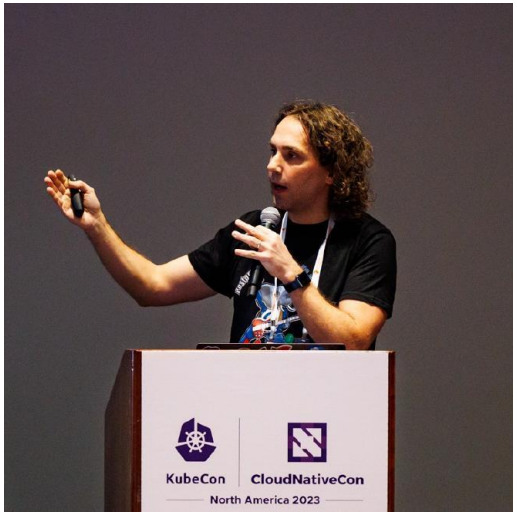
If your cloud provider **doubled** its PostgreSQL **pricing** tomorrow, how quickly could you **migrate** your database to another provider?

EDB POSTGRES AI

Beyond the DBaaS Trap:
Achieving Data Sovereignty With Kubernetes and CloudNativePG

Gabriele Bartolini
VP & Chief Architect for Kubernetes at EDB

About me



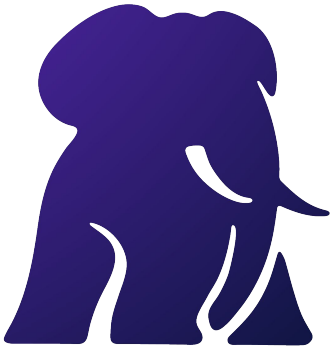
Gabriele Bartolini

VP, Chief Architect, Kubernetes @ EDB

CloudNativePG maintainer

PostgreSQL Contributor

DoK Community Ambassador



CloudNativePG

is a CNCF Sandbox Project

the first relational database to enter since 2018

the first ever for PostgreSQL

originally created by EDB

Key adopters

IBM Cloud Pak, Google Cloud, Azure, Bitnami, Akamai, Novo Nordisk, Hitachi, Tesla
(... and many others I cannot name)

