

Comprendre et optimiser la base de données WordPress

WP TECH 2014



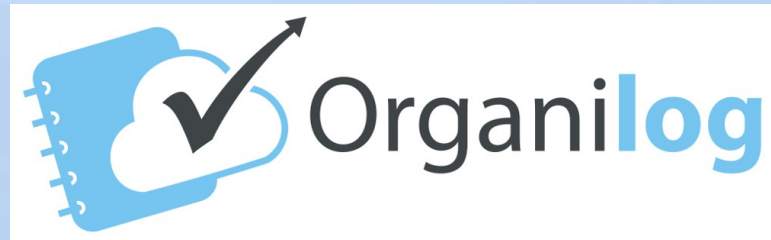
Qui suis-je ?



- Tony Archambeau
@TonyArchambeau



- Projets
sql.sh



Comprendre

Tables WordPress

Général

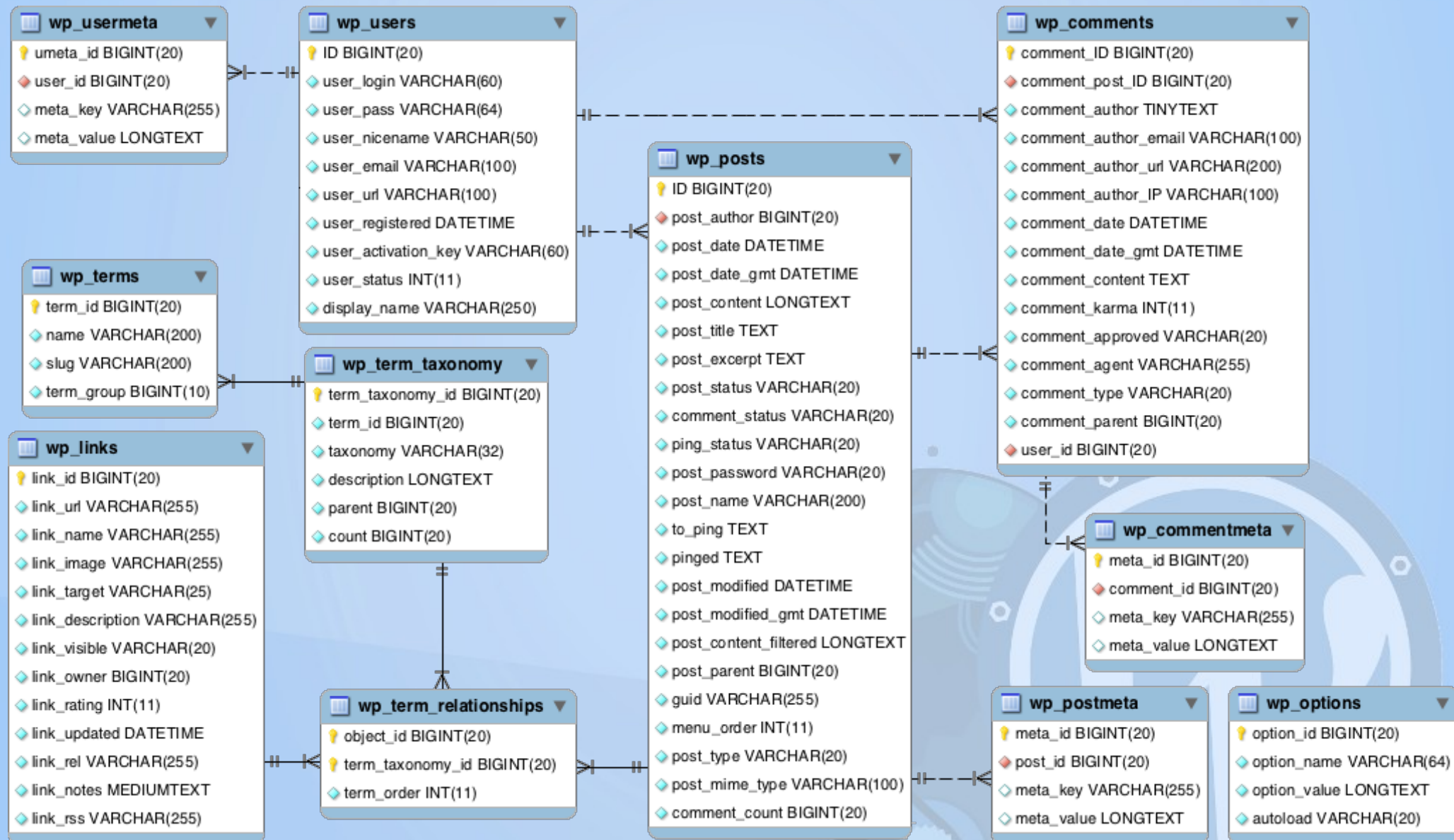
- wp_commentmeta
- wp_comments
- wp_links
- wp_options
- wp_postmeta
- wp_posts
- wp_terms
- wp_term_relationships
- wp_term_taxonomy
- wp_usermeta
- wp_users

