EDB Postgres

The Most Complete Open Source Database Platform

Marc Linster – SVP, Product Development and Support

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WHO IS EDB?

The world leader in open-source based Postgres software and services.

- **Founded in 2004**
- **Recognized RDBMS leader by:**
  - Gartner
  - Forrester
- **Customer base > 4000**
- **300+ employees**
- **Offices worldwide**
- **Largest PostgreSQL community leader**

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WORLDWIDE PRESENCE

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OVER 4,000 CUSTOMERS

Our customers benefit from the most reliable, high-performing, flexible, open, and cost-effective data management platform available.

U.S Customers

at&t · devon · edmunds.com · Entrust · GAP · hp · KRONOS · MasterCard · Lockheed Martin

Northrop Grumman · NSA · Raytheon · RSA · SONY · AON · U.S. Air Force · U.S. Army · Vonage

EMEA Customers

1&1 · ABN·AMRO · Ericsson · Grupo BBVA

London Stock Exchange · Nokia Siemens Networks · Santander · Volvo · William Hill

APAC Customers

Fujitsu · Huawei · infosys · kt · posco

SoftBank · TATA Communications · Toyota · Samsung · Wipro

88
of the Fortune 500

241
of the Forbes Global 2000

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ONLY OPEN SOURCE RDBMS IN GARTNER MQ

EDB Recognized 6 Years In A Row on Gartner's Magic Quadrant

Figure 1. Magic Quadrant for Operational Database Management Systems

EDB OPEN SOURCE LEADERSHIP

Named EDB open source committers and contributors

CORE TEAM

Bruce Momjian
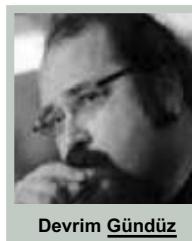
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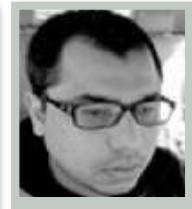
Dilip Kumar

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Mithun Cy

M. Usama

Rushabh Lathia

Thom Brown

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BUSINESS VALUE HIGHLIGHTS

PAYBACK PERIOD: 4-MONTHS

42% lower three-year cost of operations

65% lower three-year cost of database licensing/ maintenance

16% more efficient database administration

168% three-year ROI

*IDC White Paper | The Economic and Business Advantages of EDB Postgres Database Solutions

Using EDB Postgres™ Advanced Server saves money

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ENTERPRISE WANTS POSTGRES
THE MOST VERSATILE DBMS

| RUNS EVERYTHING | SPEAKS EVERY LANGUAGE | WORKS EVERYWHERE | SCALES IN BOTH DIRECTIONS |

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EDB POSTGRES SOLUTION USE CASES

New Applications

- DevOps, schema-less rapid development, and multiple programming language support

Application Modernization

- Multi-model flexibility and integration with popular data sources

Legacy Migration

- Compatibility with Oracle leverages existing DBA and developer skills

Migration to Cloud

- Flexible deployment options and simple business terms for moving to the cloud
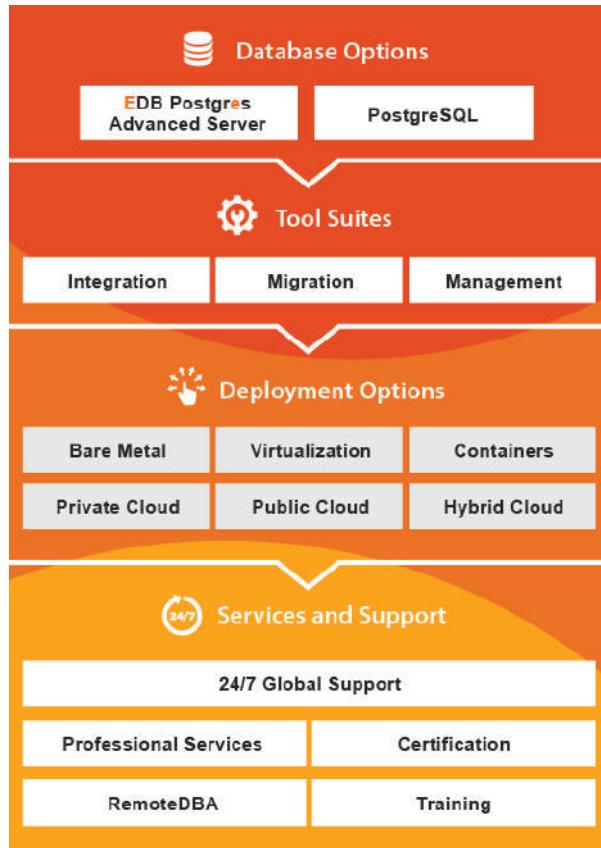
Our customers rely on our expertise and solutions to develop new applications, move applications to the cloud, modernize applications, and migrate off legacy databases like Oracle.

