PostgreSQL + PHP

Murat Kabilov

Pg clients

- Web: PHP на app’ах
- PHP cron-скрипты
- PGQ демоны
- другие DB сервера (e.g. via plproxy)
- внутренние сервисы (e.g. мониторинг)

PHP

- вложенные транзакции (via savepoints)
- комплексные типы: pg arrays, hstore, json
- registerAfterCommit
- «ленивые» коннекты, транзакции
- билд редкоизменяемых справочников в php массивы

PHP

```php
$db = App::db();
$db->beginTransaction();

$db->registerAfterCommit(
    function () use ($user) {
        return Admin_Event::add(
            $this->user->getId(),
            Admin_ObjectType::USER,
            $user->id,
            'Legal user is deconverted back to a private person'
        );
    }
);

$user->deconvertLegal();
$db->commit();
```

PDO

- PDO::ATTR_EMULATE_PREPARES -> true

```
2014-10-14 06:28:11 MSK LOG:  duration: 0.777 ms  parse pdo_stmt_00000001: select * from my_table
2014-10-14 06:28:11 MSK LOG:  duration: 0.581 ms  bind pdo_stmt_00000001: select * from my_table
2014-10-14 06:28:11 MSK LOG:  duration: 0.516 ms  execute pdo_stmt_00000001: select * from my_table
2014-10-14 06:28:11 MSK LOG:  duration: 0.094 ms  statement: DEALLOCATE pdo_stmt_00000001
```

- PDOStatement::getColumnMeta

```
2014-10-14 06:33:33 MSK LOG:  duration: 1.206 ms  statement: select * from my_table
2014-10-14 06:33:33 MSK LOG:  duration: 1.394 ms  statement: SELECT TYPNAME FROM PG_TYPE WHERE OID=23
2014-10-14 06:33:33 MSK LOG:  duration: 0.142 ms  statement: SELECT TYPNAME FROM PG_TYPE WHERE OID=25
2014-10-14 06:33:33 MSK LOG:  duration: 0.313 ms  statement: SELECT TYPNAME FROM PG_TYPE WHERE OID=1043
2014-10-14 06:33:33 MSK LOG:  duration: 0.117 ms  statement: SELECT TYPNAME FROM PG_TYPE WHERE OID=1007
2014-10-14 06:33:33 MSK LOG:  duration: 0.112 ms  statement: SELECT TYPNAME FROM PG_TYPE WHERE OID=23
2014-10-14 06:33:33 MSK LOG:  duration: 0.105 ms  statement: SELECT TYPNAME FROM PG_TYPE WHERE OID=23
2014-10-14 06:33:33 MSK LOG:  duration: 0.106 ms  statement: SELECT TYPNAME FROM PG_TYPE WHERE OID=23
```

https://bugs.php.net/bug.php?id=64542 https://bugs.php.net/bug.php?id=62498

pgbouncer

- `pool_mode = **transaction**`
- `avito = host=localhost pool_size=10 datestyle='ISO,DMY' connect_query='**select init_prepared_statements();**'`

Prepared statements

было:

```
$res = App::db()->exec(
    "select
        u.user_id as id,
        ...
        um.baseline_matrix_id,
        um.communication_type_id,
        um.discount_end_time,
        um.discount_value
    from
        users u
    left join shops s on (s.user_id = u.user_id)
    left join users_pro p on (p.user_id = u.user_id and p.finish_time > now())
    left join users_autoupload a on (a.user_id = u.user_id and a.finish_time > now())
    left join user_company_details c on (c.user_id = u.user_id)
    left join services.ab_user_matrix um on um.user_id = u.user_id
    where
        u.user_id = %d",
    $userId
);
```

Prepared statements

стало:

```
$res = App::db()->exec("execute x_user_get_by_id(%d)", $userId);
```

Prepared statements

init_prepared_statements():

```
prepare x_user_get_by_id (integer) as
    select
        u.user_id as id,
        -- ...
        um.matrix_id,
        um.baseline_matrix_id,
        um.communication_type_id,
        um.discount_end_time,
        um.discount_value
    from
        users u
    left join shops s on (s.user_id = u.user_id)
    left join users_pro p on (p.user_id = u.user_id and p.finish_time > now())
    left join users_autoupload a on (a.user_id = u.user_id and a.finish_time > now())
    left join user_company_details c on (c.user_id = u.user_id)
    left join services.ab_user_matrix um on um.user_id = u.user_id
    where
        u.user_id = $1;
```

Prepared statements

- не требующие сложной логики запросы
- частовыполняемые
- снизили CPU за их счет

Хранимые процедуры

- data locality
- много бизнес логики на стороне БД
- программный интерфейс процедур
- обработка исключений
- версионирование

Хранимые процедуры

- большие объемы возвращаемых данных
- «хинты» (e.g. set local enable_indexscan = false;)
- code/naming style
- отладка.