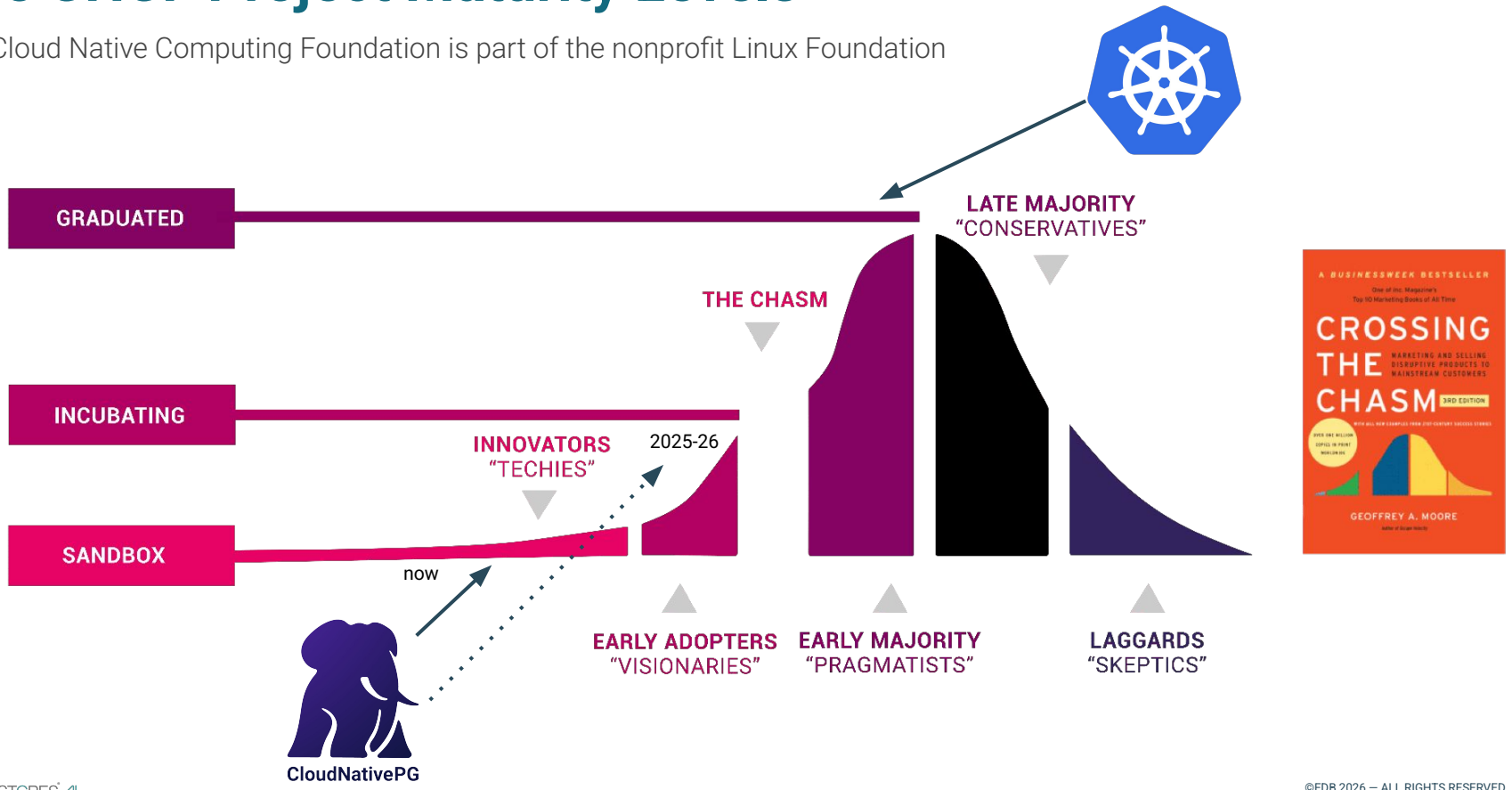
Target: CNCF Incubation in 2025-2026

github.com/cncf/toc/issues/1961

github.com/cloudnative-pg

The CNCF Project Maturity Levels

The Cloud Native Computing Foundation is part of the nonprofit Linux Foundation



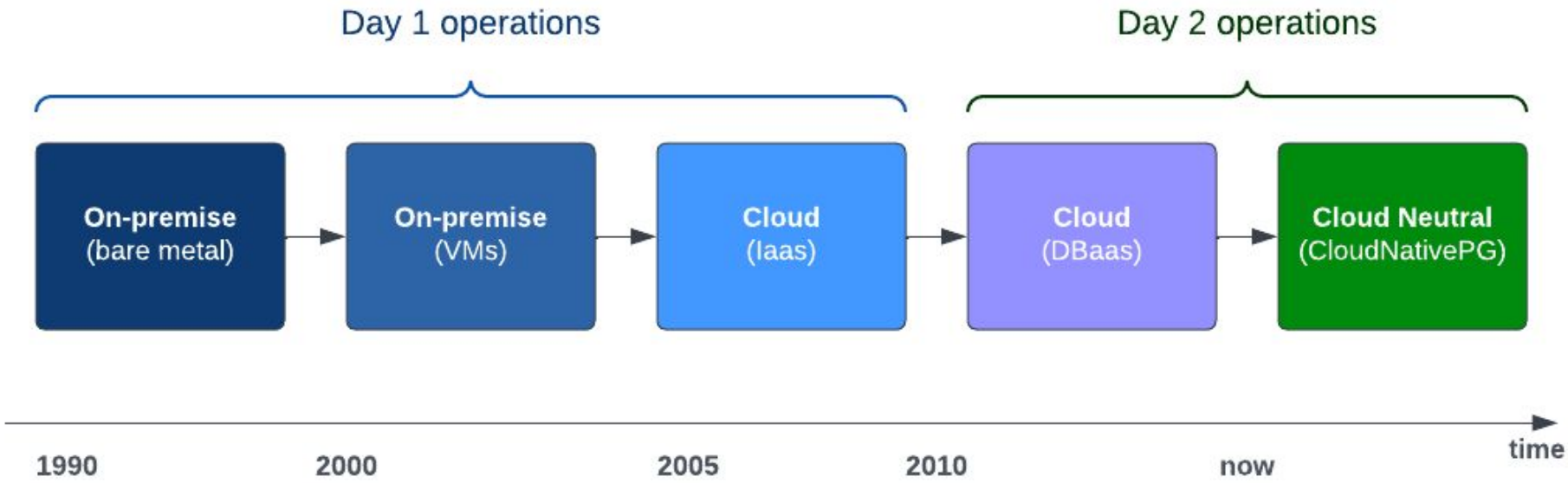
Agenda

- The DBaaS Trap
- The Sovereignty Imperative
- The Cloud-Neutral Stack
- Migration Without Downtime
- Permanent Portability

