2ndQuadrant
Professional PostgreSQL

Lessons Learned
& Future Plans

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PostgreSQL Major Developer & Committer

PITR

- Point In Time Recovery

- Critical Feature for Enterprise adoption

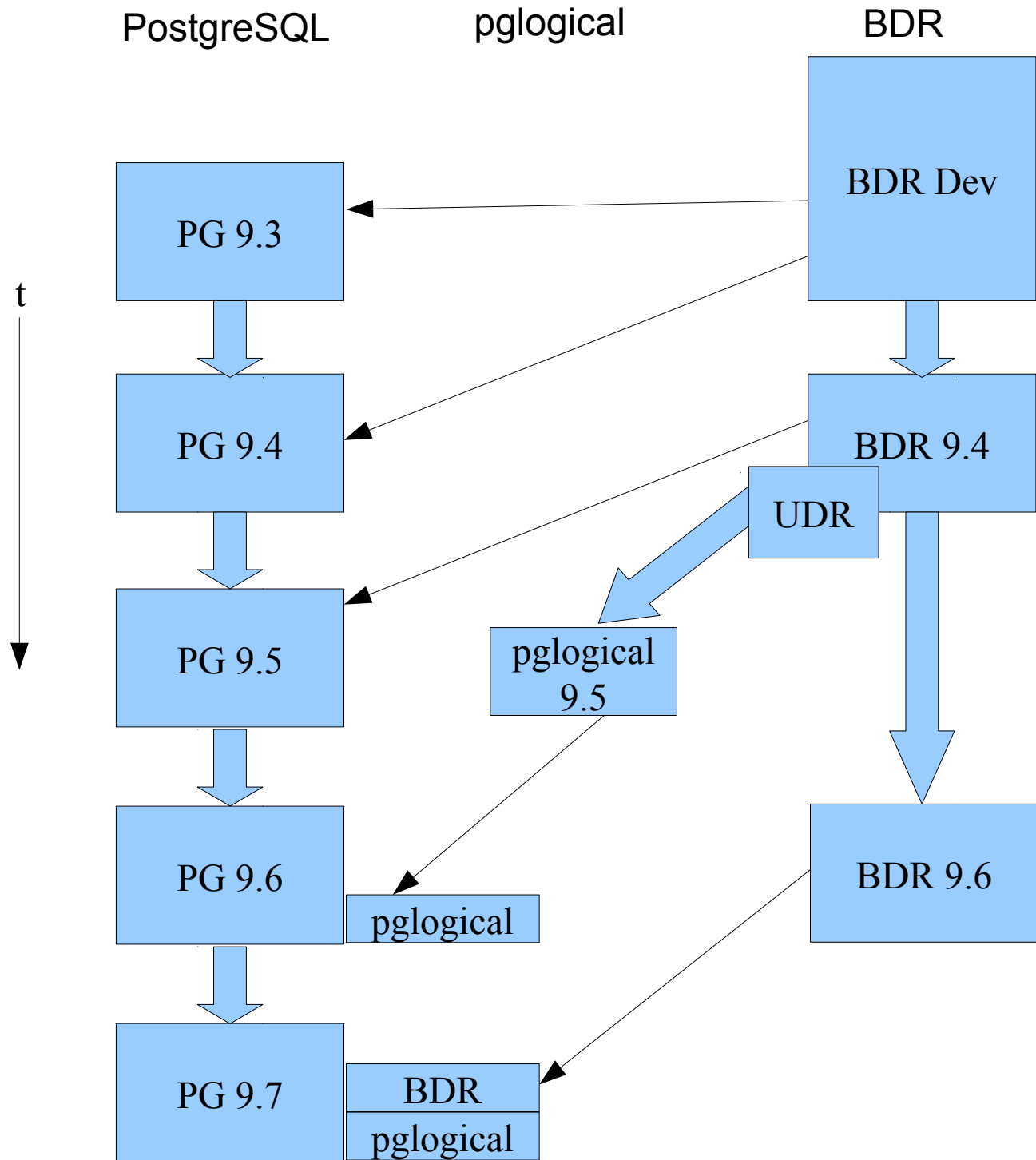- Do Big Things!

