



A BUSINESS PRACTICES COMPARISON

of EDB Postgres™ and Oracle®

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INTRODUCTION

Chances are your IT organization has made large investments in infrastructure and applications that have been running your business for years. Maintaining this infrastructure costs a lot of money, perhaps up to 80% of an IT budget.

If you are like many of your peers, in addition to maintaining your IT infrastructure within budget, you are also trying to improve it by working on:

- New applications
- Modernization efforts to upgrade applications
- DevOps implementations
- Migrating off expensive traditional databases
- Implementing flexible Cloud-based environments
- Providing low cost SaaS applications to consumers
- Establishing open source software standards

Maintaining and improving your IT infrastructure at the same time, is increasingly becoming more difficult under the pressures of fast paced technology advances and slow paced budget increases.

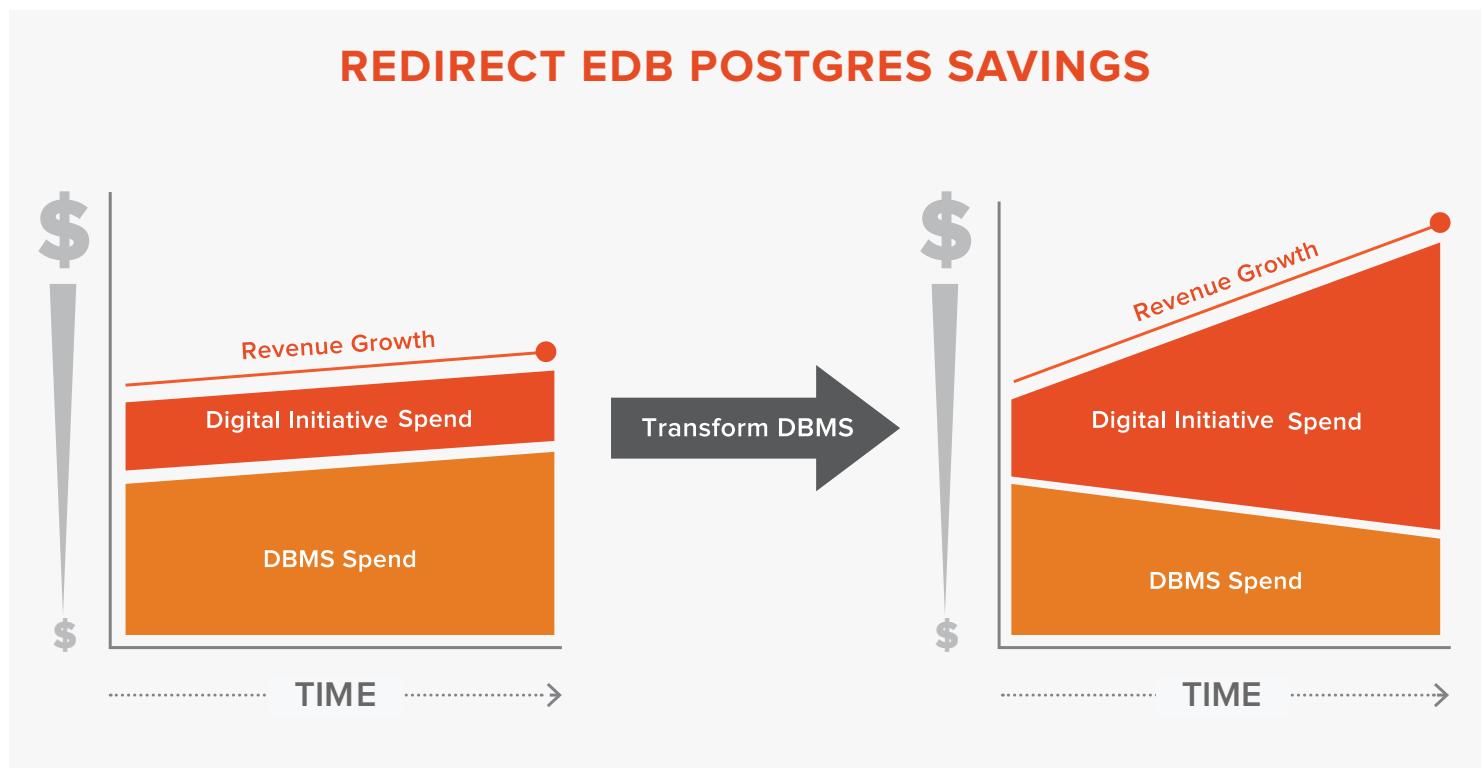
Worse, some leading database vendors have strategies designed to lock you in to contracts that increase your costs annually, consuming more and more of your budget. Keeping your IT lights on leaves little money left for new investments into new kinds of integrated, smart, and mobile applications that positively transform customer experiences for your organization. Organizations that cannot invest

in these new application initiatives will find their position in the marketplace and with their customers changing dramatically in the years to come.

While line-of-business managers and marketing executives see all kinds of opportunity to improve the performance of the business and please their customers, they are all too often disappointed by IT organizations that cannot get to their needs because of squeezed budgets.

As a result, organizations are increasingly turning to a database platform that is less expensive but just as capable as their traditional database to free up money – EDB Postgres from EnterpriseDB® (EDB™).

EDB Postgres provides the performance, security, manageability features, and capabilities required to power the vast majority of enterprise workloads. This reduces spending on expensive traditional databases so that budget can be redirected to new mobile, analytics, web, cloud, social, or Internet of Things (IoT) applications that contribute to customer-centric digital transformation initiatives.



The potential for EDB Postgres to free up budget in core IT is especially true for organizations using Oracle. In addition to its core PostgreSQL feature set and enhanced features, EDB Postgres includes compatibility with Oracle. Compatibility with Oracle allows EDB Postgres to be used in place of what is,

for many enterprises, the most expensive component in their software stack for operational and mission-critical applications.