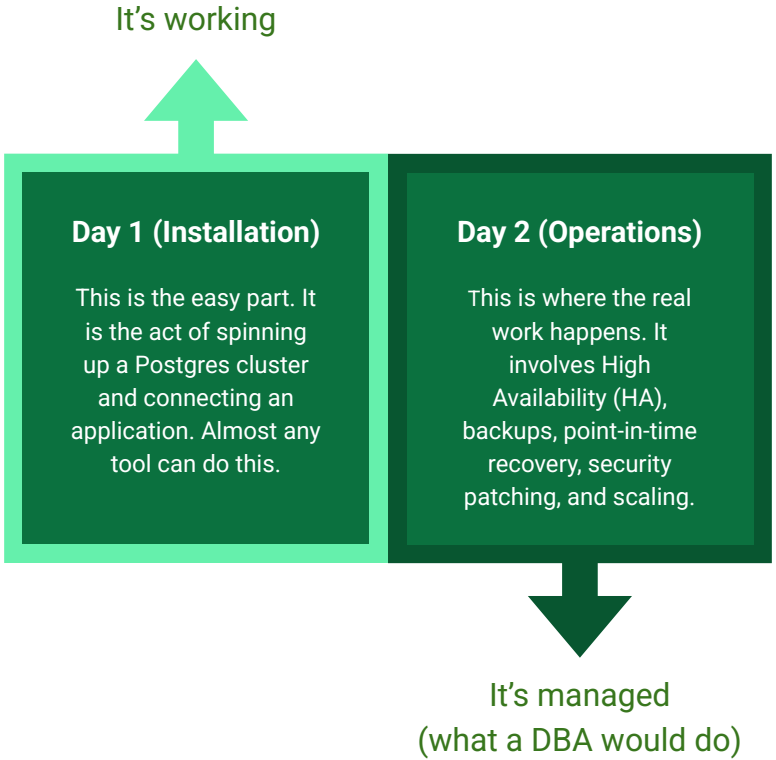
EDB POSTGRES AI

The DBaaS Trap

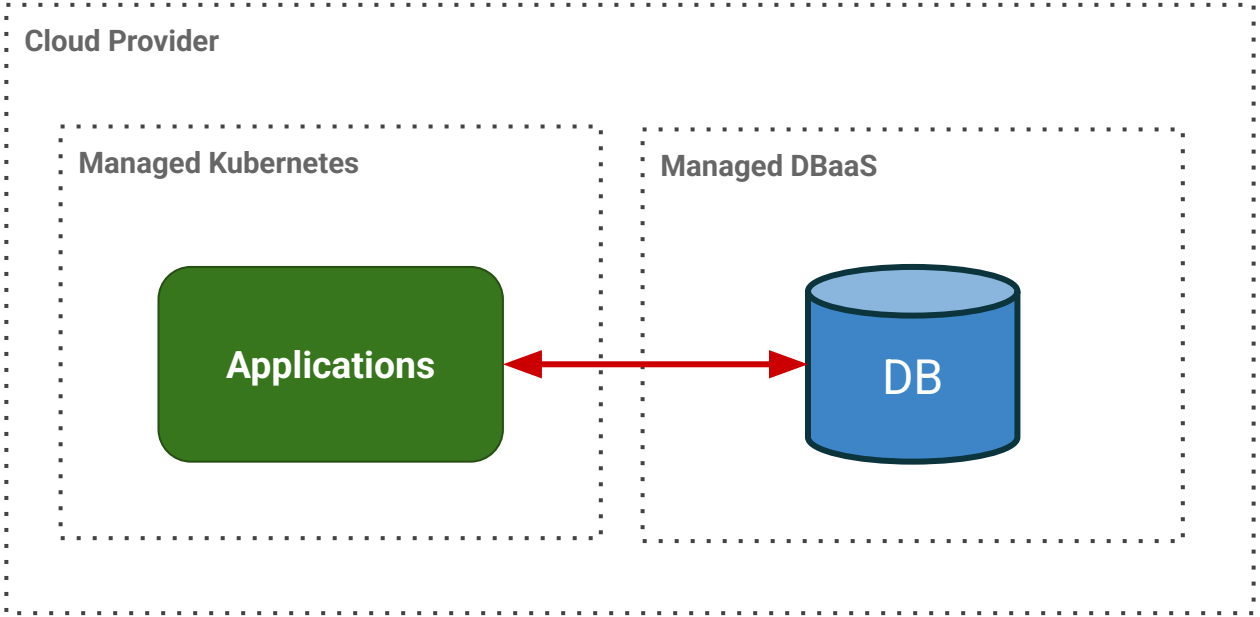
The 5 eras of Postgres



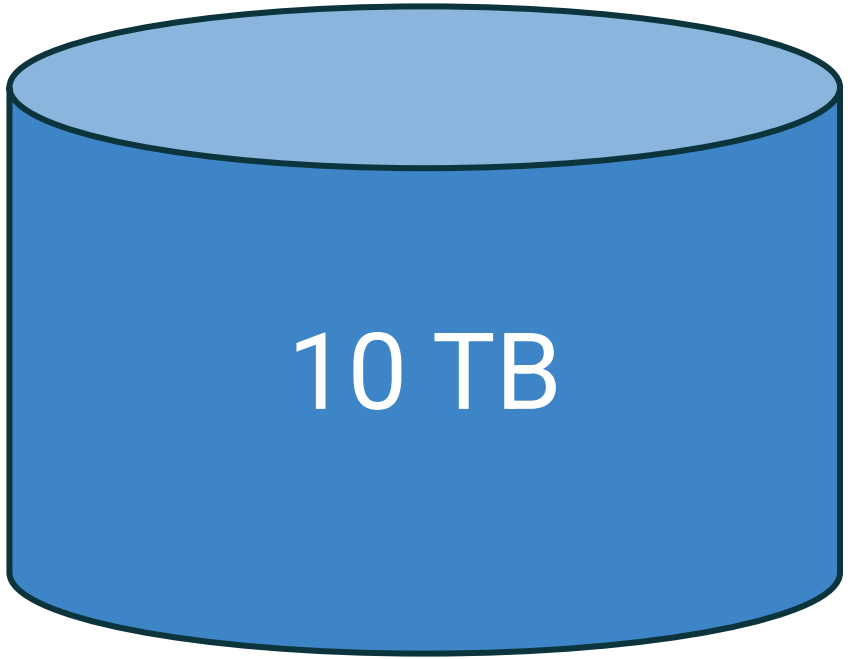
The DBaaS trap



Typical DBaaS deployment with PostgreSQL



The DBaaS wall (data gravity)



Logical export with pg_dump takes time (physics always wins).

Outbound physical replication is not permitted.

Owning the pipe: the physical replication gap

- **The WAL stream is the beating heart of PostgreSQL**
  - Real-time standbys, WAL archiving, PITR, multi-cloud replication
- **DBaaS providers deliberately withhold it**
  - This is not an oversight — it is the architecture of lock-in
- **At scale, the cost of leaving grows faster than the cost of staying**
  - The provider knows it — by design
- **CloudNativePG gives it back — you own the pipe**
  - Standard PostgreSQL, full WAL access, permanent portability on your terms

