Future of Postgres in a multi-cloud world – a developer perspective

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Marc Linster, Ph.D., is EDB's Senior Vice President of Product Development and leads EDB's engineering divisions and product development groups. Marc is committed to EDB being an accelerator to providing architectural "know how" to help customers take advantage of Postgres without significant risk and cost.

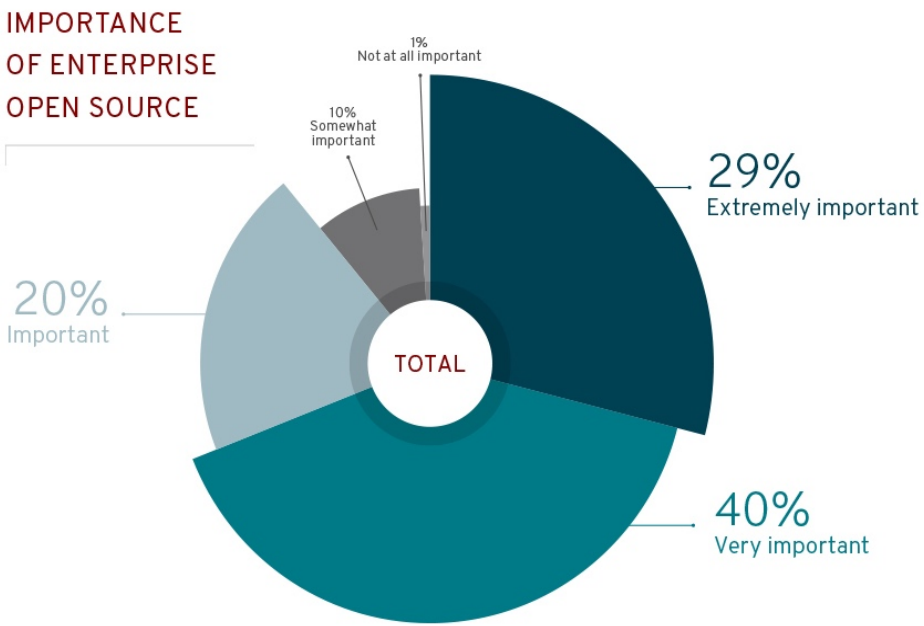
Marc has an extensive background in engineering, technology and logistics with 20 years of management experience.

HOW DID DEVELOPERS CHOSE A PERSISTENCE API?

- Capabilities
- Innovative
- Support agile development
- Avoid vendor lock in
- Meet performance and reliability requirements

KEY TRENDS

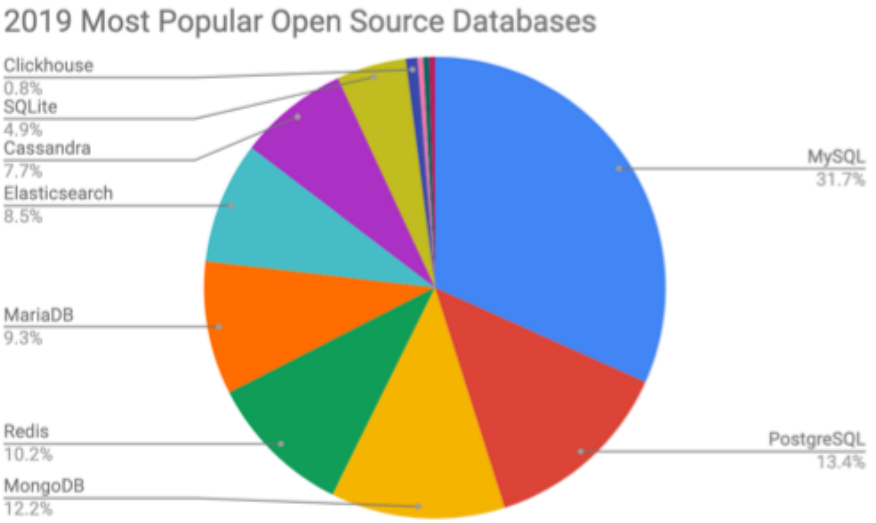
OPEN SOURCE IS EATING THE SOFTWARE WORLD



https://www.redhat.com/en/blog/survey-says-enterprise-open-source-inventing-future-software)

KEY TRENDS

POSTGRES IS EXTREMELY POPULAR



Scalegrid Report https://scalegrid.io/blog/2019-open-source-database-report-top-databases-public-cloud-vs-on-premise-polyglot-persistence/

POSTGRES IS AVAILABLE EVERYWHERE

KEY TRENDS

THE CLOUD IS EVERYWHERE

- US National Institute of Standards:
  - On-demand self service
  - Broad network access
  - Resource pooling
  - Rapid elasticity
  - Metered
- Easily achievable and best practice on-premise, in IaaS, and PaaS
- The Cloud is wherever you deploy!

