Practical PostgreSQL and AXLE Project

Simon Riggs
CTO 2ndQuadrant

April 2013
What is Postgres?

- Database Server software
- Production Quality
- Open Source
- Extensible
- Innovative, Advanced technology
- Suitable for a range of use cases

- Practical Choice for European data: Big or Small
Who uses it? What for?

- Features
  - Sync Replication
  - Hot Standby
  - MVCC
  - Foreign Data Access
  - Fast & Scalable
  - Great Optimizer
  - Great indexing
  - Auto text compression

- Customers
  - McAfee, CISCO, Nokia, Skype
  - ABN Amro, Morgan Stanley, Reuters
  - Open University, Oxford, Edinburgh
  - Police, Health etc
  - Many smaller web companies
Innovative Features

• Original Research
  – User defined datatypes
  – Server side languages
  – MVCC
  – Partial indexes
  – ...

• Latest Innovations
  – Full SERIALIZABLE
  – Transaction-level robustness
  – SP-GIST indexes for kd/quadtree (GIS)
  – Range Data Types
  – Continual optimizer improvements
  – ...

© 2ndQuadrant 2012-3
Broad Capability

- *Not just* Relational Database
- Object Relational Database
- Arrays
- Nested records
- Range data types
- Key-Value store
- XML/ JSON/ full-text indexing
- Recursive read and write SQL for linked/tree queries
Derivatives

• Commercial
  – Netezza (IBM)
  – Greenplum (EMC)
  – ParAccel (Amazon)
  – StormDB
  – EnterpriseDB
  – Huawei
  – Salesforce.com
  – ...

• Research Projects
  – MayBMS
  – Postgres Raw
  – TelegraphCQ
  – ...

© 2ndQuadrant 2012-3
Recent FP7 funded additions

• Synchronous replication
• Auto failover
• Group commit
• Low-energy power save mode

• 4CaaST Project to enhance cloud computing
Work in Progress

- Bi-Directional Replication
- AXLE Project
  - Secure
  - Big
  - Fast
  - Hardware optimised
  - Visual Analytics

axleproject.eu
What now?

• Use Postgres for live implementations
  – [http://www.postgresql.org](http://www.postgresql.org)
• Use Postgres in your research
  – [http://www.postgresql.org](http://www.postgresql.org)
• Include 2ndQuadrant in research consortia
  – simon@2ndQuadrant.com
• Stay in touch with AXLE project news
  – register@axleproject.eu
• Disseminate your work as Open Source... it works!