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 andmessiness of democracy
4. Ultimate success of democracy
5. Software governance history
6. Where does this leave Postgres?
7. Democracy in action
8. Conclusion
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/
Autocracy Strengths

- 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/

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

2017

1977

1977

Note: Map reports data for the 387 countries included in the Polity IV database. Countries labeled “failed” have a blend of democratic and autocratic regime characteristics. “Unrated” countries are those whose central government has or had completely collapsed, which are or were subject to foreign intervention or occupations, or which are or were in the midst of a regime transition. “No data” refers to 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 -> Discussion Feature
Patch Review (Internet)
Apply / Testing
Beta Testing
Release
Fix Bugs

Users

Discuss Feature
Patch Review (Internet)
Testing
Beta Testing
Production
Resolve Issues
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/
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

MongoDB

Oracle

Twitter
Foreign Data Wrappers

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

PostGIS

- 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
My Postgres Activities
• 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
Re: A simple question: Why 'pg_ctl: command not found' ?

Other
Re: Any way to speed up INSERT INTO

Announce
Announcing this year's edition of the Swiss PGDay

Developers

Hackers
Re: Temporary file access API

Commit
Improve comment in execReplication.c

Versions
Stable: 14.2+, 13.6+, 12.10+, 11.15+, 10.20+ | Development: 15 devel, in commitfoot

External

Blogs
Hans-Jaerpen Schoenig. PostgreSQL - Creating checkpoints for tables

News
Belgian PostgreSQL Conference 2022 & Call for Papers

Media
JSONB in PostgreSQL today and tomorrow - InfoWorld

Events
Nordic PGDay 2022

IRC (also Slack)

depesz: whatever is written, or said by others, often with *decades* of experience, you ignore. do what you want. it's you who will live with the outcome.

Guest52: (specification by example ;))

Guest52: depesz I know a lot of good devs - but some of them lack of some social skills - like explaining. if you write "SELECT '2022-03-08T10:00:00+02:00':timestamp" vs "SELECT '2022-03-08T10:00:00+02:00':timestamp"; - the discussion would have stopped 10 sentences before. heeing proud of your smartness isn't a way to convince someone

depesz: Guest52: it's not about smartness. i've been dealing with Pg for over 20 years. Over this time I hit MANY issues. i made MANY wrong decisions. Lessons learned from it are called "experience". i don't need to rememehr now specific cases where "x" is bad. maybe it hit be 16 years ago. doesn't matter. i can remember that "don't do x".

depesz: if many people tell you: "doing x is bad" - you can ignore them, you can call them smug. or whatever. reality is that you still haven't encountered the problems that they did. and you are obvious to them. wiki "don't do this" is specifically for cases like this. you seem to "know better". fine. go discover the same problems as everybody else. we were trying to simply let you avoid some very common ones.

Guest52: depesz, it's fine - i'm thankful for that hint. but also respect that i'm a person that want to understand what they are typing. yes - i just the wrong datatype - but it worked for me for years now and i was not aware of that feature - even its nice

Berge: Guest52: If you have feedback on the contents of the links that explains this, that's very welcome

Guest52: Berge if I understand the feature correctly: "SELECT '2022-03-08T10:00:00+02:00':timestamp" vs "SELECT '2022-03-08T10:00:00+02:00':timestamp"; - the example did for me. because in the first case Pgoil threw away the +2 silent


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http://pglife.momjian.us

38/39
8. Conclusion

https://momjian.us/presentations

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