EDB POSTGRES AI

The Sovereignty Imperative

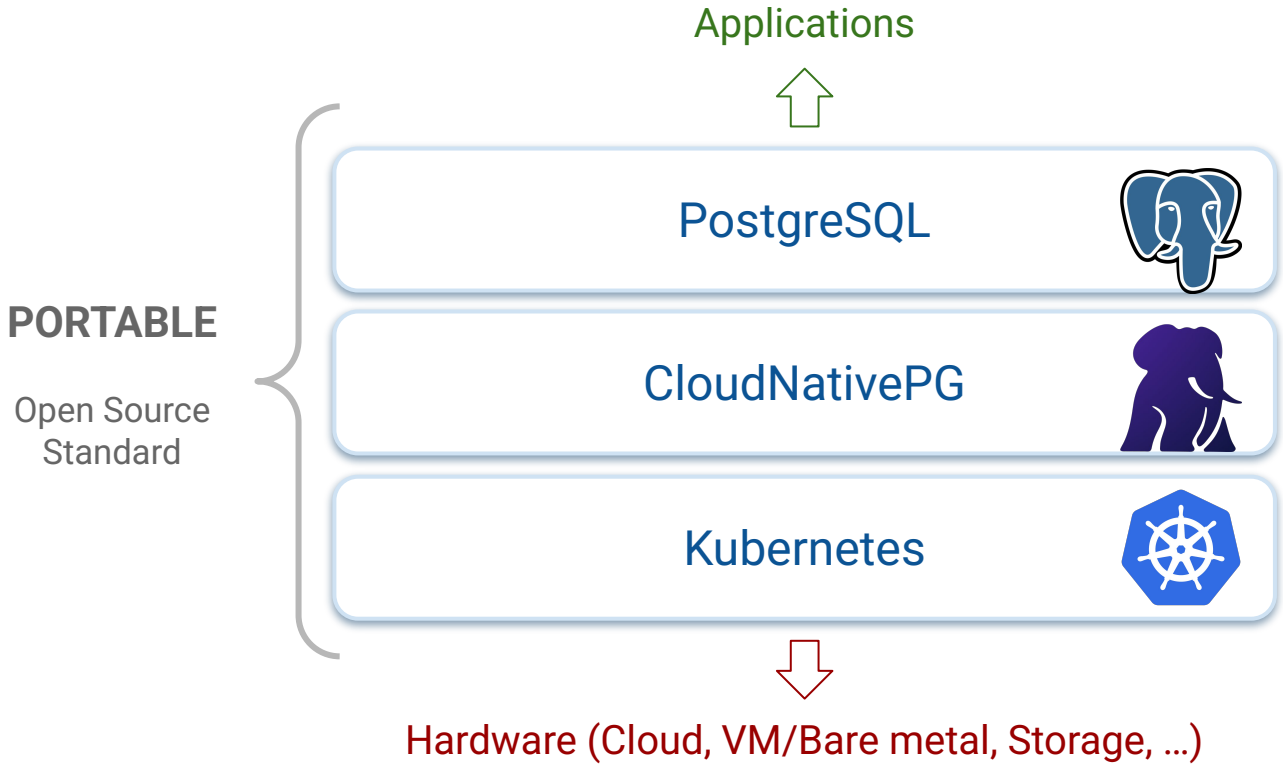
Compliance is now a pull force

- **EU Data Act**
  - Organisations must demonstrate ability to move data and switch providers
- **EU Cyber Resilience Act (CRA)**
  - Software manufacturers must secure and support distributed artefacts; data portability required
- **Sovereignty is no longer purely an architectural preference**
  - A cloud-neutral architecture built on open standards is what auditors mean by “evidence of portability”
- **CloudNativePG + Kubernetes = the most direct compliance path**
  - The operational capability to actually execute a migration under time pressure — not just claim you could