- Extensibility is Good → BaRman

Streaming Replication

- Streaming Replication
  - Simple Things work best

- Hot Standby
  - Sometimes, complexity is needed
  - Complexity takes much longer
  - Generates way more bugs

- Synchronous Replication

Extensibility

- Extensions

- Background Workers

- Logical Decoding

- Sequence Access Method

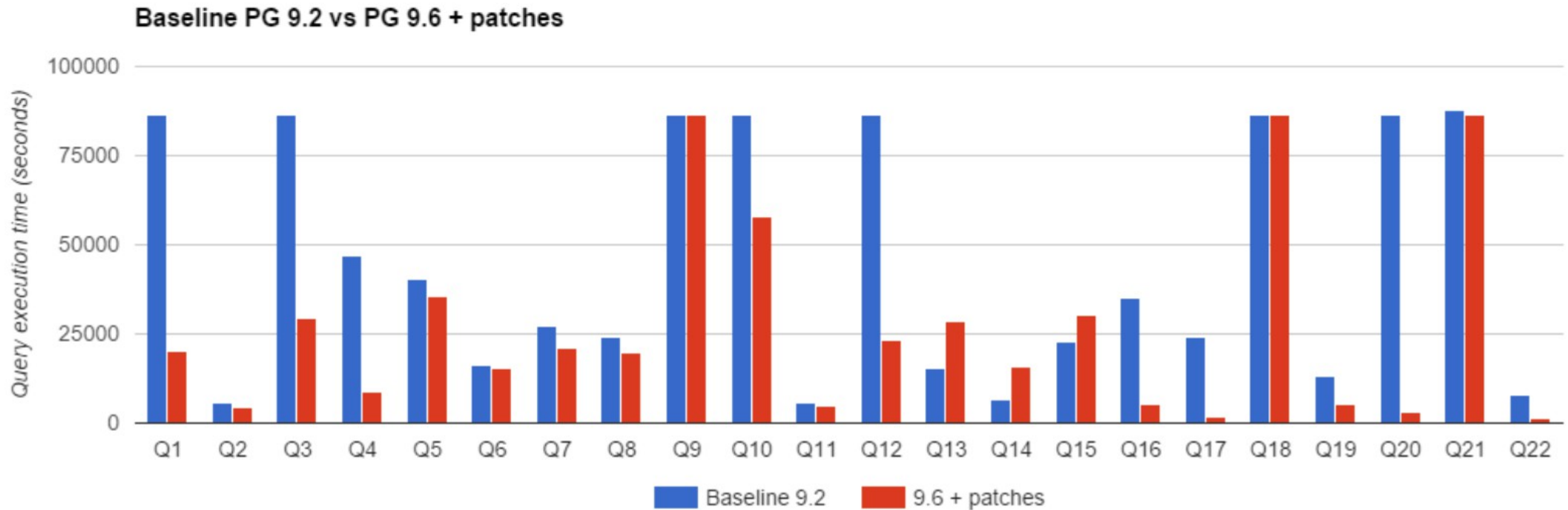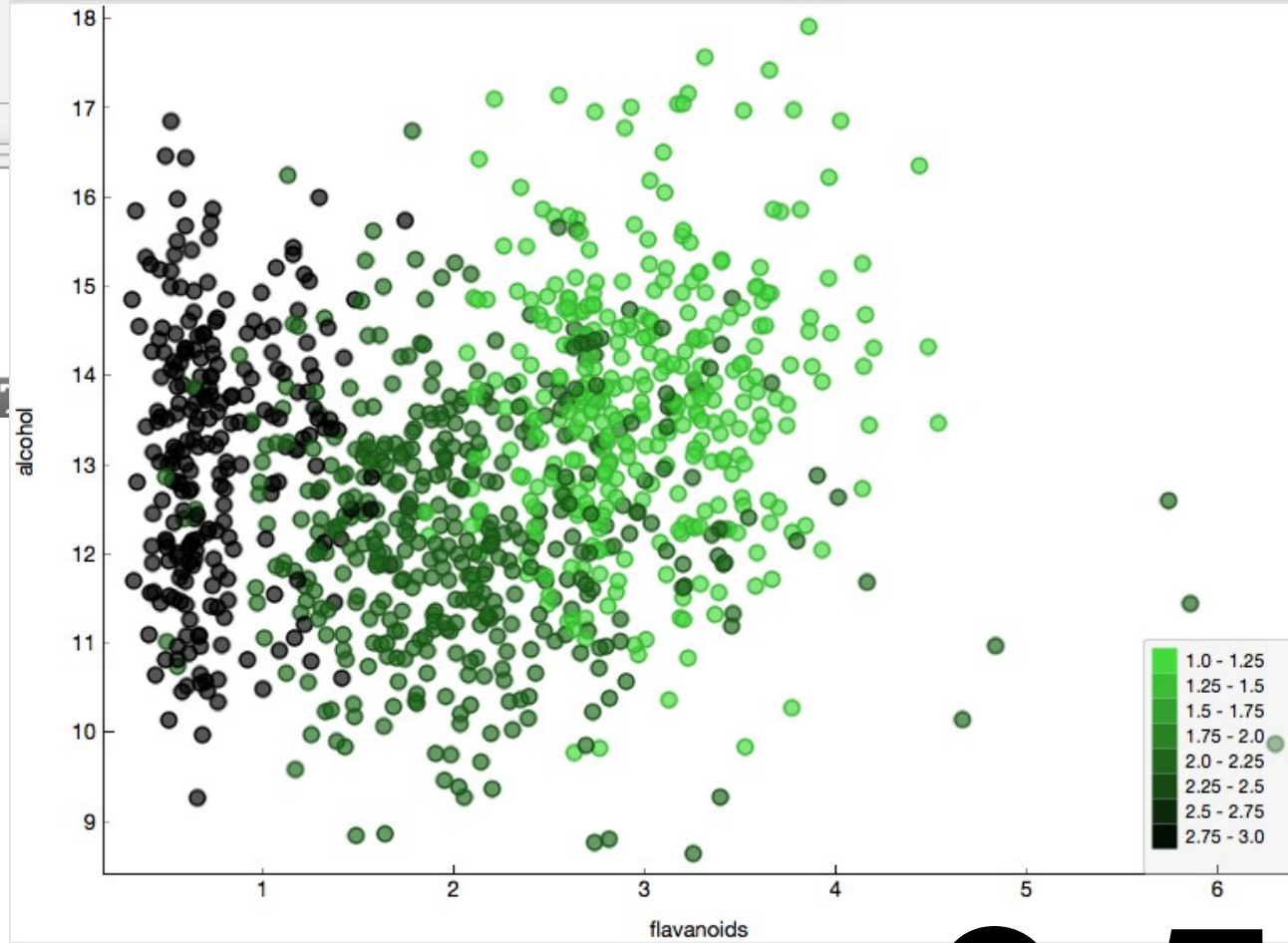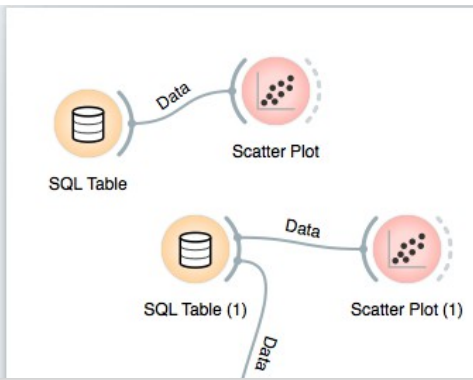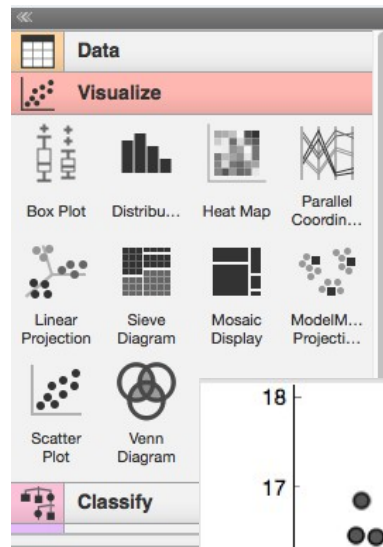- Sample Access Method

