

OPTIMISING POSTGRES CLOUD DATABASE STRATEGIES AT NATWEST

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TOPICS

- Multi-cloud strategies and, choosing the best vendor for NatWest's requirements
- Migrating your workloads to the Cloud
- Hybrid strategy: best approaches and use cases
- How EDB support Postgres in the Cloud

POLL:

WHAT ARE YOU LOOKING TO LEARN IN TODAY'S WEBINAR?

- Differences between Cloud Vendors PG and EDB BigAnimal
- Application Modernisation
- Multi Cloud Solutions
- Hybrid Solutions

Postgres for the Cloud

What businesses need to consider



Deployable Anywhere

- Flexible deployment
- Cloud + On Premise
- Agility via Automation



Enterprise Grade Database

- Enterprise Management
- Security & Control
- High Availability & Scale

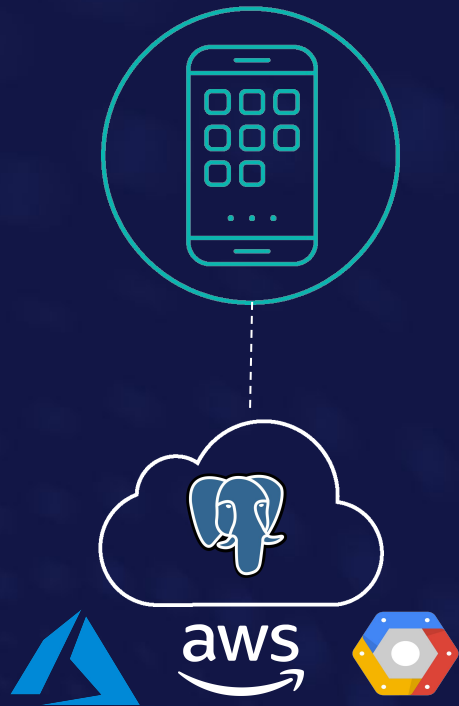


Works for your Business

- Postgres expertise
- Predictable pricing
- Legacy DB Migration

Postgres Anywhere

Mobile app on a public cloud to be close to users



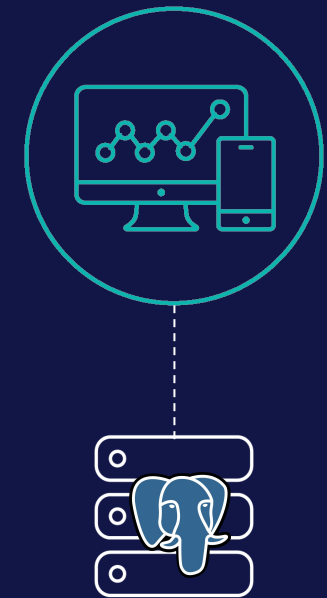
Public Cloud

Customer data retained on a private cloud



Private Cloud

Company financials on prem connected to accounting software



On Premise

Consistent Postgres experience in multiple environments

Challenges

Your data estate is large & mission critical

Data classification & governance over boundaries

Architectural sprawl

Data consistency

Productivity over your data

Migration of data around the estate

Postgres Anywhere

EDB can help you in creating a 'data platform' - Postgres consistently deployed, managed, monitored & governed on any infrastructure.

Best in class support from EDB regardless of deployment.

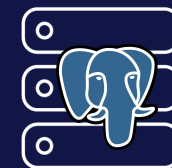
- Managed cloud solution (DBaaS) called BigAnimal
- DIY solutions with CNP/EP4K & TPA
- RDBA team available to support across all platforms



Public Cloud



Private Cloud



On Premise

Consistent Postgres experience in multiple environments

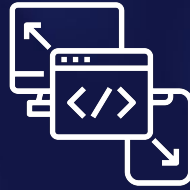
Why EDB BigAnimal?



