FORCIA

Extensions on PostgreSQL

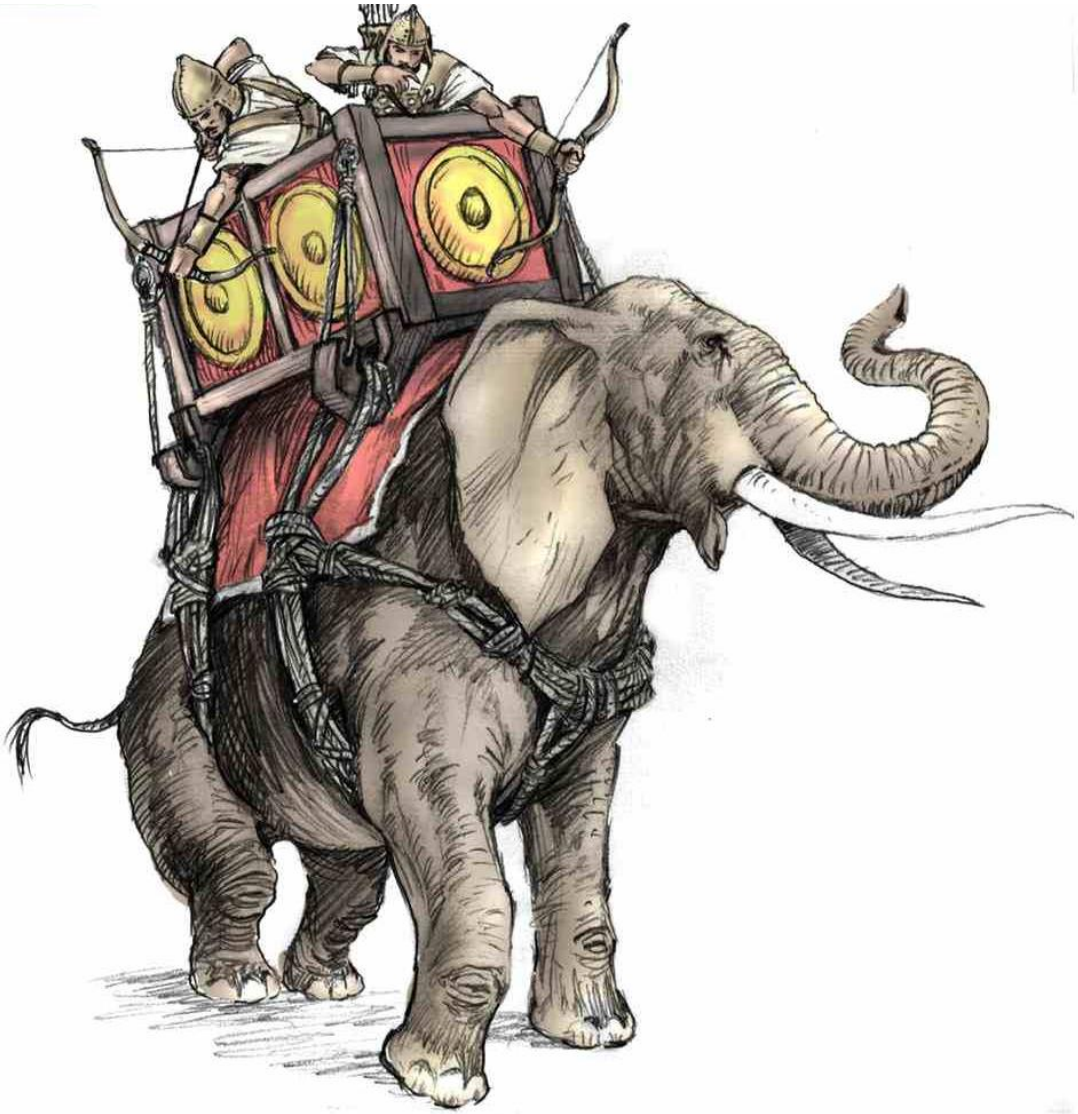
Ever and Will

Hitoshi Harada @ FORCIA, Inc.

©2011 FORCIA, Inc.