EDB Postgres' compatibility allows it:

- To be used in place of Oracle for new applications
- To replace Oracle for old applications due for modernization
- To migrate applications off of Oracle
- To complement and coexist with existing Oracle infrastructure
- To leverage existing Oracle developer and DBA skills

Finally, while you may change your database technology to EDB Postgres, your organization's most valuable technical assets, its business logic, is preserved and does not have to be re-written. EDB Postgres natively understands and processes your existing Oracle PL/SQL programs and data without any translation layers and without long, problematic consulting engagements. This true compatibility means your expectations for performance are preserved, your intellectual capital is protected, and your staff can continue using its existing skill set.

Note: For a detailed technical comparison of EDB Postgres Enterprise versus Oracle Enterprise Edition, download the eBook titled: [A Technical Comparison of EDB Postgres™ Enterprise and Oracle® Enterprise](#).

Notes on Names

EDB POSTGRES ADVANCED SERVER

EDB's parallel developed and enhanced version of PostgreSQL that is compatible with Oracle and contains other features not available in PostgreSQL.

EDB POSTGRES ENTERPRISE

The subscription product sold by EDB that includes licensing for EDB Postgres Advanced Server, software tools for high availability / management / monitoring / replication / backup / recovery / cloud management / migration / integration / spatial, all software maintenance, and technical support.

EDB POSTGRES

For the purposes of this eBook, EDB Postgres should be considered synonymous with EDB Postgres Enterprise.

HOW TO USE THIS GUIDE

This guide is intended to help you evaluate EDB Postgres from an economic perspective and identify the many places where the open source-based platform can save you money without compromising on performance or capability.

In the pages that follow, you will find:

- A comparison of general and specific business practices by Oracle and EDB with an emphasis on the many differences between the two companies.
- An emphasis on the many different ways that the EDB Postgres platform can save you money compared to Oracle.
- Details on the companies' business models, licensing practices, and cost structures.

Also please note what the following information is not intended to be:

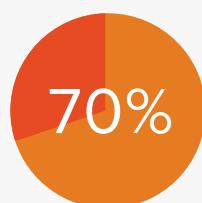
- A comparison of all of Oracle's and EDB's business practices.
- A technical comparison of capabilities between Oracle Enterprise and EDB Postgres Enterprise. For those details, please read the companion eBook to this one titled: [A Technical Comparison of EDB Postgres Enterprise and Oracle® Enterprise](#).
- A Total Cost of Ownership calculator. Oracle's pricing models are complex while EDB's pricing is quite simple. For pricing quotes and comparisons, you are advised to speak with an EDB Account Executive. Contact information is below.

For more information:

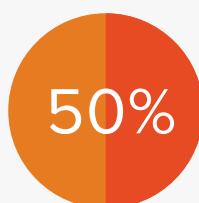
- For a detailed Total Cost of Ownership discussion, [Contact EDB](#).

ADAPTING TO A CHANGING WORLD

The pace of technology change in general around the volume, variety, uses, and management of data in particular pose significant challenges and changes to organizations of all sizes. The change is so pervasive and deep that it is predicted that 75% of the companies in the S&P 500 will change by 2028¹. This change is also transforming the database market. One important change is that open-source relational DBMSs have matured significantly and can be used to replace commercial Relational Database Management Systems (RDBMSs) at a considerable TCO saving. Information leaders, Database Administrators (DBAs) and application development managers can now consider them as a standard choice for deploying applications.²



OF NEW APPS



OF CURRENT APPS

WILL BE ON
OPEN SOURCE
 RELATIONAL DATABASES
 BY 2018*

* Gartner, State of Open-Source RDBMS, 2015, Donald Feinberg and Merv Adrian, April 21, 2015. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

Amid all this change, some things haven't changed – specifically the relentless rising costs of using Oracle. Not surprisingly, higher costs are helping accelerate the move to open source, as is another less publicized statistic: 92% of customers say Oracle does not clearly communicate licensing changes.³ Complex licenses and more aggressive audit practices have prompted many Oracle customers to seek alternatives.

1 Technology is Wiping Out Companies Faster than Ever, Antonio Regalado, MIT Technology Review, September 10, 2013.

2 State of the Relational Open-Source RDBMSs 2015, Gartner Group, April 21, 2015.

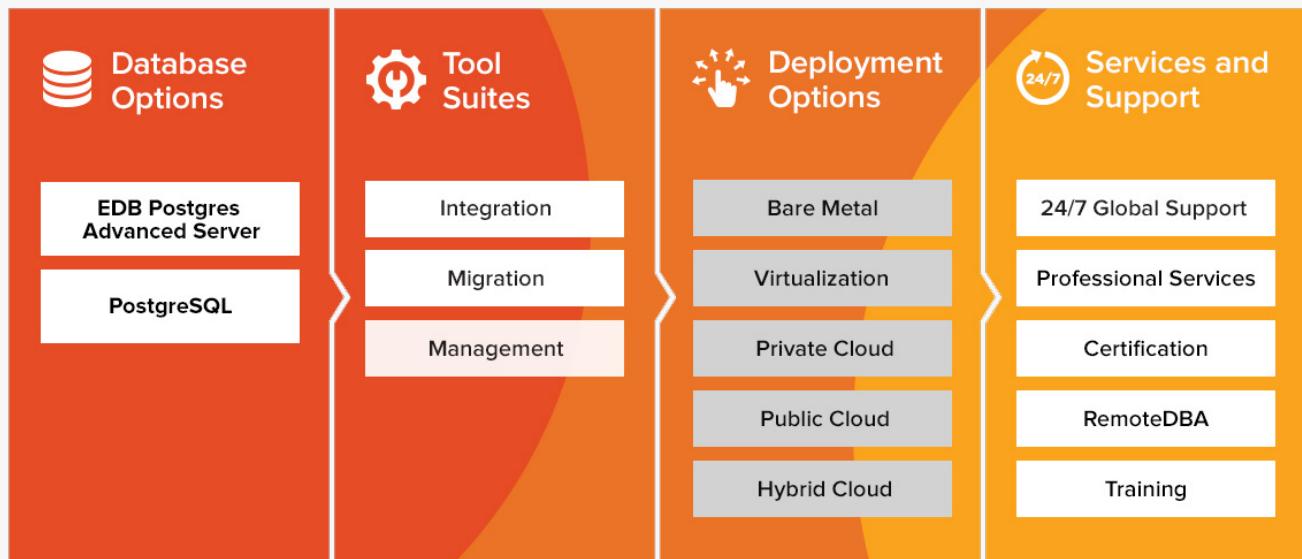
3 Campaign for Clear Licensing Report cited in "Oracle Stokes 'Hostile' Customer Relations, Study Says," Doug Henderson InformationWeek, November 2014.