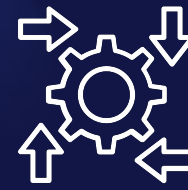
BigAnimal is an enterprise grade, fully managed Postgres database-as-a-service with the expertise and capabilities only EDB provides



**Deep Postgres
Expertise**



**Compatible with
Oracle**

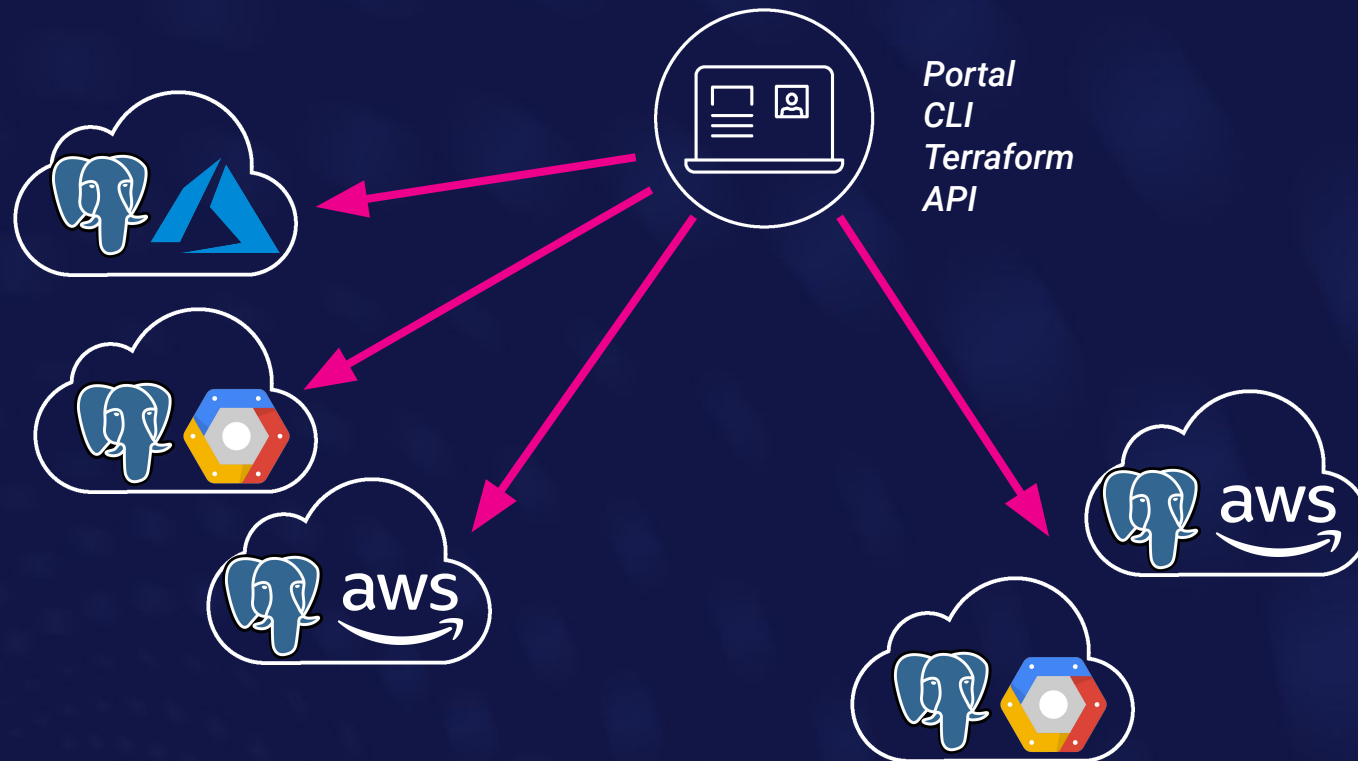


**Multiple
Availability
Options**



**Cloud
Choice**

Why EDB BigAnimal?