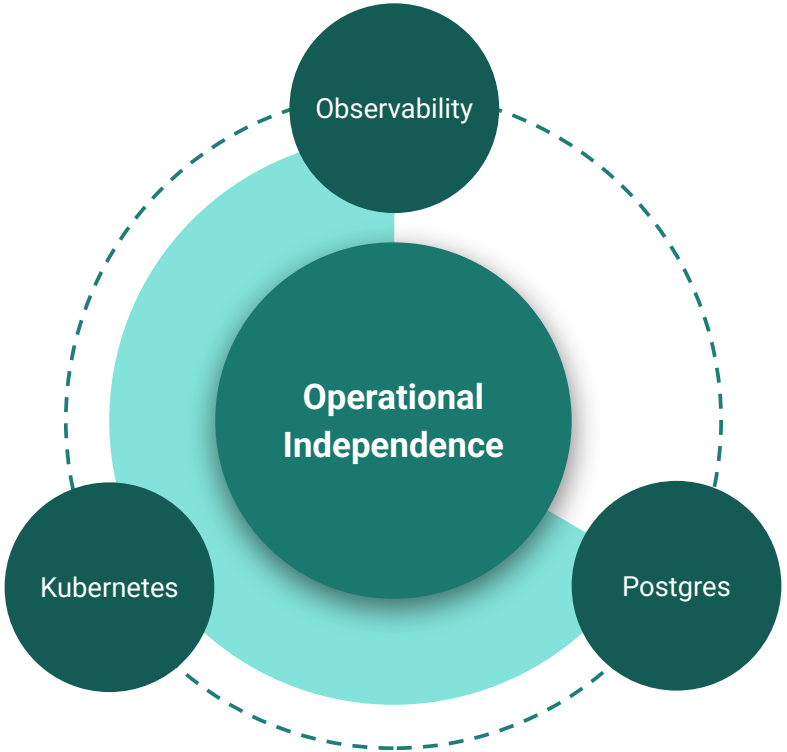
EDB POSTGRES AI

The Cloud-Neutral Stack

Reclaiming control: the Cloud Neutral stack



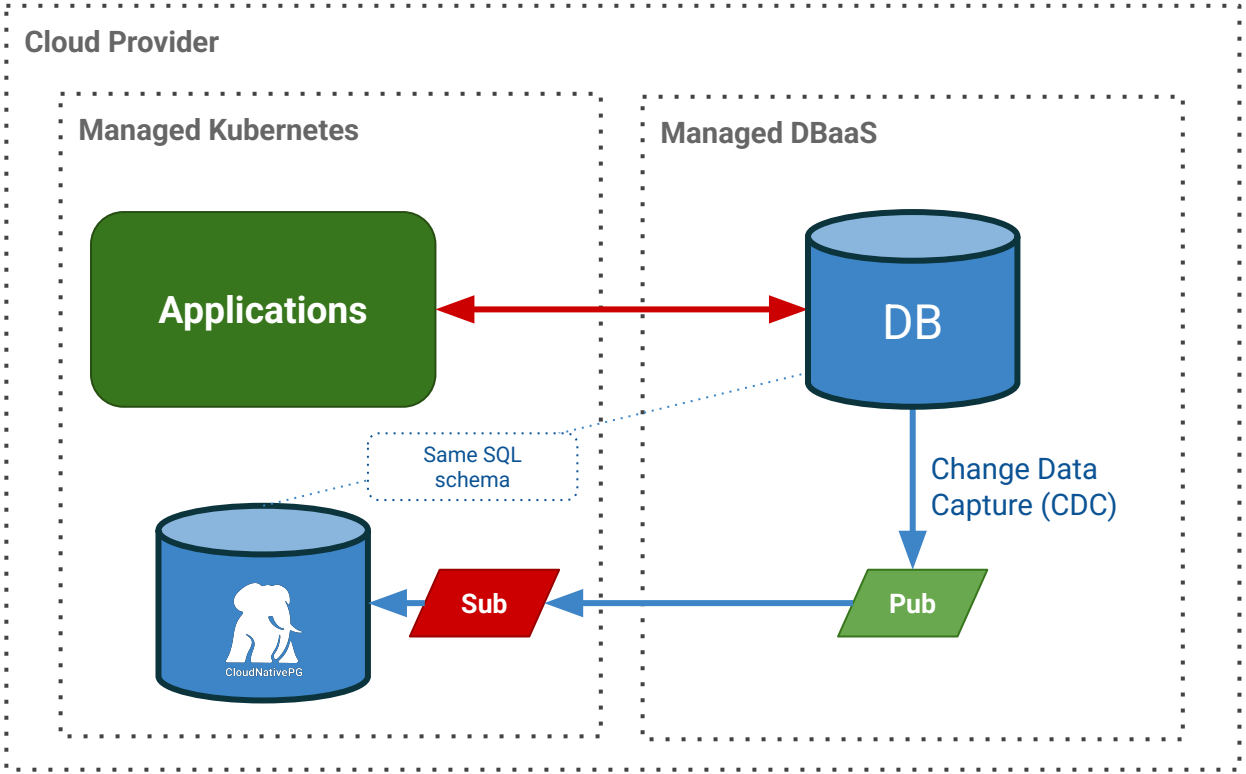
Holistic Sovereignty