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AXLE Project from EU

- Block Range Indexes (BRIN)

- TABLESAMPLE

- Optimizer enhancements

  – Aggregate sharing

  – Aggregate pushdown

  – Multi-column statistics

- Attention to detail

Recent TPC-H results, 3TB

Baseline PG 9.2 vs PG 9.6 + patches

2UDA

- <u>U</u>nified <u>D</u>ata <u>A</u>nalytics

- PostgreSQL 9.5
  - **TABLESAMPLE**
- Orange
- LibreOffice Calc

- Access to all Big Data sources
  - Oracle
  - Hadoop

9.5

TABLESAMPLE in 9.5

- SELECT avg(cost)
  FROM bigtable

  – Scans whole table to return precisely calculated answer

- SELECT avg(cost)
  FROM bigtable TABLESAMPLE system(1)

  – 1% sample of **table blocks -** fast, approximate answer

- SELECT avg(cost)
  FROM bigtable TABLESAMPLE system_time(1)

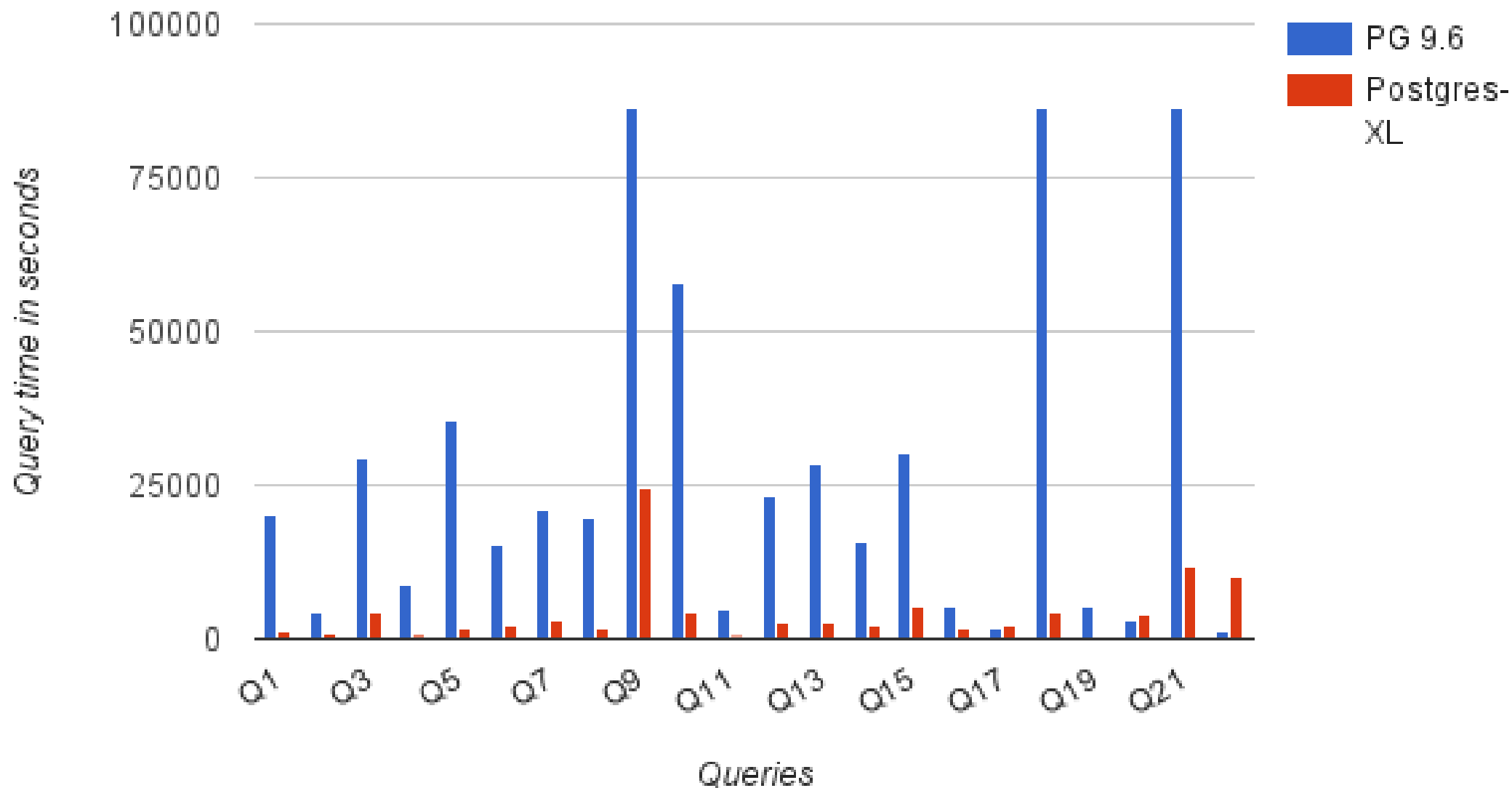 – 1 second sample – fast, approximate answer

  – **Time-bounded**

9.5

Performance Analysis

- Use more resources → Parallel Query

- Increase efficiency → BRIN, Optimizer

- Operational Business Intelligence
    - OLTP
    - Business Intelligence
    - Machine Intelligence

PG 9.6 and Postgres-XL - 3TB TPC-H

Summary

- 9.5 out soon, 9.6 looking good also
  AXLE has been a huge benefit to PostgreSQL

- 2ndQuadrant commit to 4 man years per year for Core
  PostgreSQL development, rising over time

  - Logical Replication & High Availability

  - Scalable PostgreSQL

  - Operational Business Intelligence

  - Administration Improvements

  - Security

- **Customer funded, sustainable open source development**

- *Highly Available, Responsive* Support & RemoteDBA