



# Remote MySQL Server

v. 2.0

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## Topics

- »» Overview of Replication & Clustering
- »» Integration with cPanel
- »» Caveats and Things to Come



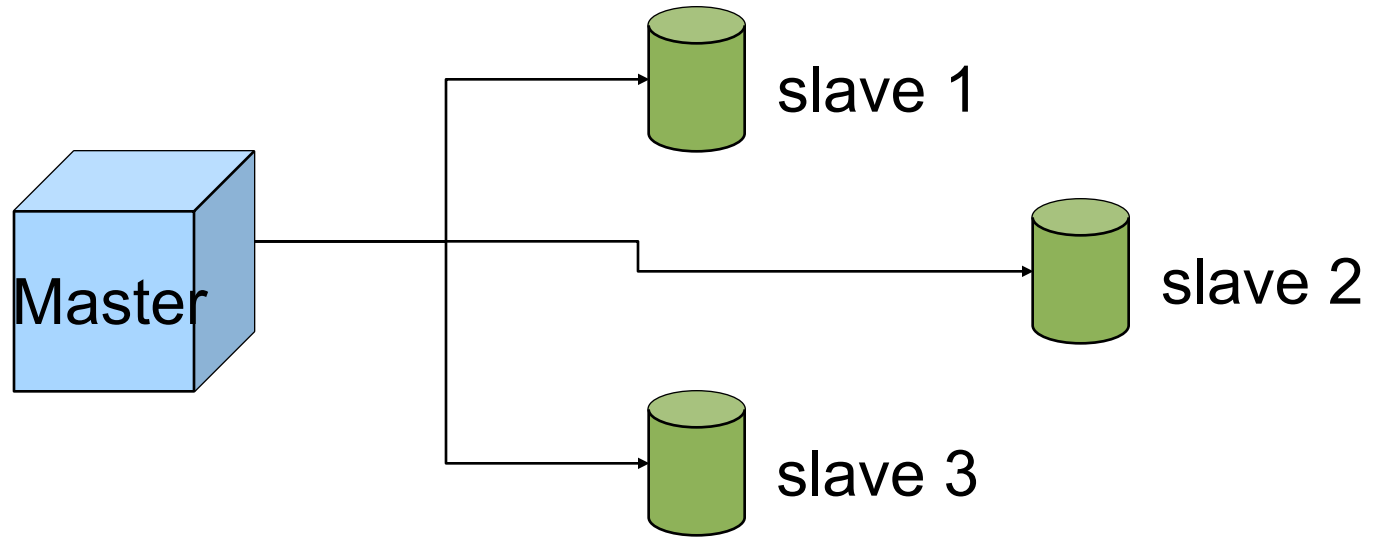
What not to expect



# Replication

# Replication

## Master/Slave





# Advantages



# Replication - Advantages

Flexible

Modest Requirements

Simple to setup



# Disadvantages



# Replication - Disadvantages

Slaves update sequentially

Slaves not guaranteed in sync

Read from Many; Write to One

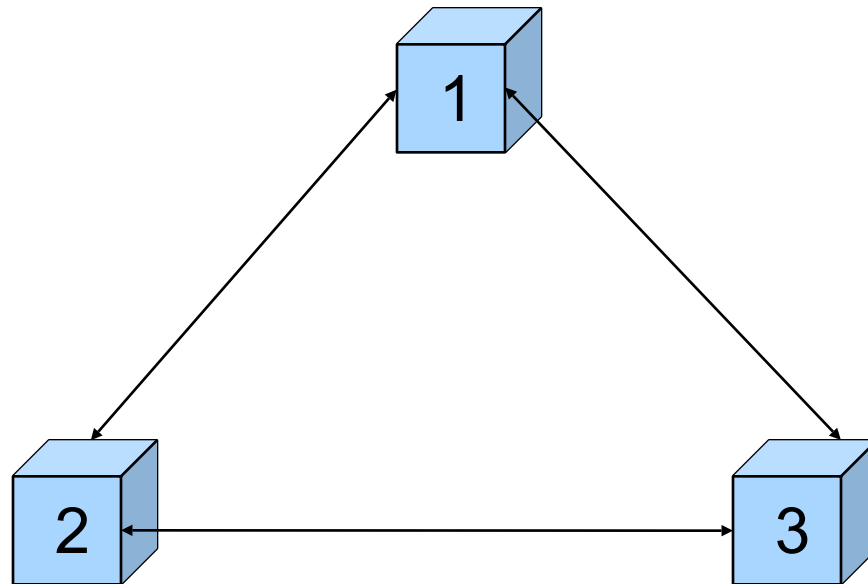
Optimized for reads



# Clustering

# Clustering

## Peer to Peer





# Clustering

## Nodes

Management node – handles configuration, logging

SQL Node – like regular MySQL server

Data Node – stores data

- Can run multiple Nodes on a physical machine



# Advantages



# Clustering - Advantages

Read from & Write to any SQL Node

- Data fully synchronized among data nodes

Good performance



# Disadvantages



# Clustering - Disadvantages

Only NDB tables shared

Needs a lot of RAM

Must use Carrier Grade version as of 5.1.24

Application must use transactions

More Complex





## Summary

Replication

<http://dev.mysql.com/doc/refman/5.1/en/replication.html>

Clustering

<http://dev.mysql.com/doc/refman/5.1/en/mysql-cluster.html>



# Integration



# Scenarios

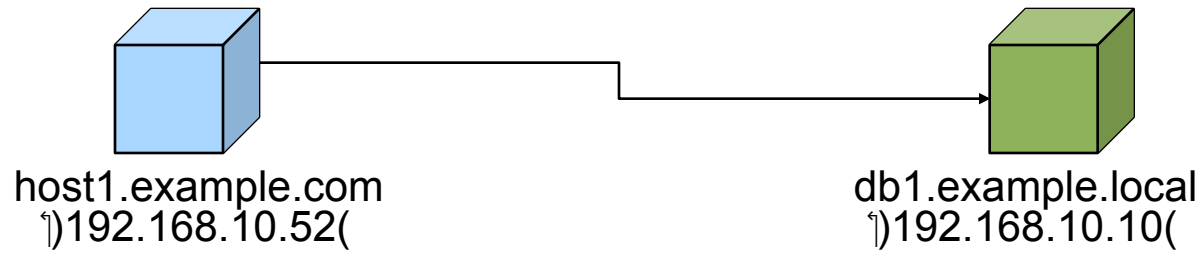
- 1) Single Remote Server
- 2) Group of Servers
- 3) Non Default port



# Scenario #1

Single Remote Server

