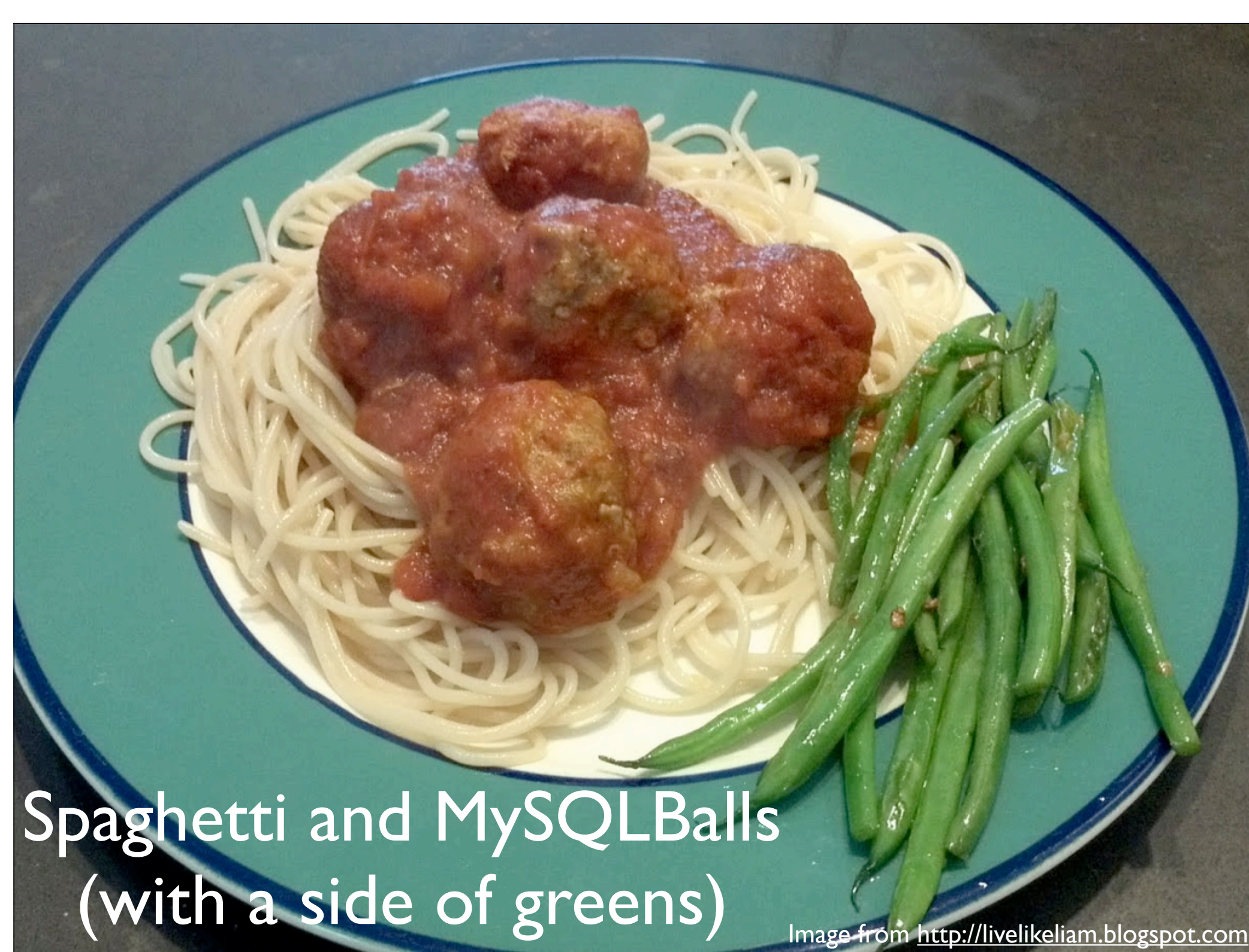


# The history and future of the MySQL Ecosystem

Japan MySQL Users Group  
<http://atnd.org/events/48639>

2014.04



Spaghetti and MySQLBalls  
(with a side of greens)

