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THE DEFINITIVE GUIDE TO

Oracle DE 01001010101010101010010101010101010010

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NUTANIX CLOUD-READY DATABASE SOLUTIONS

Modernizing Oracle Infrastructure for the Cloud

Nutanix Makes Oracle Simple, Fast, and Available while Delivering Greater Flexibility and Efficiency

As the pace of digital transformation accelerates, enterprises are increasingly turning to the cloud to increase agility, meet unpredictable resource demands, and locate services closer to the customers consuming them. Many companies have operations in several major public clouds and may also utilize smaller, more specialized managed cloud service providers to meet unique needs. It's a multicloud world.

Keeping pace with the needs of digital transformation creates significant challenges for teams managing Oracle infrastructure. Because many companies deploy their most business-critical databases on Oracle, these environments are typically designed more for reliability and performance than agility. With database estates rapidly expanding, organizations are seeking ways to:

- Simplify and accelerate Oracle and other database operations
- Better leverage private, hybrid, and public cloud resources
- Transition to a Database-as-a-Service (DBaaS) model

However, legacy Unix systems and three-tier infrastructure with separate servers and SAN storage can make it difficult to achieve these goals. When it comes to achieving more cloud-like operations for your Oracle environment, modernizing on-premises infrastructure can be a critical first step.

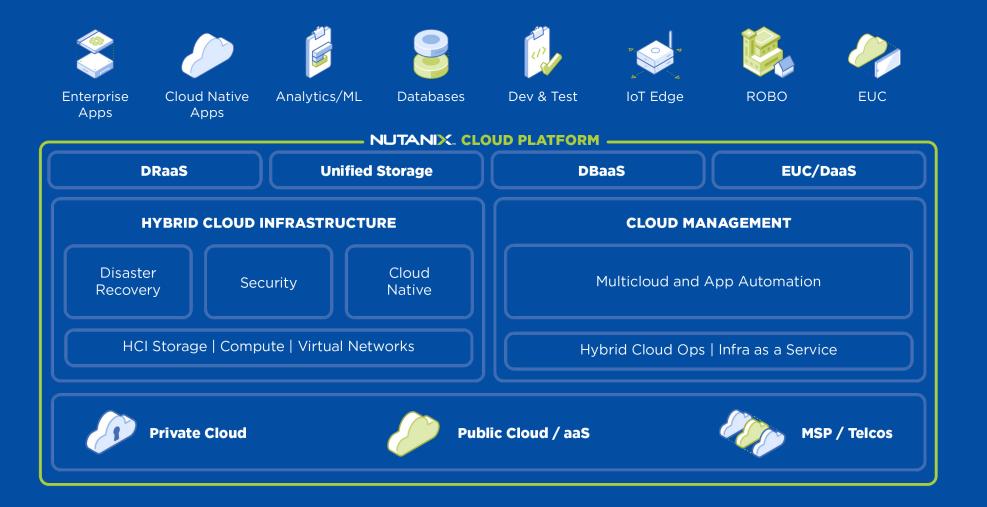
Introducing Nutanix Cloud Platform Solutions for Oracle Databases

As a pioneer and leading provider of Hyperconverged Infrastructure (HCI) and cloudready solutions, Nutanix combines the benefits of hyperconvergence and public cloud to make infrastructure invisible. The **<u>Nutanix Cloud Platform</u>**—in combination with **<u>Nutanix Era</u>**—can enable your DBA team to:

- **Reduce OpEx** by decreasing time spent on common Oracle database management operations such as provisioning new instances and making data copies
- Scale Oracle workloads on-demand no matter how large the requirement
- **Deliver predictable performance** for Oracle databases with consistent response times for queries
- Enable Database-as-a-Service (DBaaS) on-premises and across multiple clouds from a single control plane

Nutanix Cloud Platform Solutions for Oracle Database significantly reduce the complexity of Oracle infrastructure and simplifies operations. Streamlined management turns time-consuming tasks into simple, repeatable one-click operations.

One Platform for Hybrid and Multicloud



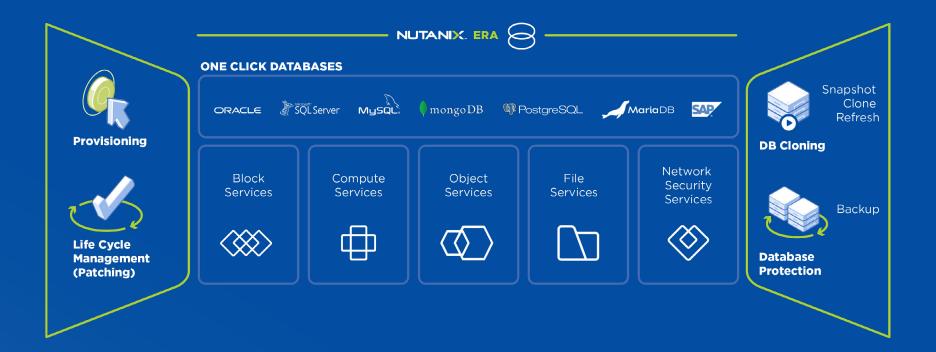
Nutanix HCI forms the foundation of the Nutanix Cloud Platform. By virtualizing the entire datacenter stack, Nutanix HCI delivers cloud-like simplicity to your datacenter. With Nutanix HCI, you can scale Oracle workloads on-demand—no matter how large the requirement—without forklift upgrades or painful migrations.