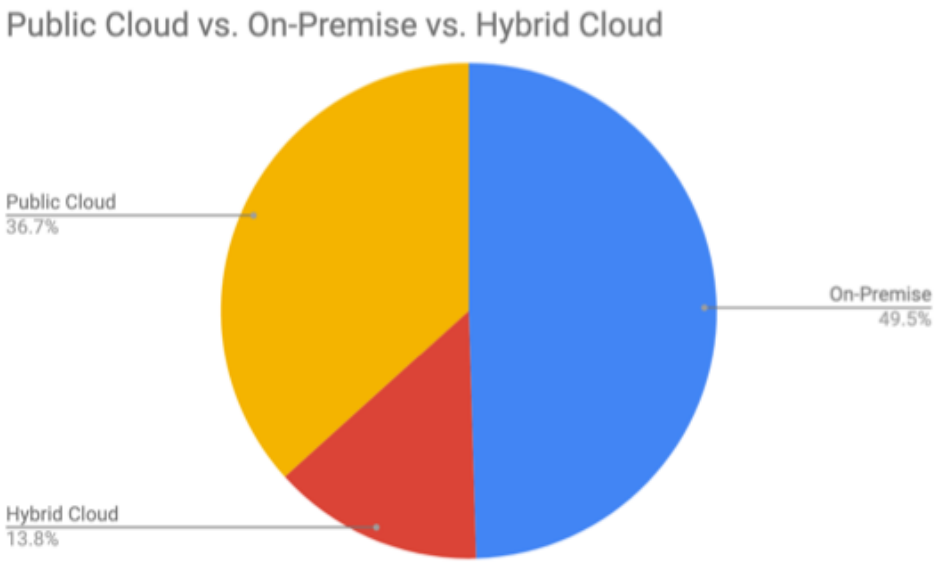
POSTGRES AVOIDS VENDOR LOCK IN

	aws	Azure	Google Cloud		Mac	NUTANIX	vmware	Red Hat	kubernetes
DBaaS/ PaaS	☑	☑	☑						
Self-supported	☑	☑	☑	☑	☑	☑	☑	☑	☑
Postgres Integrators	☑	☑	☑	☑	☑	☑	☑	☑	☑
24X7 Enterprise Support	☑	☑	☑	☑	☑	☑	☑	☑	☑

KEY TRENDS

MULTI-CLOUD IS REAL:

- 50% + companies develop and deploy on more than one cloud[1]
- On premise still has the majority (49.5)[2]



[1](Sumo Logic report)
[2]Scalegrid Report https://scalegrid.io/blog/2019-open-source-database-report-top-databases-public-cloud-vs-on-premise-polyglot-persistence/

KEY TRENDS

CUSTOMERS REQUIRE CLOUD AGNOSTIC ARCHITECTURES

Customers tell us:

- No cloud service provider lock in!
- Deploy anywhere
- Deploy everywhere
- Allow us to move workloads from IaaS to On Premise and between IaaS vendors