# Scenario 1





# Scenario 1

Auto Configure:  
WHM: Remote MySQL Server setup



# **Scenario 1**

## Manual

1. Grant remote access to cPanel root account
2. Add remote host info to `/root/.my.cnf`
3. Configure PHPMyAdmin
4. Configure and migrate Horde
5. Configure and migrate Roundcube
6. Configure and migrate eximstats
7. Configure and migrate cPHulkd
8. Configure and migrate leechprotect
9. Configure and migrate mod\_security



## Scenario 1

Existing servers:

10. Migrate user databases





# Scenario 1 - Manual

1. On remote server - Grant remote access to cPanel root account

```
mysql> GRANT ALL PRIVILEGES ON *.* TO root@`192.168.10.52`  
IDENTIFIED BY 'password' WITH GRANT OPTION;
```

```
mysql> GRANT ALL PRIVILEGES ON *.* TO root@`host1.example.com`  
IDENTIFIED BY 'password' WITH GRANT OPTION;
```

Resolving

/etc/hosts



## Scenario 1 - Manual

2. On cPanel server - add remote host info to local /  
root/.my.cnf

```
[client]
user="root"
pass="mypassword"
host="db1.example.local"
[host=192.168.10.10]
```



# Scenario 1 - Manual

## 3. Configure PHPMyAdmin

```
/usr/local/cpanel/base/3rdparty/phpMyAdmin/config.inc.php
```

```
...
```

```
$i++;
```

```
$cfg['Servers'][$i]['host']           = 'db1.example.local';
```

```
$cfg['Servers'][$i]['port']          = '';
```

```
$cfg['Servers'][$i]['socket']        = '';
```

```
$cfg['Servers'][$i]['connect_type']  = 'tcp';
```

```
$cfg['Servers'][$i]['extension']     = 'mysql';
```

```
$cfg['Servers'][$i]['compress']     = FALSE;
```

```
...
```