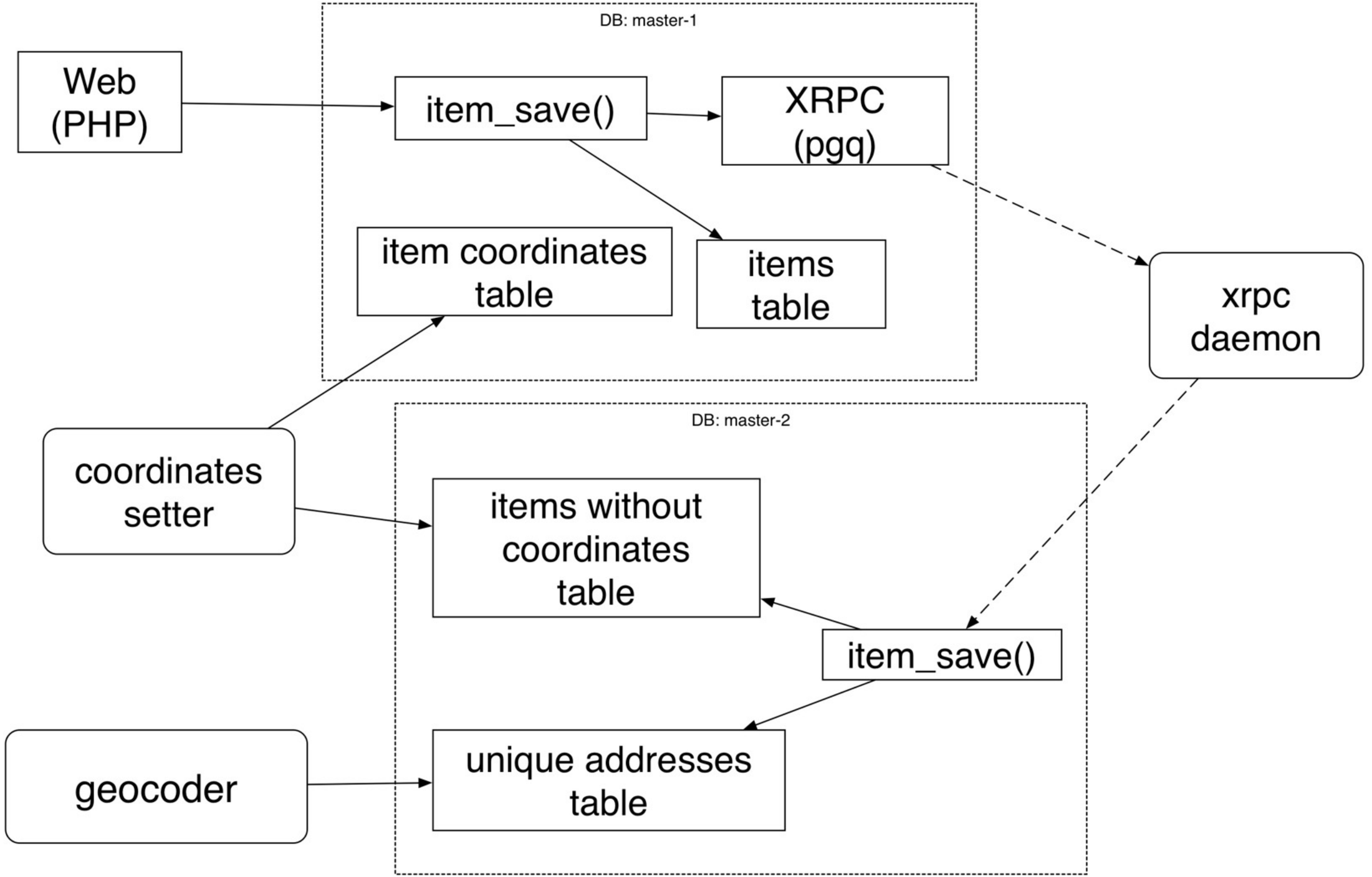
Распределенное хранилище

- храним письма
- через pl/proxy.
- хорошо масштабируется
- select hashtext('test');
  8.3: 233914345
  8.4: 1771415073
  «Adopt a faster algorithm for hash functions (Kenneth Marshall, based on work of Bob Jenkins) Many of the built-in hash functions now deliver different results on little-endian and big-endian platforms.» http://www.postgresql.org/docs/8.4/static/release-8-4.html

  9.3: 1771415073

RPC

- на базе pgq (персистентный)
- написан на питоне (оглядывались на londiste)
- пример — геокодинг


DB: master-1
Web
(PHP)
item_save()
XRPC
(pgq)
item coordinates
table
items
table
xrpc
daemon
DB: master-2
coordinates
setter
items without
coordinates
table
item_save()
geocoder
unique addresses
table

Спасибо!

mkabilov@avito.ru