How Do We Get Postgres to the Next Level?

PGDay Lowlands 2025

Jimmy Angelakos
Henrietta Dombrovskaya

Motivation for this talk?

- Postgres is important
- Postgres is accelerating
  - “the next Linux?”

Who is Hettie Dombrovskaya?

- Database Architect at DRW Holdings, Chicago, IL
- Prairie Postgres NFP President
- ACM Chicago Communications Chair
- LPI Board of Directors Member
- Illinois Prairie Postgres User Group Organizer
- PG DATA Conference Organizer
- Co-author, PostgreSQL Query Optimization

Who is Jimmy Angelakos?

- Systems & Database Architect, based in Edinburgh
- Open Source user & contributor (25+ years)
- PostgreSQL exclusively (17+ years), Contributor
- Member, PostgreSQL Europe Diversity Committee
- Author, PostgreSQL Mistakes and How to Avoid Them
- Co-author, PostgreSQL 16 Administration Cookbook
- **`pg_statviz`** PostgreSQL extension

Simon Riggs PGConf.EU 2023 keynote

- “The Next 20 years” https://www.youtube.com/watch?v=8W-J36IxYv4

3 pillars for the future of PostgreSQL

- Improving code quality
- Adding new features
- Advocacy & growing the community

Code quality

(i)

- Why is this critically important?
  - Reliability is paramount for organisations running critical systems with millions of operations/second
  - We want to move past being “a database for startups”

Code quality (ii)

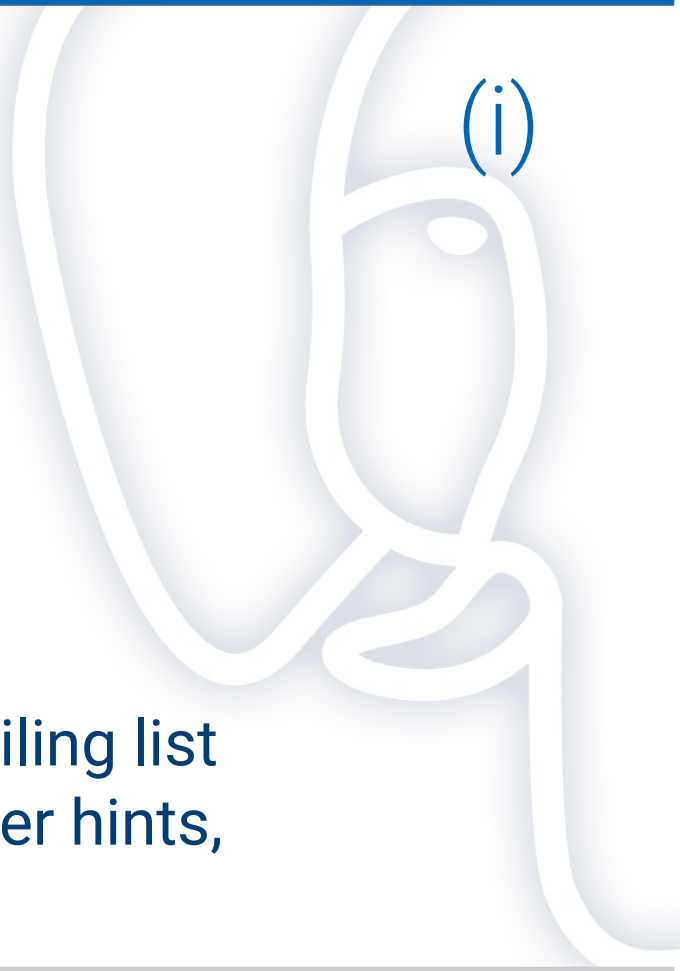
- How do we get there?
  - Expanding test coverage/benchmarking
    - We aren't afraid of getting bad results. It's positive!
    - Establishing a dedicated performance team
  - Defining the "PostgreSQL Standard"
    - What do we define as compatibility?
    - What are the tests that get us there?

