

# The History of PostgreSQL Open Source Development

BRUCE MOMJIAN



POSTGRESQL is successful only because of its vibrant open source development community. This presentation chronicles the building of that community.

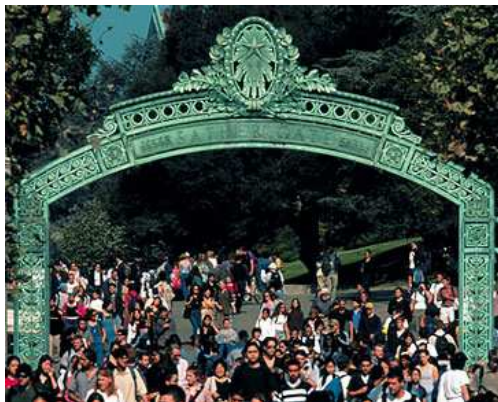
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# Programming Before Relational Databases

- ▶ OS Files
- ▶ ISAM, indexed on a key
- ▶ No joins, WHERE clauses, or complex sorts

# The University of California at Berkeley





Michael Stonebraker



Jolly Chen and Andrew Yu

# PostgreSQL Code Base History

- ▶ Ingres — research prototype, spawned Relational Technologies, purchased by Computer Associates
- ▶ Postgres — research prototype, spawned Illustra, purchased by Informix
- ▶ Postgres95 — added SQL, spawned PostgreSQL

# PostgreSQL Through the Years

1977-1985 Ingres

1986-1994 Postgres

1994-1995 Postgres95

1996- PostgreSQL

# Transition from Single Maintainer To Internet Development

- ▶ Getting approval
- ▶ Scouring the mailing list
- ▶ Todo list
- ▶ Faq
- ▶ How does this thing work?

# PostgreSQL Core Team



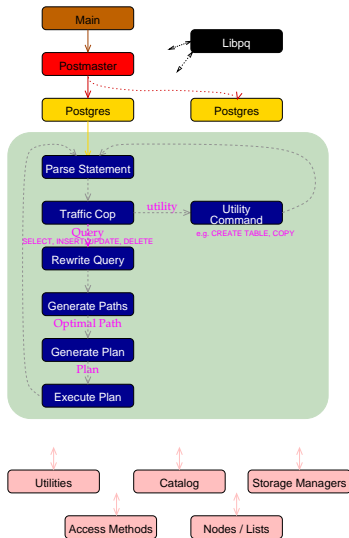
Top row: Thomas Lockhart, Jan Wieck, Tom Lane, Marc Fournier  
Bottom row: Vadim Mikheev, Bruce Momjian



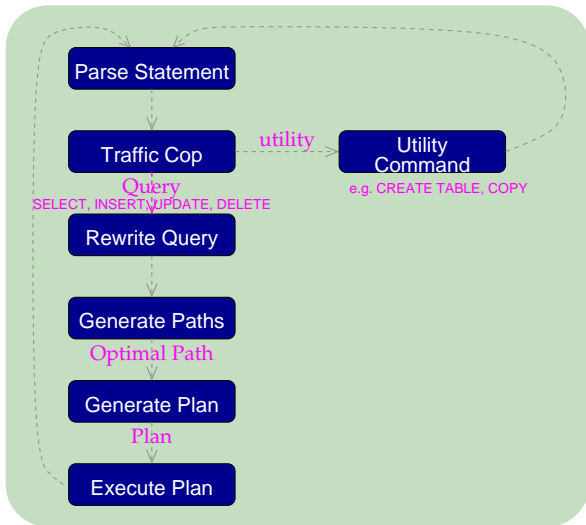
# Assisting Our Developers

- ▶ Developer Education
  - ▶ Developer's Faq
  - ▶ Source code flowchart
  - ▶ Emphasize code clarity and people will respond
- ▶ Developer Recruitment
- ▶ Cvsup, remote Cvs
- ▶ Managing an increasing installed base