KEY TRENDS

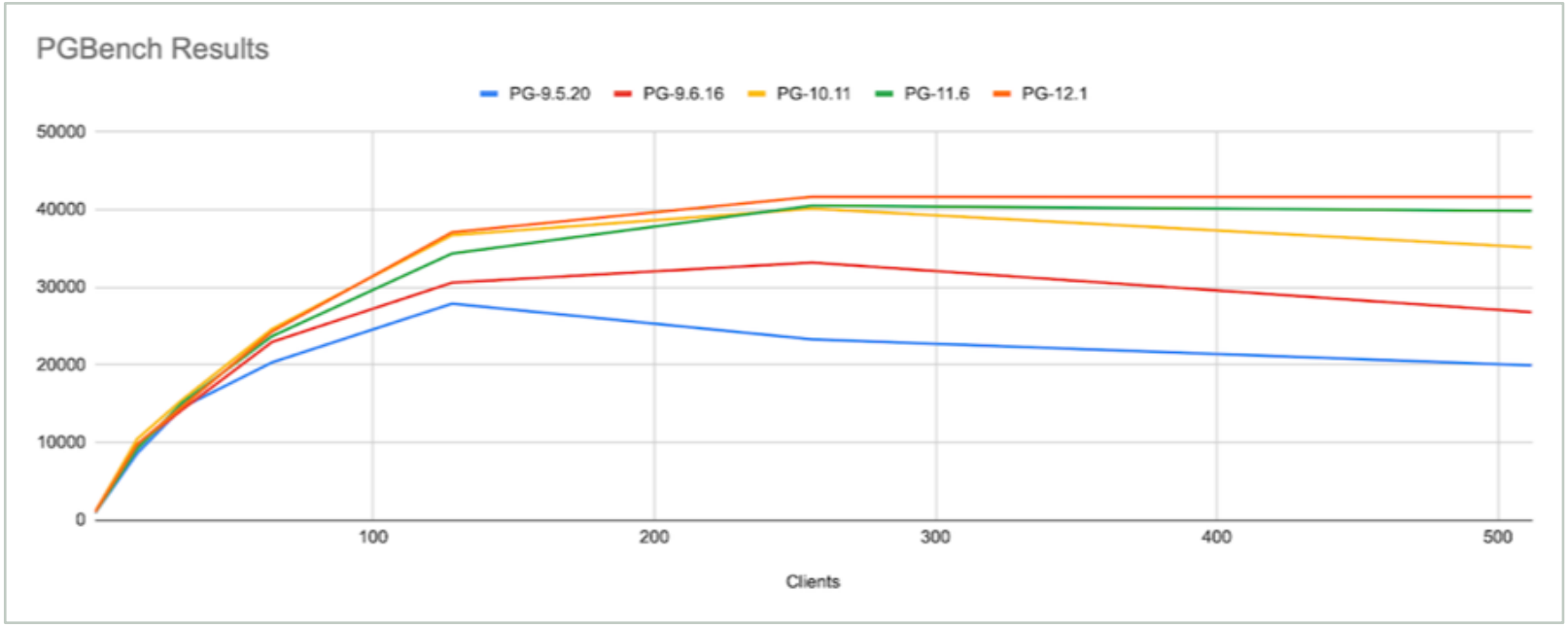
POSTGRES TOOLS FOR ENTERPRISE SCALE

Integrated Postgres Platforms

- Monitoring and Management at Scale (500+ database servers)
- High availability for 99.99%+
- Backup/recovery for large databases
- Data integration with SQL Server and Oracle
- Oracle and SQL Server migration tools
- Change Data Capture integration

NEW LEVELS OF SCALABILITY

POSTGRESQL IS NOW 50% FASTER



Benchmarking PostgreSQL, Kuntal Gosh January 2020 (https://www.enterprisedb.com/postgres-tutorials/benchmarking-postgresql-aws-m5metal-instance)

ONLY OPEN SOURCE BASED RDBMS IN GARTNER MQ

EDB Postgres Recognized 7 Years In A Row on Gartner's Magic Quadrant

KEY TRENDS

AGILE IS EVERYWHERE

KEY TRENDS

DEVELOPERS DRIVE DECISIONS

HOW DID DEVELOPERS CHOSE A PERSISTENCE API (TRADITIONALLY)

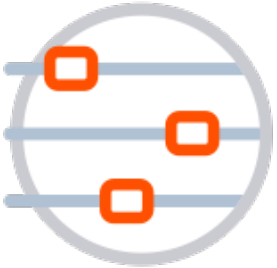
- Provide specific capabilities
  - Transactional
  - Document oriented
  - GIS
  - Text search
  - ORB (Hibernate, etc.)
  - Adhere to SQL Standard
- Innovative
  - Pick a dead end database tech, and your app becomes a zombie
- Support agile development
  - Flexible data models
- Avoid vendor lock in
- Meet performance and reliability requirements
  - TPS rating
  - HA rating

