



MySQL for Oracle DBA's

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About DBAces – www.dbaces.com

We Provide :

- Global Database Support & Monitoring Services
- Identity & Access Management Solution
- World Wide Training



Session Objectives

- Getting know MySQL
- Understand MySQL Architecture
- Learn the basics in order to manage MySQL
- Getting know MySQL tools both command line & GUI

MySQL Is Powering the World!

Logos for Google, eBay, flickr, Zillow.com (Beta), travelocity, facebook, YouTube, and YAHOO! are displayed. A globe icon with the word WIKIPEDIA is also present.

Web

Logos for sage, ingonico, Check Point (SOFTWARE TECHNOLOGIES LTD.), SafeNet, Adobe, and NetQoS are displayed.

OEM / ISV's

Logos for SurfControl, Zimbra, F-SECURE, Go Daddy (SOFTWARE), and RIGHT NOW TECHNOLOGIES are displayed.

SaaS, Cloud

Logos for Virgin mobile, Deutsche Telekom, CISCO, Comcast, ERICSSON, Alcatel-Lucent, and telenor are displayed.

Telecommunications

Logos for LAFARGE, TOYS R US, AP Associated Press, Rikspolisstyrelsen, LEADER PRICE, and SHINSEI BANK are displayed.

Enterprise 2.0

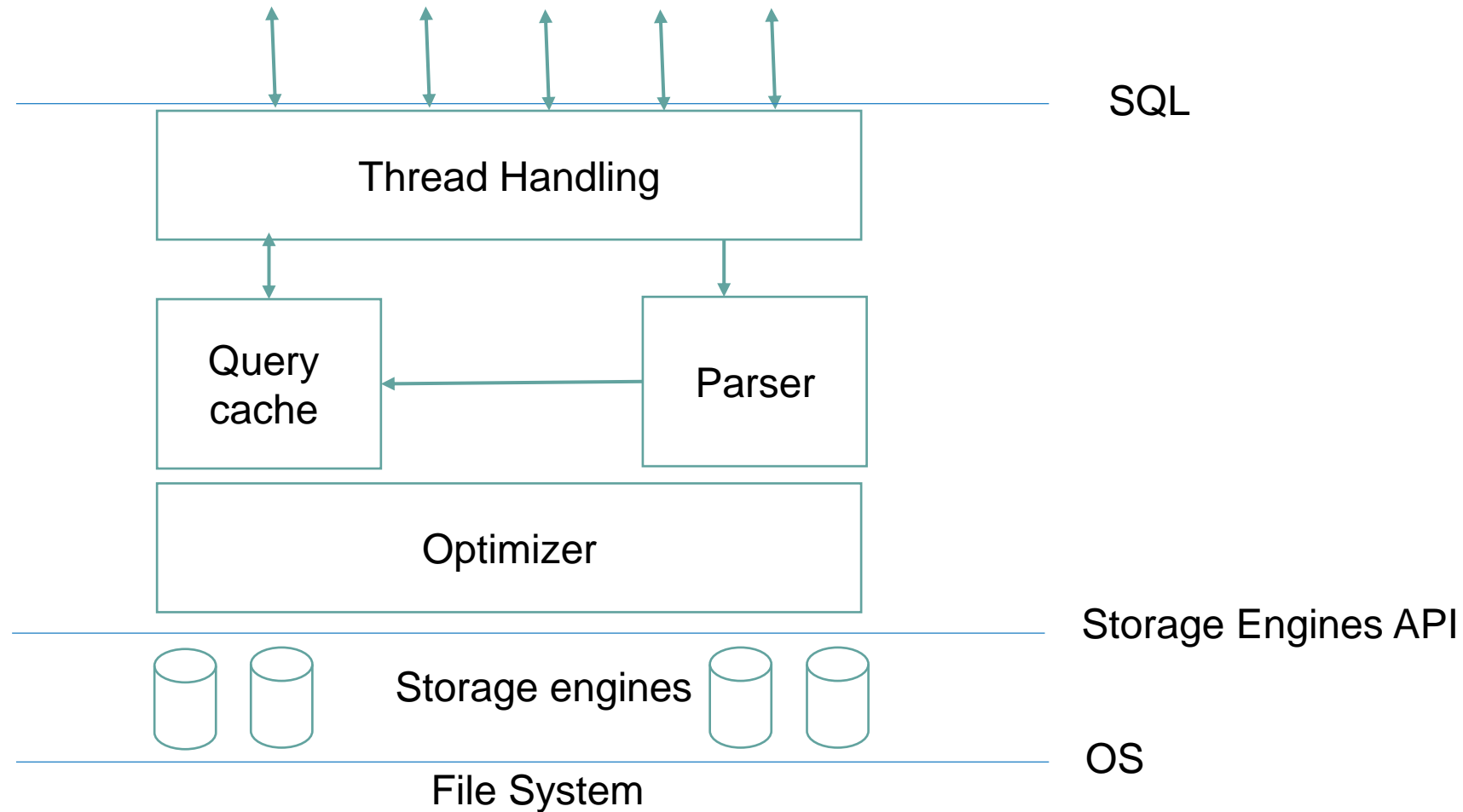
MySQL Enterprise Tools

- MySQL Enterprise Monitor
 - Web application that reduces down time, tightens security, and increases throughput
 - Includes MySQL Query Analyzer
- MySQL Enterprise Backup
 - Online hot, nonblocking backups
- MySQL Workbench
 - Visual database design tool that is used to efficiently design, manage, and document databases