THE EDB POSTGRES PLATFORM MAKES IT POSSIBLE

Organizations are increasingly choosing EDB Postgres Enterprise as a standard RDBMS for new and existing applications. EDB Postgres Enterprise provides the performance, security, manageability, and DBA/Developer features required to power enterprise workloads. EDB's low-cost, open source-based development model and subscription pricing lowers consumption costs, allowing you to free up expensive proprietary database dollars that can be redirected to new applications of innovation. Instead of struggling with the burden of excessive database costs that leaves little budget to pay for the rising demand for new database applications, you can actually reduce your core database costs and redirect the savings to innovation initiatives.

Further, EDB Postgres is a fully integrated, enterprise-class data management platform that provides the software, services, and support that organizations are accustomed to receiving from their traditional, expensive vendors: enterprise performance and capabilities and tools, enterprise support and services, flexible deployment options, software lifecycle control, a reliable roadmap, and a worldwide ecosystem of commercial partners.

EDB POSTGRES PLATFORM



While access to and use of an open source database may be free, experienced managers understand that to deploy any software at scale, quickly, securely, and competently requires spending money with a commercial partner that can provide a comprehensive platform to service, support, and grow with the software now and in the future.

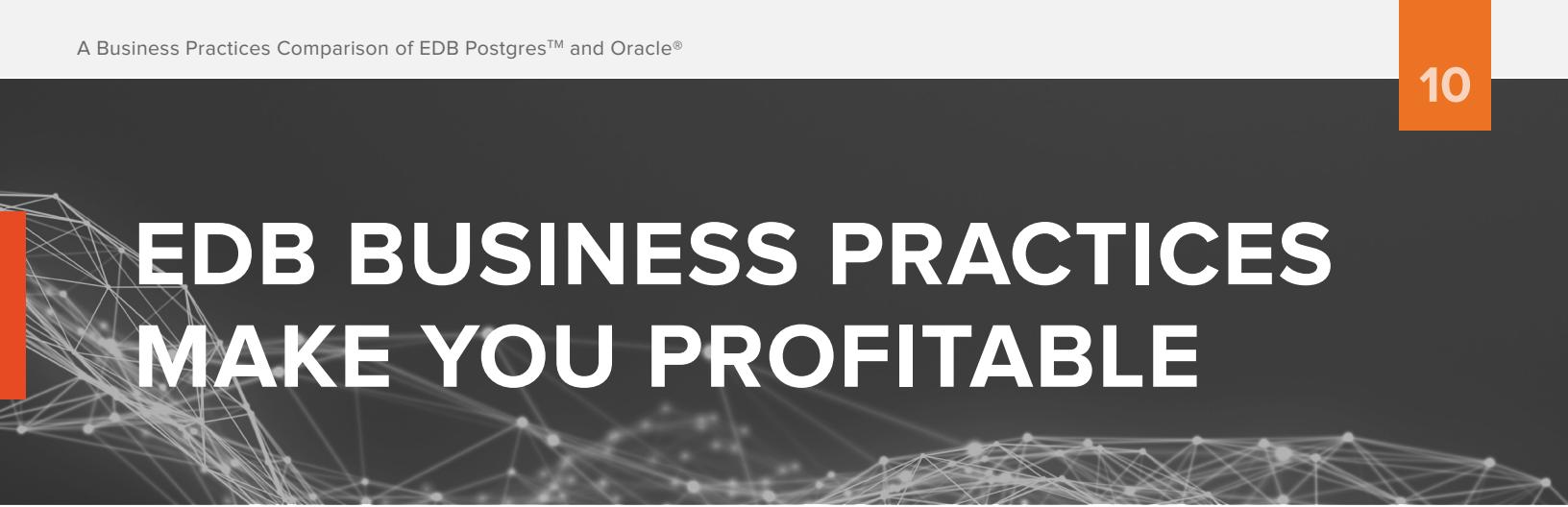
The failure to secure a commercial partner for open source software with an incentive for your long-term success will inevitably cost the organization in other ways in the form of:

- Technically inferior solutions
- Overly complex integrations
- Delayed deployments
- Increased downtime
- Longer maintenance cycles
- Steeper learning curves
- Ongoing reliance on consultants

Without a commercial grade platform backed up by a professional products company, your organization's use of open source-based software will be tactical at best and unable to deliver the strategic benefits you are seeking.

EDB Postgres provides you with an open source-based commercial grade platform comparable to what you have come to depend on and expect from your current database vendor but at a significantly reduced cost.

EDB BUSINESS PRACTICES MAKE YOU PROFITABLE



Nobody wants to jump from the frying pan into the fire. While changing or acquiring a new database vendor is no trivial task, this paper is designed to demonstrate the distinct business advantages of doing less business with Oracle and more with open source-based EDB.

EDB's goals as a business partner have always been focused on a fair exchange of value with our customers and a transparent win-win strategy in conducting business. We are able to offer dramatically lower prices because of the open source development model behind our products that reduces our costs. We pass these savings on to you, our customers, and do not rely on contentious licensing policies to lock in customers and drive up costs.

We also strive to be recognized as a trusted partner by our customers and to be a company that is easy to do business with. We achieve the latter by offering policies such as uniCore (universal core) pricing, and a comprehensive platform with bundled tools, support, and maintenance at no extra cost.

