# ORACLE MIGRATION WEBINAR SERIES

# SPEAKERS

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# WEBINAR SERIES OVERVIEW

- **September 13:** Why Your Developers Want You to Leave Oracle for Postgres

- **September 20:** Tools, capabilities & resources EDB can offer to make Oracle-to-Postgres database migrations easier

- **September 27:** EBD's Oracle Migration Success Stories

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# AGENDA

- Migration needs

- EDB's migration capabilities

- Migration demo

- Migration services

- Q&A

# MIGRATION NEEDS

# FACTORS TO CONSIDER WHEN MIGRATING

**Schemas**
- Objects and code
- Mapping data types
- Handling syntax differences
- Raising incompatibilities

**Data**
- Methodology: Bulk, ongoing, fallback
- Tools: ETL, validation

**Infrastructure**
- Hosting (cloud, on-prem, DBaaS)
- Deployment (VM, k8s)
- DBMS Optimization
- HA Requirements
- Security and Encryption

**Application**
- Code
- Languages
- Connectors
- Syntax
- Performance
- Optimization
- Indexing

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# ORACLE DATABASE MIGRATION SOLUTIONS

| SCHEMA | DATA | CODE | API | TOOLS |
|--------|------|------|-----|-------|

**Part of the way**
SCHEMA AND DATA ONLY →

**Most of the way**
SCHEMA, DATA AND CODE →

**Almost there**
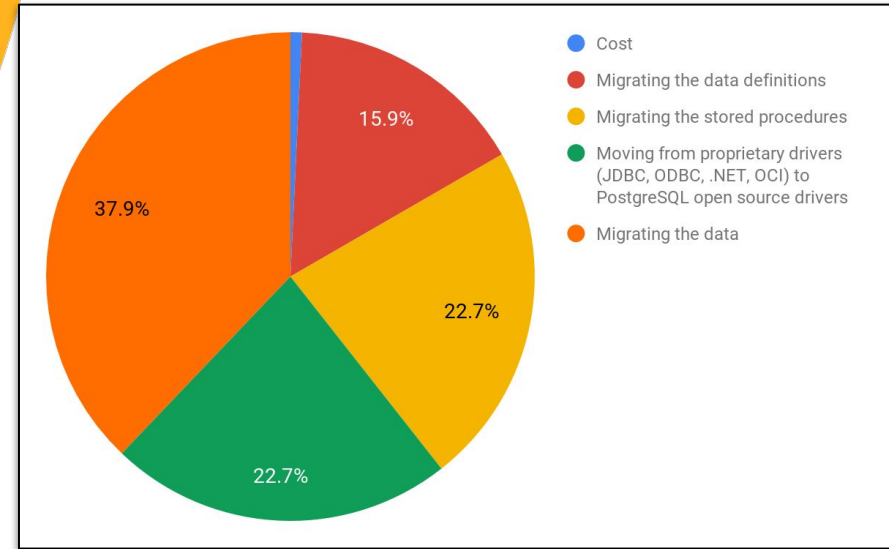SCHEMA, DATA, CODE AND INTERFACE →

**All the way**
SCHEMA, DATA, CODE, INTERFACE AND OPERATIONAL TOOLS →

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# SURVEY: What is your biggest obstacle when migrating Oracle databases to Postgres?

**EDB's cost, migration capabilities, and Oracle compatibility address all of these obstacles**



- Cost
- Migrating the data definitions
- Migrating the stored procedures
- Moving from proprietary drivers (JDBC, ODBC, .NET, OCI) to PostgreSQL open source drivers
- Migrating the data

15.9%
37.9%
22.7%
22.7%

Source: EDB Downloader Survey July 2020 (1,500 respondents)

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# HOW EDB SUPPORTS THE MIGRATION JOURNEY PHASES

## Assessment

Analyze feasibility; plan, scope, prioritize, commit

## Database Migration

Migrate schema, code, and data, and validate

## Application Migration

Finish the migration: apps, reports, performance

## Comprehensive Migration Capabilities

Database compatibility, deployment options, migration tools, and migration expertise

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DATABASE
COMPATIBILITY

# ROBUST COMPATIBILITY WITH ORACLE

**EDB Postgres Advanced Server's compatibility is wide and deep**

| | | | |
|---|---|---|---|
| Data Types | Object Types | PL/SQL | Query Syntax |
| Data Dictionary Views | Built-in PL/SQL Packages | Database Drivers | Work-alike DBA Tools |

- What are the benefits of compatibility?