The Many faces of MySQL

- Oracle MySQL 5.6
- MySQLAtFacebook 5.1 series (facebook)
- MariaDB 10 (mediawiki.org , google)
- Percona Server
- drizzle

MySQL Server Architecture



MySQL Engines

- **MyISAM** - Original Storage Engine, great for web apps
- **InnoDB** - Robust transactional storage engine
- **Memory Engine** - Stores all data in **Memory**
- To see what tables are in what engines
- SHOW TABLE STATUS ;
- Selecting the storage engine to use ***is a tuning decision***
- mysql> alter table tab engine=myisam ;

MyISAM

- Fastest storage engine 3x or more
- Most compact data of all non-compressed engines
- Table locking
- Not **ACID** compliant, non-transactional
- Supports concurrent inserts
- Full-Text and Geospatial support

MyISAM

when appropriate :

- Most web applications
- Perfect for web search databases
- 80/20 read/modify or higher
- pure inserts and deletes with partitions or merge engine
- reporting DB/ Data Warehouse

InnoDB

- Transactional and fully ACID compliant
- Behavior most like traditional databases such as Oracle, DB2, SQL Server, etc.
- Data size is normally 2-3 X MyISAM
- Fast, reliable recovery from crashes with zero committed data loss
- MVCC = Non-blocking reads in most cases



Important MySQL Server Limits

Limit that important to know when you are planning to use MySQL

- MySQL is not HDFS!
- **Every** Query Is a JOIN
- All JOINS are **nested loop**
- Temp tables - No index on Temp table)
- Alter Table - will recreate all table and underlying objects
- No FULL OUTER JOIN
- does not support parallel queries (except NDB, shard-query).

MySQL Configuration Files :

File Name	Purpose
/etc/my.cnf	Global options
/etc/mysql/my.cnf	Global options
<i>SYSCONFDIR</i> /my.cnf	Global options
\$MYSQL_HOME/my.cnf	Server-specific options
defaults-extra-file	The file specified with <u>--defaults-extra-file=</u> <i>path</i> , if any
~/.my.cnf	User-specific options

MySQL Instance

- Supports many instances under one MySQL installation
- MySQL instance doesn't have unique name instead the uniqueness of the server is the **server-id** and the **port** number.
- In order to add a new instance, just add a new server-id definition in "my.cnf" configuration file:

SERVER-ID=2

MySQL Database

- Up to 32,000 databases per instance
- Database can be compared to schema – holder of DB objects
- Database does not represents user object

```
CREATE DATABASE [IF NOT EXISTS] db_name
```

MySQL Tables - InnoDB

- By Default all tables are stored in the system tablespace
- System tablespace data is stored in “ibdata” files
- Use **innodb_file_per_table** to store table in separate datafiles
- A **TEMPORARY** table is visible only to the current session, and is dropped automatically when the session is closed.

MySQL Tables - MyISAM

Create 3 files for each table :

File	Purpose
tbl_name.frm	Table format (definition) file
tbl_name.MYD	Data file
tbl_name.MYI	Index file

Users

User are instance level objects and not database level objects

MySQL user name is has two elements, the username and from where he allowed to connect :

```
mysql> CREATE USER 'demo'@'localhost' IDENTIFIED BY 'pass';
```

List all users in MySQL instance:

```
mysql> SELECT * FROM mysql.user;
```

User – Cont.

Connect to our instance from anywhere in the world :

```
mysql> CREATE USER 'demo1'@'%' IDENTIFIED BY 'some_pass';
```

Grant privileges to the user we just created :

```
mysql> GRANT ALL PRIVILEGES ON *.* TO 'demo'@'localhost'  
-> WITH GRANT OPTION;
```

```
mysql> GRANT ALL PRIVILEGES ON db1.* TO 'demo1'@'%'  
-> WITH GRANT OPTION;
```

Query Data Structure

```
SHOW CHARACTER SET
SHOW COLLATION
SHOW COLUMNS
SHOW DATABASES
SHOW FUNCTION STATUS
SHOW INDEX
SHOW OPEN TABLES
SHOW PROCEDURE STATUS
SHOW STATUS
SHOW TABLE STATUS
SHOW TABLES
SHOW VARIABLES
```