BUSINESS MODEL COMPARISON

EDB has a substantially different business model than Oracle. EDB provides a simple-to-understand price, and a subscription model for software consumption. There are no built-in cost accelerators, no hidden fees, no unbundling of features or components for additional costs, and no penalties that can result in large surprise cost increases.

EDB's basic business transaction is the purchase of an all-inclusive subscription that includes all database features, all tools, all deployment environments and all maintenance costs.

In addition, the subscription model does not require a large upfront perpetual license fee that is accounted for as a CapEx cost. This is often beneficial to customer budgets for new purchases and reduces liabilities on the balance sheet for old purchases. All subscription costs qualify for OpEx accounting.

Because EDB's subscriptions are paid as an annual OpEx expense that may be discontinued without penalty, they are often looked upon as a simple maintenance cost.

In contrast, Oracle requires a large capital expenditure up front in the form of a perpetual license fee that requires a significant commitment from your organization before having much experience with the software or with Oracle as a vendor. Then, starting in your first year, you pay an annual maintenance fee priced at 22% of the license fee. Moreover, the annual maintenance fee often automatically increases 3% every year – a budgeting fact often overlooked by Oracle customers.

| <i>Business Model</i> | <i>Oracle Enterprise</i> | <i>EDB Postgres Enterprise</i> |
|--|--|---|
| UNIT OF MEASURE | Cores | uniCores* |
| PERPETUAL LICENSE FEE | Yes | No (License included in maintenance-like subscription) |
| YEARLY MAINTENANCE SUBSCRIPTION | Yes | Yes |
| COST ACCOUNTING | CapEx + OpEx | OpEx |
| EXTRA COSTS FOR ACCIDENTAL USAGE OF FEATURES? | Yes All features turned on without warning of cost liabilities if used. | No All features are included in the subscription at no extra cost. |
| EXTRA COSTS FOR OTHER TOOLS? | Yes | No All tools are included in the subscription at no extra cost. |

* uniCores, or universal cores, mean either of the following: (i) a processor core in a single or multi-core processor chip or (ii) a virtual core processor (“Virtual Core” also known as a “vCore”, “virtual CPU”, or “vCPU”) used to assign computing resources to a virtual machine.

In addition, Oracle charges separately for popular features that are commonly used or necessary such as high availability configurations or geo-spatial capabilities. This places a burden on buyers to guess well in advance what their applications' requirements will be for years to come – a very difficult task given the unpredictable nature of application development, expansion of data, changes in usage, and its changing importance to the business over time. As circumstances change, you risk ending up with a lot of expensive shelfware, a maze of ad hoc licenses, or worse, expensive Unlimited License Agreements you don't fully understand.

To complicate matters, Oracle makes all of its unbundled, for-pay features easily available and usable in the software without restriction. This consistently results in unsuspecting users taking advantage of the features as needs arise without realizing that they haven't actually purchased the feature.

The combination of unbundled feature costs and easy access to non-purchased features creates a potent mixture for explosive price increases at maintenance renewal time, at Certification time for an Oracle ULA, or if you are audited by Oracle's License Management Services group.

Oracle's feature promiscuity and their customers' lack of control are insightfully described in this [blog post by Craig Guarente](#), president of Palisade Consulting Group and former Global Vice President of Contracts, Business Practices, and Migrations at Oracle.

RENEWAL POLICIES

As noted in Craig Guarente's blog post above, customers more often than not do not fully understand Oracle's licensing policies.

EDB's subscription-based business model provides many benefits to organizations compared to Oracle's perpetual licensing model and business practices. Generally EDB subscriptions are purchased and renew on an annual or three-year basis although other terms are also available. The amount of software you may deploy and use is measured by the number of uniCores you purchase for the annual or three-year term.

At renewal time you have a choice. You may purchase another one- or three-year subscription or you may choose not to renew your subscription.

EDB renewals are treated in many ways like a new purchase. Prior to renewal time, you and EDB assess your current needs, determine a quantity of uniCore usage that you require for the coming term and then execute a new transaction. Furthermore, there is no automatic price increase built into an EDB subscription renewal like the 3% annual price increases built into Oracle maintenance contracts.

When you choose to renew, you may purchase the same quantity of uniCores, more uniCores or even fewer uniCores than originally purchased. EDB recognizes that there are many reasons why customers may actually need to reduce their core usage (e.g., retiring applications, transitioning operational databases to an archival status, database consolidation, and others). You pay no penalties of any kind for reducing your consumption of EDB software.

If you choose not to renew, then you must decommission the software on all the cores you previously purchased and discontinue using the software. You pay no penalties of any kind to discontinue use of the software.

With Oracle, if you want to reduce your maintenance costs because you no longer need as many cores as you purchased previously, you often run afoul of Oracle's discount policies. Prior to getting your

discount, Oracle tries to combine as many items onto an order document as possible and then provides the customer a consolidated discount. This will also determine your annual maintenance costs (22%) which you may be trying to reduce.

However, the fine print of your contract states that the discount is based on the entire order and that any changes in the future to the order document's product configuration (i.e. core counts) allow Oracle to re-price its discounts that will affect the future maintenance you were hoping to decrease.

The net result is that Oracle customers are rarely able to achieve real savings by reducing their usage. While you may succeed in reducing your core count used to price your future maintenance costs, Oracle will reduce your discount, often cancelling any savings you expect. This is a stark contrast to EDB's renewal policy described above that allows customers to choose to renew or not – without penalties.

| <i>Renewal Policies</i> | <i>Oracle Enterprise</i> | <i>EDB Postgres Enterprise</i> |
|---|--|--------------------------------|
| AUTOMATIC MAINTENANCE COST INCREASE | 3% per year | 0% |
| CONTINUE USING DATABASE WITHOUT MAINTENANCE CONTRACT? | Yes | No |
| RE-PRICING PENALTIES IF CORE COUNT IS REDUCED? | Yes Original Order Document is renegotiated, often with minimal or no savings realized. | No |
| RETROACTIVE TRUE-UP COSTS? | Yes | No |
| RETROACTIVE COSTS FOR RESTARTING MAINTENANCE? | Yes Must pay for all years lapsed. | No |
| SPECIAL BUSINESS DIVISION COMPENSATED TO FIND UNREPORTED USE OF SOFTWARE AND FEATURES? | Yes Oracle License Management Services | No |

Another key difference between Oracle and EDB renewals deals with out-of-compliance usage during the maintenance term. EDB recognizes that organizations need to track their software usage and be responsible customers, but also realizes that it can be a difficult or unintentional task.