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# THE EDB POSTGRES PLATFORM

Reliable, high-performing, flexible, open

**EDB** POSTGRES

EDB Postgres Platform

EDB Postgres Platform – PostgreSQL Server

Community PostgreSQL

- The world's most advanced open source database

- EDB Postgres Standard:
  24x7 support plus management, integration and migration tool suites deployable across many traditional platforms as well as cloud platforms

EDB Postgres Platform – EDB Postgres Advanced Server

EDB Postgres Advanced Server

- Based on open-source PostgreSQL

- Adds performance, security, and database compatibility for Oracle

- Includes additional developer and DBA features

- EDB Postgres Enterprise: 24x7 support plus management, integration and migration tool suites deployable across many traditional platforms as well as cloud platforms
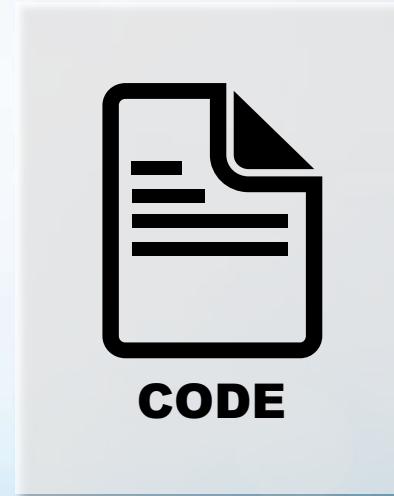
Select recent new EPAS features

- EPAS 10 (2017)
  - Improved auditing
  - Customizable WAL segment size
  - Automatic prewarm of the DB server cache
  - Declarative partitioning
  - Parallel query (Index scan, bitmap heap scan, merge join, …)
  - SCRAM authentication

- EPAS 11 (Nov 2018)
  - Data redaction, including DBMS_REDACT
  - Autonomous transaction
  - Performance diagnostics
  - Parallelism (hash join, parallel b-tree index creation, …)
  - Partitioning enhancements (Default, foreign keys, hash key, faster pruning, row movement on update)
  - JIT compilation

EDB COMPATIBILITY WITH ORACLE

Get your Oracle workloads
...all the way to the cloud.

SCHEMA

DATA

CODE

aws

PART OF THE WAY
SCHEMA AND DATA ONLY
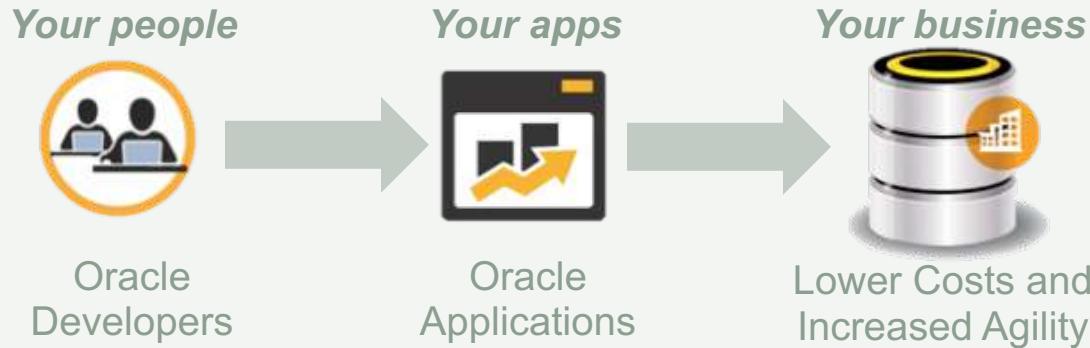
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ALL OF THE WAY
SCHEMA, DATA, AND CODE

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EDB Postgres Advanced Server
Database Compatibility for Oracle®
Compatible with:

Your people → **Your apps** → **Your business**

Oracle Developers → Oracle Applications → Lower Costs and Increased Agility

- Deploy new applications on EDB Postgres instead of Oracle
- No need to retrain Oracle DBAs and developers
- Support for PL/SQL language and OCI interoperability
- Replication for easy sharing of data

No disruption to your ongoing operations!

EDB Postgres Advanced Server
Enterprise capabilities add to the strengths of community PostgreSQL

Client Interfaces

jdbc, odbc, libpq, node.js, psycopg2, ….