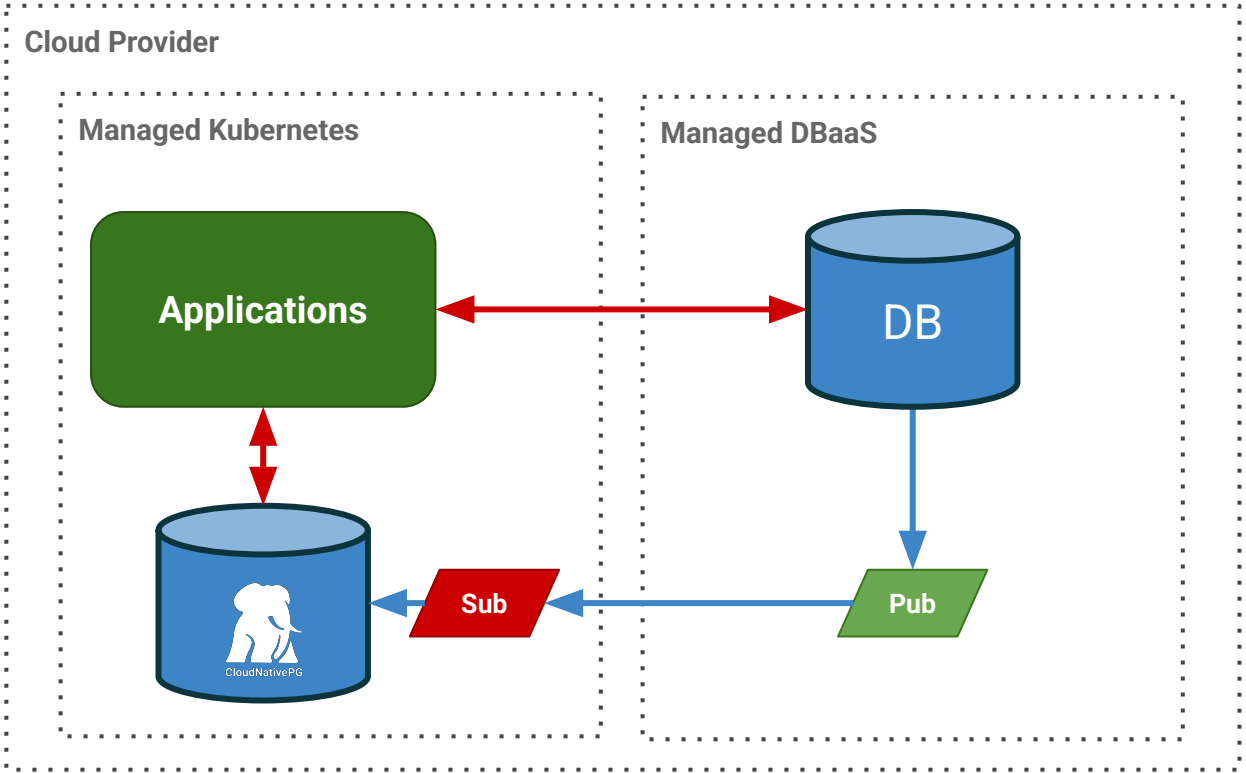
EDB POSTGRES AI

Migration Without Downtime

Phase 1: Blue/green migration (setup of logical replication)



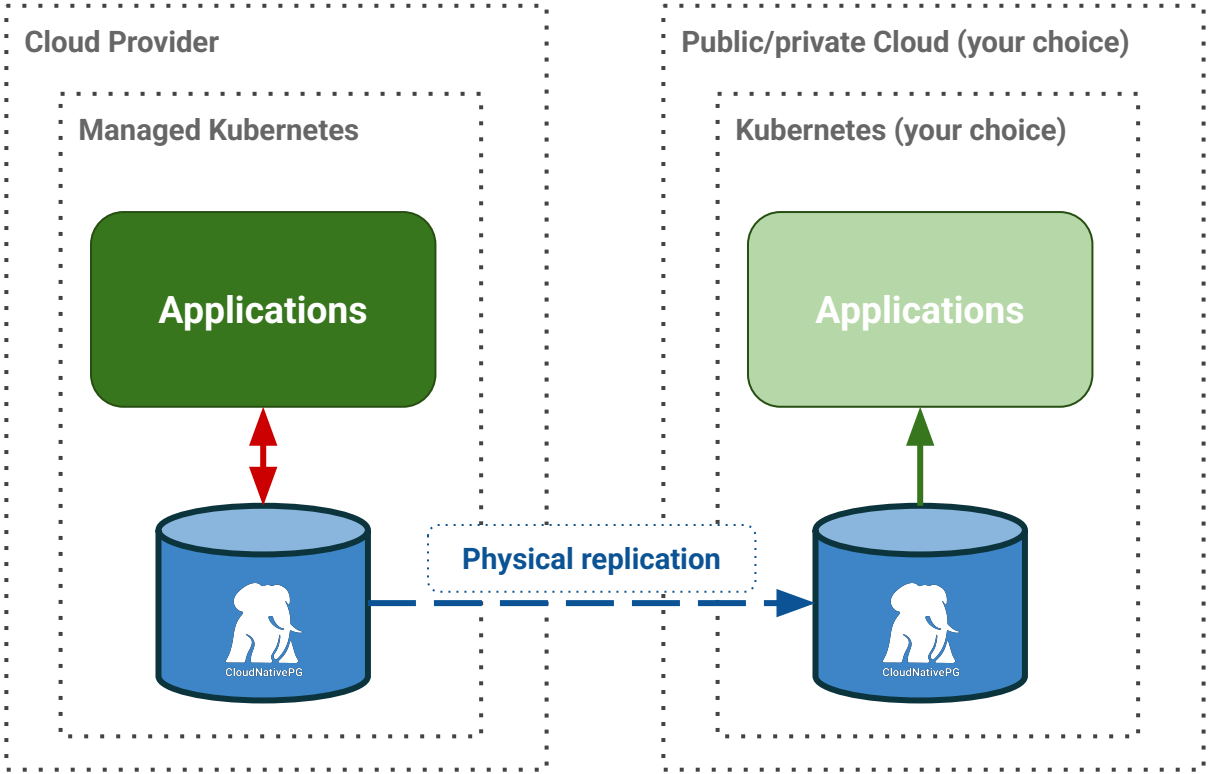
Phase 2: Blue/green migration (cutover)