Public Cloud

BYOA Cloud

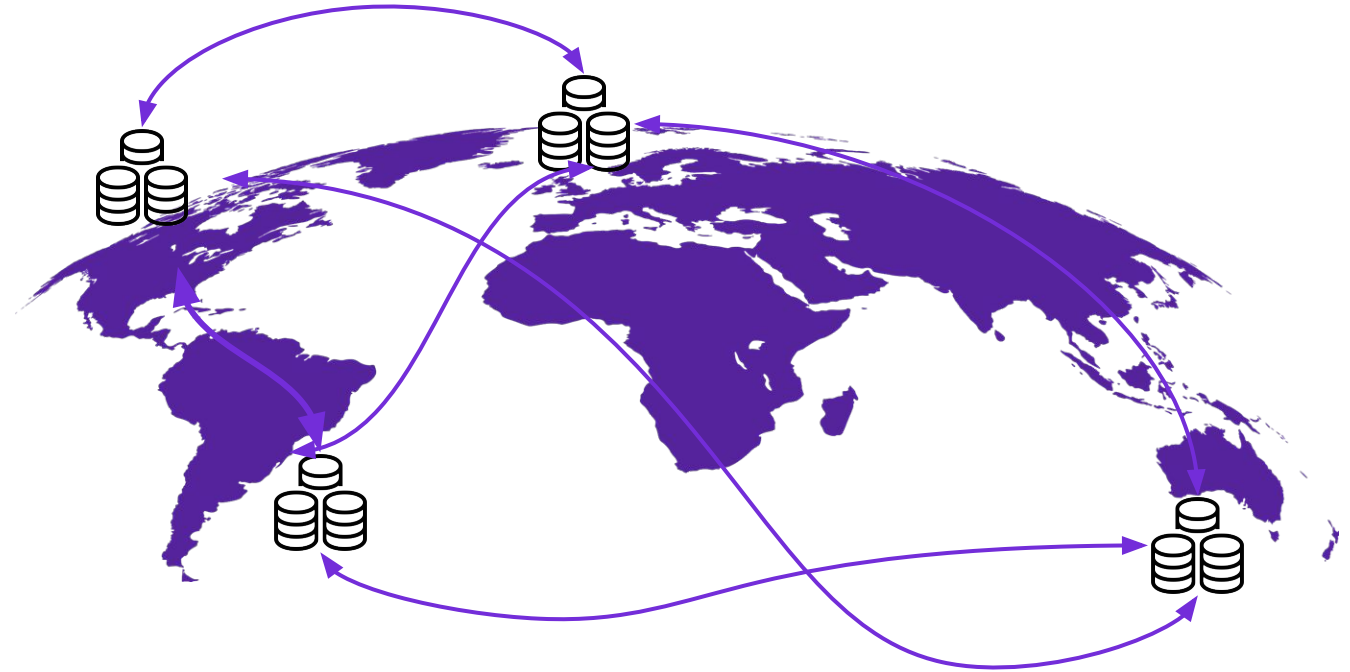
- **CSP agnostic - run same Postgres databases anywhere, managed from single place**
- **BigAnimal Hosted or run in your Cloud account(s)**
- **Integrates with your SAML IDP for easier user management**
- **Governance in the form of Regions and Projects**
- **PCI & SOC2 accredited**

EDB Postgres Distributed on BigAnimal

- Best in Class High Availability
- Geo-Distributed (Active/Active) Architectures
- Evolved Postgres DevOps
- **Only** multi-region managed Postgres service today

Core EDB Postgres Distributed Capabilities

- ✓ Active-Active Setup
- ✓ Flexible Deployments
- ✓ Efficient Logical Replication
- ✓ Customer's Choice of Durability
- ✓ Robust Conflict Handling



