Today's Presenters

Mostafa Zakaria
Sales Engineer, EDB

Pythagoras Papadimitriou
General Manager, Cloudway

Ton Machielsen
Senior Sales Engineer, EDB

Cloudway
IT Consulting & Services

Agenda

- Cloudway & EDB

- Why Move off of Oracle?

- Why EDB?

- What is our Oracle Migration Approach?

- What's in it for You?

- Q&A

The EDB-Cloudway Partnership

- EnterpriseDB (EDB), founded in March 2004, is a privately held American software company headquartered in Bedford, Massachusetts

- EDB is the world's largest software, support, and services company focused exclusively on PostgreSQL. EDB is the largest contributor of PostgreSQL

- EDB provides a portfolio of databases and tools that extend PostgreSQL for enterprise workloads

- Cloudway has been a partner of EDB since its inception and covers Greece, Cyprus, Romania, and Bulgaria.

- Cloudway has developed strategic partnerships with leading partners of EDB in EMEA, such as Nibble, Kangaroot & Stromatics

Cloudway & PostgreSQL

- Cloudway was the first to introduce in Greece and Cyprus the concept of professionally supported PostgreSQL installations, backed by the strictest 24/7 SLAs

- Cloudway also specializes in providing the infrastructure necessary for enterprise-grade PostgreSQL, ensuring high availability across all environments, whether on-premises, hybrid, or public cloud

- Cloudway employs the most experienced PostgreSQL engineers in Greece and Cyprus, with a proven track record of handling highly demanding PostgreSQL-related projects. Our engineers also possess expertise in other RDBMS platforms, such as Oracle, which is essential for seamless migrations

- In less than two years of operation, Cloudway has successfully installed and supports PostgreSQL RDBMS for major banks, commercial enterprises, and public sector organizations in Greece and internationally

Oracle & PostgreSQL in Greece & Cyprus

- There is no reliable published data on RDBMS market shares in Greece and Cyprus. However, Oracle is estimated to dominate the enterprise RDBMS market in both countries, holding more than 50% of the market share

- An unnecessarily large portion of IT budgets is often consumed by licensing and Oracle support costs. In contrast, PostgreSQL, being open-source, eliminating the need for costly licenses and support fees typically associated with Oracle

- Many companies and organisations in both countries are unaware that PostgreSQL is comparable to — if not superior to — Oracle for enterprise-level requirements.. They are also often unaware of the tools and services available to facilitate seamless migration from Oracle to PostgreSQL, offering a realistic alternative to vendor lock-in

- Oracle's dominance in the public sector in Greece and Cyprus places a significant burden on state budgets while contributing to the outflow of tax revenues to non-EU countries. Additionally, issues related to code transparency, security, and control arise, which conflict with the mandates and principles set forth by the European Commission

Why Move off of Oracle?

Companies must shift to new digital operating models to compete and stay relevant

A new world has emerged

- Data is the currency
- Data ownership is an economic advantage
- Databases are a strategic asset

It's typically one of the following reasons:

Price
Oracle's high cost

Restrictive and complicated contracts

Agility
70% of new apps use open source

Adopt modern software architectures

Deployment options
Organizations move to any Cloud

Transition to Containers / Cloud Native

Innovation
Oracle software is in maintenance mode

Postgres innovates in many directions

Consolidation
Focus IT spend on fewer platforms

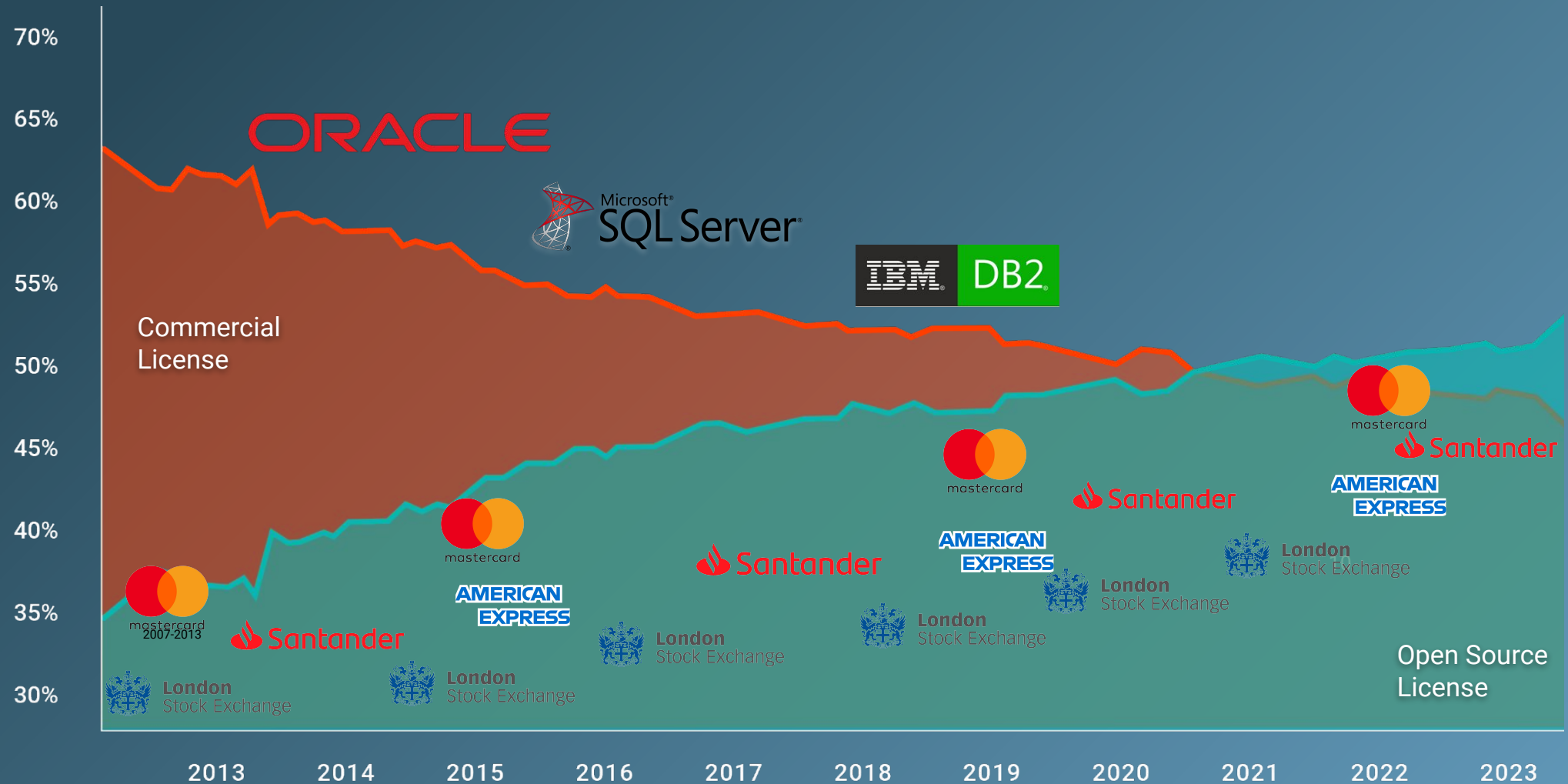PostgreSQL fits many workloads

Future-proof
PostgreSQL inherently innovates as the market evolves

Open source databases now outpace legacy

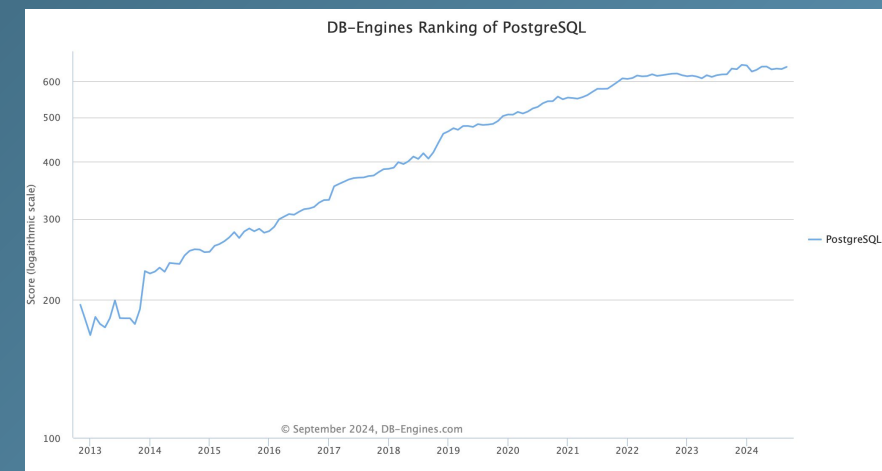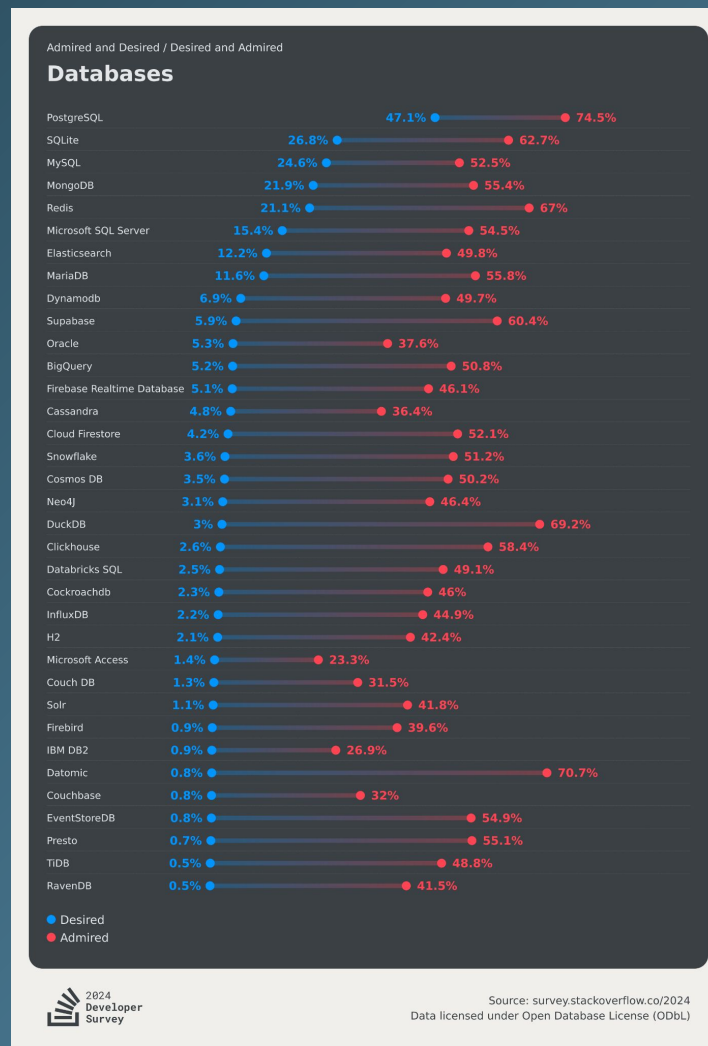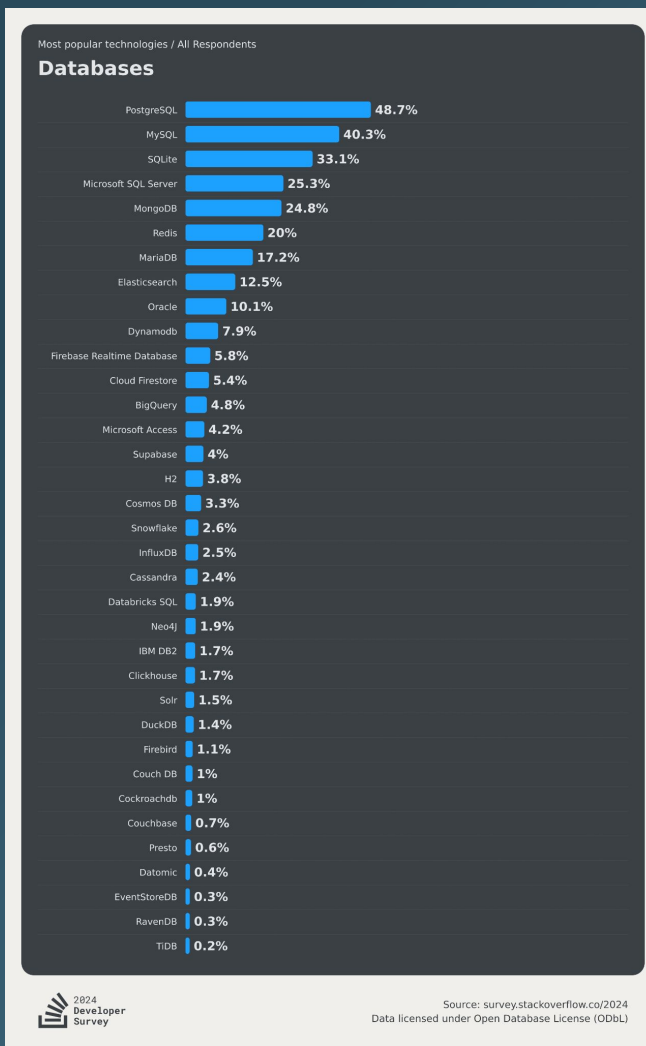Commercial License