Backup - mysqldump

Set script variables

```
FILE=minime.sql.`date +"%Y%m%d"``
```

```
DBSERVER=127.0.0.1
```

```
DATABASE=XXX
```

```
USER=XXX PASS=XXX
```

Call mysqldump script

```
mysqldump --opt --user=${USER} --password=${PASS} ${DATABASE} > ${FILE}
```

Set script variables

```
gzip $FILE
```

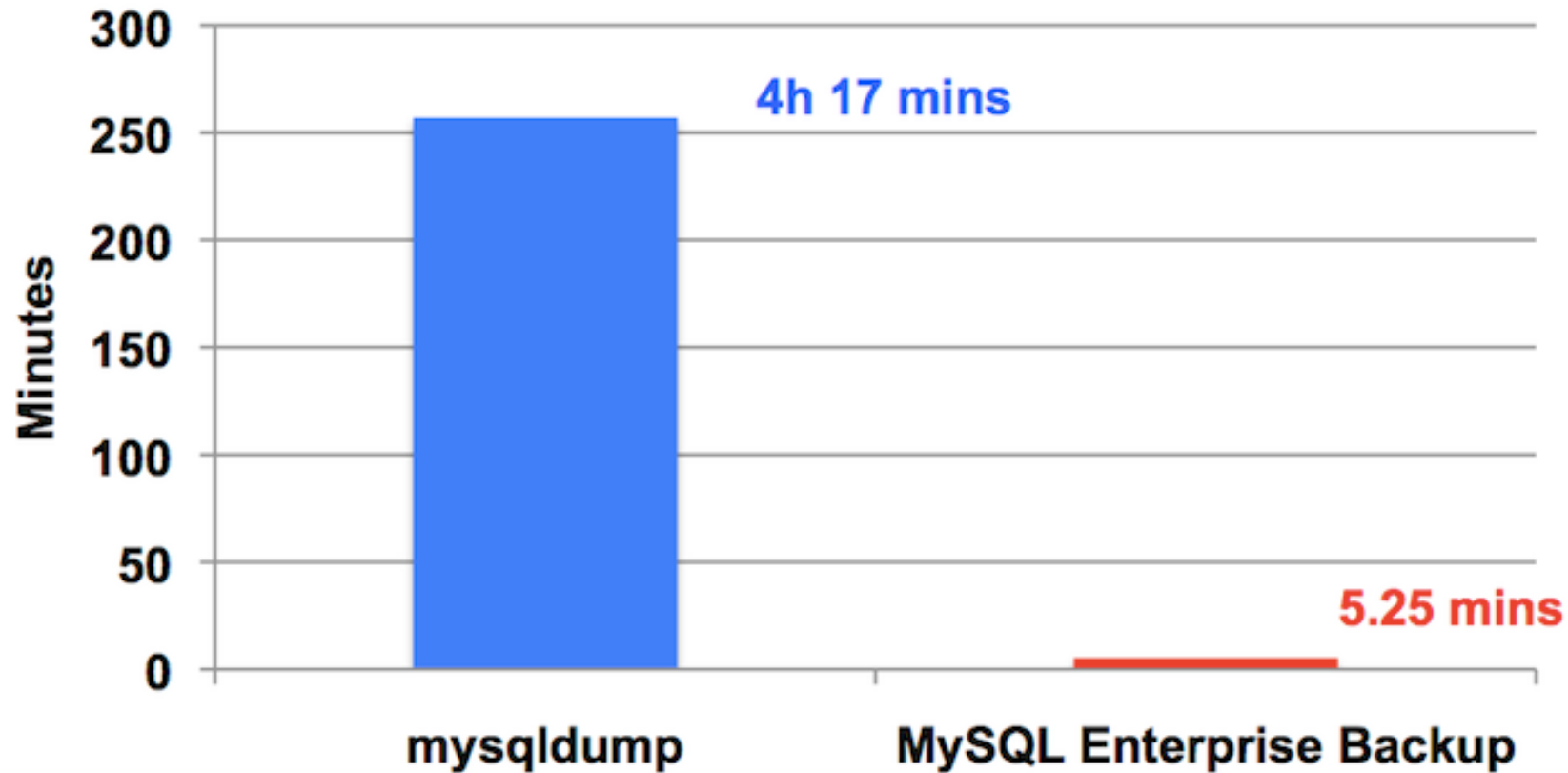
Backup - MySQL Enterprise Backup

- **“Hot” online backups**- Backups are entirely online
- **Incremental backups** - Backup data that has changed since the last backup
- **Partial Backup** - Target particular tables or tablespace
- **Full Instance Backup** - Backs up data, as well as configuration and other information to easily create a complete "replica"



Backup - MySQL Enterprise Backup

Backup: 73 GB Database



Conclusion

MySQL is easy 4 Oracle DBA'S

Thank You

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