Image from <http://livelikeliam.blogspot.com>

# ABOUT MYSELF

## RONALD BRADFORD

- Enterprise Data Architecture & Developer
- 25 years with RDBMS (1989)
- 15 years with MySQL (1999)
- Published author - 4 books
- Accomplished presenter - 8 years



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# COVERING MYSQL

- Some history
- Distributions/Variants
- Patches
- Storage Engines
- Alternatives
- Vendors



A long time ago<sup>(\*)</sup>, in a  
small nordic country far,  
far away ...

(\*) 10,000,000 seconds and counting

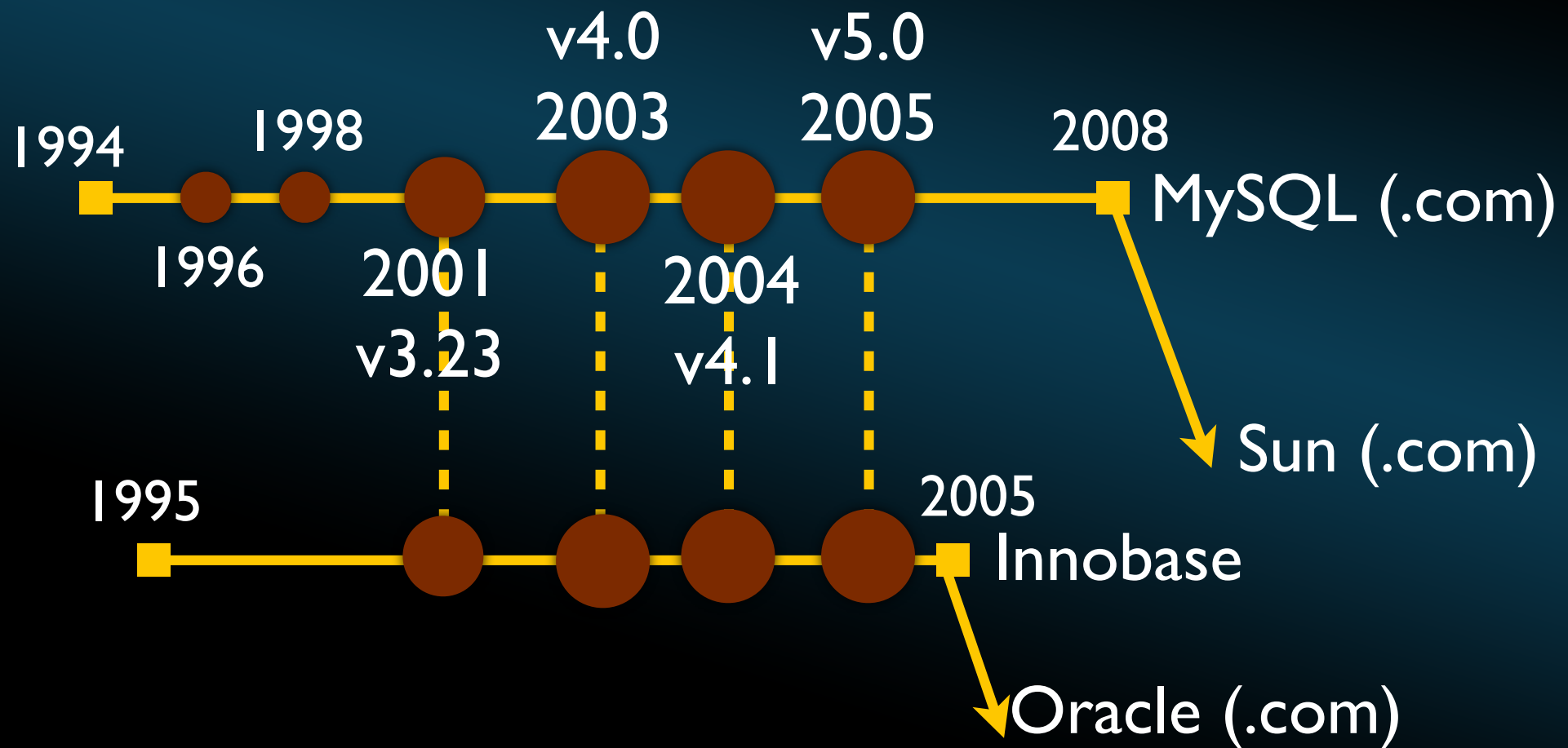


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# 1994-2007

## MYSQL AB



# POPULARITY

MySQL - the world's most widely use  
open source RDBMS

- Inclusion in Linux distributions
- The 'M' of LAMP Stack



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# 2008-2009

## SUN

v5.0  
2005

2008

MySQL (.com)

v5.2

4/21/2009

v5.4 beta

2008

v5.1

v6.0

Sun (.com)

4/20/2009

Acquisition announcement

Oracle (.com)