Open Source License

source: db-engines, IDC

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Postgres has consistently led the open source pack

Why EDB?

EDB in Summary

EDB is the world's largest software, support, and services company focused exclusively on PostgreSQL. We are proud to serve some of the world's leading financial services, government, media & communications, and information technology organisations. Our 16 offices worldwide enable us to deploy our global expertise in all your business locations.

POSTGRESQL COMMUNITY LEADERSHIP

- ~40% of Postgres code contributed
- >300 Dedicated Postgres engineers
- 3 of 7 Postgres Core Team Members

EDB PLATFORM (SOFTWARE & TOOLS)

- Databases: PostgreSQL, EPAS
- Tools: Variety of supported open source and proprietary tools for High availability, backup, monitoring and migration

EDB SUPPORT

- 24/7 world-class support
- Experienced support engineers, with the world's leading Postgres contributors
- Cloud/Remote DBA Service, Technical Account Management, CTO Office

EDB SERVICES

- PostgreSQL deployment, design, migration
- Postgres optimization: Best practices
- Enterprise strategy: Use-case driven PostgreSQL architectures
- Embedded PostgreSQL experts

Industry leaders are adopting Postgres
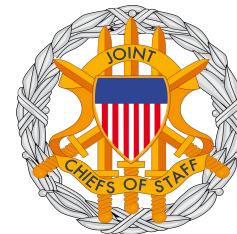
Financial Services & Insurance	Technology	Telecom

EDB is trusted by the most secure organizations

Databases EDB supports

EDB COMMUNITY 360 PLAN

Ideal for organizations with an OS first strategy as well as those using PostgreSQL for admin and operational applications

PostgreSQL

- Open Source Tools
- Community PostgreSQL
- EDB & Community Support
- Kubernetes Operator

EDB ENTERPRISE PLAN

Best choice for Oracle modernization and savings, mission critical applications and systems of record.