Code quality

(iii)

- How do we get there? (cont'd)
  - Uncoupling the development of subsystems
    - Subsystem versioning
    - Stable & experimental versions
      - Ways to build PG in a modular way
    - Dependency system

Adding new features



- User survey results
  - "No need to VACUUM" (20%)
  - "Online major version upgrades" (9%)
  - "Easy database forking for testing" (8%)
    "Bitemporal tables/Time-travel." (8%)
- All finalists are unexpected!
  - None of them make headlines on the mailing list
  - Presumed favorites came lower (optimizer hints, multi-threading, built-in HA features)

Adding new features (ii)

- Other features
  - In-memory hash table, like Redis, to address:
    - Fast, minimalist access to huge data
    - Global query & result caching
  - Sharding
    - People have multiple concepts of what it means
    - Not just about being able to connect to nodes holding different data
    - e.g. Q to be asked: How do I PITR restore the entire cluster of nodes?
  - Improving scalability (incl. multi-threading for larger enterprise environments)
- Actively listening to the developer and user base!

What is the PostgreSQL Community?

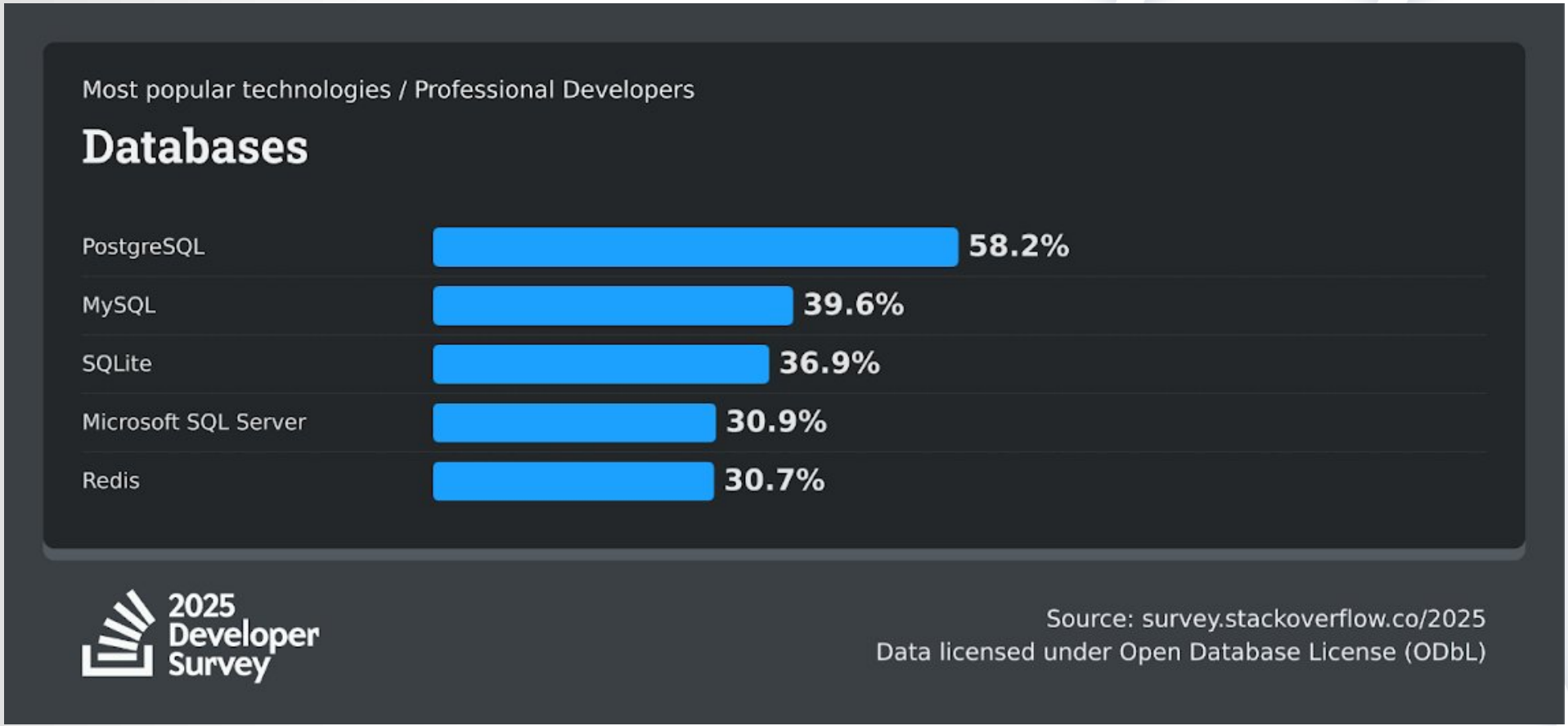
- A diverse global network
  - Not just a small group of core developers
- Individuals
  - Hackers, contributors, and advocates who build & promote PG
- Companies
  - Employ contributors, build solutions on PG, invest in the ecosystem
- Users
  - Private, public, and corporate entities who rely on PG to run their applications

