

The Maze of Postgres Options

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This presentation explains the many decisions needed to deploy Postgres successfully.

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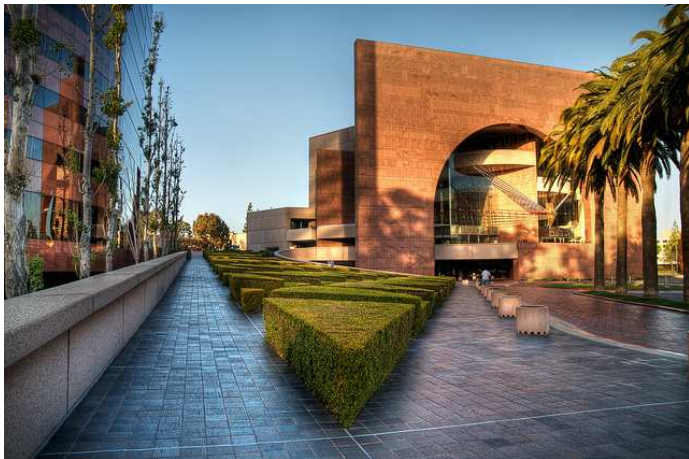


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Outline

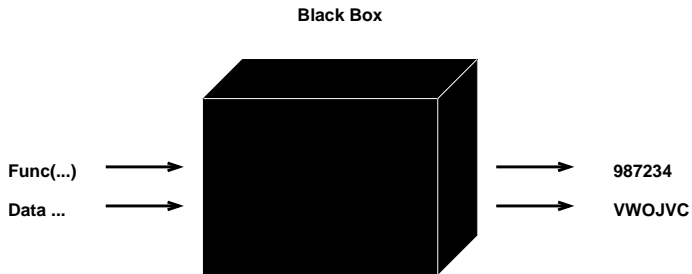
1. Open source's many options
2. Database server
3. Extensions
4. Deployment utilities
5. Monitoring options
6. Do you need a vendor?
7. Conclusion

1. Open Source's Many Options



https://www.flickr.com/photos/zoso_tc/

Closed-Source Software

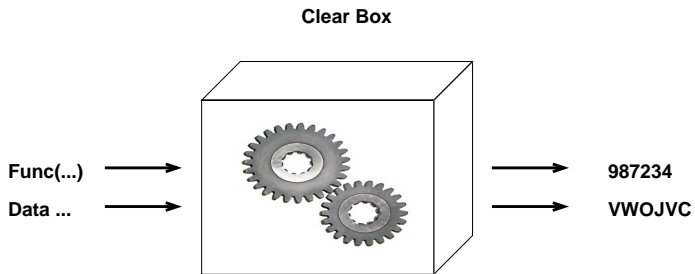


Support of Close-Source Software

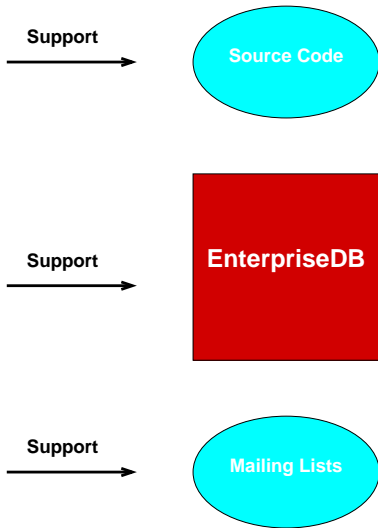
Support
→

Database
Company

Open-Source Software



Support of Open-Source Software



2. Database server

- Community server, www.postgresql.org
- Company-enhanced (closed-source) servers
 - EnterpriseDB (EDB Postgres Advanced Server)
 - Postgres Professional (Postgres Pro Enterprise)
 - 2nd Quadrant (2ndQPostgres)
 - FUJITSU (FUJITSU Enterprise Postgres)
 - Amazon Web Services (RDS Postgres)

These products closely track Postgres community versions.

https://wiki.postgresql.org/wiki/PostgreSQL_derived_databases

3. Extensions

As an object-relational open-source database, extensions are a rich source of features in Postgres. These include:

- Extensions shipped with Postgres, e.g., *pgcrypto*, *postgres_fdw*
- Extension repositories, e.g., PGXN
- Independent extensions, e.g., PostGIS, Citus extensions

<https://www.postgresql.org/docs/current/index.html>

Server-Side Languages

- Included in the Postgres distribution
 - PL/Perl
 - PL/pgSQL
 - PL/Python
 - PL/Tcl
 - SPI
- Github
 - PL/Java
 - PL/PHP
 - PL/Ruby
 - PL/Scheme
 - PL/sh
- PGXN
 - PL/v8
- External
 - PL/R

