

# The PostgreSQL Open Source Development Process

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This explores the Postgres open source development process and developer motivations.

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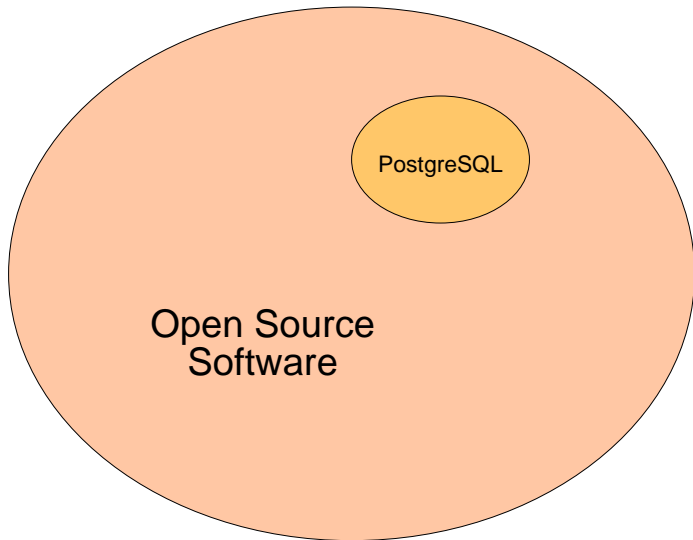
*<http://momjian.us/presentations>*

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# Introduction

- ▶ How is open source development different from closed source?
- ▶ What is the pattern of PostgreSQL adoption?
- ▶ What does the future hold for PostgreSQL?

# Open Source World



# Revolutionary Change in Software Development: Challenging Totalitarianism

- ▶ Central Control
- ▶ Few Choices
- ▶ Limited feedback from population

# Bringing Democracy to Software Development

- ▶ Distributed Control
- ▶ Many Choices
- ▶ Driven by feedback from population

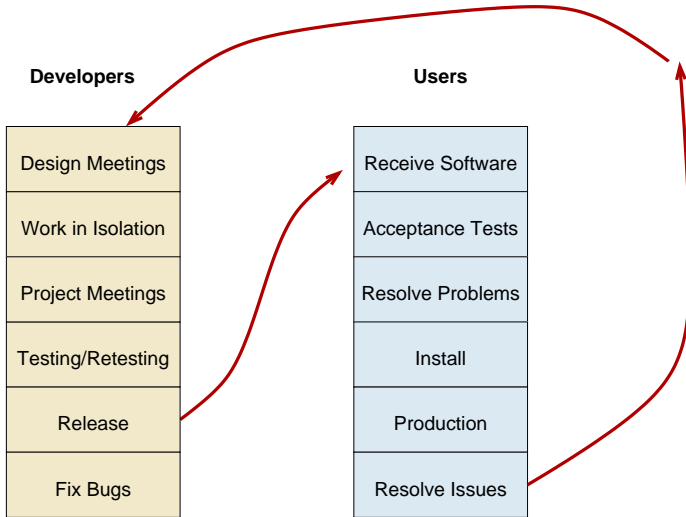
# Proprietary Software Development

- ▶ Put everyone in a room
- ▶ Discuss new features and how to implement them
- ▶ Everyone goes back to their office
- ▶ More meetings
- ▶ Testing
- ▶ Release
- ▶ Gather user bug reports
- ▶ Repeat

# Open Source Development

- ▶ Discuss via email, with access to a world-wide pool of talent
- ▶ New features discussed over several days by developers and users
- ▶ Coding
- ▶ Patch review
- ▶ Patch application and testing
- ▶ User testing
- ▶ Release