During the term of your EDB subscription it is often the case that additional deployments of EDB Postgres occur in the organization as it demonstrates its ability as a cost-effective Oracle alternative. As the number of deployments increases, you may inadvertently begin using more uniCores than were originally purchased.

Rather than take a punitive approach to compliance, EDB helps customers remain compliant by asking customers to perform an annual accounting of their usage of EDB software and make any additional purchase adjustments if needed. However, EDB customers that regularly account for their software usage and true-up their costs with EDB are not charged retroactively for any overage in usage that occurs. *Any EDB true-up cost increases due to increased usage are applied against new subscription renewals and not retroactively.*

With Oracle, if your usage exceeds the number of cores you purchased, Oracle may charge you retroactively for the overage, often resulting in a significant unplanned cost. If you are especially unlucky, you may be submitted to an official software audit by Oracle's License Management Services organization. As noted in public articles, these events can be extremely stressful and distracting to an Oracle customer:

Law firm warns of Oracle's licensing 'traps,' Computerworld, Oct. 13, 2015, Responding to a License Review Request from Oracle License Management Services, Scott & Scott, LLP.

Typically, if you ever get audited by Oracle, it is almost certain that they will find you out of compliance. Being out of compliance then becomes a weapon that is frequently used as leverage in Oracle either raising your prices or getting you to move onto other products, and especially cloud services, that serve their business interests.

Finally, while you may own a perpetual license entitling you to use Oracle essentially forever, if you should ever discontinue maintenance and then decide to reinstate it, Oracle will often charge you retroactively for all the time you didn't have a maintenance contract in place. EDB has no such policy.

It is easy to do business with EDB and there are no traps.

VIRTUAL LICENSING POLICIES

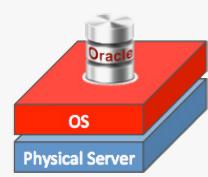
Virtualization is now part of the foundation of most enterprise information and business systems. Virtualization provides a wide variety of options to enterprises for deploying their applications, including small scale virtualization on single machines, large scale virtualization or fabrics across the enterprise, public service cloud providers, and private on-premises cloud environments.

The simplest (and most dramatic) way to compare EDB's and Oracle's virtual pricing is with a picture that shows which hardware cores must be counted toward a purchase for a virtual deployment. As shown in the image below, Oracle insists that every hardware core in your virtual infrastructure be counted towards a purchase whereas EDB only requires those cores actually assigned to database virtual machines to be counted.

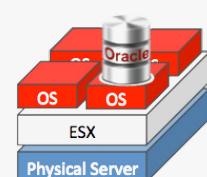
VIRTUAL ENVIRONMENT LICENSING

 = License Required  = License NOT Required

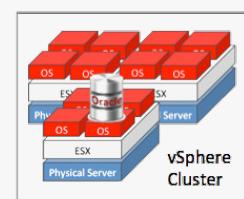
Oracle



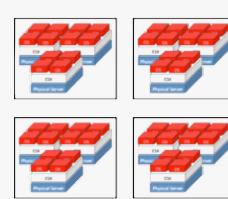
Physical database server



Physical ESX hosts
At least 1 database VM

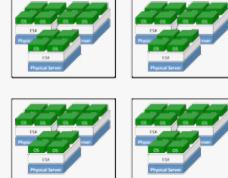
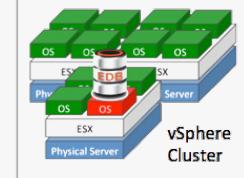
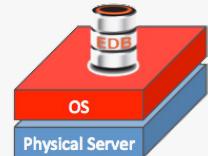


All physical hosts in a
vSphere cluster
At least 1 database VM



All other clusters
(no database VM)

EDB



The only way out of this all-or-nothing approach is to dedicate a virtualized machine or cluster of machines to Oracle, which for many organizations reduces the flexibility and benefits they have with their virtualization strategies. Oracle's all-or-nothing policy applies to single database servers, sub-capacity virtual use of a database server, a vSphere Cluster (if using VMWare), and all other clusters even though they may not be running any database VMs but are part of your virtual fabric.

Find it hard to believe? So did one of the world's largest chocolate candy producers. [Read about Mars, Incorporated's troubles with Oracle and virtual pricing](#), *The Register*, Feb. 24, 2016.

| <i>Virtual Licensing Policies</i> | <i>Oracle Enterprise</i> | <i>EDB Postgres Enterprise</i> |
|--|---|---|
| FLEXIBLE AND FAIR VIRTUAL PRICING? | No Pay for all cores in the virtual infrastructure touched by a database VM. | Yes Pay only for cores assigned to database VMs. |
| SUB-CAPACITY VIRTUALIZATION PRICING (SINGLE MACHINE SMALL SCALE VIRTUALIZATION)? | No Only for 'hard-partitioned' hardware environments. | Yes Pay only for virtual cores assigned to virtual machines on hardware. |
| FREE MOVEMENT OF LICENSES BETWEEN PRIVATE AND PUBLIC VIRTUAL DEPLOYMENT ENVIRONMENTS? | No | Yes |

EDB's uniCore pricing model is specifically designed to make it easier to use your database purchase across any environment you choose: on-premises hardware, on-premises virtual (small or large scale), on-premises cloud and public cloud. Once you purchase a uniCore, you can deploy it freely to any environment. And should your deployment needs change, such as transitioning from on-premises hardware to virtual machines offered in a public infrastructure, you may simply decommission your uniCores from one environment and re-deploy them in the new one.