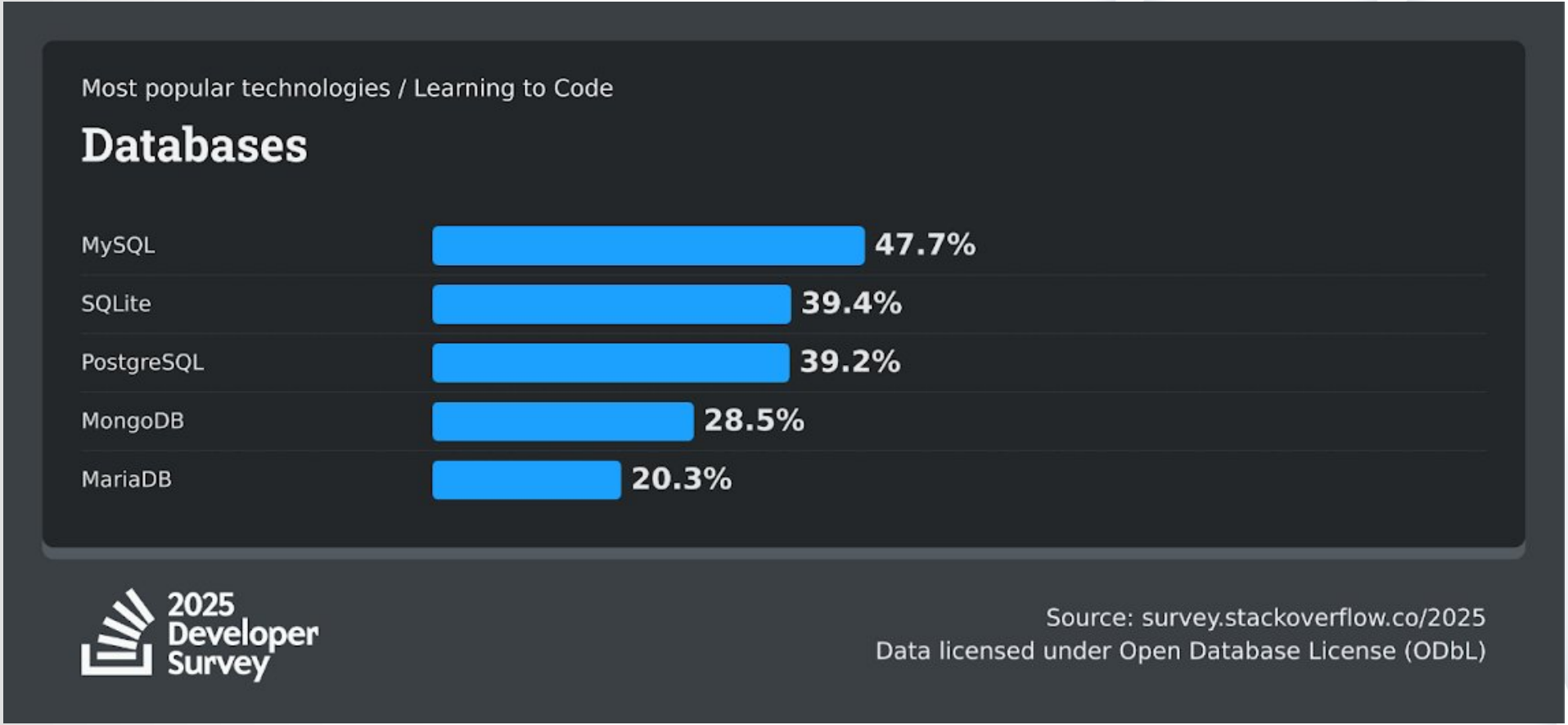
Advocacy and community outreach

- We must understand human trends and their impact on PG adoption
  - Developer preferences, user expectations, workforce & skills
- PostgreSQL Project needs to change & grow to cope with expanding user base
  - Welcome as many people and orgs as possible into the community
  - Learn from other FOSS projects & adapt their successful strategies
- Official training materials
  - Requires dedicated Documentation/Training team

Advocacy for PostgreSQL at large (i)

- Demonstrating the power of Postgres
- Attracting developers & non-code contributors to the project
- Unfriendly to developers
  - Development workflow
  - `pgsql-hackers` mailing list


Most popular technologies / Professional Developers
Databases
PostgreSQL
58.2%
MySQL
39.6%
SQLite
36.9%
Microsoft SQL Server
30.9%
Redis
30.7%
2025 Developer Survey
Source: survey.stackoverflow.co/2025
Data licensed under Open Database License (ODbL)


Most popular technologies / Learning to Code
Databases
MySQL
47.7%
SQLite
39.4%
PostgreSQL
39.2%
MongoDB
28.5%
MariaDB
20.3%
2025 Developer Survey
Source: survey.stackoverflow.co/2025
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Advocacy for PostgreSQL at large (ii)