Oracle Compatibility
Super Set of SQL
Advanced Security
Advanced Replication*
Transparent Data Encryption
PostgreSQL

EDB Postgres Advanced: Redwood Mode only

EDB Postgres Advanced: Redwood and Berkeley Mode
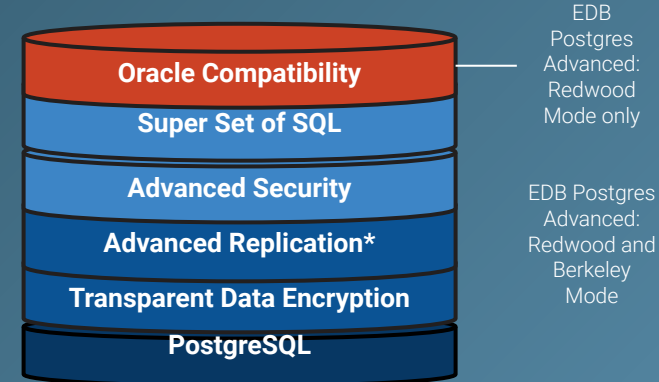
- Open Source Tools
- Community PostgreSQL
- EDB & Community Support
- Kubernetes Operator
- EDB Tools & Extension - Including PEM
- EDB Postgres Extended
- EDB Postgres Advanced Server
- Extreme High Availability (PGD addon)*

Our Platform

EDB POSTGRES AI PLATFORM

UNIFIED WORKLOAD MANAGEMENT

TRANSACTIONAL	ANALYTICAL	ARTIFICIAL INTELLIGENCE

SINGLE PANE OF GLASS ADMINISTRATION

HYBRID DATA ESTATE	INTELLIGENT OBSERVABILITY	ENTERPRISE SECURITY

HYBRID AND MULTI-CLOUD DEPLOYMENT

PUBLIC CLOUD (MANAGED)	PRIVATE CLOUD (SOFTWARE)	ON PREMISES (APPLIANCE)

EXTENSIBILITY

- CSP INTEGRATIONS
- DEVOPS TOOLING
- KUBERNETES TOOLING
- GENAI & LLM INTEGRATIONS
- LAKEHOUSE INTEGRATIONS

PLATFORM TOOLS AND SERVICES

MIGRATION PORTAL	CONTINUOUS HIGH AVAILABILITY	BACKUP AND RECOVERY

Delivered with world-class strategic partners:

Cloudway
IT Consulting & Services

carahsoft.

Red Hat

IBM

SUPERMICRO

NUTANIX

What is our Oracle migration approach?

Typical migration concerns

"Will our SQL and PL/SQL translate or will we need to recode?"

"Will we have downtime?"

"Will the new database be as secure or more secure than the legacy systems?"

"Will our applications continue to work?"

"Can we verify that the data is equivalent?"

"Will migrating cost more money and hold back development apps?"

Oracle database migration solutions
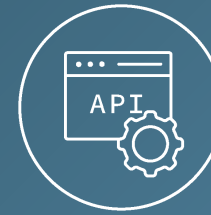
Schema
Data
DB Code
API
Tools

Part of the way
Schema and data only →

Most of the way
Schema, data, and code →

Almost there
Schema, data, code, and interface →

All the way
Schema, data, code, interface, and operational tools →

Legacy application database migration journey

Optimize and configure
post migration system

Migrate reports and
management tools

Migrate DB schema,
code, and data

Analyze feasibility and
alternatives

Complete cutover

Decide to migrate

Test migration

Migrate interfaces and
application

Plan migration

Understanding your database estate

What are we dealing with?

LISTS OF APPLICATIONS AND DATABASES

- Application name

- Commercial off the shelf (COTS) or custom developed

- Nbr of database(s)/schema(s)

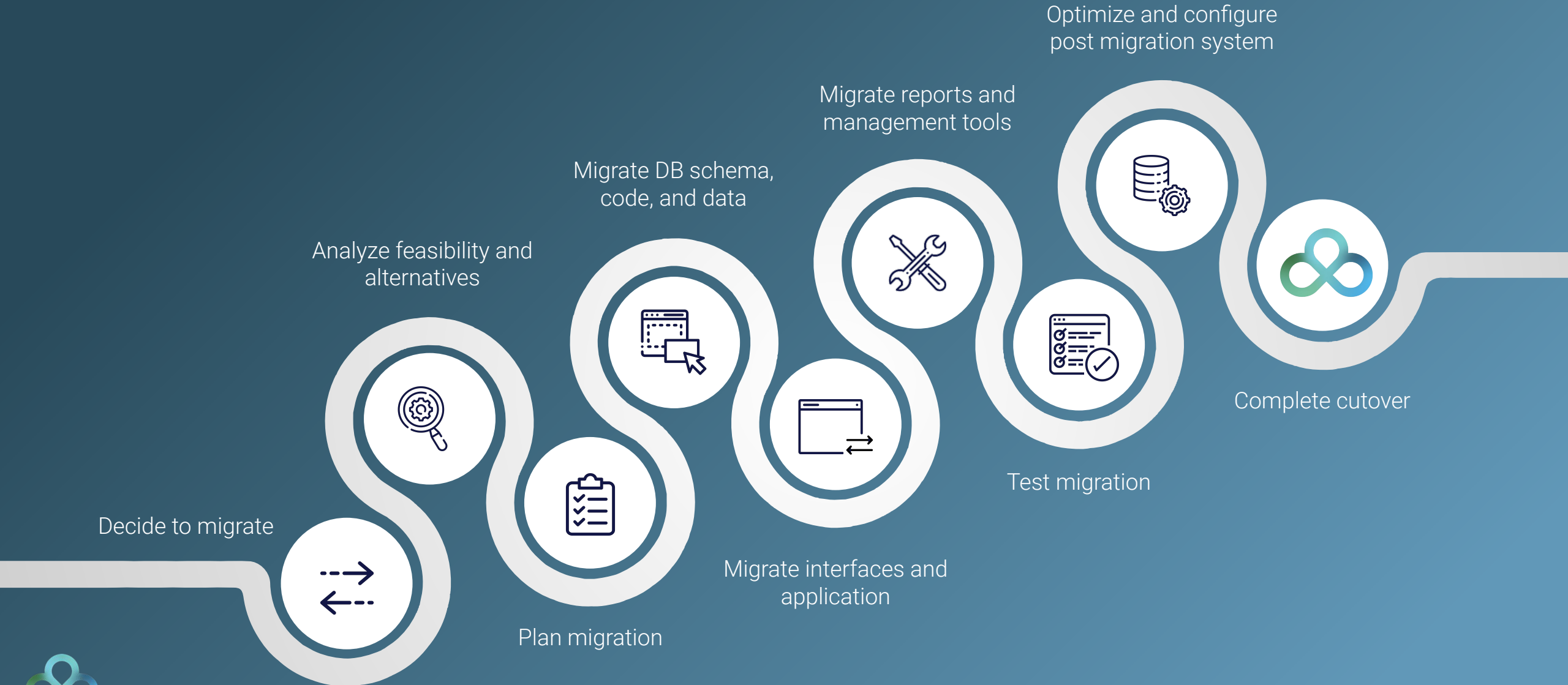- Primary use case (data lake, data warehouse, data mart, ODS, SoR, SoA, Edge, Mobile)