Oracle, however, has developed licensing policies that seem designed to make it difficult to impossible to use any virtualization at all unless it's a virtualization product owned by Oracle.

OTHER SERVICES

As noted earlier, no software is free, and all software used for any significant business purpose at scale needs a platform and partner that provides a full complement of the services and support you use in your current critical software deployments: enterprise capabilities, a reliable roadmap, enterprise support and services, optimized deployments and schedules, a worldwide footprint, and software lifecycle control.

| Other Services | Oracle Enterprise | EDB Postgres Enterprise |
|--|--|--|
| 24x7 TECHNICAL SUPPORT | Yes | Yes |
| SUPPORT TICKET PORTAL | Yes | Yes |
| SOFTWARE MAINTENANCE UPDATES | Yes | Yes |
| TECHNICAL / SECURITY ALERTS | Yes | Yes |
| SEVERITY 1 BUG ESCALATION AND HOT FIXES | Yes | Yes |
| TECHNICAL ACCOUNT MANAGEMENT | Yes | Yes |
| REMOTEDBA | Yes | Yes |
| TRAINING | Live On Site Live Online On-demand | Live On Site Live Online On-demand |
| UNLIMITED TRAINING SUBSCRIPTION | Yes | Yes |
| ONLINE eLEARNING PORTAL | Yes | Yes |
| CERTIFICATION PROGRAMS | Yes | Yes |
| PROFESSIONAL SERVICES | Yes | Yes |

SOFTWARE COSTS COMPARISON

Databases can be expensive and for good reason: they often hold the mission-critical information for most businesses – operational data, sales transaction details, financial information, customer profiles, purchasing patterns, product information, marketing data, research data, and much more. However, since the inception of SQL in 1974, many SQL databases have entered the market from large companies like Oracle, IBM, Microsoft, and many smaller companies as well. With so many players and a maturity based on over 40 years of development, it is no wonder that for the vast majority of applications, databases may be considered a commodity.

While databases from the big three mentioned above certainly have their place in many business-critical applications, they may be considered overbuilt and overpriced for the vast majority of applications within a large enterprise. This fact has been well captured by Gartner and noted in the opening paragraph of this eBook.

In an environment where database costs are mismatched to their usage value, and businesses are under pressure to modernize, price does matter and redirecting budget from the likes of Oracle to new applications can make a huge difference in IT and business initiatives.

Below are the acquisition costs for the databases and selected options.

| Software Costs (List Prices) | Oracle Enterprise | EDB Postgres Enterprise |
|---|---|----------------------------------|
| DATABASE LICENSE | \$47,500 / core | (Note 1) Not Available |
| CORE FACTORS THAT AFFECT PRICE | Yes (Note 2) | No |
| MULTI-TENANT OPTION | \$17,500 / core | (Note 3) |
| PARTITIONING | \$11,500 / core | \$0 |
| NoSQL KEY-VALUE STORE | \$2,000 / core (NoSQLDB) | \$0 |
| SPATIAL | \$17,500 / core | \$0 |
| ACTIVE DATA GUARD | \$11,500 / core | \$0 |
| REAL APPLICATION CLUSTERS | \$23,000 / core | \$0 for Failover and Hot Standby |
| IN-MEMORY DATABASE CACHE | \$23,000 / core | Not Available |
| ADVANCED COMPRESSION (TABLES, FILES, NETWORK, AND BACKUPS) | \$11,500 / core | Not Available |
| DATA MASKING | \$11,500 / core | Not Available |
| ADVANCED SECURITY | \$11,500 / core | Not Available |
| AUDIT VAULT AND DATABASE FIREWALL | \$6,000 / core | \$0 SQL Firewall only |
| INTEGRATION TOOLS | Golden Gate \$17,500+ Data Integrator \$30,000 Database Gateways \$17,500 | Data Adapters \$0 |
| MAINTENANCE / SUPPORT | 22% software costs / core / year | \$1,750 / core / year |

Note 1: EDB does not sell its software by perpetual license. The license to use all EDB Postgres software is bundled into a yearly subscription that includes all licensing, software maintenance and support costs.

Note 2: Oracle core factors affect the list price of the database depending on the hardware architecture employed. For example, if deploying on commodity x86 hardware, then Oracle's per-core prices listed above would be reduced to \$23,750. However, after adding in commonly used and popular features such as RAC, Active Data Guard, Partitioning, and Spatial, the price increases to \$55,500 per core.

Note 3: EDB Postgres provides the ability for a single database program instance to manage multiple databases (i.e. database schemas) independently and in this sense is multi-tenant. However that is only a subset of the features in Oracle's multi-tenant database.

THE HIDDEN COSTS OF MOVING OFF ORACLE

Many companies move off Oracle to another database but often not one that is compatible with Oracle. This introduces two significant hidden costs: learning a new dialect of SQL for new applications and re-writing old business logic into the new SQL dialect when migrating applications.

While many databases adhere to the SQL standard per se, they do so to different degrees. Learning a new SQL dialect and re-writing code takes longer than using existing SQL skills and code. In general, new dialects of SQL can be learned but that process can be tricky and prolonged.

Syntax and the semantics of commands can be different and cause unexpected application behaviors creating more bugs to track down and fix, more testing, and slower deployment times overall until mastery is achieved.

For example, Oracle has numerous SQL extensions that are not part of the SQL standard but provide features desirable by developers and DBAs. While convenient when using Oracle, they can become troublesome when moving off Oracle because analogous features aren't present in your new database.

THE HIDDEN SAVINGS OF MOVING OFF ORACLE

There are a variety of real year-after-year hidden savings enjoyed by organizations using EDB Postgres instead of Oracle. Real bottom line savings are achieved when updating or migrating applications, writing new applications, and operating and managing an EDB Postgres database infrastructure.