<u>Nutanix Clusters</u> extends Nutanix capabilities to the public cloud, creating the industry's first hybrid and multicloud platform with the flexibility, simplicity, and cost efficiency needed to run Oracle applications spanning private and public cloud environments. Nutanix Clusters brings the simplicity and ease of use of the full Nutanix stack to public clouds like AWS.

Nutanix Era is the final essential element of our Oracle solutions. Era eliminates database operational management complexity. With Era, you can keep your business running with near-zero downtime while lowering the TCO through operational efficiencies for running business-critical Oracle databases. Era gives you the power to manage your Oracle databases on your terms in the environments you choose.

This eBook explains how Nutanix Cloud Platform Solutions for Oracle Databases enable you to get more from your Oracle database estate, creating an environment that spans private and public clouds while remaining simple, fast, available, efficient, and flexible.

Nutanix Era



Simple

Complex and time-consuming Oracle database management operations can leave database administrators (DBAs) with little time for new requests or strategic projects. By combining a single control plane with innovative Nutanix infrastructure and database-specific best practices, you can simplify Oracle database lifecycle management—even as you extend your reach across clouds.

For common operations such as provisioning, patching, backup, and copy data management, Nutanix Era reduces time-consuming, error-prone manual operations, simplifying your operations and improving your team's efficiency. Nutanix can enable you to:

- Reduce DBA overtime by 50%
- Cut the time of copy data management from hours to seconds

Reduce DBA Overtime

Manual database management results in frequent overtime. When DBAs manage Oracle databases on legacy hardware using manual processes, a lot of their time is taken up with basic housekeeping tasks. To handle the volume of incoming requests, your team may find themselves working on weekends far too often, adding to operating costs and decreasing job satisfaction.

Nutanix Era provides a single user interface for all your Oracle databases, simplifying management. Intelligent automation and one-click simplicity for common management tasks streamlines the way you operate your Oracle database estate.

A recent Forrester Consulting TEI™ study commissioned by

Nutanix examined the potential benefits for companies deploying Nutanix Era. In interviews with four Nutanix customers from four different industries—with average yearly revenue of \$3.93 billion— Forrester found that Era reduced administrative overtime by 50% on average.



Accelerate Copy Data Management

In most Oracle environments, managing data copies for backup, disaster recovery, development work, and other functions is a big part of the total effort, consuming DBA time and significant storage capacity.

Era simplifies copy data management with the ability to create clones at any point in time, regardless of database size. Rather than having multiple physical database copies, Era minimizes your storage footprint through space-efficient cloning. A clone accesses the same data blocks from storage as its parent. Additional storage is consumed only as changes are made. Cloning eliminates the need for multiple physical copies of the same database while enabling faster access to data and minimizing the cost of duplication for significant cost savings. According to **Forrester**, database clones performed with Era require 60% less storage, saving \$800 per terabyte (TB) of avoided storage and resulting in total storage savings of \$4.3 million over a three-year period.

Reduce TCO

The simplicity of running Oracle using Era and the Nutanix Cloud Platform saves significant DBA management time through the automation of routine tasks. Combined with copy data management that reduces storage needs, you gain greater control over both OpEx and CapEx, **reducing TCO by up to 62% according to a Nutanix commissioned report by IDC.**

Aerospace and Defense Company Simplifies Oracle Operations with Nutanix Era

A large aerospace and defense company profiled in the recent **Forrester TEI study** needed to automate database management functions. DBA turnover was high, leaving fewer Oracle DBAs available to handle daily operations. By using Nutanix Era with its Oracle deployment, the team was able to dramatically decrease complexity, simplify operations, and reduce the need for DBA overtime. "With Nutanix, we are in a position to do more with less. We can provide a faster turnaround and a more highly available service for our customers. Era provides a cloudlike experience on-premises that maximizes the investment we've already made in our Nutanix hardware, and it answers the challenges that we have as a database administration team."

- Database Architect

Fast

When most people think about database performance, it's in terms of transactions per minute. But—while raw database performance is important—there's a lot more to being fast. Other performance metrics can be just as critical to the success of your Oracle operations and the agility of your business.

Nutanix helps ensure that all important database operations are fast and simple. With Nutanix you can:

- Increase database provisioning speed by **97%**
- Accelerate time-to-market for new products & services by 8X
- Improve database performance by **90%**

Fast(er) Provisioning

Slow Oracle provisioning affects your entire organization. Line-of-business teams can't afford to wait weeks for a new database to be ready, and dev/test teams often need fast access to database instances to accelerate feature delivery or to troubleshoot critical problems.

