



Perquè vols canviar, i canvies.

PostgreSQL: present and near future



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**1/Less obvious than it
should**

1.1/SQL sucks! Let's use something new!

- SQL is much more than a language to access your database: SQL allows you to forget about which is the most efficient way to obtain the data you need in a large dataset.
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1.2/Transactions don't look the same everywhere

- We usually compare PostgreSQL to Oracle as if that was the opponent to beat, but try to CREATE TABLE inside a transaction in Oracle...
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1.3/And much, much more

- Locking
 - Indexes
 - Storage optimized for lots of datatypes
 - ...
-

1.4/...including an encredible (and profitable) community

- EnterpriseDB – Robert Haas – Helped Amazon build RDS
 - 2ndQuadrant – Simon Riggs – Developers around the world working on key core features
 - Citus – Andres Freund – CitusDB: clustered PostgreSQL
 - PostgreSQL Professional – Oleg Bartunov – Full Text Search
 - Nippon Telegraph & Telephone...
 - Tom Lane
 - ...
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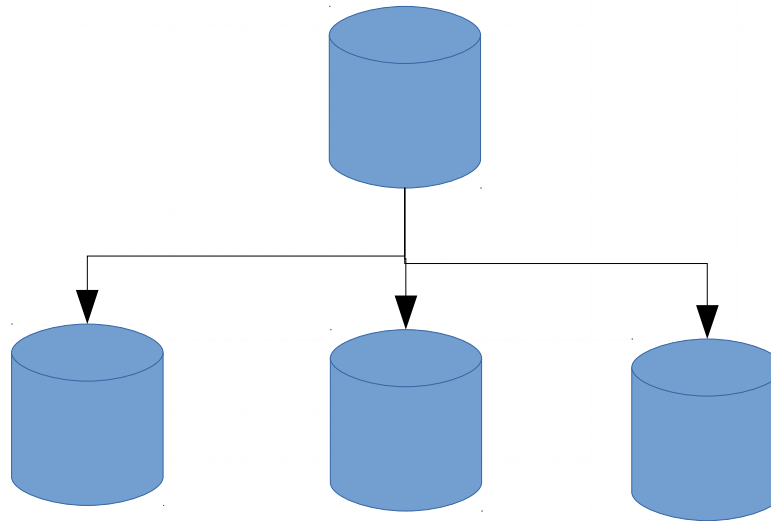
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2/What's new in 9.6

2.1/Scalability

- A lot of work has gone in recent versions to make PostgreSQL highly scalable (vertically) by optimizing locked codeblocks.
 - Multiple standby servers
 - postgres_fdw
-

2.1.1/Multiple standby servers – replication



2.2/Parallel queries

- Previously only one processor/core could be used per query. Now it can be used in **sequential scans, joins** and **aggregates**.
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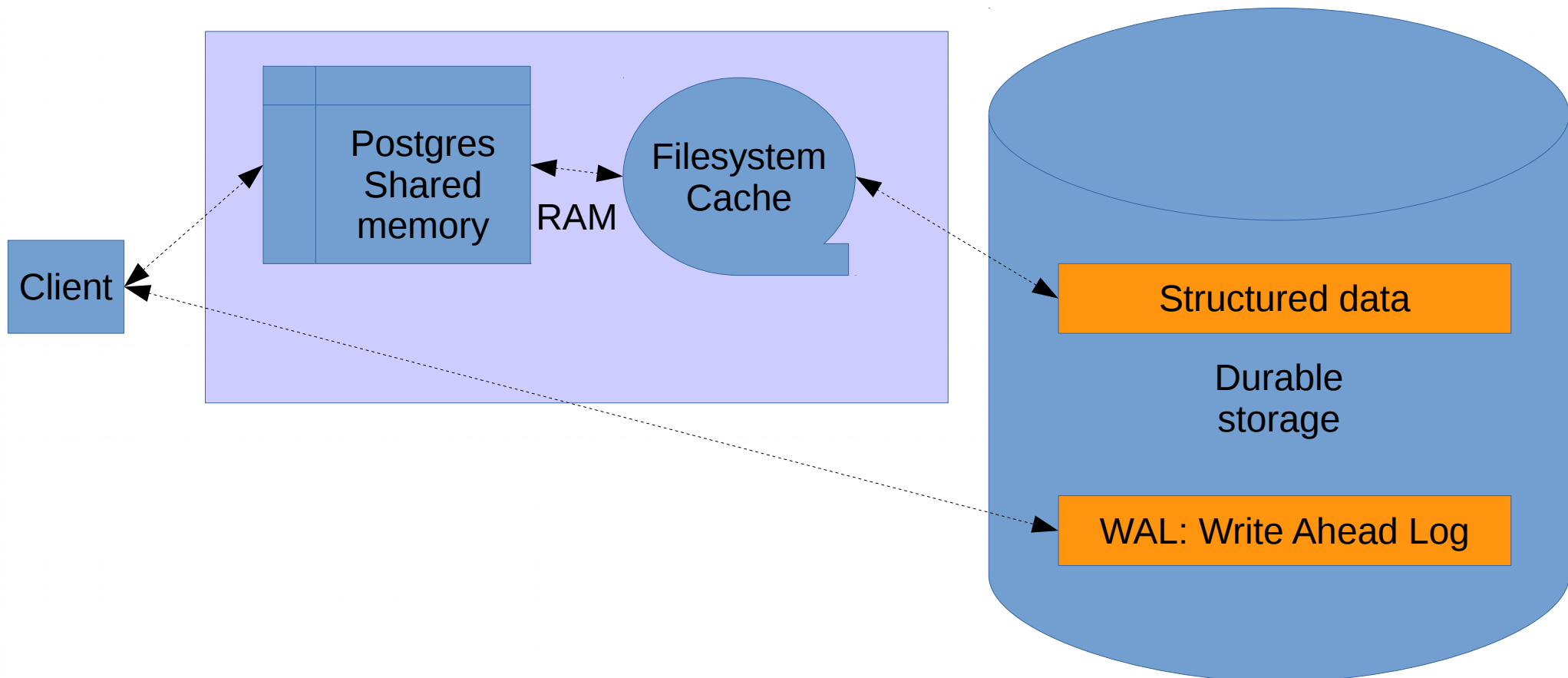
2.3/SQL completeness