By using an Oracle compatible database like EDB Postgres, one of a company's key assets and competitive differentiators — their business logic written in PL/SQL — is preserved and avoids the many risks and delays inherent in rewriting the application.

EDB Postgres dramatically reduces the hidden costs described in the previous section by providing a SQL language that is compatible with Oracle's PL/SQL. This means that application developers and DBAs can continue using the same Oracle commands and techniques they use today for new applications. It also means that when migrating applications from Oracle to EDB Postgres, little to no re-writing of business logic is needed.

EDB Postgres Advanced Server understands and executes Oracle PL/SQL natively – there are no compatibility layers, emulation engines, or code translations to another SQL dialect. EDB Postgres produces the same results and behavior you expect from Oracle so you don't suffer the poorer performance and development delays associated with non-native execution strategies.

EDB POSTGRES ENTERPRISE EXECUTES PL/SQL PRESERVING YOUR ORACLE BUSINESS LOGIC

```

CREATE OR REPLACE PROCEDURE list_emp
IS
    v.empno      NUMBER(4);
    vENAME       VARCHAR2(10);
    CURSOR emp_cur IS
        SELECT empno, ename FROM emp ORDER BY empno;
BEGIN
    OPEN emp_cur;
    DBMS_OUTPUT.PUT_LINE('EMPNO      ENAME');
    DBMS_OUTPUT.PUT_LINE('-----  -----');
    LOOP
        FETCH emp_cur INTO v.empno, vENAME;
        EXIT WHEN emp_cur%NOTFOUND;
        DBMS_OUTPUT.PUT_LINE(v.empno || '      ' || vENAME);
    END LOOP;
    CLOSE emp_cur;
END;

CREATE OR REPLACE TRIGGER user_audit_trig
    AFTER INSERT OR UPDATE OR DELETE ON emp
DECLARE
    v_action      VARCHAR2(24);
BEGIN
    IF INSERTING THEN
        v_action := ' added employee(s) on ';
    ELSIF UPDATING THEN
        v_action := ' updated employee(s) on ';
    ELSIF DELETING THEN
        v_action := ' deleted employee(s) on ';
    END IF;
    DBMS_OUTPUT.PUT_LINE('User ' || USER || v_action ||
        TO_CHAR(SYSDATE,'YYYY-MM-DD'));
END;

```

-  COMPILER
-  INTERPRETER
-  DEBUGGER

-  EMULATION
-  TRANSLATION
-  LAYER ON PL/pgSQL

With EDB Postgres, you still need to test any applications migrated from Oracle but that represents the bulk of your effort and is much faster to complete and repair with fewer errors than a complete rewrite of your Oracle code.

EDB Postgres provides additional savings in the form of fewer bugs, fewer rewrites, less time, and fewer risks for IT managers who are accustomed to building in significant amounts of these expense factors when planning a change to an existing application regime.

Further savings in using EDB Postgres are achieved when writing new applications – shorter learning cycles and fewer mistakes. EDB Postgres enables very short learning times for your staff in multiple ways by allowing them to continue using their years of investment in Oracle skills in the EDB Postgres environment:

- EDB Postgres allows your developers to continue using their Oracle PL/SQL skills and not learn an entirely new language.
- Time-saving function packages written in Oracle can be brought over to EDB Postgres for use with new or migrated applications preventing additional code rewrites.
- Oracle views of database objects allow DBAs to inspect and analyze their EDB Postgres databases the same way they did with Oracle without learning completely new names and techniques.
- Compatible versions of important everyday tools like SQL*Plus and SQL*Loader are available in EDB Postgres so staff become productive immediately.
- A Replication tool, XA support, Database Links, and Data Adapters ensure minimal time is required to integrate EDB Postgres applications into existing Oracle environments.

EDB's compatibility for Oracle enables:

Your technology



**No Application
re-writes**

Your people



**Minimal
re-training**

Your business

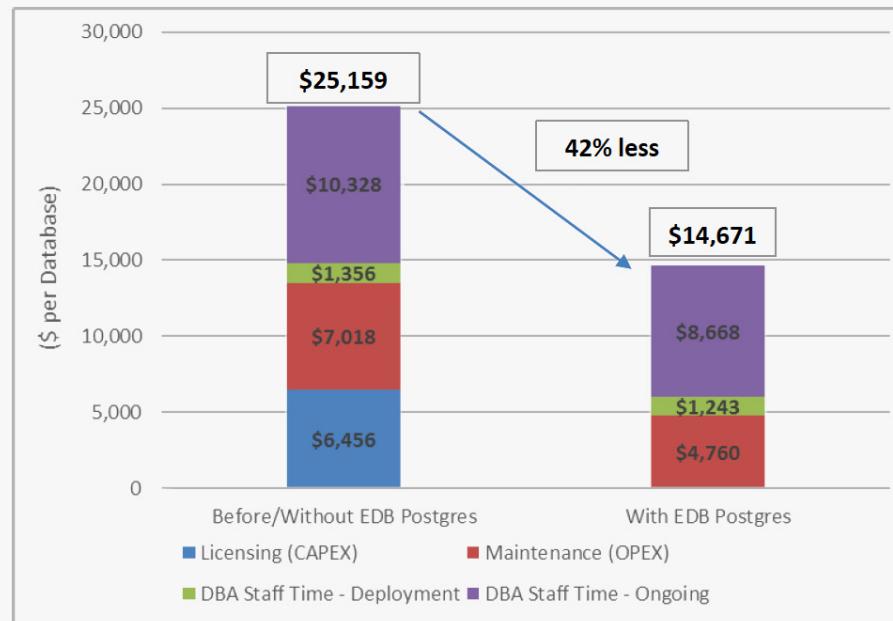


**Easy
Integration**

The last long-term additional saving comes in the form of reduced operational costs. A common argument made by traditional database vendors against open source-based alternatives is that, while initial acquisition costs may be lower, the ongoing annual operational costs will be much higher. EDB's customers have found that just the opposite is true.