- Data volume and read/write % balance

- Lifecycle stage (strategic, EoL within 24 months, scheduled for overhaul within 24 months)

- Current database technology platform (Oracle, DB2, SQL Server, Sybase, etc.)

- Is the application development or maintenance team available for verification and, potentially, minor changes to the application?

- Is a test harness available for functional and non-functional verification?

Applications and databases

Two sides of the same coin
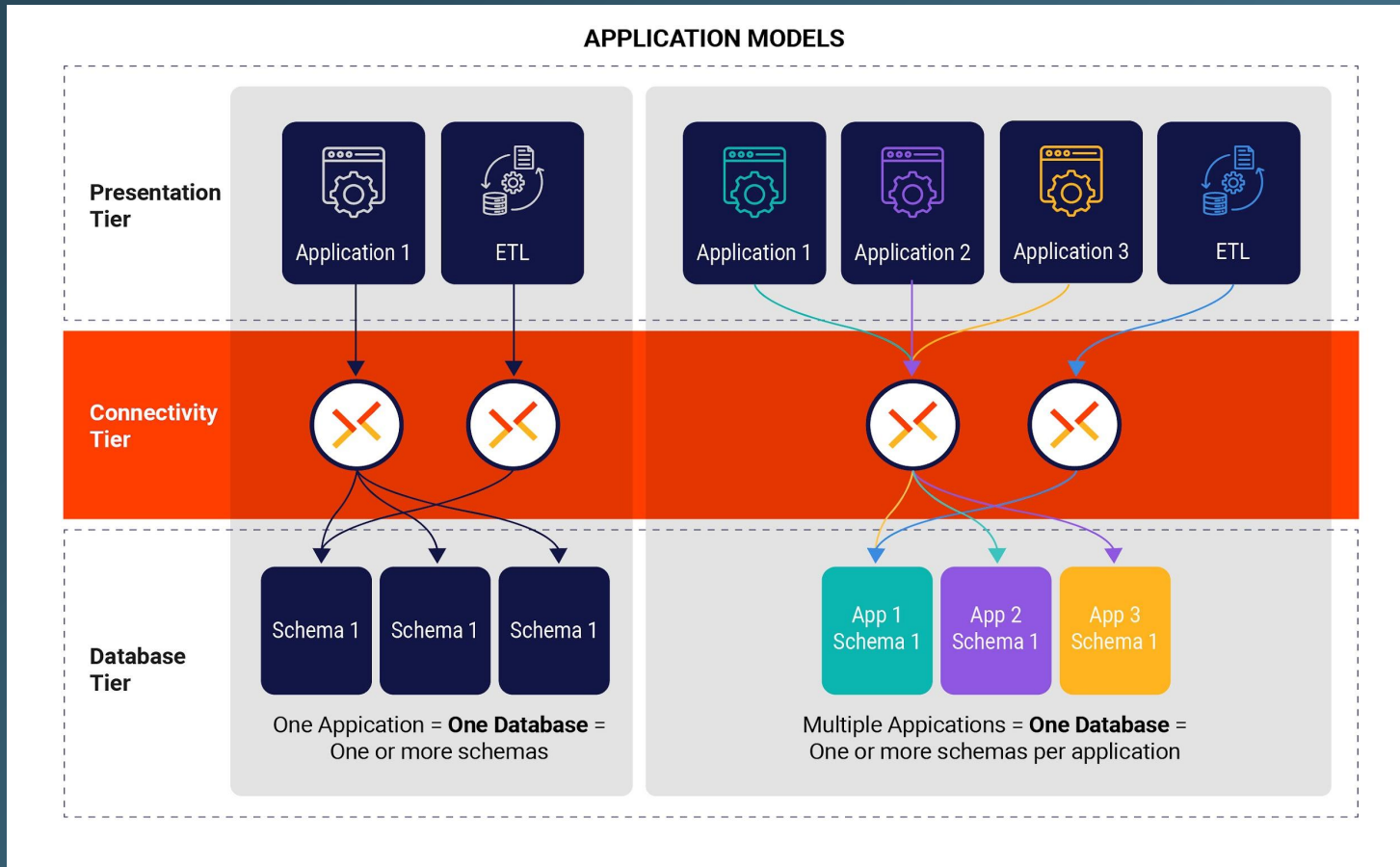
- Some databases support multiple applications