*Oracle compatible jdbc, .net, odbc, OCI, ecpg*plus, …*

DB Server

Parser

PostgreSQL types, function, queries, pl/pgSQL, ….

Oracle types, function, procedures, queries, pl/SQL, packages, declarative partitions, ….

Optimizer/Planner

Declarative partitioning query pruning ….

Query hints

Executor

Shared Buffers

DRITA

Write-Ahead Log

Resource Manager

Utilities

CREATE TABLE, COPY, …

Declarative partitioning insert, select, update….

Oracle catalogue/dictionary

Synonyms

Extensions/Loadable Modules

pl/pgSQL, PostGIS, pgcrypto, foreign data wrappers….

pl/SQL compiler & interpreter (aka SPL)

Value-add packages
- *DBMS_AQ*
- *DBMS_Profiler*
- *DBMS_Schedule r*
- *DBMS_RLS*
- *UTL_FILE…*

Installable language packs

- *Perl*
- *Python*
- *TCL*

Security

Users, roles, groups, ….

SQL Protect,

Virtual Private Database,

Password Profiles,

Session Tag Auditing

*EDB*Wrap*

DBA Utilities

*pl/SQL Debugger, SQL Profiler, EDB*Loader, EDB*Plus, pg_prewarm, pg_catcheck, Dynatune…*

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DATABASE COMPATIBILITY FOR ORACLE

- **SQL extension support**
  - Decode, NVL, Substr, NVL2, Date/time functions
  - DDL syntax support
- **PL/SQL support – native language**
  - REF Cursors, Implicit and explicit cursors
  - Looping, variable declarations, conditional statements
  - Collections: Associative Arrays, Varrays, Nested tables
  - Pragmas
  - Named parameters
  - User Defined Exceptions
  - Explicit Transaction Control(within sp)
- **Tools**
  - EDB*Plus – SQL*Plus look-a-like
  - EDB*Loader – SQL*Loader equivalent
- **Oracle-like Data Dictionary**
  - ALL_, DBA_, USER_ views
- **Wait Events**
  - System and session waits
  - Statspack-like reporting

- **Features**
  - Packages
  - Stored procedures
  - Functions
  - Triggers
  - Hints
  - Hierarchical Queries
  - Synonyms – Public and Private
  - Sequences
  - Rownum
  - Users/Roles
  - Dynamic SQL
  - Materialized Views
  - Partitioning
- **PL/SQL supplied packages**
  - 16 DBMS
  - 8 UTL
- **Data types**
  - Blobs, Clobs, XMLTYPE, VARCHAR2, NUMBER, CHAR, Integer
- **Drivers**
  - JDBC, ODBC, .NET with Oracle extensions
 - OCI & ProC compatible drivers

EPAS 11 (Q4 2018): Pragma Autonomous Transaction!

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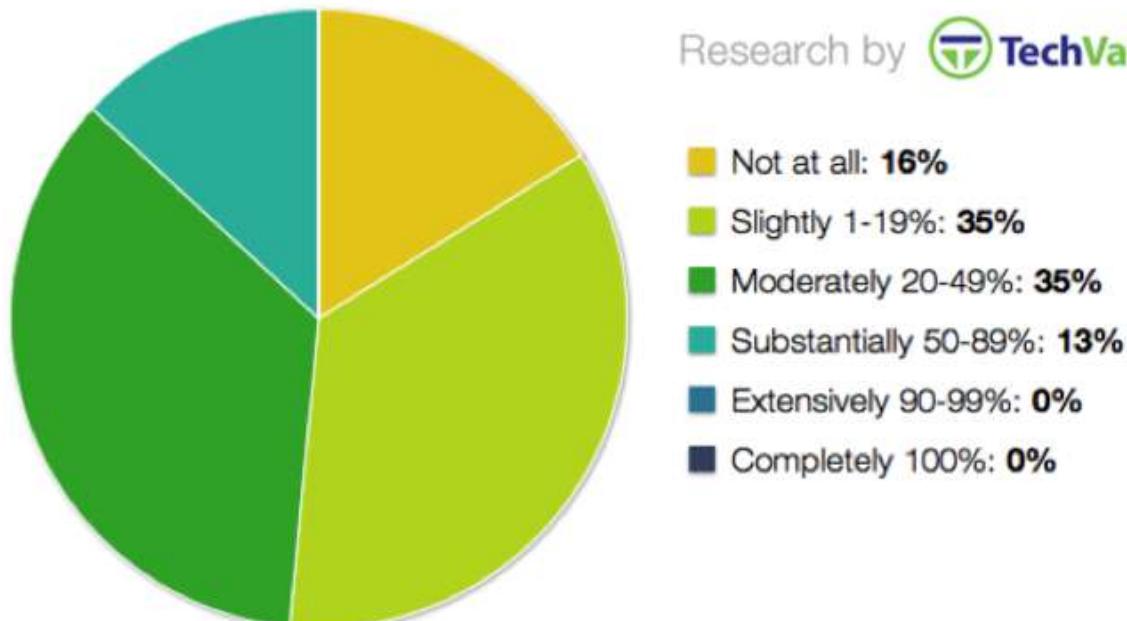
DATABASE DRIVERS