2006

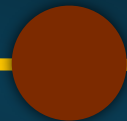
2009

Proven Scaling

2008

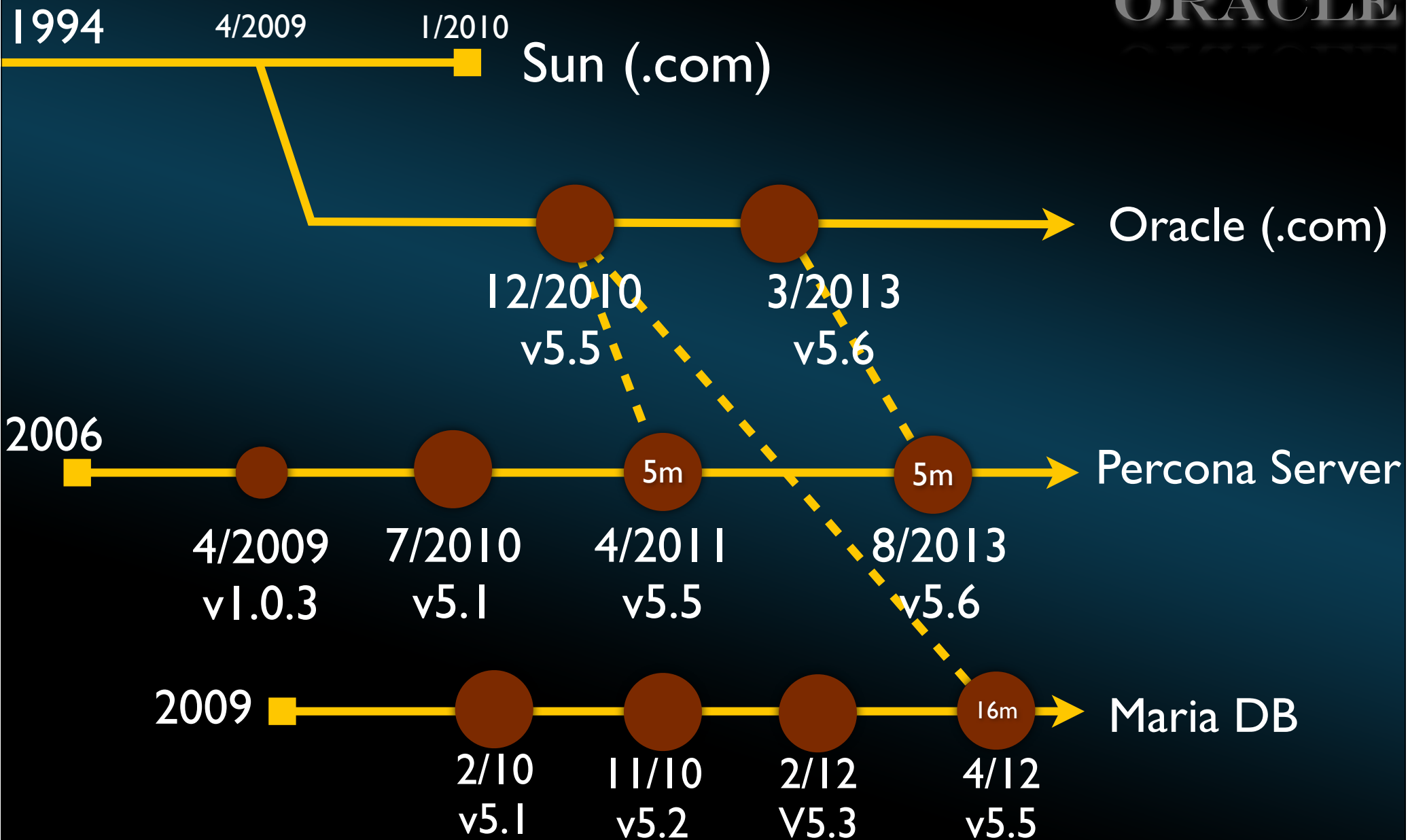
2011

Our Delta

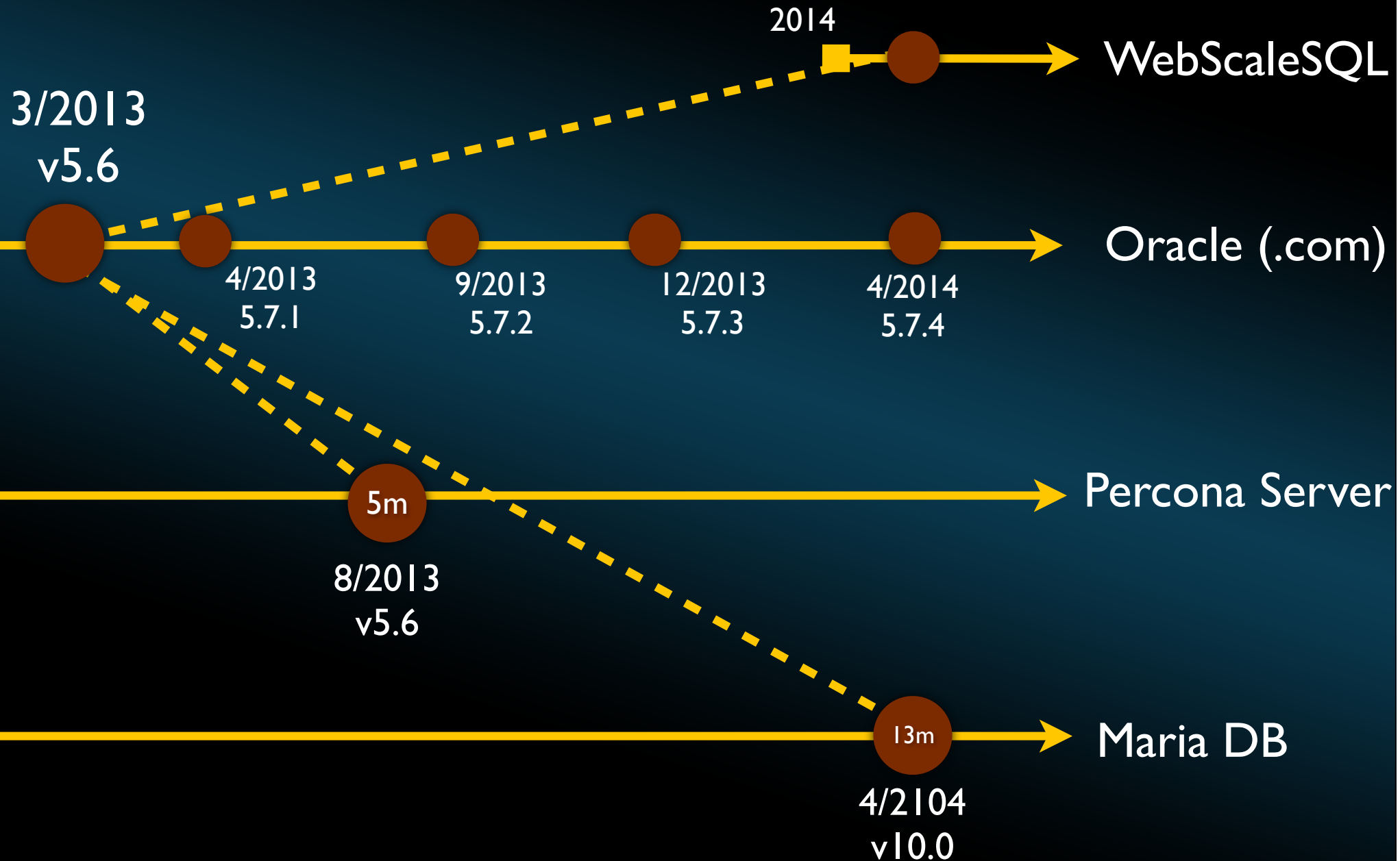


# 2010-2013

## ORACLE



# 2013 - 2014



# TRUTHS

- MySQL to Sun Acquisition (~ 6 weeks)
- Sun to Oracle Acquisition (~9 months)
- Oracle did not acquire MySQL
  - It was part of Sun
- MySQL is and always will be in some form (\*) available as GPL



# RECAP

- 1994 MySQL AB founded
- First internal release on 23 May 1995
- Version 3.23: beta from June 2000, production release January 2001
- Version 4.0: beta from August 2002, production release March 2003
- Version 4.1: beta from June 2004, production release October 2004
- Version 5.0: beta from March 2005, production release October 2005
- Version 5.1: beta April 2006, production release 27 November 2008