# Proprietary Software Development

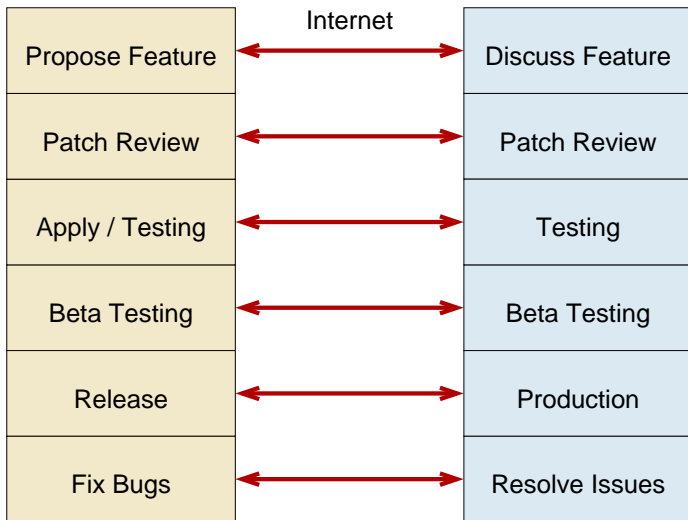




# Open Source Development

## Developers

## Users



# Typical Proprietary Database Product Life Cycle

- ▶ Create product
- ▶ Grow customer base
- ▶ Reduce development budget
- ▶ Decrease technical support costs
- ▶ Increase license fees
- ▶ Maximize revenue
- ▶ Customers leave
- ▶ End-of-life product

All possible because of high switching costs.

# Typical Open Source Life Cycle

- ▶ Create project
- ▶ Developers create initial software
- ▶ Users and developers improve the software
- ▶ No development budget
- ▶ No technical support costs
- ▶ No license fees
- ▶ No maximizing of revenue
- ▶ No customers leaving!
- ▶ No end-of-life

# PostgreSQL Is Completely Open Development

- ▶ No controlling company or individual
- ▶ Active multi-company and volunteer community
- ▶ Open development process
- ▶ Leadership encourages new members

# PG Life: <http://pglife.momjian.us/>

## PgLife Postgres Community Life

### Users

#### General

Re: How can I select rows by comparing an array data type column with multiple values ?

#### Other

Re: [BUGS] postgresql test failure with Python 3.4.0 in plpython\_do

#### Announce

PG Partition Manager v1.7.1 Released

### Developers

#### Hackers

Re: backup\_label revisited

#### Commit

Improve the efficiency of certain jsonb get operations.

#### Versions

Stable: 9.3.4+, 9.2.8+, 9.1.13+, 9.0.17+, 8.4.21+ | Development: 9.4 beta, 9.4beta1

### External

#### Blogs

Leo Hsu and Regina Obe: psql watch for batch processing

#### News

PostgreSQL Maestro 14.5 released

#### Media

Met Office selects 2ndQuadrant to help with data migration to open source - Computing

#### Events

PGDay France 2014

### IRC

sz4man: plundra: i'm not the maintainer of this particular postgresql server, but i think it could be a good idea, can transaction id be manually set while doing begin? it should be always the same for the same script

plundra: sz4man: No, but in that case use application\_name?

andres: Yea, I'd go for including the application\_name in the log\_line\_prefix.

sz4man: so pgbadger or similar programs would distinguish these commits by application names?

plundra: pgbadger uses it to some extent, but not all that much I believe? But you can probably filter out based on it an generate a custom report.

sz4man: plundra: perhaps it would be not hard to find out, but could i ask quickly, how to set application name in psycopg2 ?

plundra: You have "Queries by application" in pgbadger.

plundra: sz4man: Throw application\_name=foo on your DSN, maybe there it's possible with a (keyword)argument too, not sure.

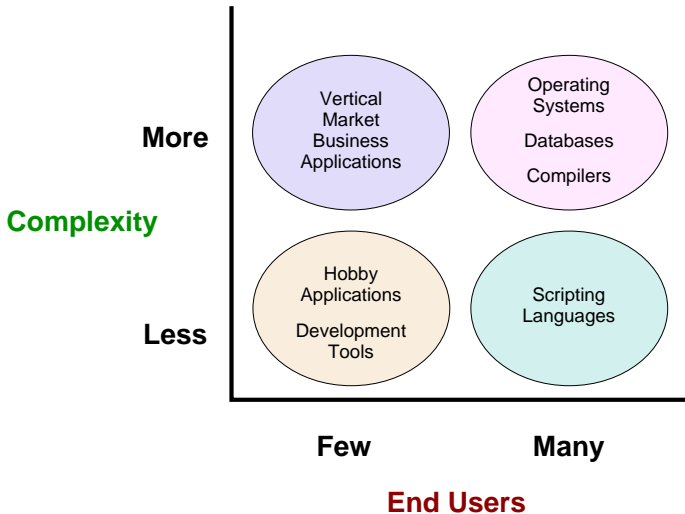
sz4man: plundra: checking...

Zr40: can you only set application\_name when connecting?