- Application developers (programmers) do not have a good entry point
  - Leads to a potentially negative experience
- Professional advocacy foundation, accountable to PG Project leadership
  - Targeted marketing, strategic communications
  - Enhance brand recognition & perception among:
    - Enterprises, developers, decision-makers, researchers, educational institutions
  - Ensure consistent representation at global tech events, not just Postgres-specific ones

Conclusion

- PostgreSQL is gaining popularity and attracting new users from multiple industries but:
- To support its position as a leader in the data space, we need to take action on:
  - Standardization, code quality and test coverage
  - Empowering the development and acceptance of new features
  - The future of Postgres depends on our community, we should invest in:
    - Actively engaging with the community
    - Expanding it through advocacy and project changes

Shameless plugs

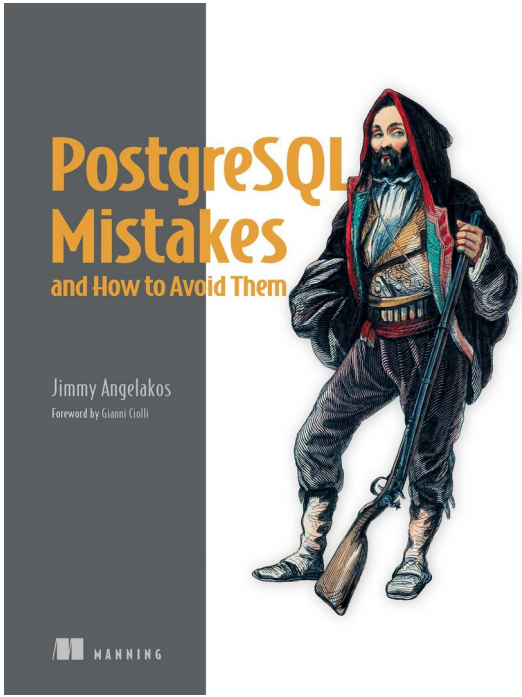
PG DATA Chicago 2026
https://2026.pg-data.org/

June 4-5 2026
Loyola Water Tower Campus in Chicago

Registration is open
CfP opens Oct 20 2025

Thank you ❤️

45% off everything!
Code: **pgd25ja**



Questions?