Democratic governments have a long history of success, with some setbacks. This talk explains how democratic principles underpin the success of the open source relational database Postgres.
1. History of governance structures
2. Strengths of each structure
3. Efficiency and messiness of democracy
4. Ultimate success of democracy
5. Software governance history
6. Where does this leave Postgres?
7. Democracy in action
1. History of Governance Structures

Pnyx Hill, Athens

https://www.flickr.com/photos/wallyg/
Autocracy

- Single person or small group in power
- Examples
  - dictatorship, e.g., Syria
  - absolute monarchy, e.g., Saudi Arabia
  - communist, e.g., North Korea
- First governing structure
Representative Democracy

- First established in ancient Athens
- Historically only a small group of the population could vote
- Elect representatives to vote on issues
2. Strengths of Each Structure

Chepstow Castle, Wales

https://www.flickr.com/photos/damiavos/
• Good for focusing a fixed amount of resources on a clear goal
• Examples
  • space exploration
  • military
Democracy Strengths

- Allows rapid adjustment for unclear goals
- Emboldens talent to act near the problem
- Expands the pool of talent
- Examples
  - consumer goods
  - software
3. Efficiency and Messiness of Democracy

Madison, Wisconsin

https://www.flickr.com/photos/dennisdeery/
Efficiency of Democracy

- Unleashes a flurry of activity based on agency, i.e., personal power
- Fluidity of solutions
Messiness of Democracy

- Hard to predict behavior
- Problems can get stuck
- Difficulty with large projects that span multiple elections
- Direct democracy rarely tried, yielded mixed results
4. Ultimate Success of Democracy

Moscow

https://www.flickr.com/photos/varfolomeev/
Democracy’s Checkered History

- First democracy in Athens, suspended during wars
- Roman democracy ended in dictatorship
- Middle Ages, Magna Carta, Renaissance
- American Revolution, black and women’s voting rights
- French Revolution leads to monarchy
Democracy Today

- Democracy continues to make steady progress
- There are still setbacks
Democracy in the Past 200 Years

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

Number of world citizens living under different political regimes

The scale goes from -10 (full autocracy) to 10 (full democracy). Anocracies are those scoring between -5 and 5. “Colony” (coded as -20) includes not only colonies, but also countries that were not yet sovereign states (e.g. the Czech Republic and Slovakia in 1945–92).

Source: World Population by Political Regime they live in (OWID (2016))
OurWorldInData.org/a-history-of-global-living-conditions-in-5-charts/ • CC BY

https://ourworldindata.org/democracy
Democracy in the Past 40 Years

Democracy has grown across the world over the past four decades

Regime types in each country, 1977 and 2017

2017

1977

Note: Map shows data for the 397 countries included in the Polity IV database. Countries labeled “mixed” have a blend of democratic and autocratic regime characteristics. “Unrated” countries are those whose central government has no or had completely collapsed, which are in the midst of a regime transition. “No data” refers to states or entities that either have fewer than 100,000 people or are not internationally recognized as fully sovereign.

Source: Center for Systemic Peace’s Polity IV Project.

PEW RESEARCH CENTER

https://www.pewresearch.org/fact-tank/2019/05/14/more-than-half-of-countries-are-democratic/
5. Software Governance History

Redwood City, California

https://www.flickr.com/photos/nzdave/
Proprietary Autocracy

- Executives make decisions
  - input from sales and marketing
  - indirectly from customers
- Decision matrix
  - “If we do this, what percentage of customers will we gain?”
  - “If we don’t, what percentage of customers will we lose?”
  - gains are more sensitive to the decision than losses
  - “Do gains or avoided losses justify the implementation costs?”
Open Source Democracy

- Mix of direct democracy and meritocracy
- Voting can be problematic
- Sometimes too much feedback
  - bike shedding
- Bad decisions can be quickly corrected, i.e., easy to revert
- No reliable road map
Internet Makes Direct Democracy Possible

- Easy to share ideas and iterate new solutions
- Rapid global communication
Autocratic Development Flow

Developers
- Design Meetings
- Work in Isolation
- Project Meetings
- Testing/Retesting
- Release
- Fix Bugs