## Scenario 1 - Manual

### 4. Configure and Migrate Horde

#### A) Configuration

```
/usr/local/cpanel/base/horde/config/conf.php:
```

```
$conf['sql']['hostspec'] = 'db1.example.local';
```

#### B) Create / Migrate Horde Database

i. Create (a): horde/scripts/sql/create.mysql.sql

i. Create (b): /usr/local/cpanel/bin/update-horde

ii. Move data



## **Scenario 1 - Manual**

### 5. Configure and Migrate Roundcube

A. Configuration

B. Create/Migrate database

i. `/usr/local/cpanel/bin/update-roundcube`

i. Copy data



## **Scenario 1 - Manual**

### 6. Configure and Migrate eximstats

A) Configuration

B) Create/Migrate database

i. `cpanel/etc/eximstats.sql`

ii. Dump/Restore or Migrate physical files



## **Scenario 1 - Manual**

### 7. Configure and Migrate cPHulkd

A) Configuration

B) Create/Migrate database

i. `cpanel/bin/hulkdsetup`

ii. Dump/Restore or Migrate physical files



## **Scenario 1 - Manual**

### 8. Configure and Migrate leechprotect

#### A) Configuration

```
/usr/local/cpanel/bin/updateleechprotect
```

#### B) Create/Migrate database

##### i. Copy Data





## **Scenario 1 - Manual**

9. Configure and Migrate mod\_security
  - A) Configuration
  - B) Create/Migrate database
    - i. Copy Data



## Scenario 1

10. Copy User Data



# Scenario #2

Group of Remote Servers



## **Scenario 2**

Use Proxy

Presents groups as a single server

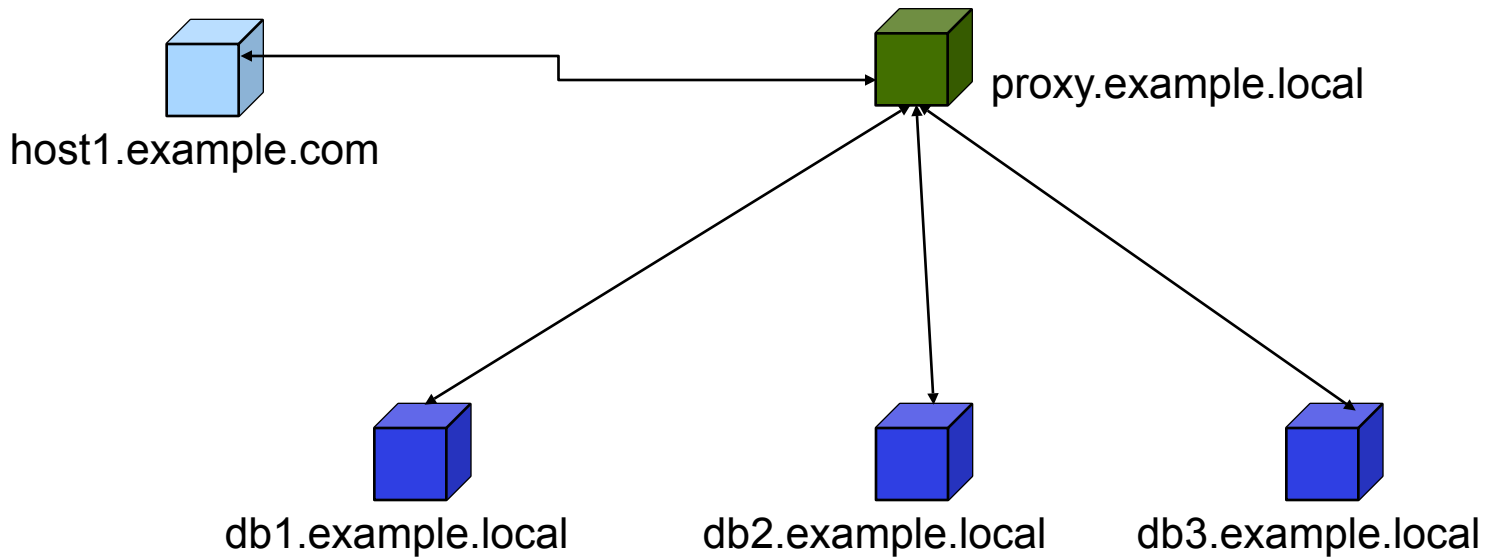
HA Proxy

<http://haproxy.1wt.eu/>

Load balancing

High Availability

## Scenario 2





## Scenario 2

/etc/haproxy.conf

```
listen
    mysql *:3306
    balance roundrobin
    server db1 192.168.128.90:3306
    server db2 192.168.128.91:3306
    server db3 192.168.128.92:3306
```



