# **BIG** ANIMAL

## Choosing the Right Postgres Vendor in the Cloud

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More than you ever wanted to know about Zombies, Gravity, Hotel California and Cloud Vendors



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- Postgres the winner in the database game
- EDB your Postgres partner
- The move to the cloud an industry trend
- Caveat emptor
- Five risks that buyers should be aware of
  - Support
  - Service
    - Technology Stagnation
  - Cost

- Lock in
- Informed buyers are better buyers

**D**EDB<sup>®</sup>



#### Postgres as the clear winner in the database game





The CNCF End User Community was asked to describe what their companies recommend for different solutions: Adopt, Trial, Assess or Hold. This table shows how the End User companies rated each technology.





# the most transformative open source technology since *Linux*



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# 

EDB **builds Postgres**, alongside a vibrant independent community.

You have direct access to the people shaping the direction of the technology.

## EDB HAS SHAPED POSTGRES

v0

9

#### To be enterprise-grade and mission-critical, based on your business needs

#### Heap Only Tuples:

v0

8

Dramatically reduces the cost of updating rows, massive performance improvements for update-heavy workloads.

#### pglogical:

Significant improvements to replication performance.

v1

#### **MERGE SQL command:**

Makes it easier for enterprises to migrate from expensive, legacy databases to open source.

#### Barman:

Enables high availability and Always On performance for mission-critical enterprise applications.

#### Autoindex on Partitioned Tables

Makes it much easier for developers and DBAs to add new search indexes.

v1



v1

## TO ENABLE THE SAME POSTGRES EVERYWHERE

From self-managed to fully managed DBaaS in the cloud

Run data applications everywhere Innovate faster with Public Multi-cloud Hybrid Private unmatched performance and scalability Support hybrid and multicloud deployments Maintain stability and control Containers Virtual **Bare Metal** of mission-critical **Machines** applications



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## AND DELIVER THE POSTGRES YOU NEED

#### Your use cases

- New applications
- Database migrations
- Replatform to the cloud

#### Your requirements

- Availability
- Scalability
- Flexibility
- Expertise



- The database you need
- Postgres
- EDB Postgres Advanced
- EDB Postgres
  Extended
- The tools you need
  - EDB tools
  - Open source tools



## Where you want it

- On-premises | hybrid cloud | multi cloud
- Virtual machines
- Kubernetes
- Cloud managed service



#### The help you need

- Expert 24/7 technical support
- Remote DBAs | Cloud DBAs
- Technical Account Managers
- Professional Services



## THE LEADER IN ENTERPRISE-READY POSTGRES

#### **70+** Fortune 500 Customers

Leaders in multiple industries choose EDB.

#### **1500+** Enterprises and Growing

EDB deeply understands Enterprise Postgres needs.

**18** Years of Driving Postgres in the Cloud and On Prem

Long-term customers and deep Postgres capabilities.

**3 of 7 Postgres Core Team Members, 7 Committers, 41 Contributors to Postgres 15** EDB is the leading Postgres community contributor.

**30% of Postgres 14 Code Contributed** Driving the innovation and foundation of Postgres.

**>300 Dedicated Postgres engineers** Unparalleled expertise in Postgres.



## WHY ARE ENTERPRISES MOVING TO THE CLOUD?

#### Agility

- → "Today it takes us 52 days to provision a new database server for production. That has to come down to hours and minutes"
- → Consumption-based licensing models vs. pre-purchased multiyear commitments

#### Innovation

- → Wide array of services available
- → Experimentation and single projects
- → Great support for trying something new and 'Fail Fast'



#### **Global Markets**

- → Near impossible and prohibitively expensive to cover from in-house data centers
- → Too slow to open up new markets, especially with growing regulatory demand

#### Data Center Closures

- → Major enterprise trend
- → Move from huge long-term investments to 'on demand'

## Focus in-house resources on value-add innovation activities

→ CSP takes care of rack, stack, install, patch, network, storage, etc

### FIVE RISKS WHEN MOVING POSTGRES IN THE CLOUD



## 1 - SUPPORT RISK

#### Ensuring availability and efficiency of operations with tailored expertise

#### What to look for?

- In-depth knowledge
- Ability to fix known bugs
- Ability to introduce new features
- Active engagement
- Support for latest software versions

#### How to research?

- Check open source release notes (PostgreSQL & beyond)
- Look for company statements around commitment to open source
- Identify contribution policies
- Check service level agreement
- Check shared responsibility model
- Check software compatibility



## 1- SUPPORT RISK MITIGATION

- Pick a partner who is actively involved with Postgres
- If they don't contribute, they can't support you
- Support:
  - Advice
  - Bug fix





## 2 - SERVICE RISK

#### Postgres in the cloud is more than DBaaS

- Correct architecture
  - HA architecture
  - Single region or multi-region
  - Hybrid database integration
  - o ...
- Best CPU, storage and network configuration
  - Which compute to use (e.g., AWS offers 55 compute types with 8 cores ...)
  - Which storage (GP2, IO1, IO2, ...) with how many IOPS