- 16 January 2008 Sun announces plans to acquire MySQL
- 26 February 2008 Sun Microsystems acquired MySQL AB
- 20 April 2009 Oracle announces plans to acquire Sun
- 14 Dec 2009 Oracle Makes Commitments to Customers, Developers and Users of MySQL
- 21 January 2010 Oracle wins unconditional EU approval for Sun buy
- 27 January 2010 Oracle acquired Sun Microsystems



# OTHER PRODUCTS

- MySQL Server - 1994
- MySQL Cluster - 2004 NDB was acquired from Ericsson
- MaxDB - 2003-2007. Returned to SAP in 2007



# PEOPLE

- 1994 Founded by Michael "Monty" Widenius, David Axmark, Alan Larsson
- Mårten Mickos (CEO) Mar 2001 - Feb 2008, (Sun SVP) Feb 2008-2009
- Monty Widenius 1994 - Feb 2009
- 100s of Engineers - Past and Present



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# PHILOSOPHY



## STARTUP

Give away the software and make it up in volume?  
Count me in!

DIY.DESPAIR.COM



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# COMMUNITY

2006



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# Distributions/Variants



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# RECAP

## DISTRIBUTIONS/VARIANTS

- 1. Oracle/MySQL
  - Community/Enterprise (every 2 years)
- 2. Percona Server
- 3. MariaDB
  - Moving away from full compatibility
  - Most flexible for community
- 4. Storage Engine specific (\*)



# DISTROS

- Moving to MariaDB
  - Fedora 19
  - SUSE 12.3
  - Red Hat 7
  - Slackware
- Ubuntu (currently both)
  - Not phased by FUD
- Expanding 'M' in LAMP



# Storage Engines



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# STORAGE ENGINES

A storage engine provides  
a means to store and/or  
retrieve data via the  
MySQL SQL interface.