Multi-site

- wp_blogs
- wp_blog_versions
- wp_registration_log
- wp_signups
- wp_site
- wp_sitecategories
- wp_sitemeta



Modèle Physique des Données



Comparaison

- **WordPress** : 11 tables
(+7 pour les multi-sites)
- **Drupal 7** : 76 tables
- **Joomla 3** : 68 tables
- **Typo3** : 60 tables
- **CMS Made Simple** : 54 tables
- **SPIP 3** : 32 tables



Structure « ordinaire »

Table « users »

ID	user_login	user_pass	user_firstname	user_lastname
1	marcel	...	Marcel	Martin
2	sandrine	...	Sandrine	Bernard
3	theo	...	Théo	Petit

- Ajout de données = ajout de colonnes

Structure avec WordPress

wp_users

ID	user_login	user_pass
1	marcel	...
2	sandrine	...
3	theo	...

wp_usermeta

umeta_id	user_id	meta_key	meta_value
1	1	firstname	Marcel
2	1	lastname	Martin
3	2	firstname	Sandrine
4	2	lastname	Bernard
5	3	firstname	Théo
6	3	lastname	Petit

- Ajout de données = ajout de lignes dans la table wp_usermeta

Serialize

wp_options

option_id	option_name	option_value	autoloaded
1	active_plugins	a:4:{i:0;s:38:"copyright-footer-rss/copyright-rss.php";i:1;s:33:"login-security/login-security.php";i:2;s:35:"wp-sitemap-page/wp-sitemap-page.php";i:3;s:17:"wp-smo/wp-smo.php";}	yes
2	widget_categories	a:2:{i:2;a:4:{s:5:"title";s:0:"";s:5:"count";i:0;s:12:"hierarchical";i:0;s:8:"dropdown";i:0;}s:12:"_multiwidget";i:1;}	yes
3	wp_user_roles	a:10:{s:13:"administrator";a:2:{s:4:"name";s:13:"Administrator";s:12:"capabilities";a:62:{s:13:"switch_themes";b:1;s:11:"edit_themes";b:1;s:16:"activate_plugins";b:1;s:12:"edit_plugins";b:1;s:10:"edit_users";b:1;s:10:"edit_files";b:1;s:14:"manage_options";b:1;s:17:"moderate_comments";b:1;s:17:".....	yes

Différences

Avantages

- Flexibilité
- Adaptabilité
- Prise en main
- Moins de tables

Inconvénients

- Performance
- Facilité de lecture
- Chercher dans les données sérialisées
- Connaître les clés existantes
- Clés manquantes = erreur ou vide volontaire
- Type de données

CRUD

- wp_options :
 - add_option(), get_option(), update_option() et delete_option()
- wp_usermeta :
 - add_user_meta(), get_user_meta(), update_user_meta() et delete_user_meta()
- wp_commentmeta :
 - add_comment_meta(), get_comment_meta(), update_comment_meta() et delete_comment_meta()
- wp_postmeta :
 - add_post_meta(), get_post_meta(), update_post_meta() et delete_post_meta()

Créer une nouvelle table ?

- Quelles données ?
 - Rentrent-elles dans les tables existantes ?
- WordPress forever ?
 - Migration ? Evolution ?



Créer une nouvelle table ?

- Comment les données seront lues ?
 - Serialize et index ne font pas bons amis



```
SELECT *
FROM wp_users u1
INNER JOIN wp_usermeta u2 ON u2.user_id = u1.ID
WHERE meta_key = 'role_specifique'
AND meta_value = '%partenaire%';
```



```
SELECT *
FROM wp_users u1
INNER JOIN wp_user_role_specifique u2
    ON u2.user_id = u1.ID
WHERE is_partenaire = 1;
```

