before and grow very slowly
- Sell MySQL (we had already said no to 50M USD)
- Take in investors to:
  - Hire a CEO, Mårten Mickos, to drive the company
  - Get more resources to do more development
  - Get more users and more customers

We decided the last one was the best for MySQL long term
• When you take in investors, you get money but loose control
  • Company will go either public or get sold
• The internal decision was to go public in 2008
• MySQL Ab had started to fall apart internally since 2005
  • Big chasm between managers in Cupertino and “the rest”
  • Monty + group of developers was about to leave in Dec 2007
• MySQL Ab got several offers and Mårten decided we should sell to Sun instead of going public. (I got to know this in Dec 2007)
• Sun deal was, in my opinion, much better than going public:
  • Sun did understand development
    • Should be able to fix MySQL development organization
  • Sun did understand and promote Open Source
  • No risk of making part of MySQL closed source
• Started in February 2009 after Monty's exit from MySQL/SUN
• Shifted focus from (M)aria storage engine to MariaDB (A branch of MySQL) after Oracle acquired Sun.
• Drives (but doesn't own) the MariaDB development
• “Virtual company” (no offices) with about 20 employees all over the world. All original 'core' developers of MySQL are employed. (Full optimizer team, 3 of 4 MySQL architects, etc)
• Very technical company (only development, open source consulting and L3 (bug fix & advanced) support)
• Uses the Hacking Business Model (‘Company is owned by the employees’)
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.
Main driver of MariaDB development and infrastructure.
Be a home for the core MariaDB developers
We only do (paid for and free) development on MariaDB and MySQL and 3 level support (bug fixes and very hard cases).
Some companies with MySQL expertise internally have signed direct support contracts with Monty Program Ab; All other support are done through partners.
  - We are seen as an extension to their MySQL/MariaDB team.
Aim is to not try do 'everything' and take business from partners (as MySQL AB did).
Several companies are now sponsoring features for MariaDB!
  - Monty Program Ab sponsors MariaDB development with 50% of our developers time!
Monty Program Ab has signed a strategic partnership with SkySQL to be their 3rd level support and main development department.

This is important for me personally because:

- Monty Program Ab can provide a home for MySQL developers, but not for support, training and consulting.
- The MySQL ecosystem need support companies like SkySQL, were the first person you talk to knows more than you about MySQL / MariaDB.
- Monty Program Ab only provides developer support; We need reliable partners that can do the front 24/7 support with us.
What's new in MariaDB 5.5

- Significantly more efficient thread pool
- Non-blocking client API Library (MWL#192)
- `@@skip_replication` option (MWL#234)
  - Run some statements without replication
- SphinxSE updated to version 2.0.4.
- Extended Keys support for XtraDB and InnoDB
- New LIMIT ROWS EXAMINED optimization.
  - Limits max number rows examined for a query
- Variables `replicate_do_*`, `replicate_ignore_*`, and `replicate_wild_*` have been made dynamic
- New plugin to log SQL level errors.
- Updates to performance schema are not replicated
<table>
<thead>
<tr>
<th>Feature</th>
<th>MariaDB 5.3/5.5</th>
<th>MySQL 5.5</th>
<th>MySQL 5.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index Condition Pushdown (ICP)</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Disk-sweep Multi-range read (DS-MRR)</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>DS-MRR with Key-ordered retrieval</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index_merge / Sort_intersection</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost-based choice of range vs. index_merge</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORDER BY ... LIMIT &lt;small_limit&gt;</td>
<td>(In 10.0)</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Use extended (hidden) primary keys for innodb/xtradb</td>
<td>5.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batched key access (BKA)</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Block hash join</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User-set memory limits on join buffers</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply early outer table ON conditions</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Null-rejecting conditions tested early for NULLs</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Optimizations comparison

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<tr>
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<tr>
<td>Subquery: In-to-exists</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Subquery: Semi-join</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Subquery: Materialization</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Subquery: NULL-aware Materialization</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subquery: Cost choice of materialization vs. in-to-exists</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subquery: Cache</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subquery: Fast explain with subqueries</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed materialization of derived tables / materialized views</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Instant EXPLAIN for derived tables</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Derived Table with Keys optimization</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Fields of merge-able views and derived tables used in equality optimizations</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
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<tr>
<td>LIMIT ROWS EXAMINED rows_limit</td>
<td>5.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systematic control of all optimizer strategies</td>
<td>Yes</td>
<td></td>
<td>Partial</td>
</tr>
<tr>
<td>Explain for DELETE, INSERT, REPLACE, and UPDATE</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>EXPLAIN in JSON format</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>More detailed and consistent EXPLAIN for subqueries</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Why MariaDB 10.0

- MariaDB 5.5 already have most (+ a lot more) of the optimizer features of MySQL 5.6
- MariaDB 5.5 is already a superset of MySQL 5.5. MySQL 5.6 will only have a fraction of the MariaDB 5.5 new features.
- A full merge of MySQL 5.6 into MariaDB 5.6 is a one year project as a lot of the code has to be completely rewritten.
  - Features and usable code are removed, either intentionally or by mistake
  - New code is way to complex (you can do same thing in a fraction of the code)
  - Lots of new introduced bugs we have to get rid of.
  - It's clear that some of the new MySQL programmers doesn't understand the current code (see Kristian Nielsen's blog)
  - A lot of the new code is re-factoring we don't want to have.