<http://www.postgresql.org/docs/current/external-pl.html>

4. Deployment Utilities

- Deployment utilities shipped with Postgres, e.g., *vacuumlo*
- Tool repositories, e.g., PGXN
- Company produced

<https://www.postgresql.org/docs/current/contrib-prog.html>

Backup Utilities

- Shipped with Postgres: *pg_dump*, *pg_restore*, point-in-time recovery
- pgBackRest
- Barman
- EDB Backup and Recovery Tool (BART)

Failover Utilities

- Patroni
- repmgr
- EDB Postgres Failover Manager (EFM)

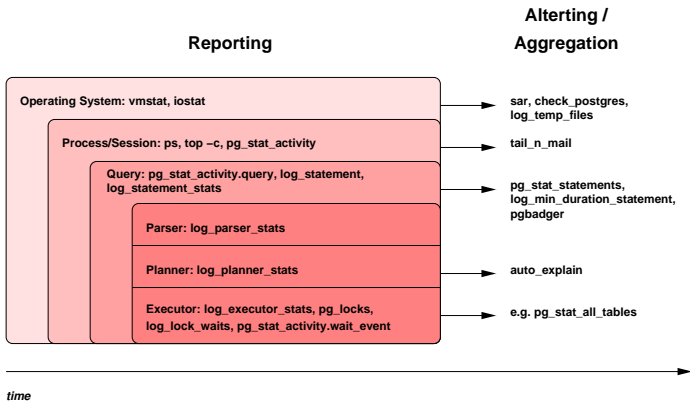
Cloud/Container/VM Deployment

- Single-vendor cloud, e.g., AWS, Azure
- Multi-vendor cloud, e.g., EDB Ark
- Docker deployment
- Kubernetes tools

5. Monitoring Options

- Shipped with Postgres, e.g., `pg_stat_activity`, `pg_locks`, statistic views, `pg_stat_statements`
- Independent, e.g., pgbadger, Nagios, Prometheus, Grafana
- Postgres Enterprise Manager (PEM)

Monitoring Capabilities



6. Do You Need a Vendor?

- The database server and many extensions and tools are available for free
- Adding the missing parts is “a simple matter of programming”
- You can build your own Postgres open source support team

This is only possible because open source gives everyone the ability to become an expert.

Becoming an Expert Has Costs

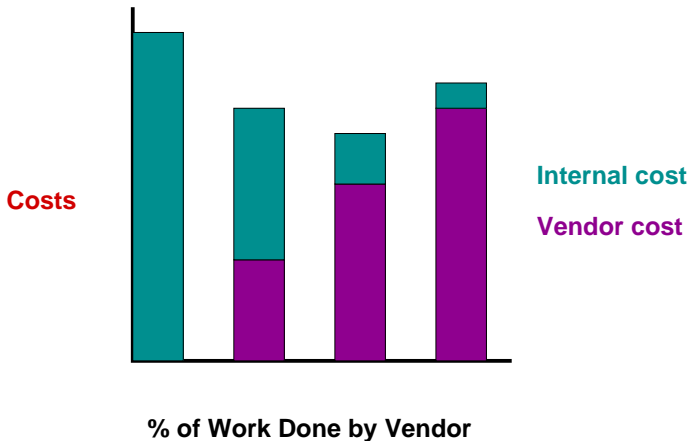
- Payroll, management
- Testing, risk
- Delayed deployment
- Increased dependency on staff skills
- Deployment rigidity, but easy customization

Make or Buy Decision

Cook for yourself or go to a restaurant?

- Cook yourself
 - Ingredients
 - Cooking skills
 - Single dish
 - Less cost, more time
- Restaurant
 - Variety
 - Simplicity, flexibility
 - More cost, less time

In-House/Vendor Trade Off



Choosing a Postgres Vendor (or Restaurant)

- A broad range of vendor-cost options are available, more than in proprietary software
- Are vendor expenses less than the value of increased efficiency and reduced in-house costs?
 - Paid vendor \$400k but increased efficiency and reduced in-house costs by \$700k
- More expensive vendors can sometimes increase efficiency and reduce in-house costs more than inexpensive vendors

Postgres Vendor Specialties

- Support
- Consulting
- Open-source products
- Closed-source products
- Cloud hosting
- Training
- Migration assistance
- System health check

7. Conclusion



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