- Some applications use multiple databases

Understand Postgres' fit

Postgres is great, but not universal

	Data Lake	Data Warehouse	Data Mart	ODS	System of Record	System of Engagement	Edge Computing	Mobile Computing
Description	100 TB+; read-only; relational +; multiple topics; rel. Integrity not relevant ; data scientist focus	50TB+; read only; relational; star/cube/ mat. view; automatic refresh mat. view; multiple topics; analyst focused	10TB+; read only; relational; star/cube/ mat. view; periodic refresh mat view; single topic; citizen analyst focus	10TB+; read only; relational only; normalized data model; concurrent refresh; citizen analyst focused	1-20TB; read/ write; 90% relational; ACID; ERP/ CRM, Line of business focused	< 2TB; read/ write; relational + doc + GIS; ACID or BASE; micro services; website and social media focus	< 2TB; read/write; relational + doc + GIS; ACID or BASE; micro services; M2M, IoT focus	< 1GB; read/write; relational + doc + GIS; single user; micro services IoT, mobile app focus
Key players	Hadoop, Cassandra, Data Bricks	Redshift, Snowflake, Teradata, Exadata, BigQuery	Exadata, Oracle DB, SQL Server, Postgres	Oracle, SQL Server, Postgres	Oracle, SQL Server, Postgres	MongoDB, MySQL, Redis, Postgres	MySQL, Postgres	SQLite, Realm
Postgres strengths			Analytics capab.; compatibility; ease of integration	Analytics capab.; compatibility; ease of integration	Innovation; cost; compatibility; no vendor lock in;	Multi-model; innovation; cost; Available everywhere	Multi-model; innovation; cost; Available everywhere	
# in the enterprise	1 (maybe 2-5)	10-50	5-20	10-5,000	10-2,000	100 -10,000	10,000+

- Use the right tool for the right job

- Yes, Postgres has been known to be used in DWH, Data Lakes and in mobile apps, but...

Degrees of compatibility

What's easy, what's hard

- Very Easy: No conversion at all/No incompatible code objects

- Easy: Minor changes/Automatic repair through Migration Portal or known, simple workarounds.

- Medium: Moderate conversions need to be applied.

- Hard: New design, development and testing needed

- Very Hard: Complete rewrite of application, db features etc (Eg: Apex, Forms) that may not be worthwhile targets for a migration effort

- Don't: Commercial off the shelf applications where the vendor does not support Postgres

Degrees of compatibility

What does it usually look like?

**Average person days for schema and data migration
(Source: 2022 EDB Oracle Migration Assessments)**

- 4. Very Hard (>40) — 10.9%
- 1. Easy(<5) — 17.4%
- 3. Hard (21 - 40) — 28.3%
- 2. Moderate (6-20) — 43.5%
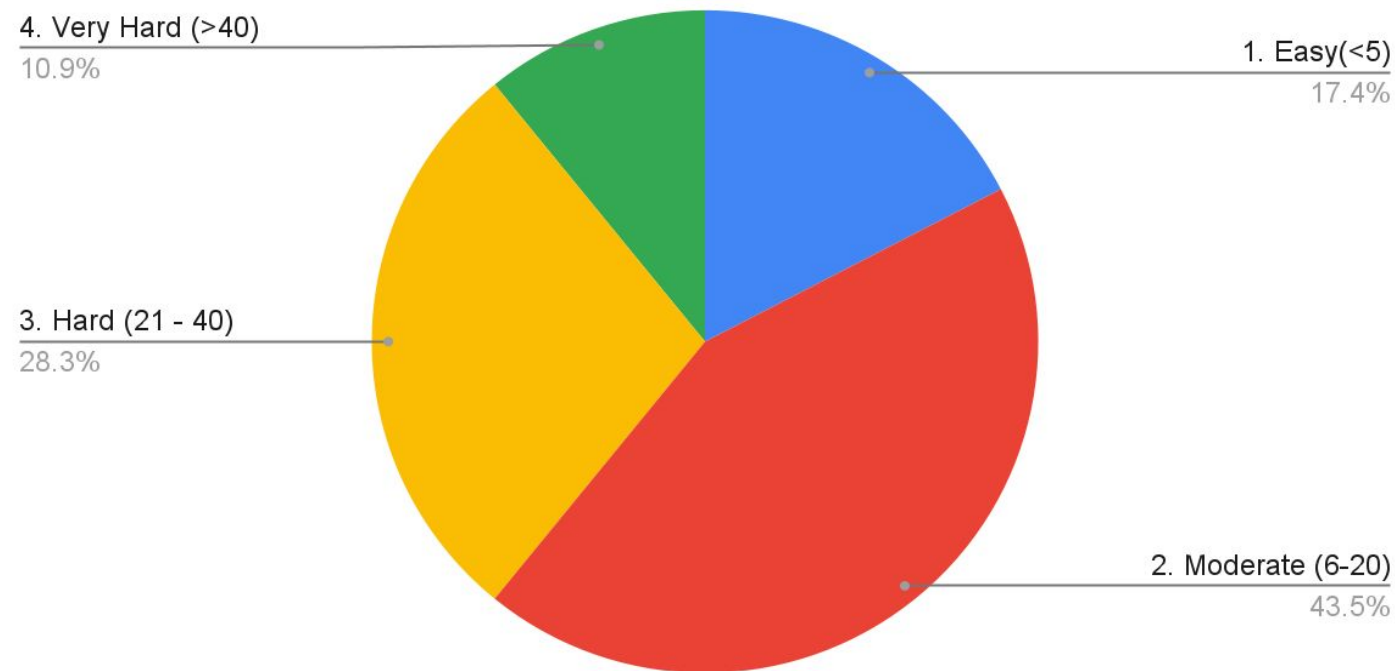
61% of Oracle migrations to EDB Postgres are easy/moderate