Challenges

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Architectural sprawl

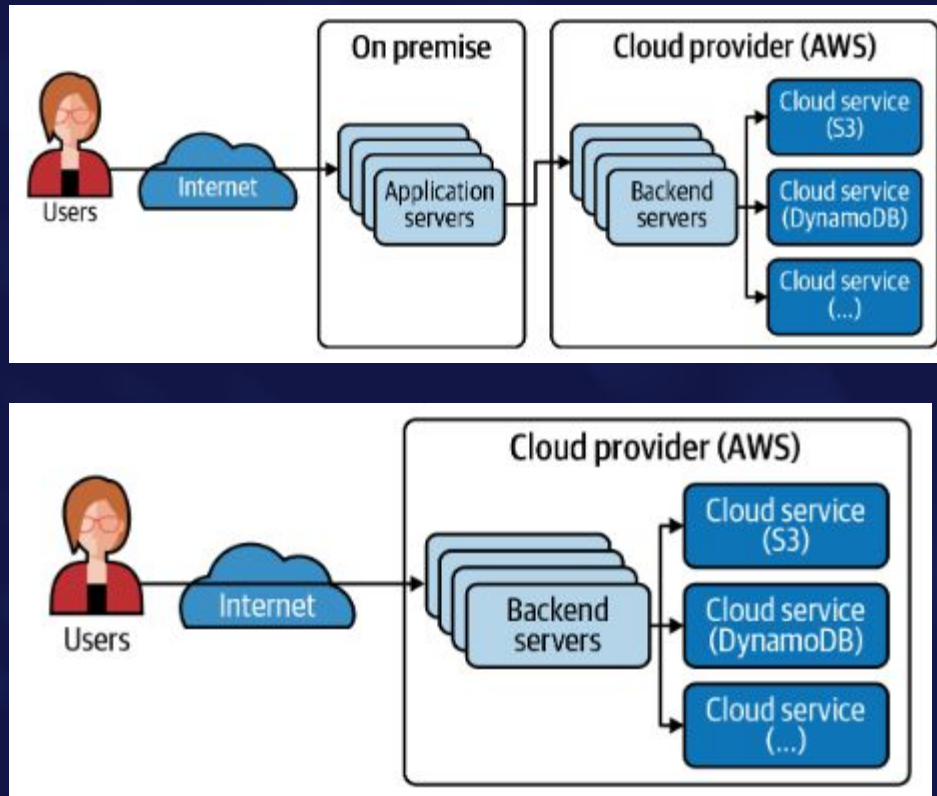
Data consistency

Productivity over your data

Migration of data around the estate