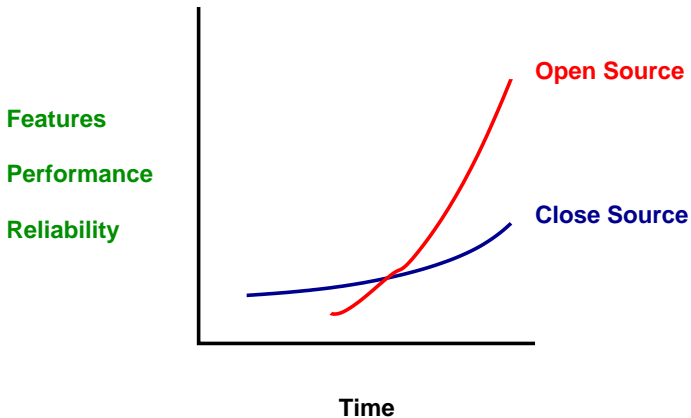
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# Open Source Software Availability



# Is It As Good As Proprietary Software?



# Problems With Open Source (and Democracy)

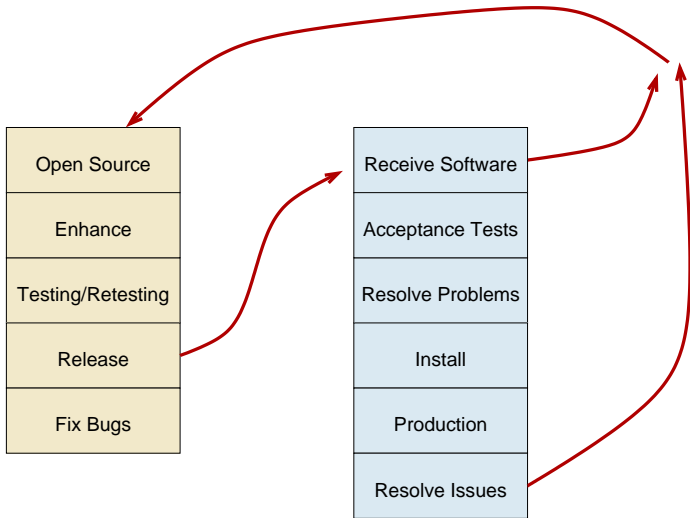
- ▶ Requires effort to stay informed
- ▶ Requires effort to receive assistance
- ▶ Database changes more rapidly
- ▶ More self-help



# Businesses Supporting Open Source Users

- ▶ Customization
- ▶ Technical support
- ▶ Packaged releases
- ▶ Add-on software
- ▶ Training
- ▶ Localized

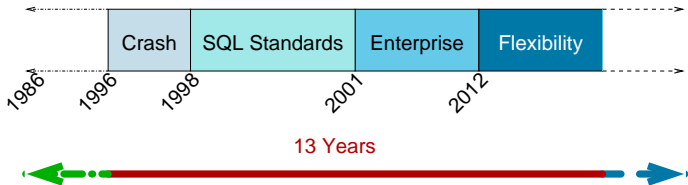
# Hybrid Development



# Licensing

- ▶ BSD license, limitation of liability
- ▶ Not GPL, which requires unrestricted source distribution

# PostgreSQL Evolution



Flexibility includes:

- ▶ Application-specific data types, e.g. JSON, range types
- ▶ Advanced index types, e.g. GIN, SP-GiST
- ▶ Single and multi-node scalability

# Our Developers

Why is programming fun?

- ▶ Joy of making things
- ▶ Joy of making useful things
- ▶ Fun of a complex puzzle
- ▶ Joy of learning
- ▶ Tractable medium

Concepts derived from *The Mythical Man-Month* by Frederick P. Brooks, Jr.

# Open Source Motivations

- ▶ Professional advancement, learn new skills
- ▶ Practical need for the software
- ▶ Mental stimulation
- ▶ Belief in open source

Concepts derived from a survey conducted by OSDN and reported in “Open source a needed outlet for programming pros”, *The Register*, May 2, 2002, <http://www.theregister.co.uk/content/4/23935.html>.

# PostgreSQL Motivations

- ▶ Professional advancement, learn new skills
- ▶ Practical need for the software
  - ▶ *Business needs the enhancement*
  - ▶ *Business wants PostgreSQL to thrive*
- ▶ Mental Stimulation
- ▶ Belief in open source

## Extreme Case

*It was cheaper  
to pay to add missing features  
to PostgreSQL  
than to buy Oracle.*



# Questions



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