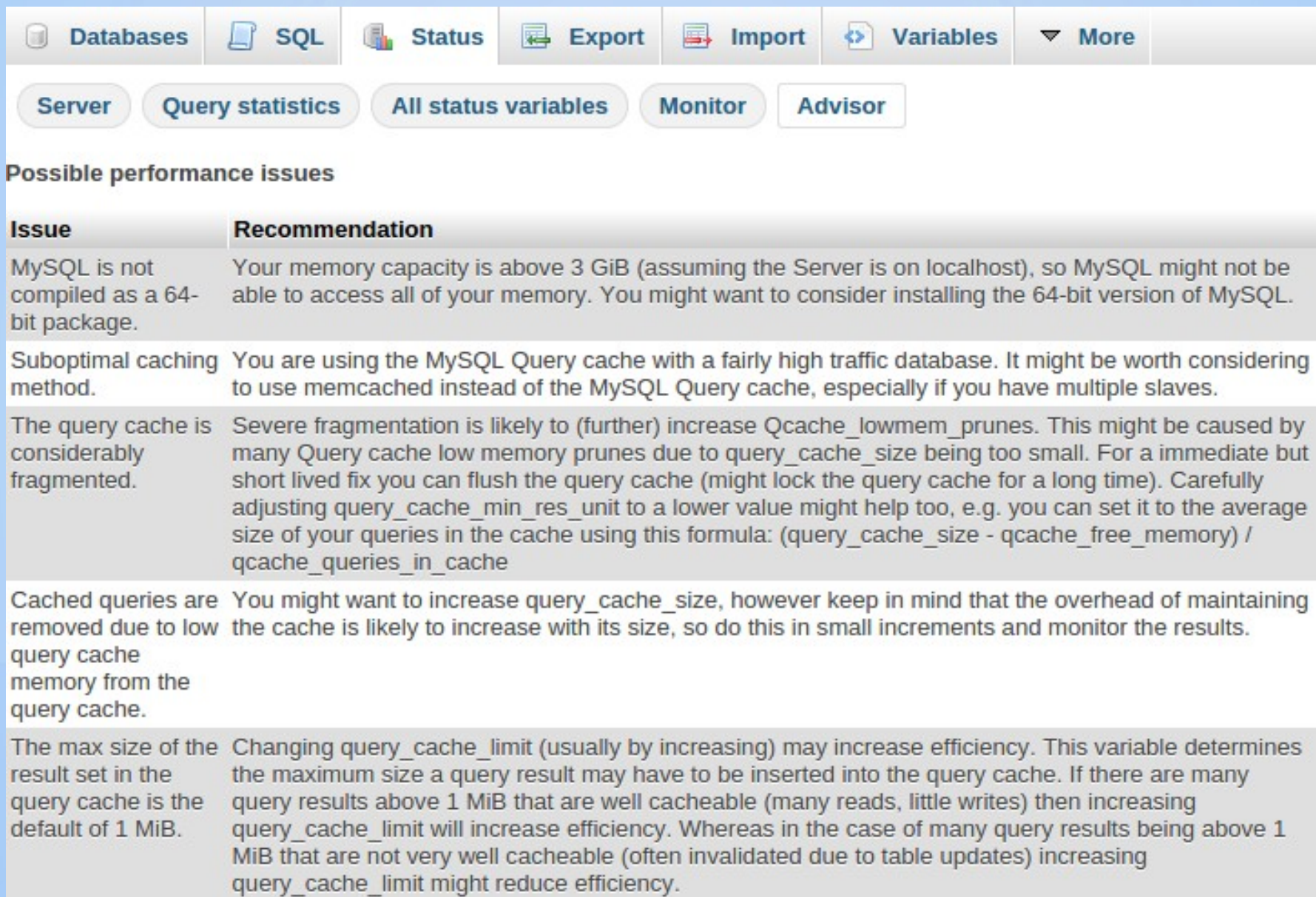
Optimiser

Hardware

- Plugin « HyperDB » :
 - Classe PHP basée sur le code de wordpress.com
 - Gestion de la réplication (master / slave)
 - Gestion d'un failover
 - Tables sur différentes bases de données
 - Statistiques avancées