Extensions on PostgreSQL

FORCIA



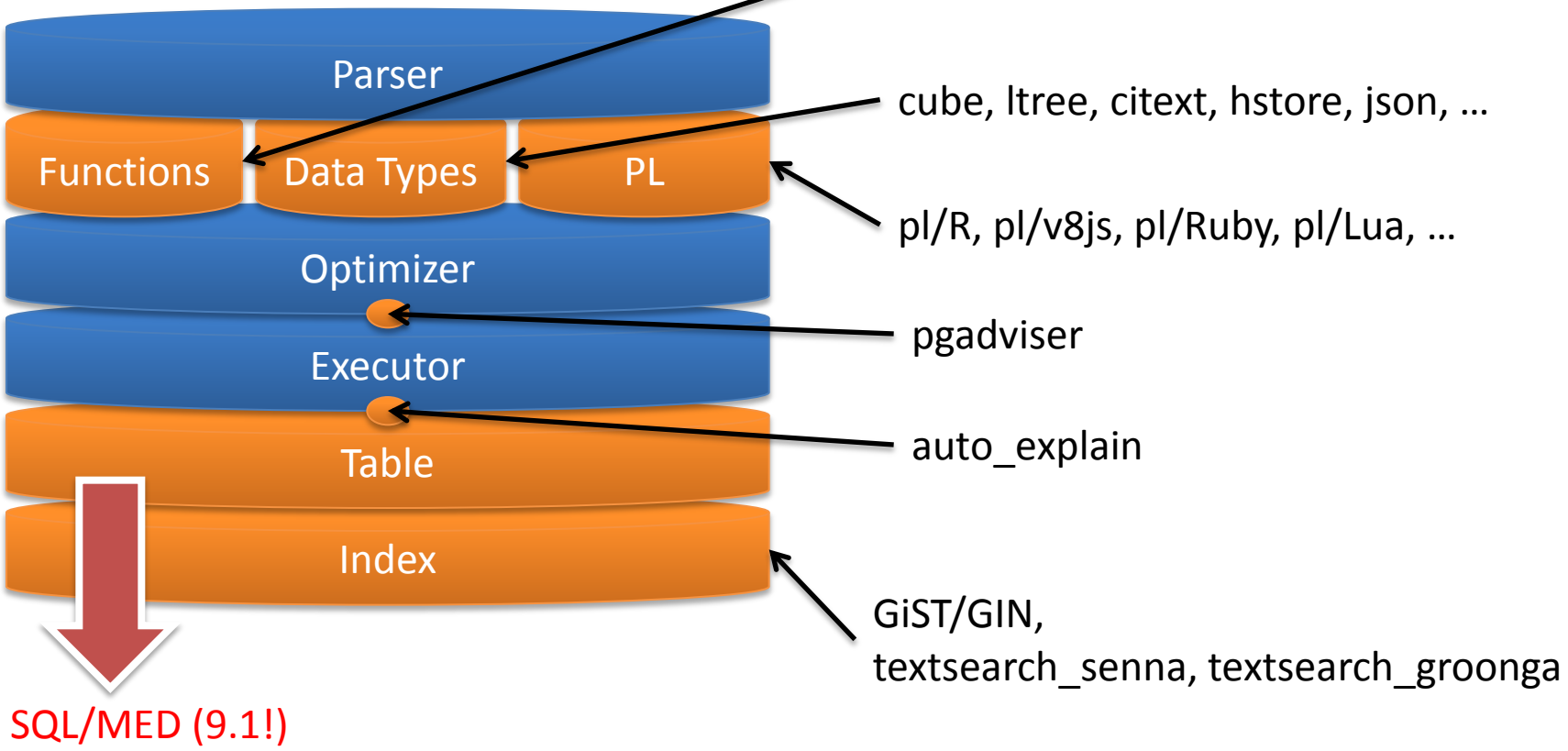
©2011 FORCIA, Inc.

Outline

- Extensibility of PostgreSQL
- Core extensions
- Common extensions
- CREATE EXTENSION
- PGXN, a.k.a. “PostgreSQL Extension Network”

©2011 FORCIA, Inc.

Extensibility of PostgreSQL



c.f. external tools: pgpool, slony, pg_bulkload…

©2011 FORCIA, Inc.

Core Extensions

- intagg - int_array_aggregate()
- intarray - sort(), uniq()
- hstore - ‘a=>1, b=>2’->’a’
- citext - case insensitive text
- cube - (1.5, 2.0, 0.5)
- pgcrypto - digest() -- md5, sha1
- dblink - dblink_exec(connstr, sql)
- earthdistance - earth()
- …and more

©2011 FORCIA, Inc.

Common Extensions

- PostGIS
- Pgmemchache - memcache_[get|add|set]()
- SkyTools
- OracleFCE - nvl(), reverse(), etc.
- pgSphere
- pgTAP - ok(val, expected)
- textsearch_senna
- json
- PL & FDW

©2011 FORCIA, Inc.

PLs…

- PL/perl
- PL/python
- PL/tcl
- PL/ruby
- PL/php
- PL/java
- PL/R
- PL/lua
- PL/lolcode
- PL/sh
- PL/scheme
- PL/proxy
- PL/js
- PL/v8js
- PL/whitespace – coming soon!
- PL/brainfuck

```
CREATE FUNCTION bf_add(int, int) RETURNS int AS
    $$ >>>>[-<<<<+>>>>] $$
LANGUAGE brainfuck;
SELECT * FROM bf_add(3, 5); -- 8!
```

©2011 FORCIA, Inc.