- Database design guidance and best practices
- Pro-active support
- DBA services
  - Monitoring of the database, management of bloat, indexes, query performance, ...
- New feature development
  - Your needs evolve



## 2 - SERVICE RISK MITIGATION

#### Postgres in the cloud is more than DBaaS

- Two options
  - Vendor who does it all
    - Single partner
    - No finger pointing
    - Fast time to market
    - Focus your resources on innovation and value add
  - Become your own general contractor
    - Internal PMO coordinates DBaaS, deployment services and support
    - Develop expertise for cloud, database, and integration Technology
    - Bridge across and coordinate between vendors







## 3 - TECHNOLOGY STAGNATION RISK

#### Not every DBaaS focuses on innovation

- Innovation and agility are key drivers to go to the cloud
  - How do they support DevOps and deployment automation?
- Forks
  - Are they keeping up with new features of Postgres?
- DBaaS Zombies
  - Not all Postgres DBaaS vendors are current!
  - Some are 3+ years behind
    - Latest JSON capabilities
    - MERGE command
    - **\_** ...





## 3 - TECHNOLOGY STAGNATION RISK MITIGATION

#### Not every DBaaS focuses on innovation

- Cloud agility and scale requires automation!
  - Most cloud vendors support leading DevOps automation tools
- Work with leaders only!
- Proprietary or single-vendor forks of Postgres (even if open source) lock you into the vendor
  - Think twice about this implicit commitment
  - Use Postgres forks when you need them
- Check the historical track record
  - How long does it take the vendor to adopt the latest major and minor release?
  - Postgres major  $\Rightarrow$  Innovation
  - Postgres minor  $\Rightarrow$  bug fixes and security





## 4 - COST RISK

#### Keeping track of costs and planning for success

#### lt's...

- Easy to add additional system resources
- Difficult to plan for optimized performance and lower costs
- Sometimes impossible to define cost spending limits
  - Does your provider allow you to set a max usage limit for resources?
  - Can you define maximum spend for resource usage?
- Risky to wait for alert thresholds to trigger
  - Notifications sometimes come in several hours after
    - Are you able to define alerts to help prevent unexpected costs from high resource usage?
    - How quickly do the alerts get delivered?



## 4 - COST RISK MITIGATION

#### Preventing cloud spend from escalating out of control

#### What can you do?

- Go with the experts
  - Optimize your infrastructure for high performance, efficient resource usage, and lower costs
- Monitor system resource consumption (IOPS, CPU, memory)
  - Set up resource usage limits wherever possible
  - Pay attention to patterns
- Research allocating system resources
  - Understand what is being provisioned to maximize efficiency
  - Blogs, videos, podcasts...
- Analyze pricing models from DBaaS providers
  - Are there hidden costs?



## 4 - COST RISK- EXAMPLE

#### An example comparison between AWS RDS and EDB's BigAnimal

- Cloud cost:
  - Software 0
  - Compute Ο
  - Storage 0
  - Network 0
- 64,000 IOPS
  - RDS: \$12,800/month 0
  - BigAnimal (EC2): \$7,072/month 0





## 5 - LOCK IN RISK

#### Technology, egress, and gravity

- Technology lock in
  - Proprietary forks, e.g., Aurora, AlloyDB, CockroachDB, ....
  - "Like Postgres", but not Postgres use them when and where needed
  - Many cloud database solutions make it easy to get data in, but not to get it out
- Egress
  - It costs a lot more to get data out than to get data in ...
- Data Gravity
  - Data goes to the cloud because of an application need
  - Data attracts applications!
  - Data becomes networked
  - Vicious circle
  - Consider microservices





## 5 - LOCK IN RISK MITIGATION

#### Technology, egress, and gravity

- Leverage Postgres where possible
  - Runs in every cloud, almost every hardware and all major OS
- Work with providers that have the same Postgres everywhere
  - Assure migratability between clouds and on premises
- Ensure the Postgres DBaaS supports efficient data import and export
  - Dump and restore?
  - Incremental replication?
  - Change data capture?



## SUMMARY

## Cloud is the way to go – risk awareness and mitigation will get you there faster

- Support risk
  - Stick with the Postgres leaders
- Service risk
  - Don't be your own General Contractor
- Technology stagnation
  - Avoid zombies
- Cost
  - Cloud Fin Ops is a thing!
- Lock-in
  - Use proprietary software where needed
  - Go open source if possible
  - Beware of gravity







# Resources

- Blog: <u>How to manage Risk when moving to a</u> <u>cloud database</u>
- Whitepaper: <u>The Complete Guide to</u> <u>Optimizing Cloud Data Spend: Balancing Price</u> <u>and Performance to Achieve Your Business</u> <u>Goals</u>
- Webinar: What does data management in the cloud really cost