Oracle Compatibility Feature	JDBC	ODBC	.NET	OCI
PL/SQL Support	✓	✓	✓	✓
REF_CURSOR - OracleTypes.CURSOR	✓	✓	✓	✓
User-defined Exceptions - vendor code	✓	✓		✓
Named Parameters - parameter names	✓	✓	✓	✓
Data Types- VARCHAR2 , STRUCT, ARRAYS	✓	✓	✓	✓
STRUCT - Enhanced Manipulation	✓		✓	✓
Upper Column Names - (OPTIONAL)	✓			
Multiple INOUT/OUT parameters	✓	✓	✓	✓

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PICK YOUR BATTLES

- **50%+ of migrations are easy … 30% involve more work … 20% are difficult**

Research by **TechValidate**

- Not at all: **16%**
- Slightly 1-19%: **35%**
- Moderately 20-49%: **35%**
- Substantially 50-89%: **13%**
- Extensively 90-99%: **0%**
- Completely 100%: **0%**

51% had slight to no modifications

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WHAT MAKES A GOOD CANDIDATE?

- ORM (Hibernate, Spring, etc.)
- Procedures, Functions, Packages written in PL/SQL
- Ability to modify source code
- Availability of Application Developers
- No use of RAC for scalability
- No need for Flashback

TYPICALLY MORE DIFFICULT TARGETS

- **Moderate candidates**
  - OCI interface
  - Spatial/XML
  - Oracle extensions of .NET and ODBC

- **Typically difficult candidates:**
  - ProC interface
  - Transaction management control inside PL/SQL (Commit/rollback/savepoint/exceptions)
  - Stored procedures written in Java
  - Must have RAC capabilities and Flashback

- **Other Oracle proprietary extensions**

EDB Postgres Platform – Integration Suite
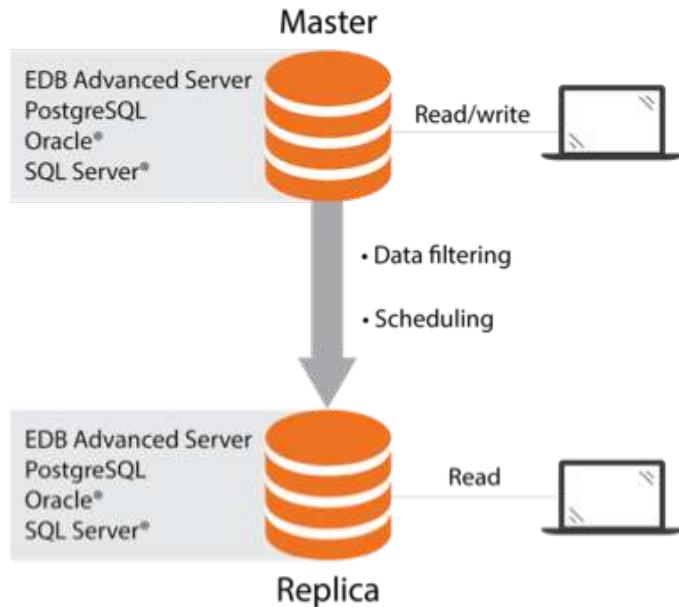
Integration

- Exchange data across various database management systems in near real time

- EDB Postgres Data Adapters (foreign data wrappers)