## Scenario 2

WHM Remote MySQL Server setup won't work

Perform 9 manual steps from scenario 1

Variance - /root/.my.cnf

```
host="proxy.example.local"
```

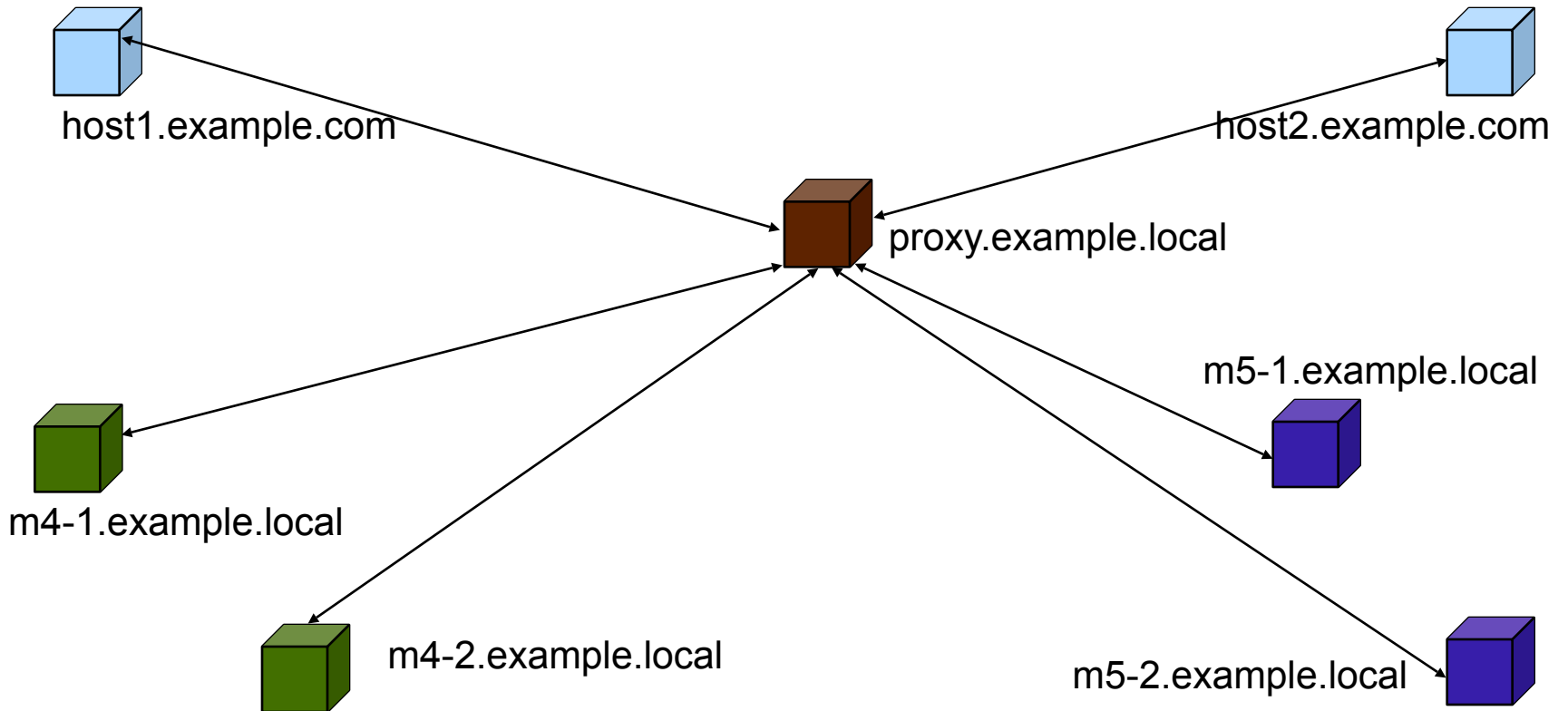


# Scenario #3

Non Default Port



# Scenario 3

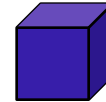
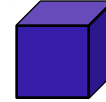