# STORAGE ENGINES

- Different locking strategies
- Indexing algorithms
- Transactional capabilities
- ACID characteristics

## Improving Performance



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# STORAGE ENGINES

## STOCK

- MyISAM (Default before 5.5)
- InnoDB (Default since 5.5)
- Memory/Archive/Federated/Merge/Blackhole/CSV/Example/BDB



# PSEA

## SINCE 5.1 (CIRCA 2006)

- Pluggable Storage Engine Architecture (PSEA)
- Enabling third party providers

<http://dev.mysql.com/doc/refman/5.1/en/pluggable-storage-overview.html>



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# STORAGE ENGINES

Why develop a storage engine?







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# BASE VARIANTS

## InnoDB

-  InnoDB built-in (3.2.23 - v 5.1)
-  InnoDB plugin (v 5.1+)
-  XtraDB (Percona/MariaDB)
-  Schooner

## MyISAM

-  Aria



# EARLY PSE

- NitroEDB
- PBXT
- Blob Streaming
- Kickfire
- File System
- Akiban (\*\*\*)
- SolidDB
- Virident
- SchoonerTech
- Falcon
- More...
- Spider

<http://spiderformysql.com>



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# COMMON TODAY

- Tokutek
- DeepDB
- Data Warehousing
  - Infobright - Brighthouse
  - Calpont - InfiniDB



# OTHER PSE

- Sphinx
- IBM DB/2
- Cassandra
- OQGraph
- <your name here>?



# Ecosystem



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# PATCHES

- Proven Scaling
- Google
- Facebook
- eBay
- Twitter
- Storage Engine Providers



# ALTERNATIVES

- Drizzle
  - libdrizzle
- Galera
  - Percona XtraDB Cluster
  - Maria Galera
- ScaleDB
- Tungsten Replicator



# CLOUD

- AWS RDS for MySQL
- Google Cloud SQL
- HP/Openstack DBaaS
  - Percona Server
  - Drizzle???



# IMITATORS

- Use the MySQL protocol
  - Clustrix
  - Xeround
- Unclear of internals
  - GenieDB
  - ClearDB



# CONNECTIVITY

- Scale Base
- Parelastic



# SUPPORT

- Ecosystem now provides options
  - Oracle Support
  - Percona Support
  - SkySQL/Monty Program

**Freedom of per incident not subscription**



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# Today



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# MYSQL 5.6

<http://effectivemysql.com/presentation/mysql-5-6-features-for-nosql-big-data-and-the-cloud/>

<http://effectivemysql.com/presentation/new-mysql-5-6-replication-features/>



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# MYSQL 5.7

<http://dev.mysql.com/doc/refman/5.7/en/mysql-nutshell.html>

<http://www.markleith.co.uk/2014/04/09/mysql-5-7-performance-schema-improvements-percona-live>

[https://fosdem.org/2014/schedule/event/inisde57\\_replication/](https://fosdem.org/2014/schedule/event/inisde57_replication/)



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# TOKUTEK

- Well Established <http://www.tokutek.com/>
- Boston/New York Team
- Now Open source
  - Community/Enterprise

<http://effectivemysql.com/article/understanding-tokutek-fractal-tree-indexes/>



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# DEEPDB

- Recently 2013 <http://deep.is/>
- Commercial only
- Formally called CloudTree

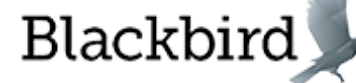


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# ECOSYSTEM

<http://www.percona.com/live/mysql-conference-2014/sponsors>



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**Going Green**

# NO SQL

- MySQL Cluster
  - MySQL [NDB] Cluster
  - My(SQL) + NDB Cluster
- Handler Socket
- Memcache API (MySQL & MySQL Cluster)



# NO SQL

- Key/Value Store
- Document Store
- Graph
  - Memcache/Redis/Mongo/Cassandra/  
Riak/CouchDB/Tokyo Cabinet/.....

**Most companies use multiple products**



# Why not both?



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# Tomorrow



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# EffectiveMySQL.com

## Performance, Scalability & Business Continuity