- EDB Postgres Replication Server
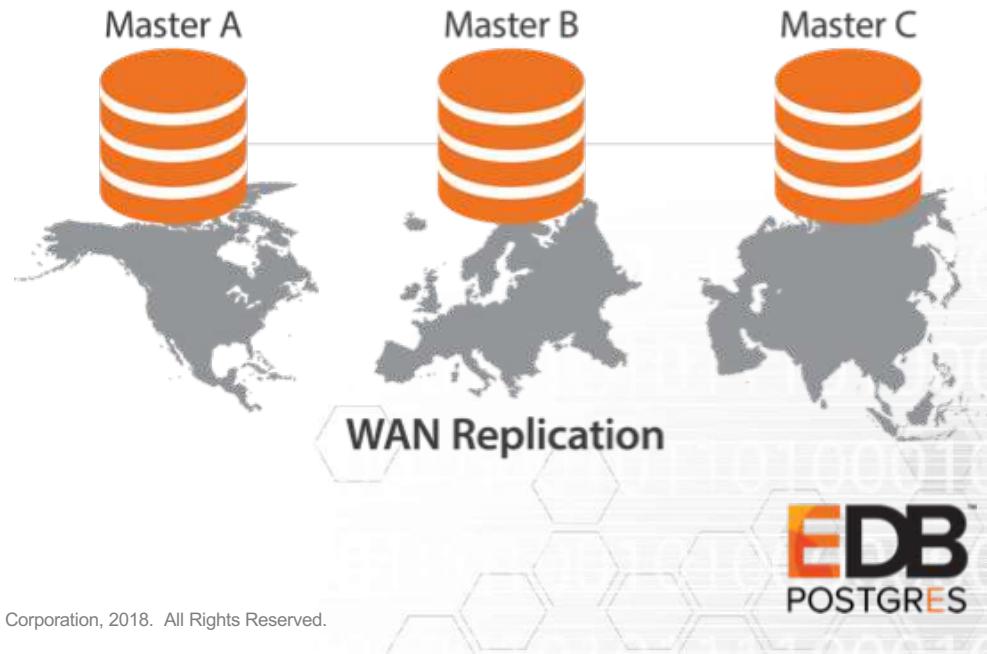
EDB Postgres Replication Server

Flexible architecture supports a wide range of use cases

Single Master Replication (SMR)
for Reporting or Migration
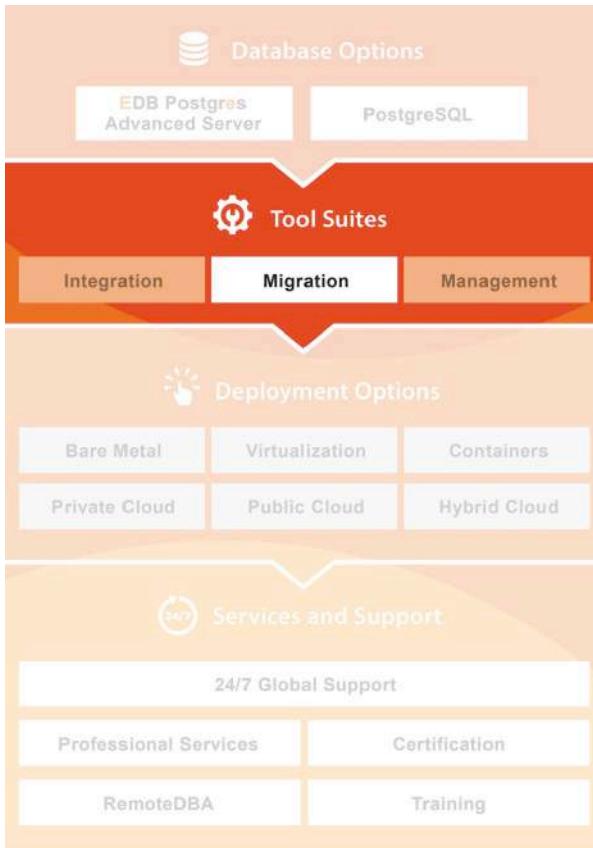
Multi Master Replication (MMR)
for Globally Distributed Systems

EDB Replication Server 7 (Beta in Q4)

- Based on Kafka and Zookeeper
- Allows for complex replication topologies
  - Single master
  - Multi-master
  - Multiple publications and subscriptions per database
- Eliminates single point of failure
- Introduces compression, certificate authentication, encrypted database connections and cluster-wide monitoring

EDB Postgres Platform – Migration Tool Kit

Migration

- Analyze and move your data from expensive legacy databases

- EDB Postgres Migration Portal

- EDB Postgres Migration Toolkit

EDB MIGRATION PORTAL:

The Fastest Way Off of Oracle in the Cloud

EDB Migration Portal combines

First online portal for Oracle to Postgres

Native Oracle compatibility
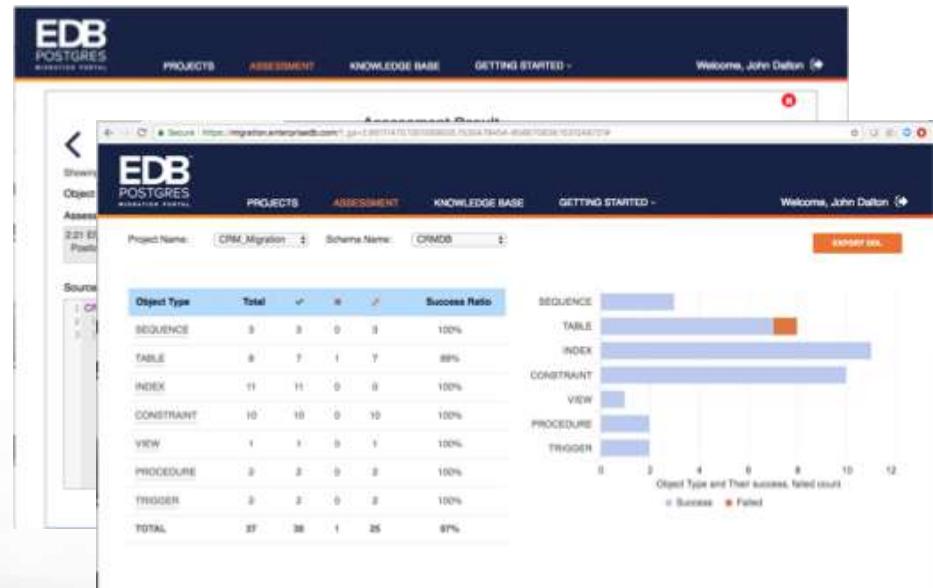
> Schemas
>
> DB Code
>
> Application interfaces

Rich knowledge base from 10+ years of migrations

Augmented by crowd-sourcing

Machine learning of new code translations

EDB Postgres Platform – Enterprise Management Tools
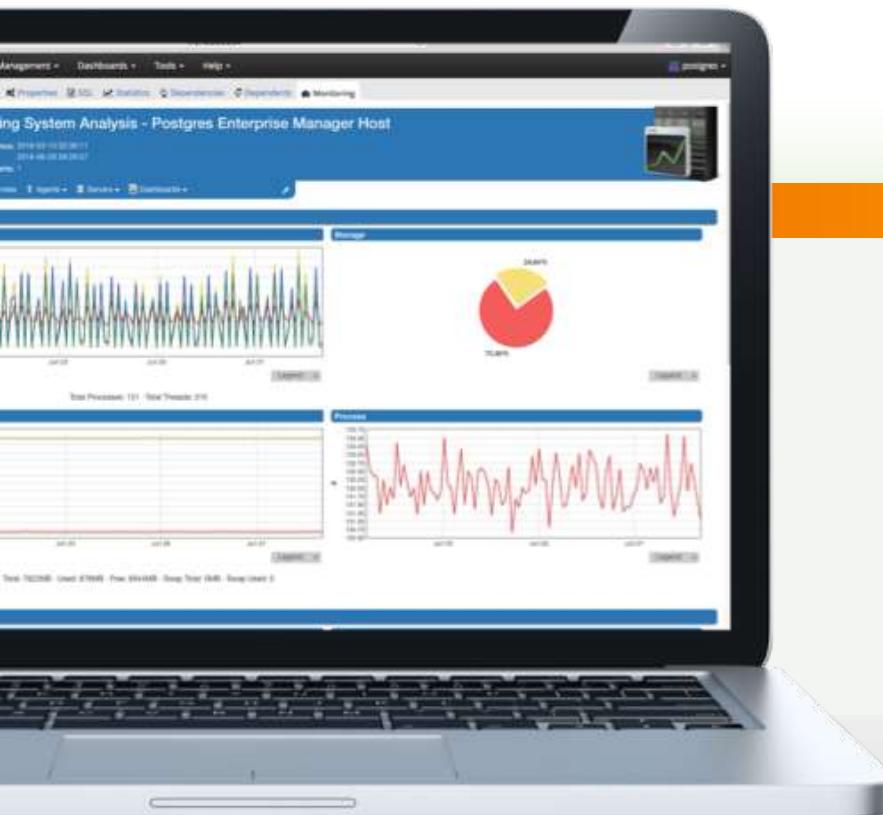
Management

- Mission-critical tools for management, monitoring, tuning, high availability, as well as backup and disaster recovery

- EDB Postgres Enterprise Manager

- EDB Postgres Failover Manager

- EDB Postgres Backup and Recovery

POSTGRES ENTERPRISE MANAGER (PEM)

Monitor, manage, and tune large scale enterprise-wide Postgres deployments

MONITOR   **MANAGE**   **TUNE**

Single Solution for Multiple DBA Tasks

- The only Postgres tool that combines database administration, monitoring, and SQL Performance into one integrated tool.