## Scenario 3

```
listen
mysql *:3306
balance roundrobin
server m5-1 172.16.0.10:3306
server m5-2 172.16.0.11:3306
```

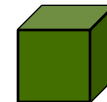
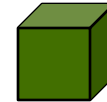
```
listen
mysql *:3316
balance roundrobin
server m4-1 172.16.0.100:3306
server m4-2 172.16.0.101:3306
```

m5-1.example.local



m5-2.example.local

m4-1.example.local



m4-2.example.local



## Scenario 3

Use 9 step manual method from Scenario 1

9 Variations

1. Customize cPanel - 2 items

a. Add port entry to my.cnf

/root/.my.cnf

/home/user/.my.cnf

```
[client]
```

```
port=3316
```



## Scenario 3

b. Add support for ports to

```
/usr/local/cpanel/Cpanel/Mysql.pm
```

```
sub new {
    my $self = { 'hasmysqlso' => 0, };

    eval {
        my $dbpass    = Cpanel::MysqlUtils::getmydbpass('root') || '';
        my $dbserver  = Cpanel::MysqlUtils::getmydbhost('root') || 'localhost';
        my $dbport    = 3316;

        $self->{'dbh'} = DBI->connect( "DBI:mysql:mysql:$dbserver:$dbport",
            'root', $dbpass );
        $self->{'hasmysqlso'} = 1;
    };

    if ($@) {
        print "<br /><b>Error while connecting to MySQL. Failover enacted.</b><br />\n";
        Carp::cluck $@;
        print "<br />";
    }

    $self->{'pwstring'} = $Cpanel::CONF{'usemysqloldpass'} ? 'old_password' :
        'password';
    $self->{'host'}      = $dbserver;
    return bless $self, __PACKAGE__;
}
```



## Scenario 3

### 3. Add support for ports to Horde

```
/usr/local/cpanelo/base/horde/config/conf.php
```

```
$conf['sql']['port'] = 3316
```



## Scenario 3

### 4. Add support for ports to PHPMyAdmin

```
/usr/local/cpanel/base/3rdparty/phpMyAdmin/config.inc.php  
$cfg['Servers'][$i]['port'] = '3316';
```



## Scenario 3

### 5. Add Port support to Roundcube

```
/usr/local/cpanel/base/3rdparty/roundcube/config/db.inc.php
```

```
$rcmail_config['db_dsnw'] = 'mysql://  
roundcube:My3ipj5jzYrTuUgo@localhost:3316/roundcube';
```





## Scenario 3

### 6. Customize Eximstats

```
/usr/local/cpanel/Cpanel/TailWatch/Eximstats.pm
```

```
"DBI:mysql:$self->{'internal_store'}{'dsn'}{'database'}:$self-  
>{'internal_store'}{'dsn'}{'dbhost'}:3316",
```



## Scenario 3

### 7. Add DB Port to LeechProtect

```
/usr/local/cpanel/bin/leechprotect
```

```
sub dbconnect {  
    $dbh = DBI->connect( "DBI:mysql:database=$database:host=$dbhost:  
3316", "$dbuser", "$dbpassword", {'RaiseError' => 1 } );
```



## Scenario 3

8. Add support for ports to cPHulkd

/usr/local/cpanel/Cpanel/Hulkd.pm:

```
eval { $dbh = DBI->connect( "DBI:mysql:$db:$host:3316", $user,  
    $pass ); };
```



## Scenario 3

### 9. Add support for ports to mod\_security

```
/usr/local/cpanel/whostmgr/docroot/cgi/addon_modsec.cgi
```

```
my $dbhost      = 'localhost';  
...  
my $dsn         = "DBI:mysql:${dbname}:${dbhost}:3316";
```



**Inform users**



# Caveats and things to come



# Existing Servers



## Known Caveats

- »» End user applications
- »» Single global server
- »» Single global port
- »» Measuring bandwidth
- »» Name collision
- »» Changes overwritten





## Things to Come

Improved support for clustering

Decoupling of username to database name

**cPanel 12**



Questions?