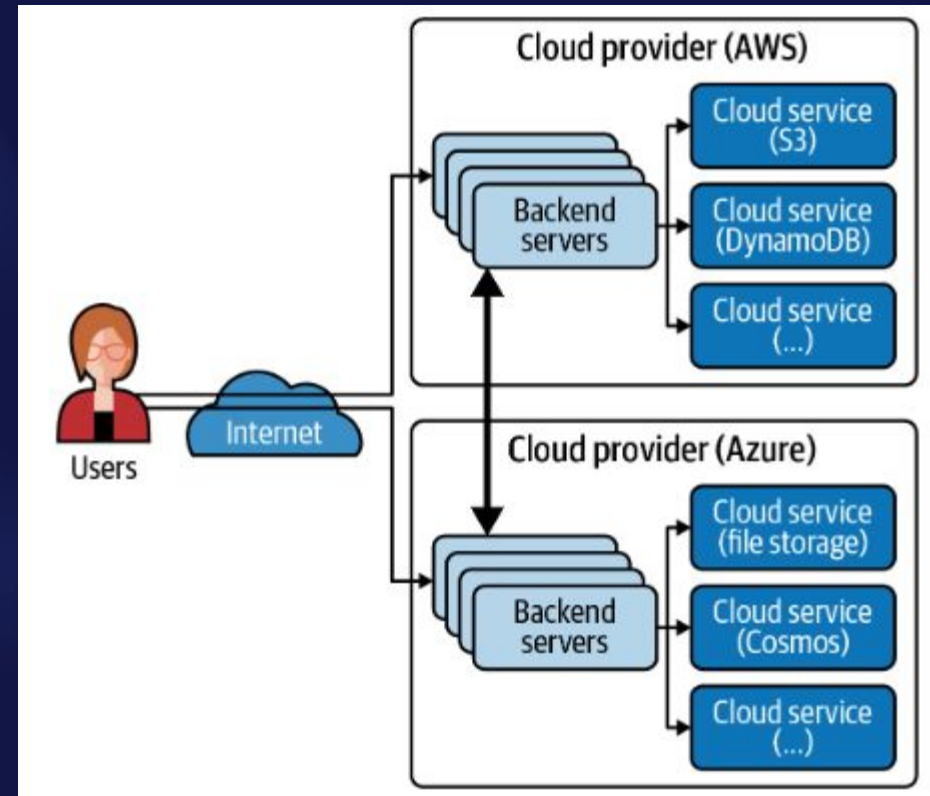
Hybrid & Multi Cloud

Hybrid Cloud



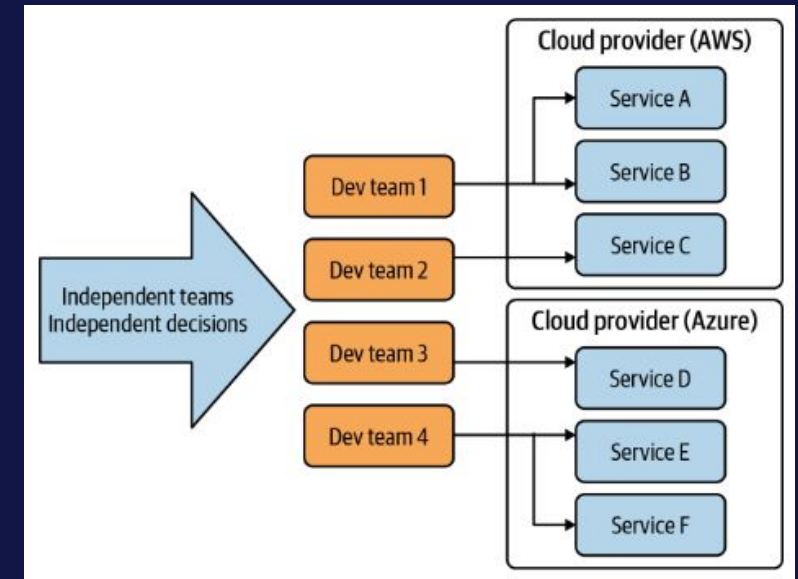
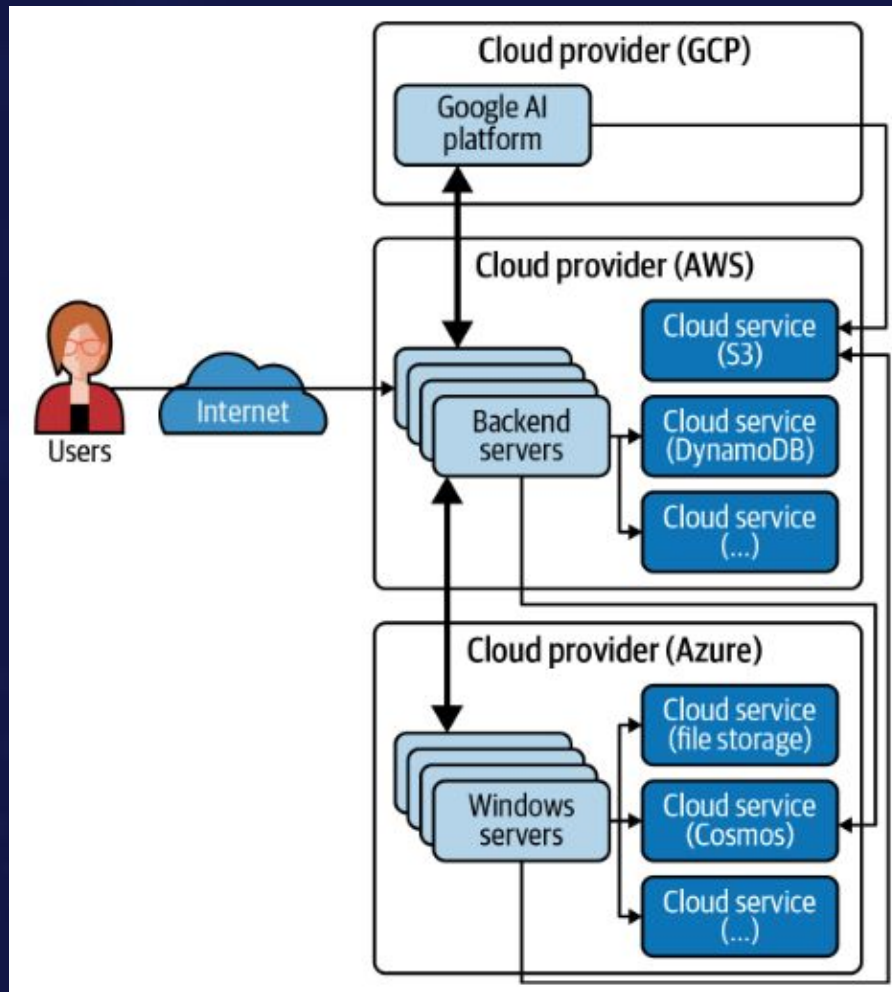
Cloud Native (ahem)