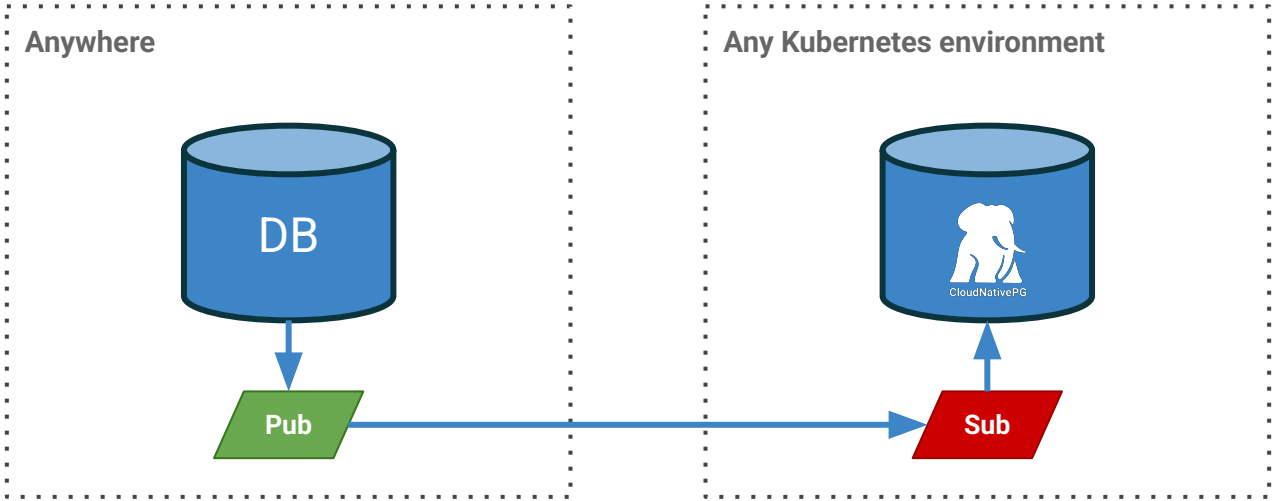
EDB POSTGRES AI

Permanent Portability

Phase 3: Permanent portability



There’s more …



Conclusion

- **The DBaaS trap is real** — convenience comes at the cost of control; Day 2 operations belong to the provider, not you
- **Sovereignty is now a mandate** — EU Data Act and CRA transform portability from a preference to a legal obligation
- **The cloud-neutral stack is production-ready** — Kubernetes + CloudNativePG + PostgreSQL is the proven alternative, not an experiment
- **Migration without downtime is achievable** — logical replication from RDS, Azure and Cloud SQL requires no big bang, no service interruption
- **Permanent portability means owning the WAL stream** — physical replication is the only guarantee your data is never stranded again

EDB POSTGRES AI

EDB and CloudNativePG for enterprises

EDB differentiation on CNPG

- **EDB Postgres AI for CloudNativePG (operator)**
  - Currently a fork of CloudNativePG
  - Migrating to a CNPG-I plugin on open-source CloudNativePG in 2H 2026
  - Long Term Support: 18 months per release
- **Enterprise PostgreSQL engines and extensions (operands and extension images)**
  - EDB Postgres Extended (PGE): Transparent Data Encryption (TDE)
  - EDB Postgres Advanced Server (EPAS): Oracle compatibility layer
  - Both support OCI extension image volumes from PostgreSQL 15+
- **Enterprise Data Protection for CloudNativePG™ (Klio, GA 2H/2026)**
  - Multi-tier, Kubernetes-native backup and recovery as a CNPG-I plugin
  - RPO=0 via continuous WAL streaming; block-level incremental and differential backup

Go further

- **Whitepaper —** EDB Postgres AI on Red Hat OpenShift (Dell Technologies)
- **Talk —** Data on Kubernetes Day: From VMs to Kubernetes (Gabriele Bartolini, EDB & Laurent Parodi, HSBC)
- **Case study —** Intesa Sanpaolo: Customer Success Story
- **Solution brief —** CloudNativePG Solution Brief
- **Interview —** Architecting Freedom: Postgres, Kubernetes, and the Power to Run Anywhere
- CloudNativePG website