

SQL, Extending, and What's Unique About PostgreSQL

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Citus Data

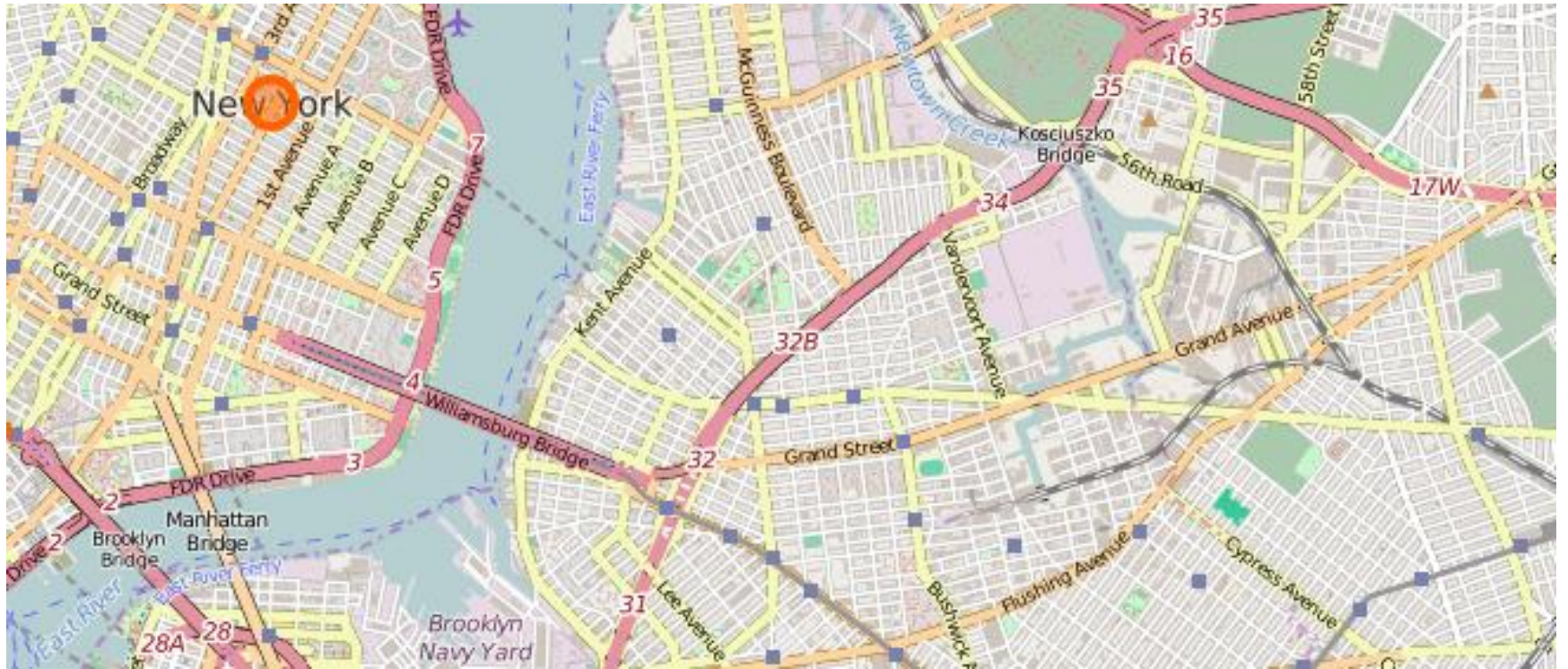
What is a Postgres Extension?

- An extension is a piece of software that adds functionality to PostgreSQL. Each extension bundles related objects together.
- PostgreSQL 9.1 started providing official APIs to override or extend any database module's behavior.
- “CREATE EXTENSION citus;” dynamically loads these objects into PostgreSQL's address space.

Why Provide Extensions?

- Every decade brings new workloads for databases.
- PostgreSQL has been “forked” by dozens of commercial databases. When you fork, your database diverges from the community.
- Don’t fork the database. Grow with it!

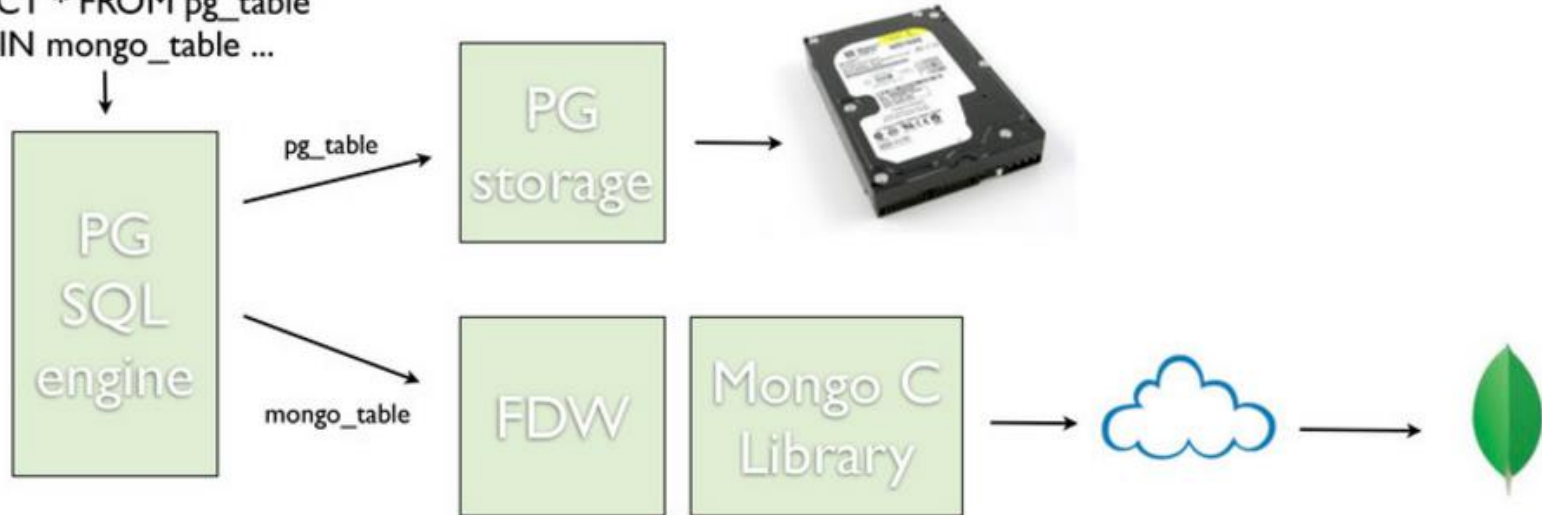
Example: PostGIS



Example: Foreign Data Wrappers

- Foreign Wrappers enable accessing any type of data

```
SELECT * FROM pg_table  
JOIN mongo_table ...
```



Example: Citus

- Citus extends PostgreSQL (not a fork) to provide it with distributed functionality.
- Citus scales out PostgreSQL across machines using sharding and replication. Its query engine parallelizes SQL queries across many servers.
- Example Citus cluster ingests 100+ TBs each day, and runs in production on 60+ extended PG instances.

Conclusion

- PostgreSQL 9.5 enables you to extend *any* (data types, aggregates, indexes, wal logs, DDL commands, planner, etc.) database module.
- The monolithic SQL database could be dying. If so, long live Postgres!