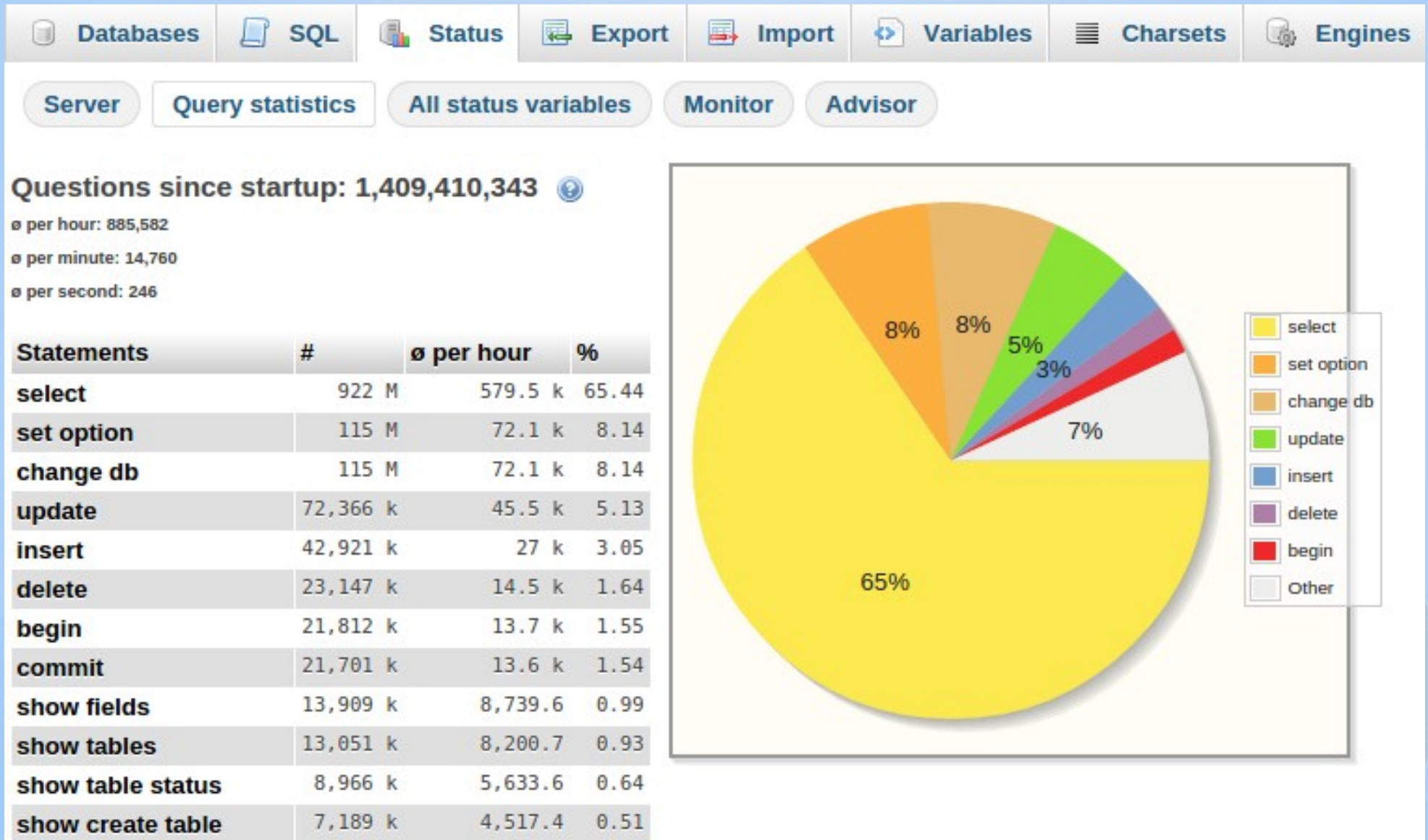
Software



The screenshot shows the MySQL Performance Schema interface. At the top, there is a navigation bar with tabs for Databases, SQL, Status, Export, Import, Variables, and More. Below this are buttons for Server, Query statistics, All status variables, Monitor, and Advisor. The main content area is titled "Possible performance issues" and contains a table with two columns: "Issue" and "Recommendation".

Issue	Recommendation
MySQL is not compiled as a 64-bit package.	Your memory capacity is above 3 GiB (assuming the Server is on localhost), so MySQL might not be able to access all of your memory. You might want to consider installing the 64-bit version of MySQL.
Suboptimal caching method.	You are using the MySQL Query cache with a fairly high traffic database. It might be worth considering to use memcached instead of the MySQL Query cache, especially if you have multiple slaves.
The query cache is considerably fragmented.	Severe fragmentation is likely to (further) increase Qcache_lowmem_prunes. This might be caused by many Query cache low memory prunes due to query_cache_size being too small. For a immediate but short lived fix you can flush the query cache (might lock the query cache for a long time). Carefully adjusting query_cache_min_res_unit to a lower value might help too, e.g. you can set it to the average size of your queries in the cache using this formula: $(\text{query_cache_size} - \text{qcache_free_memory}) / \text{qcache_queries_in_cache}$
Cached queries are removed due to low query cache memory from the query cache.	You might want to increase query_cache_size, however keep in mind that the overhead of maintaining the cache is likely to increase with its size, so do this in small increments and monitor the results.
The max size of the result set in the query cache is the default of 1 MiB.	Changing query_cache_limit (usually by increasing) may increase efficiency. This variable determines the maximum size a query result may have to be inserted into the query cache. If there are many query results above 1 MiB that are well cacheable (many reads, little writes) then increasing query_cache_limit will increase efficiency. Whereas in the case of many query results being above 1 MiB that are not very well cacheable (often invalidated due to table updates) increasing query_cache_limit might reduce efficiency.