→ Better to do the merge in 3 steps into 10.0, 10.1 and 10.2
• All InnoDB and performance schema code from MySQL 5.6
• ORDER BY LIMIT optimization (the only optimization from MySQL 5.6 that is not yet in MariaDB).
• Multi source replication
• SHOW EXPLAIN (see what other thread really is doing)
• Global transaction id for replication (our own implementation as we don't like the one in MySQL).

The exact list depends on what features we can find sponsors for. See https://kb.askmonty.org/en/what-is-mariadb-100/

Planned to be released as stable in 2012
Challenges with forking MySQL (1)

- Creating a team that can continue and take over MySQL
- Creating free documentation & forums (askmonty.org)
- 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
  - We are now finally profitable and are searching for partners to be able to expand.
- Companies are not prepared to pay for features they don't use (like merging with MySQL, having a build farm, reviews for code from open source developers. documentation) even if this is a big yearly cost.
The knowledgebase allows you to:

- Find answers to your problems
- Ask questions and get answers from others
- Add your own documentation or help with translations
The project name has changed, but the core team is the same

(Please ignore a couple of innocent bystanders)
Mug shot of the guilty
The team behind MariaDB at MP

Igor Babaev
Since 2002

Timour Katchaounov
Since 2002

Sergey Petrunya
Since 2003

Optimizer team
The team behind MariaDB at MP

Sergei Goulibchik
Since 2000

Igor Babaev
Since 2002

Michael “Monty” Widenius
Since 1993

The Original Architects
The team behind MariaDB

Kristian Nielsen
Since 2005

Replication (and build) team
The team behind MariaDB at MP

Sanja Byelkin
Since 2001

Jani Tolonen
Since 1998

General Team (Optimizer, runtime, engines etc)
The team behind MariaDB at MP

Vladislav “Wlad” Vaintroub
Since 2008

Alexey “Holyfoot” Botchkov
Since 2008

Windows, Performance & GIS
The team behind MariaDB at MP

Elena Stepanova
Since 2000

Axel Schwenke
Since 2005

QA and performance team
The team behind MariaDB at MP

Bryan Alsdorf
Since 2004

Daniel Barholomew
Another new guy

Knowledgebase and Web
The team behind MariaDB at MP

Camilla Zilliacus
Admin, since 2002

Rasmus Johansson
COO, Since 2010

Andrea Spåre-Strachan
PA, since 2012

And of course, someone has to take care of this merry group...
The team behind MariaDB at MP

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And of course, someone has to take care of this merry group...
There are a lot of others involved

- Most features in MariaDB 5.2 were contributed by the community!
- Many of the advanced features in MariaDB 5.3 are sponsored features
- In the askmonty.org knowledge base (free MariaDB and MySQL documentation) we have now 2156 articles (mostly English)

Statistics from the past month:
- Added/Changed Articles: 201
- On Freenode #maria, 279 people wrote 6144 lines
- Launchpad Activity:
  - 27 active branches
  - 313 commits
- Hundreds of thousands of downloads of MariaDB
- We have seen companies converting hundreds of machines to MariaDB in a few days without any problems.
  - See http://kb.askmonty.org/en/mariadb-case-studies
There are a lot of others involved

- Most features in MariaDB 5.2 were contributed by the community!
- Many of the advanced features in MariaDB 5.3 are sponsored features
- In the askmonty.org knowledge base (free MariaDB and MySQL documentation) we have now 2348 articles (mostly English)

Statistics from the past month:
- Added/Changed Articles: 118
- On Freenode #maria, 307 people wrote 8217 lines
- Launchpad Activity:
  - 29 active branches
  - 246 commits
- Hundreds of thousands of downloads of MariaDB
- We have seen companies converting hundreds of machines to MariaDB in a few days without any problems.
  - See http://kb.askmonty.org/en/mariadb-case-studies
Predicted MySQL usage

Based on 451 Research surveys
Sample 285/205 users
Reasons to switch to MariaDB today

• MariaDB has 20 man years of more development than MySQL (and the gap will continue growing).
• 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, so its trivial to replace MySQL with MariaDB (minutes).
• Reasons to switch to MariaDB
  • Faster queries thanks to XtraDB (InnoDB plugin fork from Percona), a much better optimizer, better replication and better code.
  • Open source development: Anyone can be part of the development at all stages. Developer meetings are public!
  • More features, including critical ones like microsecond, better statistics and dynamic column support.
  • Less risk as MariaDB will not remove features like MySQL is doing (thread pool, storage engines, safemalloc (developer feature), older OS, No RedHat 6.0 support etc)
We are working closely with Codership to release MariaDB 5.5 with Galera (a multi-master solution).

First MariaDB 5.5 galera tree was released 2012-09-04
Summary: What made MySQL successful?

- We were using it (for data warehousing and web)
- Internet was new and everyone needed a web-optimized database
- "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, 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"

Needed, stable and easy to use product with right price
Thanks

Q & A