  - Significantly reduces the amount of time and effort required for a migration from Oracle

  - Eases the transition from Oracle to Postgres for Oracle DBAs and developers

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# EDB POSTGRES ADVANCED SERVER

## Benefits of compatibility

### Your business

Lower costs and reduce risks

### Your people

Leverage the existing skills of your Oracle DBAs and developers

### Your apps

Leverage existing infrastructure with native PL/SQL support and OCI interoperability

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# DEPLOYMENT OPTIONS

# EDB POSTGRES ADVANCED SERVER DEPLOYMENT OPTIONS

## Migrate your database to where your business needs it

| On-premises | Kubernetes / Containers | Public Cloud - Self Managed | Public Cloud - Fully Managed |
|---|---|---|---|
| Physical Servers<br>VMs<br>Kubernetes / Containers<br>Private Cloud | | | BIGANIMAL<br>*Powered by EDB* |

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# MIGRATION TOOLS

# EDB'S KEY MIGRATION TOOLS AND SERVICES

## Migration Portal

Free, web-based tool

Assess Oracle schema compatibility

Converts Oracle objects to EDB Postgres Advanced Server

## Migration Toolkit

Command line tool

Granular control schema and data migration

From Oracle to EDB Postgres Advanced Server

## Replication Server

Change data capture for large migrations with minimal downtime

Provides ability to perform replication between Oracle and Postgres

CLI and GUI options for configuring replication

## Migration Services

For complex migrations

For organizations that are short-staffed

Helps ensure a smooth transition

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# ORACLE APPLICATION DATABASE MIGRATION JOURNEY

**What are the steps in moving to a new database?**

**Optimize and configure post migration system**

**Migrate reports and management tools**

**Migrate DB schema, code, and data**

**Analyze feasibility and alternatives**

**Migrate interfaces and application**

**Plan migration**

**Test migration**

**Complete cutover**

**Decide to migrate**

# EDB TOOLS AND SERVICES FOR THE MIGRATION JOURNEY

## Assess Feasibility

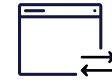- **Migration Portal**
- *Migration Assessment Service*

## Plan Migration

- *Migration Assessment Service*
- *Enterprise Architecture Service*
- *Solution Design Service*

## Migrate DB Schema, Code, and Data

- EPAS (Oracle Compatible Postgres)
- **Migration Portal**
- **Migration Toolkit**
- **Replication Server**
- Database Links and FDW
- *Quick Deploy Service*
- *Embedded Postgres SME Service*

## Migrate Application & Interfaces

- EPAS (Oracle Compatible Postgres)
- **Oracle Compatible Database Connectors**
  - JDBC, ODBC, OCI, .NET
- *Embedded Postgres SME Service*

## Migrate Reports & Management Tools

- **EDB*Plus**
- **EDB*Loader**
- *Embedded Postgres SME Service*

## Test Migration

- **LiveCompare**
- **Postgres Enterprise Manager (PEM)**
- *Embedded Postgres SME Service*

## Optimize & Configure Post Migration System

- **Postgres Enterprise Manager (PEM)**
- **Barman**
- **EDB Failover Manager**
- **EDB Postgres Distributed**
- *Performance Tuning Service*
- *Monitoring Best Practices Service*
- *Backup Best Practices Service*
- *Embedded Postgres SME Service*

## Complete Cutover

- **Replication Server**
- **LiveCompare**
- *Embedded Postgres SME Service*

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**Bold = Tool** | *Italic = Service* | <u>Underlined</u> = <u>Compatibility</u>

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# MIGRATION DEMO

# ORACLE TO POSTGRES MIGRATION DEMO

**What's covered in the demo?**

- Reviewing some DDL and SQL constructs in Oracle that can be "tricky" to migrate without compatibility

- **Schema Conversion** - Using the Migration Portal to assess Oracle schema DDL, to resolve compatibility issues, and to load the converted schema into an EDB Postgres Advanced Server (EPAS) database

- **Data Migration** - Using the Migration Toolkit to migrate data from Oracle to the EPAS database

- **Data Validation** - Using LiveCompare to validate that the data was fully migrated and consistent in both the source and target databases

- **Developer Tool -** Using pgAdmin to review the contents of some of the migrated objects and functionality of migrated views.