Multi Cloud



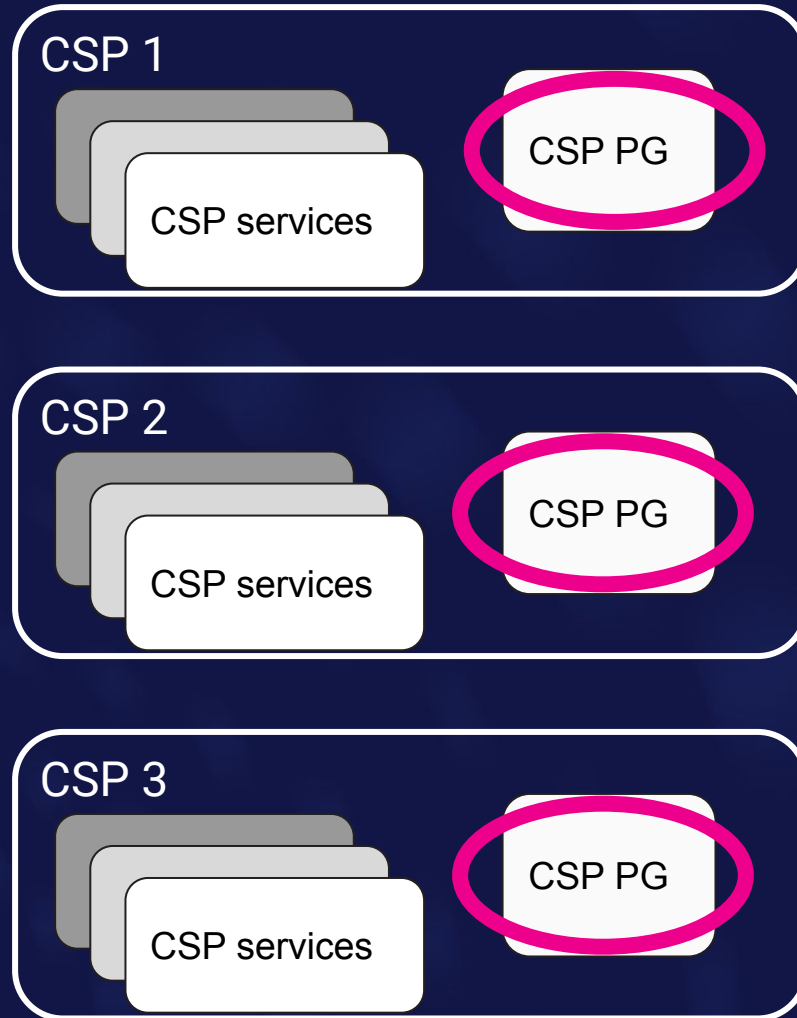
<https://info.enterprisedb.com/BigAnimal-OReilly-PolycLOUD-Paper.html>

From Hybrid & Multi Cloud to Poly Cloud



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From Hybrid & Multi Cloud to Poly Cloud



Developers need to learn CSP specific capabilities, management tools & foibles

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From Hybrid & Multi Cloud to Poly Cloud

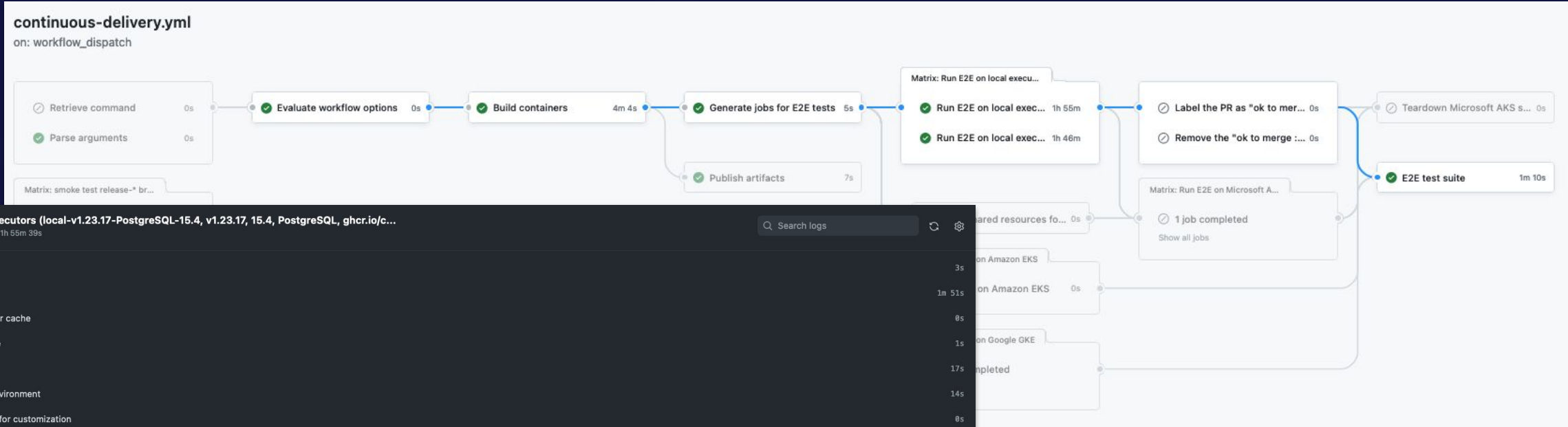


Use Cases

CI/CD

- Continuous delivery key to Agile (and agile) development.
- Need consistency between what a dev sees and what's in prod.
- Configuration as code lets you re-create environments that match your production stack in the test/deployment pipeline.
- Optimise for developer productivity.
- Automate routine tasks & enable self service.
- Create short lived Cloud database instance as part of your pipeline.
- Decommission it if tests pass, keep it around if they fail to diagnose.
- Can also use CNP running in e.g. KIND (K8s in Docker) for similar purposes on premise.

