



PostgreSQL foreign data wrappers

Ants Aasma

www.cybertec.at



FDW

- ▶ SQL/MED implementation
- ▶ Similar to Oracle database link, but for more stuff
- ▶ Extensible with plugins

- ▶ You define a wrapper, server, user mapping and tables.
- ▶ Creates metadata in PostgreSQL
- ▶ Query planner calls the plugging to figure out capability.
- ▶ Supports both reads and writes
- ▶ Transactions work where possible
- ▶ Queries can delegate:
 - ▶ WHERE predicates
 - ▶ Joins
 - ▶ More to come

Examples



- ▶ PostgreSQL FDW
- ▶ oracle_fdw

Other databases



- ▶ MySQL, Informix, Firebird, SQL Server, SQLite
- ▶ Cassandra, CouchDB, Kyoto, MongoDB, Neo4j, Redis, Riak

Less databasey data sources



- ▶ CSV, JSON, pg_dump, tar, XML, LDAP, IMAP
- ▶ Hadoop, Elastic Search, Hive
- ▶ Twitter, Facebook, Google, Google Spreadsheets

Useful additional features



- ▶ cstore
- ▶ log files

- ▶ Multicorn allows you to implement additional FDWs using Python

Using it

- ▶ Install extension (if needed)
- ▶ Create FDW extension:

```
CREATE EXTENSION postgres_fdw;
```

- ▶ Create a server:

```
CREATE SERVER other_host  
FOREIGN DATA WRAPPER postgres_fdw  
OPTIONS (host '127.0.0.1', port '5433', dbname 'test');
```

- ▶ Create user mapping:

```
CREATE USER MAPPING FOR test  
SERVER other_host  
OPTIONS (user 'test', password 'helloworld');
```

```
▶ CREATE FOREIGN TABLE foreign_table (  
    id integer NOT NULL,  
    data text  
)  
    SERVER other_host  
    OPTIONS (table_name 'sample_table');
```

IMPORT FOREIGN SCHEMA



- ▶ Starting from PostgreSQL 9.5
- ▶ `IMPORT FOREIGN SCHEMA` schemaname
`FROM SERVER` other_host
`INTO` local_schema;