# MIGRATION EXPERTISE

# EDB PROFESSIONAL SERVICES FOR DATABASE MIGRATIONS TO POSTGRES

**Why use EDB Professional services for your migration journey**

- Some migrations are more complex than others

- EDB has over 15 years of experience in helping customers with their migrations

- You may not have sufficient resources to perform a migration on your own

- You may not have sufficient PostgreSQL expertise

- You need help in assessing, prioritizing, and planning migrations for a large number of databases in your organization

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# WHAT IS NEEDED TO SUPPORT THE MIGRATED SYSTEM?

**The needs will be similar to the legacy system**

- Operational tools and processes to support
    - Monitoring and management
    - Backup and Recovery
    - High availability
    - Security and Auditing
    - Reporting
- Periodic minor version updates and possible major version upgrades
- Trained administrators and users

# ORACLE AND EDB OPERATIONAL TOOLS MATRIX

| Required Operational Capability | Oracle | Postgres On-Premises and IaaS | EDB BigAnimal |
|---|---|---|---|
| Monitoring and Management | Oracle Enterprise Manager | PEM \| pgAdmin | PEM \| pgAdmin Cloud Provided Tools |
| Backup and Recovery | RMAN | Barman \| pgBackRest | provided by EDB Cloud managed service |
| High Availability  (4-9s) | Active Data Guard | EDB Failover Manager (EFM) repmgr | provided by EDB Cloud managed service |
| High Availability  (5-9s) | Real Application Clusters | EDB Postgres Distributed | |
| Advanced Replication: Bi-Directional Replication | Golden Gate | EDB Postgres Distributed Replication Server | EDB Postgres Distributed [Q1 2023] Replication Server (as pub/sub DB) |
| Advanced Replication: Geo-distributed Replication | Golden Gate | EDB Postgres Distributed Replication Server | EDB Postgres Distributed [Q1 2023] Replication Server (as pub/sub DB) |
| Advanced Replication: Heterogeneous Replication | Golden Gate | Replication Server | Replication Server (as pub/sub DB) |
| Cross Database Data Comparison | Golden Gate VeriData | Live Compare | Live Compare |
| Auditing | Oracle Auditing | EDB Audit [EPAS] pgAudit [PostgreSQL] | EDB Audit [EPAS] pgAudit [PostgreSQL] |
| Geospatial Data | Oracle Spatial | PostGIS | PostGIS [TBD] |

# WHAT ARE SOME MIGRATION BEST PRACTICES?

- Don't skip or skim over steps in the migration journey
  - Do the planning
  - Identify and understand the functional and non-functional requirements
  - Complete the solution design early to understand IT resource needs
- Use dev and test environments to identify and resolve migration issues prior to migration in production environment
- Get application developers and system administrators involved early in the migration journey to work with the database team
- Set up an environment where the application can be tested with the database in a manner that closely approximates the production environment and usage
- Defer loading indexes and constraints until after migrating the data
- Engage the assistance of migration experts and PostgreSQL experts for more complex migrations
- Ensure operations personnel are trained prior to post-migration operations

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# Q&A

# RECOMMENDED NEXT STEPS

- **Schedule a Lunch and Learn**
  - [Contact EDB](#) to schedule a deep dive on your project needs and EDB compatibility with Oracle

- **Do a Migration Assessment**
  - Try the [Migration Portal](#)!
  - Migration Discovery exercise with [EDB](#)

- **Review the [Migration Overview Handbook](#)**
  - Discusses
    - Migration considerations
    - Migration journey
    - EDB tools
    - Compatibility with Oracle

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# JOIN OUR UPCOMING WEBINAR

**REGISTER NOW**

- **September 27:** EBD's Oracle Migration Success Stories

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# Thanks for joining us!

See you next week at the last
webinar of the series

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# Canned Questions

**FOR INTERNAL USE ONLY**

- Is the migration portal free to use?
- What would you say is the biggest challenge when migrating from Oracle to Postgres?

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