CI/CD - Example



Run E2E on local executors (local-v1.23.17-PostgreSQL-15.4, v1.23.17, 15.4, PostgreSQL, ghcr.io/c...)
succeeded 12 hours ago in 1h 55m 39s

- Set up job
- Cleanup Disk
- Cleanup docker cache
- Checkout code
- Install Go
- Prepare the environment
- Prepare patch for customization
- Run Kind End-to-End tests
- Report failed E2E tests
- Create individual artifact for each E2E test

```
1 Run set +x
44 + set +x
45 {"runner": "local", "postgres": "15.4", "postgres_kind": "PostgreSQL", "kubernetes": "v1.23.17", "runid": "6068008657", "id": "local-v1.23.17-PostgreSQL-15.4", "repo": "cloudnative-pg/cloudnative-pg", "branch": "release-1.20", "refname": "refs/heads/release-1.20" }
46 test matrix:
47 {"runner": "local", "postgres": "15.4", "postgres_kind": "PostgreSQL", "kubernetes": "v1.23.17", "runid": "6068008657", "id": "local-v1.23.17-PostgreSQL-15.4", "repo": "cloudnative-pg/cloudnative-pg", "branch": "release-1.20", "refname": "refs/heads/release-1.20" }
48 Directory testartifacts-local-v1.23.17-PostgreSQL-15.4 Created
49 test matrix:
50 {"runner": "local", "postgres": "15.4", "postgres_kind": "PostgreSQL", "kubernetes": "v1.23.17", "runid": "6068008657", "id": "local-v1.23.17-PostgreSQL-15.4", "repo": "cloudnative-pg/cloudnative-pg", "branch": "release-1.20", "refname": "refs/heads/release-1.20" }
```

<https://github.com/cloudnative-pg/cloudnative-pg/actions/runs/6068008657>

Tech Eval

- PAYG Cloud resources allow for quick/cheap technology evaluation.
- This could even be inside a production environment.
- Solve the problem quickly then decide the longer term strategy.
- De-risk the decision making process.
- Requires procurement processes be streamlined & provide effective governance.
- Preselecting vendors (for e.g. via marketplaces) can help. Inherent tension between governance and flexibility - decide where you want to sit.
-

Right Sizing

- Once a workflow is running and understood, revisit it for right sizing resources and/or discounts.
- FinOps team (or equivalent) will love you.
- CSPs allow for guardrails to be deployed - hard and/or soft budget limits at the subscription level.
- In BigAnimal these subscriptions can then be assigned to a Project.
- Many tools to help identify areas of improvement - moving long running services to RIs, right sizing pod allocations etc.

DR

- Emulating failure modes is easier on disposable infrastructure.
- We run our DR plan weekly as part of our release process.