- 5 to 20 person days of effort

- Migrate schema and data

- Leverage EDB Oracle Compatibility

A sample ECAT analysis

Don't try this without a tool

High Level Compatibility Estimates:-

Application_Name	Schemas	Features	Occurrences	Avg. Schema Conversion Hours	Max Score	Compatability_Class	Total Migration Days
raptor	1	1	8	4	1	Very Easy	1
raptor_snap	1	4	15	32	3	Medium	4
raptor_sync	9	12	88	188	4	Hard	23

Compatibility Class

- **Very Easy:** No conversion at all/No incompatible code objects

- **Easy:** Minor changes/Automatic repair through Migration Portal or known, simple workarounds.

- **Medium:** Moderate conversion needs to be applied.

- **Hard:** New design, development and testing needed

- **Very Hard:** Complete rewrite of application, db features etc (Eg: Apex, Forms)

Databases, Schemas, Features, Occurrences

- Counts by application of databases, schemas, features identified and the number of occurrences of the features.

Average Conversion/ Migration Days

- This is an estimate of the average effort required to convert the schema and migrate the data based on the high-level compatibility assessment.

- From EDB's experience this estimate is within +/- 20% in 80% of scenarios.
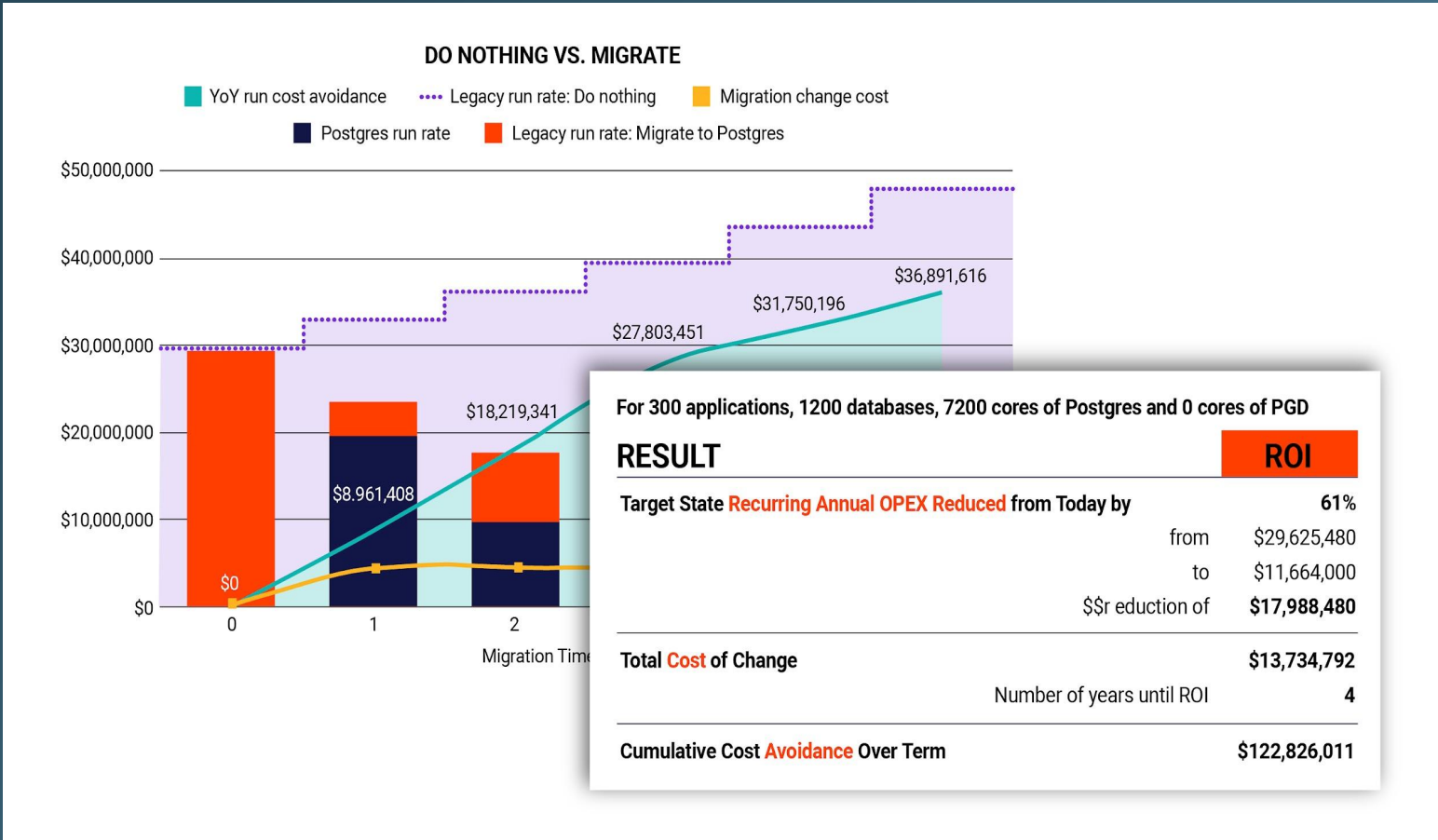
A sample ECAT analysis