# Internals Flowchart



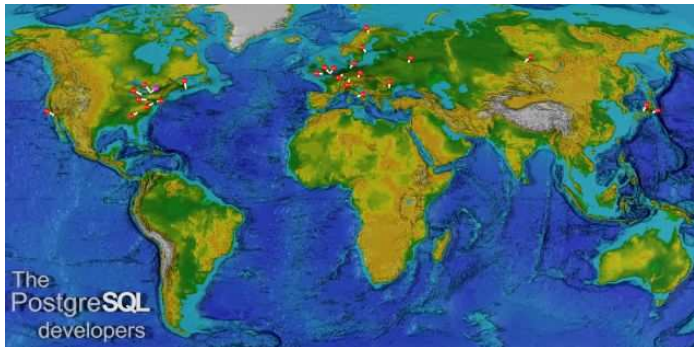
# Internals Flowchart (magnified)



# Keeping the Code Clean

- ▶ automatic formatting
- ▶ remove unused functions
- ▶ mark single-file functions as static
- ▶ rename variables and functions
- ▶ require patches to be of acceptable quality

# Developer's Globe



# Daily Chores

- ▶ Mailing list
  - ▶ Answer simple questions
  - ▶ Identify valid bug reports
  - ▶ Work with users to test bug fixes
  - ▶ Collect feature requests
  - ▶ Encourage technical discussions
- ▶ Patch application
- ▶ Encourage
- ▶ Marketing

# Packaging a Release

- ▶ Collect unapplied patches
- ▶ Resolve outstanding issues
- ▶ Regression testing
- ▶ Enter beta
- ▶ Resolve all bug reports
- ▶ Final release
- ▶ Collect and apply safe patches
- ▶ Issue subreleases

## Release Dates and Sizes

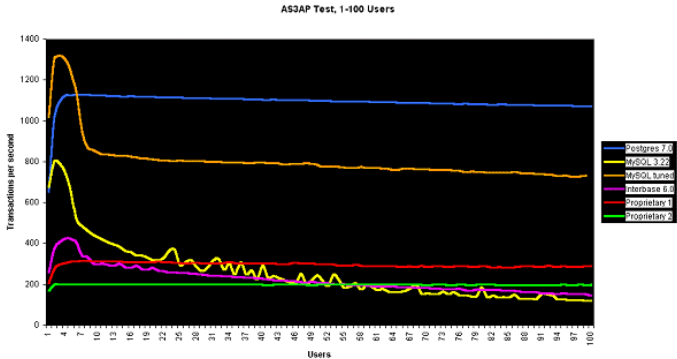
Date	Release	Lines of code
1994		244,581
1996-08-01	1.02.1	
1996-10-27	1.09	178,976
1997-01-29	6.0	
1997-06-08	6.1	200,709
1997-10-02	6.2	225,848
1998-03-01	6.3	260,809
1998-10-30	6.4	297,918
1999-06-09	6.5	331,278
2000-05-08	7.0	383,270
2001-04-13	7.1	410,500
2002-02-04	7.2	394,274
2002-11-27	7.3	453,282
2003-11-17	7.4	508,523
2005-01-19	8.0	654,437
2005-11-08	8.1	630,422
2006-12-05	8.2	672,570



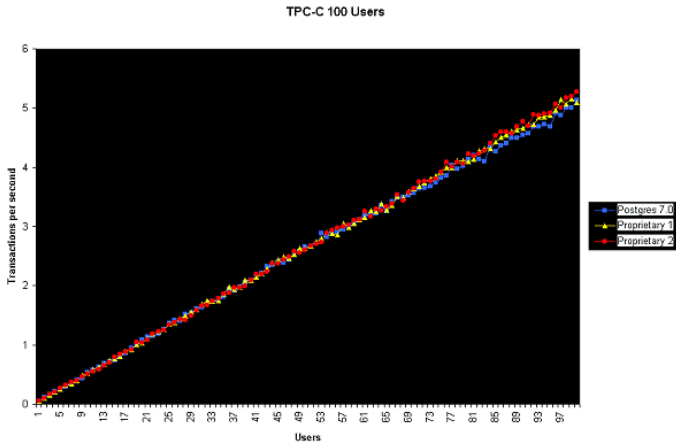
# Development Directions

- ▶ Features
- ▶ Performance
- ▶ Reliability
- ▶ Code simplicity
- ▶ Standards conformance
- ▶ Documentation
- ▶ Pace of releases

# Performance - AS3AP



# Performance - TPC-C



# Conclusion



Top row: Thomas Lockhart, Jolly Chen, Vadim Mikheev  
Jan Wieck, Andrew Yu, Tom Lane  
Bottom row: Bruce Momjian, Marc Fournier