- Management and monitoring capabilities are critical to helping enterprises adhere to stringent SLAs and performance requirements.

- Works with both PostgreSQL and EDB Postgres Advanced Server

Enhanced DBA Productivity with PEM

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EDB POSTGRES FAILOVER MANAGER

Fault tolerant database clusters for high availability

ELIMINATE SINGLE POINTS OF FAILURE

Protect Your Mission Critical Applications from Costly Outages

**DETECTS AND AUTOMATES FAILOVER**
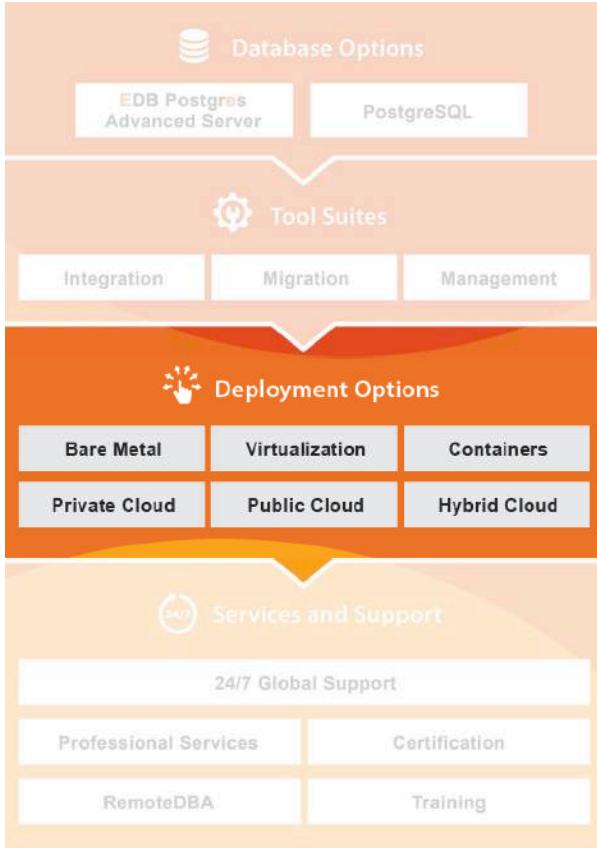
High Availability Infrastructure for EDB Postgres Clusters

ZERO DOWNTIME MAINTENANCE

Ensure Data Remains Available During upgrades and repairs

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EDB Postgres Platform – Deployment Options

Database Options

EDB Postgres Advanced Server | PostgreSQL

Tool Suites

Integration | Migration | Management

Deployment Options

| Bare Metal | Virtualization | Containers |
| Private Cloud | Public Cloud | Hybrid Cloud |

Services and Support

24/7 Global Support

Professional Services | Certification

RemoteDBA | Training

Bare Metal

- The choice to maximize database simplicity, control, and performance

Virtualization

- The choice for database consolidation, cost savings, and hardware efficiency

- *NOTE: Sub-capacity licensing yields significant cost savings vs Oracle*

Cloud

- The choice for database convenience, flexibility, and scalability on-demand

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TWO PATHS TO DATABASE IN THE CLOUD

CONTAINERS

VS.

DBaaS

CONTAINERS	DBaaS
DevOps centric	IT centric
Database is a component of an application	Database is a central resource for many apps
Automated/scripted deployment	Self serve for developers
Primary Drivers: portability and automation	Primary Drivers: productivity and administrability
Typically starts on private cloud	Typically starts on public cloud
Primarily new applications	New & existing applications

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SIMPLIFIED DEPLOYMENT. ROBUST CAPABILITIES.

EDB Postgres™ Containers

FOR DATA MANAGEMENT AND HIGH AVAILABILITY	FOR READ SCALABILITY	FOR DATABASE ADMINISTRATION	FOR DISASTER RECOVERY
EDB Postgres Advanced Server + EDB Failover Manager Container	pgPool Container: SQL Routing and Load Balancing	Postgres Enterprise Manager (PEM) Container: Monitor, Manage, Tune	EDB Postgres Backup and Recovery Tool (BART) Container

SUPPORTED PRODUCTS | EPAS 9.6,10; EFM 3.2; pgPool 3.6; BART 2.1; PEM 7.3; CentOS 6,7; RHEL 6,7; Red Hat Open Shift 3.6+; Kubernetes 1.6+; Docker 12.1+