Don't try this without a tool

	Application Name	Schemas	Incompatible Features	Occurrences
0	raptor	all_schemas	No	0
1	raptor_snap	license	dbms_lob	4
2	raptor_snap	license	dbms_sqltune	3
3	raptor_snap	license	utl_http	4
4	raptor_snap	license	utl_i18n	5
5	raptor_sync	app_password_owner	dbms_assert	43
6	raptor_sync	ard_amer_owner	dbms_stats	1
7	raptor_sync	ard_amer_user	dbms_application_info	1
8	raptor_sync	ard_amer_user	dbms_ddl	1
9	raptor_sync	license	dbms_lob	4
10	raptor_sync	license	dbms_sqltune	3
11	raptor_sync	license	utl_http	4
12	raptor_sync	license	utl_i18n	5
13	raptor_sync	rbsdba_jgos	dbms_shared_pool	1
14	raptor_sync	rcm_user	dbms_application_info	1
15	raptor_sync	rcm_user	dbms_ddl	1
16	raptor_sync	sam_app_user	dbms_application_info	1
17	raptor_sync	sam_app_user	dbms_ddl	1
18	raptor_sync	sam_prof_user	dbms_application_info	1
19	raptor_sync	sam_prof_user	dbms_ddl	1
20	raptor_sync	stg_owner	dbms_application_info	3
21	raptor_sync	stg_owner	dbms_stats	2
22	raptor_sync	stg_owner	dbms_xmlgen	3
23	raptor_sync	stg_owner	owa_util	2

The ROI building blocks

No project without ROI

DO NOTHING VS. MIGRATE

Legend: YoY run cost avoidance · Legacy run rate: Do nothing · Migration change cost · Postgres run rate · Legacy run rate: Migrate to Postgres

$0, $8,961,408, $18,219,341, $27,803,451, $31,750,196, $36,891,616

For 300 applications, 1200 databases, 7200 cores of Postgres and 0 cores of PGD

RESULT	ROI
Target State Recurring Annual OPEX Reduced from Today by	61%
from	$29,625,480
to	$11,664,000
$$r eduction of	$17,988,480
Total Cost of Change	$13,734,792
Number of years until ROI	4
Cumulative Cost Avoidance Over Term	$122,826,011

The ROI building blocks

No project without ROI

- Effort
  - EDB
  - Inhouse (internal staff and SI)
- Cores
  - HA cores
    - RAC
    - Streaming Replication
- Timeline

The migration backlog

Getting organized

- Backlog
  - Application Name
  - Database(s)/Schemas
  - High Level compatibility classification (very easy, easy, medium, hard, very hard)
  - High level effort and cost estimate
  - License cost reduction estimate
  - Priority
- Recommendation
  - Start with Very Easy and Easy
  - Initially avoid applications with critical HA requirements (RAC or Golden Gate)
  - Build skills and confidence into estimation and execution

The migration sprints

Execute, execute, execute

- 1-5 applications/sprint --- no more
- For each
    - Detailed Code Migration LoE
        - Run EDB Migration Portal
        - Use EDB SQL Assess (beta) to identify and assess application generated SQL statements
        - Review AWR reports if available
    - Architecture and Deployment LoE
        - New architecture versus existing?
        - Degree of automation
    - Data Transfer LoE
        - Snapshot (~50GB/hour)
        - Change data capture to minimize custover times
    - LoE for functional and non-functional verification

What's in it for you?

Delivering business value

EDB is the fastest, easiest way to migrate from Oracle to Postgres

The majority migrate in

<20

days per Oracle based application

Automate

>95%

of the Oracle schema migration

Save

>2 mil

on Oracle license costs per year

EDB Postgres will unshackle your business

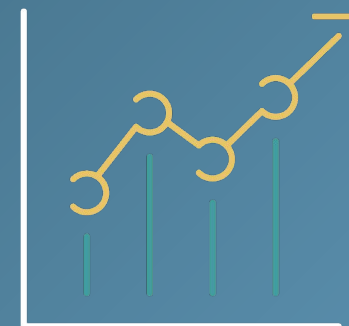EDB is the fastest, easiest way to migrate from Oracle to Postgres

Understandable licensing – savings with EDB of up to 80% over legacy

Community driven – 144 companies and 412 contributors*

Freedom of choice in IT stack – any cloud, any OS

Ability to scale – spin up new databases in minutes

Summary

- Migration is a process

- It's been done (*many times*) before

- We have been doing it for 20 years

- Proven practices and tools are available

- Try EDB's ROI Calculator for Oracle Migration

Q&A

Thank You

EDB
Postgres for the AI Generation

Cloudway
IT Consulting & Services

CONTACT US

Mostafa Zakaria
Sales Engineer, EDB
mostafa.zakaria@enterprisedb.com
www.enterprisedb.com

Pythagoras Papadimitriou
General Manager, Cloudway
p.papadimitriou@cloudway-sa.com
www.cloudway-sa.com

Ton Machielsen
Senior Sales Engineer, EDB
ton.machielsen@enterprisedb.com
www.enterprisedb.com