- CUBE, ROLLUP, GROUPING SETS
 - WITH & WITH RECURSIVE
 - MATERIALIZED VIEWS
 - Full text search
 - Row-level security
 - JSONB
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2.4/Durability

- Checksums
 - WAL
 - synchronous_comit = on/off
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2.4.1/Durability - Architecture





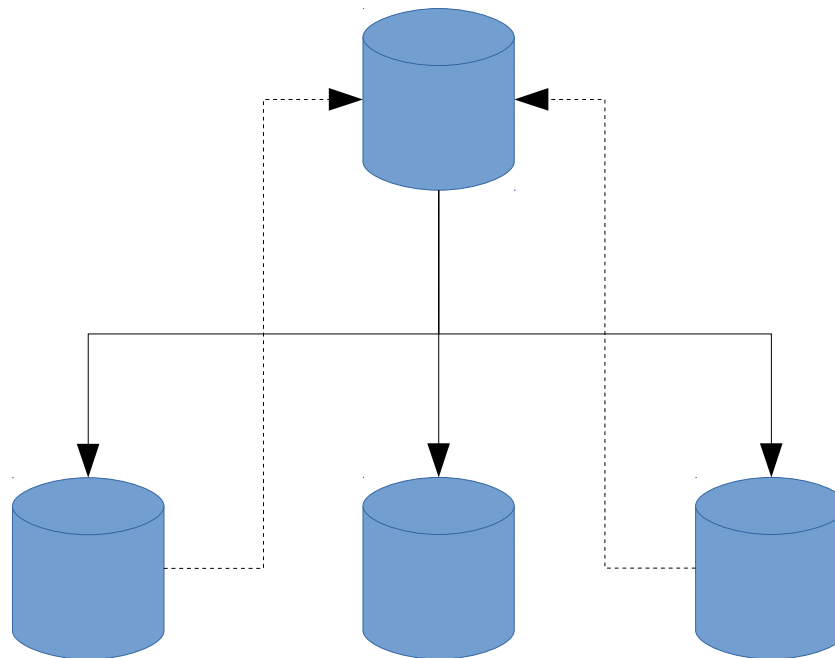
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**3/What's the community
working on for v10?**

3.1/Scalability

- Even more scalability work (large number of cores and clients required for testing)
 - Quorum commit
 - Logical replication – pglogical in core
 - Pushing more stuff into postgres_fdw
-

3.1.1/Quorum commit



3.2/SQL completeness

- AUTONOMOUS TRANSACTIONS
-

3.3/Parallel queries

- CREATE INDEX – sorting
 - Bitmap scans
 - Index scans
 - Asynchronous execution
-

3.4/Durability

- Amcheck – tool to check the correctness of data
 - pg_heal
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3.5/Performance

- Sorting improvements
 - Constant evaluation improvements
 - Fetching several tuples "at once"
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4/What should Tryton be using but isn't and what can we learn?

4.1/Texts and searching

- Unaccent
 - Full text search
 - Trigram indexes for LIKE searches
-

4.2/Better indexes

- How do we create indexes which are not re-done on update?

4.3/To learn: tools to know what's going on

- PostgreSQL has lots of tools to try to understand what's going on.



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