Users
- Receive Software
- Acceptance Tests
- Resolve Problems
- Install
- Production
- Resolve Issues

Sales
Democratic Development Flow

Developers

Propose Feature
Patch Review
Apply / Testing
Beta Testing
Release
Fix Bugs

Users

Discuss Feature
Patch Review
Testing
Beta Testing
Production
Resolve Issues

Internet
Hybrid Development Models

- Single company controls development
- Open source distribution
- Uses autocratic decision matrix
- Lacks democratic feedback
- More comfortable for users transitioning from proprietary since there is a single company to contact
- Examples
  - MySQL, MariaDB
  - MongoDB

6. Where Does This Leave Postgres?

https://www.flickr.com/photos/tomas_vondra/
Postgres Wins Because Democracy Wins

- Uses democracy to attract talent
  - talent pool can easily compete with proprietary staff
- Superior feedback and decision matrix lead to success
- This is a challenge for niche software
- Setbacks still possible
Rise of Open Source

Features
Performance
Reliability

Time

Open Source
Closed Source
7. Democracy in Action

https://www.flickr.com/photos/tomas_vondra/
Postgres Extendability
Many Focuses

New Workloads Platforms (Big Data/Cloud)
- Liaisons with other communities
- FDW for common no-SQL DB’s
- Continue to evolve new datatypes: JSON, XML, HStore

Easy to use / deploy
- Diagnosing Problems
- Configuring for success
- Still easier installs
- Tighter integration with frameworks
- Integration with other data stores
- Very simple in the cloud

High-end Enterprise Requirements
- Vertical Scale (parallel query)
- Horizontal Scale
- Performance Diagnostics
- Incremental Backup
- Integration with other data stores
- Zero down time upgrades

Keith Alsheimer, EDB, 2013
Foreign Data Wrappers

Postgres

- ora_tab
- mon_tab
- tw_tab

Oracle

MongoDB

Twitter
Foreign Data Wrappers

- 100+ interfaces to foreign data
- Read/write
- Sophisticated push down of joins, sorts, and aggregates

• PostGIS is a full-featured Geographical Information System (GIS)
• Implemented as a extension
• Independent development team and community

https://postgis.net/
PostgreSQL Tenth Anniversary in 2006

https://www.postgresql.org/files/community/conference06/conference_group.html
My Postgres Activities
Voting

- Committers nominate new committers
- Core team nominates new core members
- Development is open to all, even occasional visitors
  - “Let the best idea win!”
  - “Where did that guy come from?”
  - Focus talent like a lens on every task
Individuals and political parties have roadmaps
Democratic governments don’t
Developers and companies have roadmaps
Postgres doesn’t
PgLife

PgLife Postgres Community Life

Users
General Replication After manual Failover
Other Re: struggling with GRANT while upgrading from 13 to 16
Announce Postgres Ibiza 2024

Developers
Hackers Re: Patch bug: Fix jsonpath.* on Arrays
Commit Re: Skip some permissions checks on Cygwin
Versions Stable: 16.3-, 15.7-, 14.12-, 13.15-, 12.19- | Development: 17 beta1-

External
Blogs Gabriele Bartolini: Kubernetes Just Turned Ten: Where Does PostgreSQL Stand?
News Postgres Ibiza 2024
Events Swiss PGDay 2024

IRC (also Slack)
Isotopp: (I have at a time looked a lot at disk activity of systems using mysql using bikttrace and workload analytics – the tool does no longer exist, unfortunately, https://blog.koehntopp.info/2021/02/25/mysql-from-below.html)
Guest8689: loved this discussion guys although I read some of it yesterday but the insights here add a better perspective to my knowledge
Guest8689: so do you have any suggestion/opinion before I start using the mailing list?
Isotopp: Guest8689: I moved the non-pg discussion to the other channel
Isotopp: that is, libera/postgresql-lounge
Isotopp: to keep the airwaves free for support here.
Guest8689: thanks a lot!
Guest8689: exit

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http://pglife.momjian.us
Conclusion

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https://momjian.us/presentations

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