Software



Software

- WordPress utilise le moteur de stockage par défaut
- MyISAM vs InnoDB
 - Attention avec le plugin « YARPP »
 - Analyser les statistiques d'utilisation
 - Moteur de stockage modifiable pour chaque table
 - Attention si réplication

	MyISAM	InnoDB
Beaucoup de lecture, peu d'écriture	x	
Recherche Full-Text (pour MySQL < 5.6)	x	
Autre		x

Structure des données

- Utiliser les tables WordPress
 - Penser aux préfixes pour les clés
- Créer ses propres tables si nécessaire



Requêtes

- Plugin « Debug Queries » lors des développements
 - Réduire le nombre de requêtes
 - Améliorer les performances (EXPLAIN)
- Transient
 - `set_transient()`, `get_transient()` et `delete_transient()`
- Activer Slow Query Log en production

Index

- Index du cœur WP bien pensés
- Se baser sur Slow Query Log



Purge

- Cache / Transient
- Révisions
- Données inutiles
 - Exemple : user agent des commentaires
- Plugins qui enregistrent trop d'information
 - Exemple : log avec le plugin « Redirection »
- Plugins désinstallés

Purge

- Plugins :
 - « **WP-Optimize** » : purger tout ce qui est possible
 - « **WP-Cleanup plugin** » : supprimer les révisions
 - « **Clean Options** » : supprimer des données de wp_options



Purge

- Supprimer les révisions :

```
DELETE a,b,c
FROM `wp_posts` a
LEFT JOIN `wp_term_relationships` b ON (a.ID = b.object_id)
LEFT JOIN `wp_postmeta` c ON (a.ID = c.post_id)
WHERE a.post_type = 'revision';
```

- Supprimer les commentaires de spams :

```
DELETE FROM `wp_comments`
WHERE `comment_approved` = 'spam';
```


Purge

- Supprimer les « meta » des commentaires supprimés :

```
DELETE FROM `wp_commentmeta`  
WHERE `comment_id` NOT IN (  
                                SELECT `comment_id`  
                                FROM `wp_comments` );
```

- Supprimer les « meta » des articles supprimés :

```
DELETE pm  
FROM `wp_postmeta` pm  
LEFT JOIN `wp_posts` wp ON wp.ID = pm.post_id  
WHERE wp.ID IS NULL;
```

Purge

- Supprimer les mots-clés non-utilisés :

```
DELETE FROM `wp_terms`  
WHERE `term_id` IN (  
    SELECT `term_id`  
    FROM `wp_term_taxonomy`  
    WHERE `count` = 0 );
```

```
DELETE FROM `wp_term_taxonomy`  
WHERE `term_id` NOT IN ( SELECT `term_id` FROM `wp_terms` );
```

```
DELETE FROM wp_term_relationships  
WHERE term_taxonomy_id not IN (  
    SELECT term_taxonomy_id  
    FROM wp_term_taxonomy );
```

Purge

- Supprimer le cache des flux :

```
DELETE FROM wp_options  
WHERE option_name LIKE ('_transient%_feed_%');
```

- Supprimer le user agent des commentaires :

```
UPDATE `wp_comments`  
SET `comment_agent` = '';
```

- Supprimer les entrées liées au plugin Akismet :

```
DELETE FROM `wp_commentmeta`  
WHERE `meta_key` LIKE '%akismet%';
```

Après la purge : OPTIMIZE

```
OPTIMIZE TABLE `wp_commentmeta`;  
OPTIMIZE TABLE `wp_comments`;  
OPTIMIZE TABLE `wp_links`;  
OPTIMIZE TABLE `wp_options`;  
OPTIMIZE TABLE `wp_postmeta`;  
OPTIMIZE TABLE `wp_posts`;  
OPTIMIZE TABLE `wp_terms`;  
OPTIMIZE TABLE `wp_term_relationships`;  
OPTIMIZE TABLE `wp_term_taxonomy`;  
OPTIMIZE TABLE `wp_usermeta`;  
OPTIMIZE TABLE `wp_users`;
```

Prévenir le gonflement des tables

- Désactiver les futures révisions :

```
define('WP_POST_REVISIONS', false );
```

- Limiter le nombre de révisions à 5 :

```
define('WP_POST_REVISIONS', 5);
```

- Modifier l'intervalle des sauvegardes automatiques (par défaut 1 minutes) :

```
define('AUTOSAVE_INTERVAL', 600 );
```

Merci de votre attention