In an IDC research paper investigating the ROI of using EDB Postgres, by interviewing EDB customers, IDC found that EDB customers enjoyed an average of 42% reduction in their three-year cost of operations. The result was a composite analysis across multiple organizations of different sizes and across different industries (e.g., Natural Resources, Transportation, Communications, Financial Services, Professional Services, Education). The cost of operations were categorized as IT staff time spent deploying and configuring databases as well as the time spent maintaining and administering them.

THREE-YEAR COST OF OPERATIONS PER DATABASE



Source: IDC, 2016 (n=7) IDC White Paper, sponsored by EnterpriseDB, The Economic and Business Advantages of EnterpriseDB Postgres Database Solutions, July 2016

To quote one organization participating in the analysis:

"The administration around EnterpriseDB as compared to the other database is relatively low. We didn't expect this and calculated in that we would have to invest more time in administrating the database, but that was not true. It's even less...I think what's important is that Postgres is less complex than some other database management systems."

In the same research paper, EDB Postgres users attributed additional operational savings to Risk Mitigation: User Productivity Benefits, Business Productivity Benefits, IT Infrastructure Cost Reductions and IT Staff Productivity Benefits. For a more detailed look at the data and analysis on savings attributable to using EDB Postgres and customer comments, download the white paper: The Economic and Business Advantages of EnterpriseDB Postgres Database Solutions.

REDUCING THE RISKS OF ADOPTION

While cost savings are a key driver for moving off Oracle, achieving those savings is not without risk. As noted in the previous section EDB makes a special effort to reduce the technical, re-training and integration risks of deploying EDB Postgres in an Oracle environment by developing compatible software and tools.

For more details on exactly how database compatibility is achieved, view this 12 minute video titled: [Database Compatibility for Oracle® Explained.](#)

However, while compatible software is necessary, it is not sufficient to ensure success. The software must also be adopted in a proven and efficient way that introduces change while minimizing risk, maximizing savings, and clearly demonstrating the benefits being pursued. Many factors must be accounted for in the adoption process, not the least of which are:

- Application Profile
- Risk
- Time
- Effort
- Benefits
- Savings

EDB has years of experience helping customers navigate the waters of Postgres adoption. The following table shows a multi-customer composite of a prototypical EDB Postgres adoption roadmap.

EDB POSTGRES ADOPTION ROADMAP

| Application Profile | Risk | Time | Effort | Benefits | Savings |
|--|------|---------------|--------|---|---------|
| NEW REPORTING APPLICATIONS | Low | Fast | Low | <ul style="list-style-type: none"> Leverages existing Oracle reporting skills Proof point: Oracle alternative for reporting No new Oracle licenses | Low |
| OFFLOAD EXISTING REPORT LOADS USING REPLICATION | Low | Fast | Low | <ul style="list-style-type: none"> Leverages existing Oracle reporting skills Proof point: integration into Oracle infrastructure No new Oracle licenses | Low |
| OPERATIONAL DATA STORE , DATA HUB, ETL, NOSQL INTEGRATION | Low | Fast | Med | <ul style="list-style-type: none"> Leverages data integration features in Postgres Proof point: integration into Oracle data infrastructure No new Oracle licenses | Med |
| NEW APPLICATIONS | Low | App Dependent | Med | <ul style="list-style-type: none"> Leverages existing Oracle report / OLTP skills Proof point: viable option for OLTP No new Oracle licenses | Med |
| OLD APPLICATIONS DUE FOR RE-WRITES / UPDATES / DEMOTION / ARCHIVE USE | Med | App Dependent | Med | <ul style="list-style-type: none"> Leverages existing Oracle skills and PL/SQL Proof point: retain PL/SQL investments Recycle existing Oracle licenses | Med |
| MIGRATE / REWRITE NON-MISSION CRITICAL APPS | Med | App Dependent | Med | <ul style="list-style-type: none"> Leverages existing Oracle skills and PL/SQL Proof point: ease of migration for non-tier 1 apps Reduce or recycle existing Oracle licenses | High |
| NEW MISSION CRITICAL APPLICATIONS | High | App Dependent | High | <ul style="list-style-type: none"> Leverages existing Oracle skills and PL/SQL Proof points: tier 1 capable and EDB tools Cap or eliminate Oracle licenses | High |
| MIGRATE / REWRITE MISSION CRITICAL APPS | High | App Dependent | High | <ul style="list-style-type: none"> Leverages existing Oracle skills and PL/SQL Proof points: tier 1 capable and EDB tools Reduce or recycle existing Oracle licenses | High |

By adopting EDB Postgres in a thoughtful, measured, and planned approach, organizations like yours are able to reduce the risks of change and save money at the same time you make significant strides in transforming your database infrastructure.

CONCLUSION

The database landscape is rapidly changing. Mature open source databases like EDB Postgres are now becoming standard issue alongside traditional database solutions but at a much lower cost. EDB's Postgres Platform can easily satisfy 80% of an organization's application needs and often at an 80% cost savings compared to Oracle.

EDB is the only commercial product vendor today with an open source-based platform available for a low cost subscription that is capable of providing all the software and services needed to successfully deploy Postgres at scale.

The EDB Postgres Platform provides enterprise-class capabilities and tools, a reliable product roadmap, enterprise support and services, flexible deployment options, software lifecycle control, and a worldwide commercial partner ecosystem to back it all up.

Low-cost open source-based development allows EDB to offer customers an inexpensive database platform with minimal sacrifice in performance and capabilities.

EDB's subscription-based business model, renewal policies, and virtual pricing policies make it easy to do business and establish a positive win-win relationship with your database vendor.

A simple bundled product with a single price makes a compelling total cost of ownership proposition for using EDB Postgres.

Finally, there are many long-term, additional savings realized when doing business with EDB well beyond the initial purchase, making EDB a great long-term investment.



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