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EDB POSTGRES ARK DBaaS
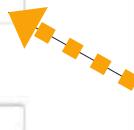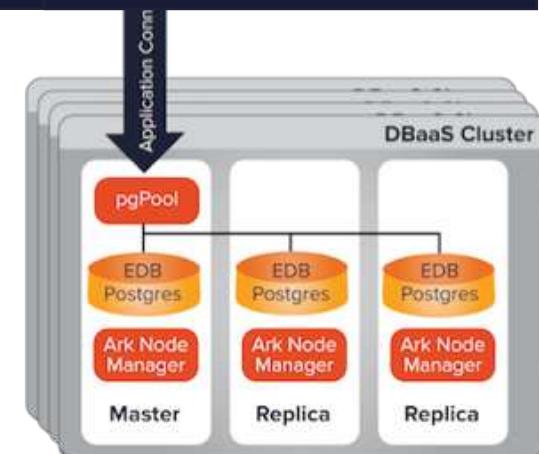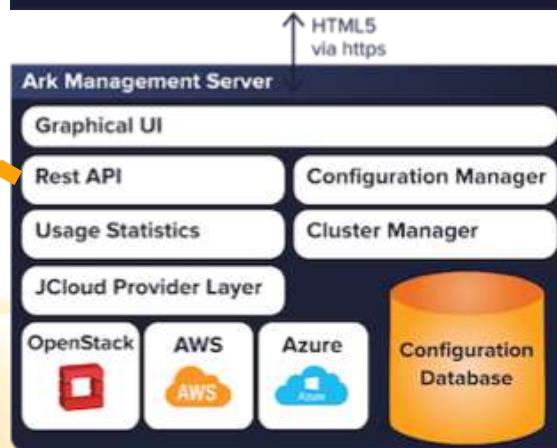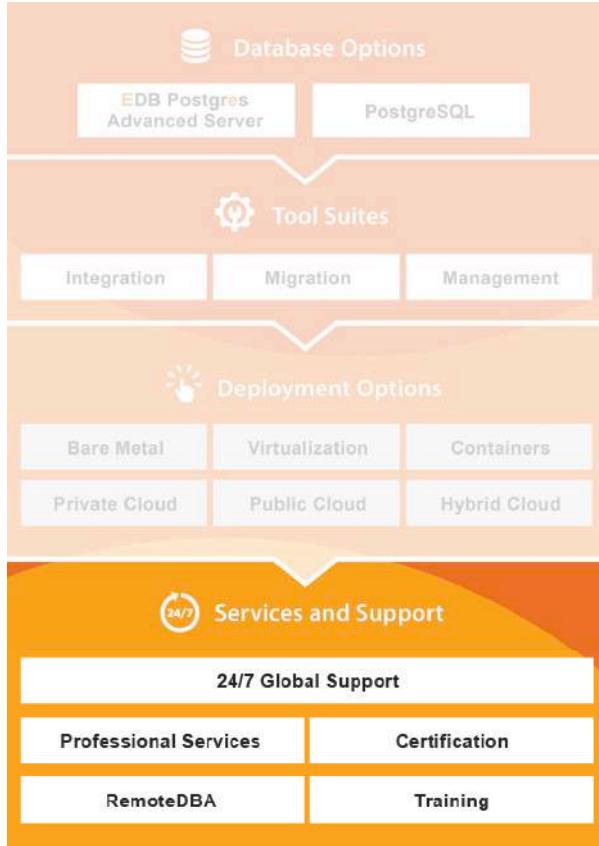
YOUR TOOL TO MANAGE CLOUD INFRASTRUCTURE

OPERATION ADMIN CONSOLE	REPLICATION
SELF-SERVICE PROVISIONING	SELF HEALING
INTEGRATED DISASTER RECOVERY	• MULTIPLE CLOUDS

EDB Postgres Platform – Services & Support

24/7 Global Support

- Support from the Postgres experts
- Enterprise class processes & SLAs

Professional Services

- Broad range of consulting services
- Migration, Enterprise Architecture, Remote DBA Services, Technical Account Management

Training & Certification

- World-class training to fit your need: On-site or Online
- DBA & Developer tracks
- Associate & Professional level certifications
- EDB Postgres core curriculum: FREE

CLOUD DATABASE SERVICE

EDB Postgres databases on the Amazon Web Services™(AWS) Cloud

ON-DEMAND

EDB Postgres databases on the AWS Cloud in minutes

FLEXIBLE

Cloud-based pay as you go pricing

COMPATIBLE

An Oracle® alternative on-demand in the cloud

THANK YOU

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