SQL STANDARD: PROBLEMS AND CONSEQUENCES

Some databases have more/different features ⇐ cant use these features as they cause lock-in

Significant growth in the application code

Transactional inconsistencies when developers attempt to recreate PG's 3 isolation levels

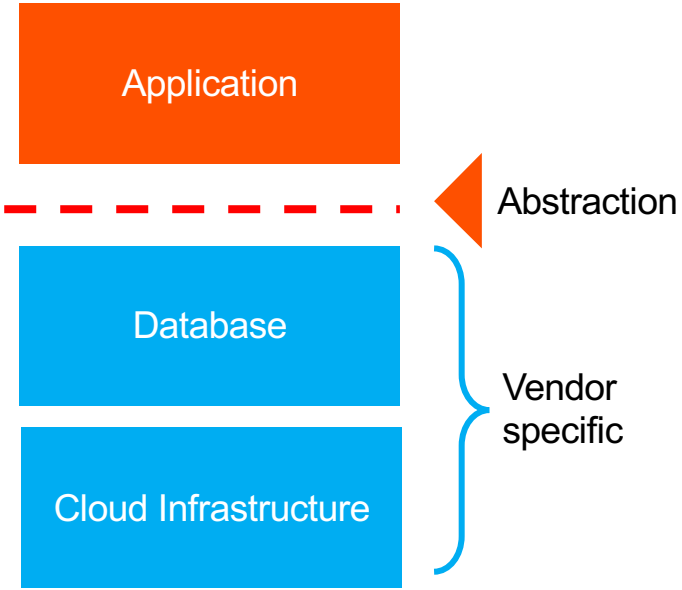


Dimitri Fontaine

WHAT HAS CHANGED?

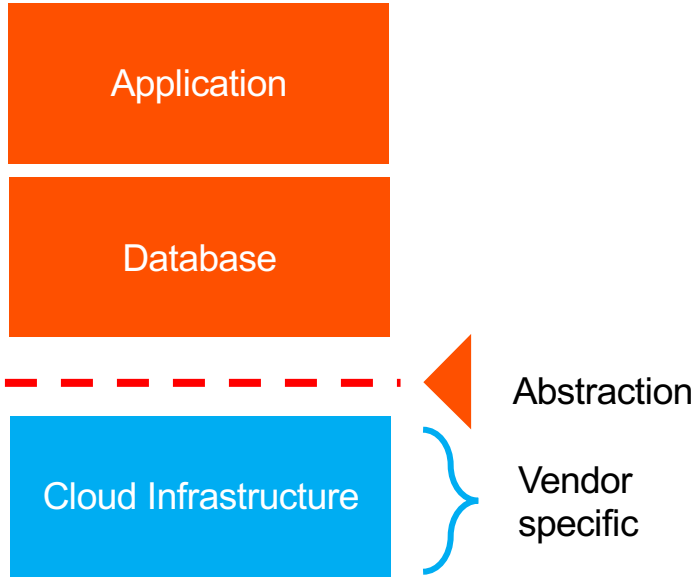
- Postgres is available on all deployment options
  - On premise infrastructures (OpenShift, OpenStack, vSphere, etc) use scripting, Helm Charts and Operators and have become valid ‘Clouds’
- Postgres is supported by many vendors (or free/self supported)
- Postgres provides a large range of capabilities
  - Transactional
  - Document oriented
  - GIS
  - Text search
- Performance, reliability, and manageability meets enterprise needs
- Postgres is the most innovative database platform out there
  - Multi model
  - Extensible
  - Vibrant community
- Postgres will never die

SO WHAT: OLD MODEL



- Abstract from the database
- Stay with SQL Standard
- Move business logic to application layer

SO WHAT: NEW MODEL



- Leverage the database, including isolation levels, transactions, atomic behavior and durability
- Leverage the capabilities JSON(B), GIS, data types, extensions, …
- Rebalance the business logic between application and database
- Move the abstraction layer down the stack
- Avoid cloud vendor-specific features
- Write a lot less code and get to market much faster
- Write to one powerful API and deploy everywhere!

Get Stuff Done!
Use Postgres!