FDWs (Foreign Data Wrapper)

- file_fdw
- postgresql_fdw
- twitter_fdw

```
SELECT from_user, substr(text, 1, 20), age(current_timestamp, created_at)
FROM twitter_search WHERE q = '#iphone' ;
 from_user       |        substr        |      age
-----------------+----------------------+---------------
 anndreilla      | Grab @Scrambleface I | 09:02:19.76668
 tebow904        | @sinner_saved_ u ret | 09:02:30.76668
 iphomania_de    | Cydia-Tweak: Pull to | 09:02:31.76668
 developerworks  | The #Social #Network | 09:02:34.76668
 appstorewire    | AppAdvice: Project:  | 09:02:42.76668
 appstorewire    | AppAdvice: Project:  | 09:02:42.76668
 appstorewire    | AppAdvice: A Chance  | 09:02:42.76668
 appstorewire    | AppAdvice: A Chance  | 09:02:42.76668
 appstorewire    | AppAdvice: Infinity  | 09:02:43.76668
 appstorewire    | AppAdvice: Infinity  | 09:02:43.76668
 ChrisCompo      | RT @thedroidguy: #iP | 09:02:46.76668
 DhilipSiva_Aple | #ipad #mac #iphone i | 09:02:48.76668
 brandnewapps    | New iPmart app: iNet | 09:02:48.76668
 brandnewapps    | New iPmart app: A Ne | 09:02:49.76668
 muenchner_kindl | Hard Rock Mobile     | 09:02:59.76668
(15 rows)
```

©2011 FORCIA, Inc.

CREATE EXTENSION

FORCIA

- ~~Proposed for 9.1~~ Committed for 9.1

```
$ psql -d dbname -f /path/to/contrib/hstore.sql
```

```
db=# CREATE EXTENSION hstore;
CREATE EXTENSION
db1=# SELECT 'a=>1, b=>2'::hstore;
        hstore
----------------------
 "a"=>"1", "b"=>"2"
(1 row)

db1=# DROP EXTENSION hstore;
DROP EXTENSION
```

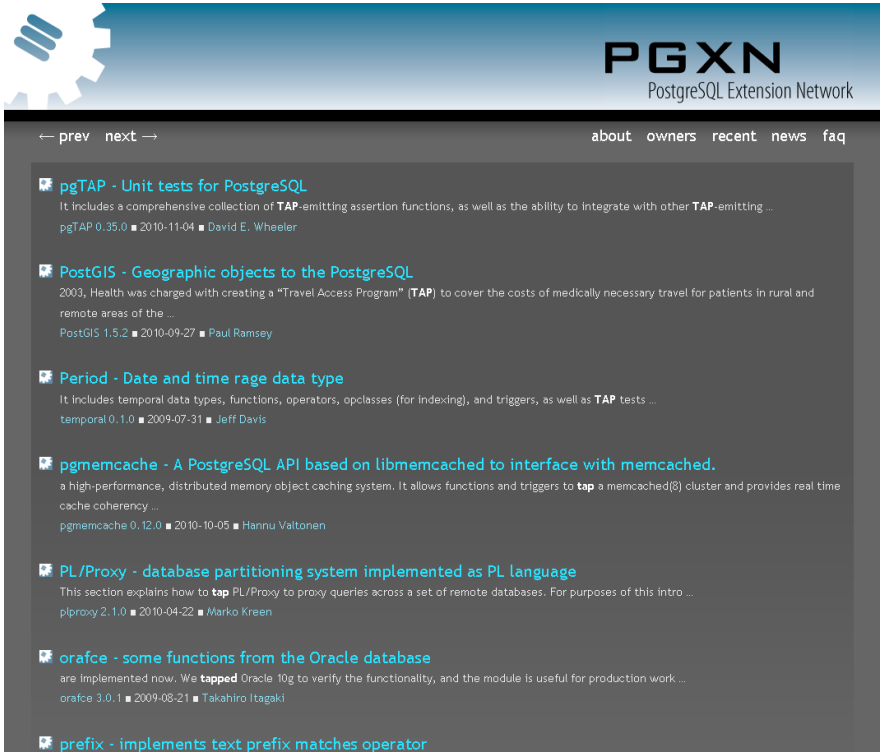
- EASY pg_dump/pg_restore, and DROP. Yay!

©2011 FORCIA, Inc.

PGXN , a.k.a. “PostgreSQL Extension Network”

- By David E. Wheeler

- Inspired by CPAN
  - [user@host] $ pgxn install hstore
- Under development…



©2011 FORCIA, Inc.

Try to make YOUR extensions!

```
CREATE OR REPLACE FUNCTION is_timezone(
  tz CITEXT
) RETURNS BOOLEAN LANGUAGE plpgsql STABLE AS $$
BEGIN
  PERFORM NOW() AT TIME ZONE tz;
  RETURN TRUE;
EXCEPTION WHEN invalid_parameter_value THEN
  RETURN FALSE;
END;
$$;
CREATE DOMAIN timezone AS CITEXT
  CHECK ( is_timezone( VALUE ) );
```

http://blog.pgxn.org/post/1673708474/slides-manager-work

©2011 FORCIA, Inc.

Conclusion

- You can use rich extensions already.
- You can make and upload your extension.
- PostgreSQL is an application platform.

©2011 FORCIA, Inc.