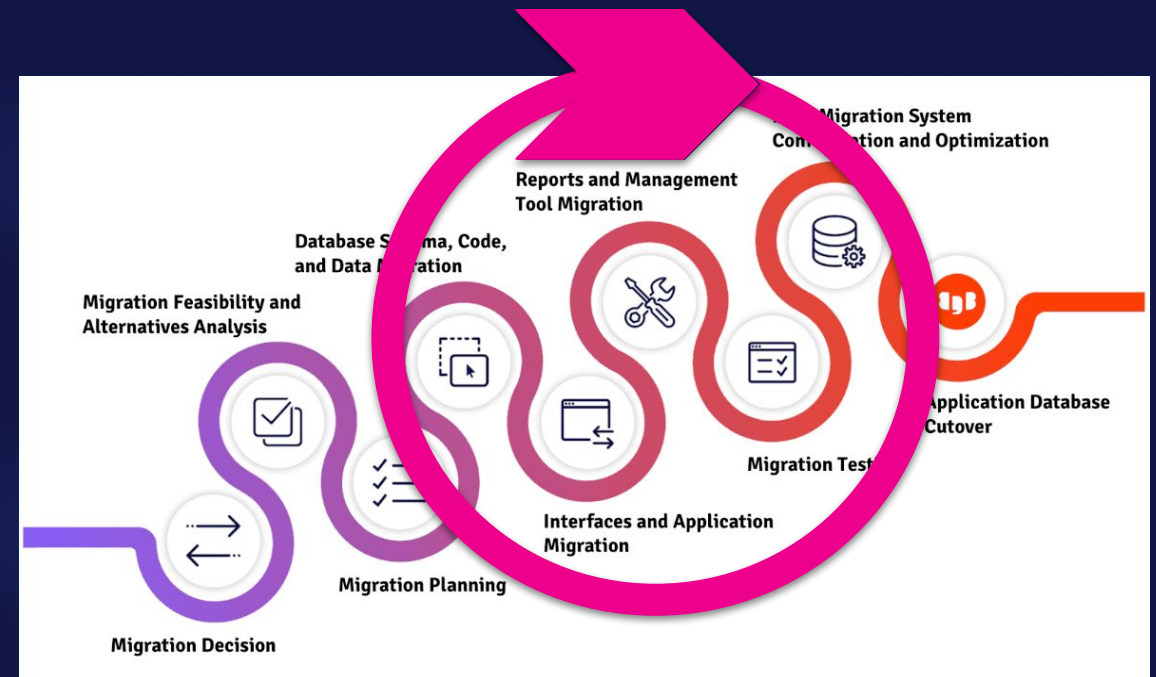
Being able to bootstrap an environment from scratch is a good exercise:

- Where is automation incomplete?
- What processes are undocumented?
- What did you do manually last time?

Kubernetes opens up possibilities for further experimentation - delete pods, apply unfriendly network policies etc.

Migration as Modernisation

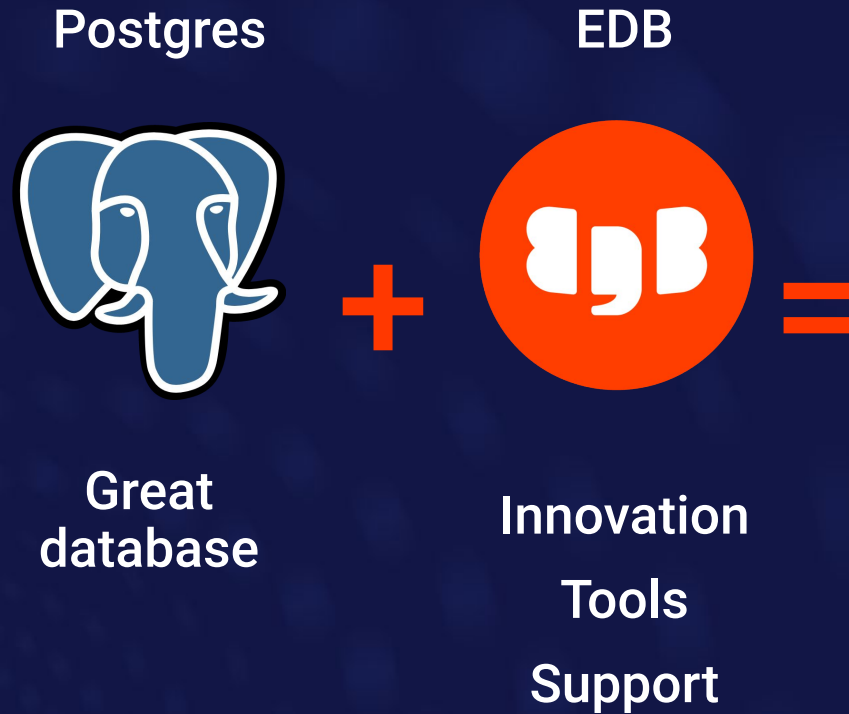
- Running the “new world” in parallel with the old is easier with on demand infrastructure & services.
- Incrementally bring an application & its users to the new stack.
- Decommission old infrastructure when fully happy.



Practice migration on BigAnimal - iteration through to production

SUMMARY

A great database, in the cloud, enterprise ready



Deploy
Anywhere

- Agility
- Flexible Deploy
- Cloud + On-premise

Enterprise
Grade
Database

- Enterprise Management
- Security & Control
- High Availability & Scale

Works for
your
business

- Postgres Expertise
- Predictable pricing
- Easier Legacy DB Migration

Q&A