By combining the proven benefits of the Nutanix Cloud Platform with the flexibility and operational simplicity of DBaaS, Nutanix Era enables one-click provisioning and deployment of Oracle databases—on-premises or in the cloud—automatically adhering to best practices for optimal performance and eliminating the risk of configuration errors that come with manual deployments.

According to **Forrester's study**, Era reduces average provisioning time from two weeks down to just hours or minutes, increasing database provisioning speed by 97%. When provisioning ceases to be a bottleneck, the productivity of DBAs, dev/test teams, and application owners all increase. Over a three-year period, shortened provisioning time is worth \$371,000 to the customers surveyed on a composite basis.

Fast(er) Development

The pace of digital transformation in most enterprises continues to accelerate, increasing the pressure on companies to deliver new software features—and entire new services—as quickly as possible. As the bedrock on which many enterprise services are built, databases—and slow database operations—can significantly hinder development work. Nutanix Era accelerates development in three main ways:

1. Fast provisioning. As described above, Era decreases provisioning time by up to 97%. With Era, any time a developer needs a new Oracle instance, they can get one with much less delay. Built-in automation can deploy a database 10X faster with 20% of the normal deployment staff involved. And, using Era Time Machine, you can provision an instance to any point in time to facilitate problem recreation and troubleshooting.

2. Self-service. Even when provisioning happens quickly, developers don't want to wait until a DBA gets to their request. By combining the capabilities of **Nutanix Calm** and Nutanix Era developers can get direct access to the resources they need at any time. For example, you can create a Calm blueprint for an Oracle test environment and make it available in the Nutanix Marketplace. Any time someone needs a new test environment, they can request it and have it automatically provisioned.

3. Copy data management. The copies of production data used in development and test processes must be as up-to-date as possible to ensure code quality. Nutanix cloning enables space-efficient production data copies to be created quickly whenever they are needed. This means that, not only can you create new database instances for testing, you can also clone production data sets so that everyone on the team is using up-to-date data.

By removing impediments to productivity, Nutanix allows you to accelerate time to market for new products and services by as much as 8X. Nutanix transforms the way you operate and manage development and testing. Whether on private, public, or hybrid cloud, Nutanix Era gives developers the capabilities and freedom they need.

^{ff} With compute and storage resources and database copies **available in an instant**, time-to-market for new services has **dropped from 2-4 days to 4-6 hours**.⁹⁹



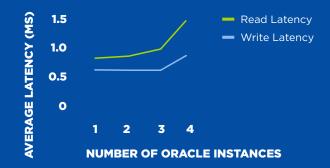
— Nimish Valia, **RBL Bank**

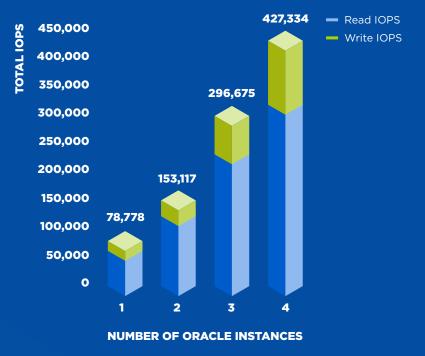
Fast(er) Transaction Processing

Naturally, you also care about the transactional performance of your Oracle databases. Many organizations continue to run Oracle on expensive legacy hardware for its perceived performance benefits—despite higher costs and management complexity. For anyone considering moving Oracle to Nutanix, transaction performance is something you will likely look at closely to ensure that critical SLAs can be met.

A recent **ESG Technical Validation** examined the impact of Nutanix HCI and Nutanix Era on both the simplicity of database operations and the performance of Oracle and other databases running on Era-provisioned infrastructure.

According to the report, the "Silly Little Oracle Benchmark (SLOB) was used to efficiently generate realistic system-wide, random, single-block, and application-independent SQL queries. The tool exercised all components of the server and storage subsystems by stressing the physical I/O layer of Oracle."





SLOB was run against a four-node Nutanix cluster with up to eight Oracle instances. Performance analysis was executed with Oracle Automatic Workload Repository (AWR). According to ESG, **"Nutanix demonstrated near perfect linear scalability for reads and writes. Reads showed just a 5.6% variance and writes showed 6.3%. Latency stayed quite low throughout the tests."**

The report also notes that Nutanix Era showed significant gains since the last time similar testing was performed in 2017, improving by 53% overall. These gains were due in part to more capable hardware as well as continuing optimizations for database workloads.

"Nutanix continues to expand the boundaries of what is possible by not only adopting and developing cutting-edge technology but also providing software that simplifies life for IT admins and DBAs alike. If you're looking to modernize your IT infrastructure to provide the benefits of today's most highly performant compute and storage technology to your critical databases with the simplicity of HCI, ESG recommends you take a close look at Nutanix for relational database workloads." — <u>ESG Technical Validation</u>

For a busy Asia/Pacific network service provider profiled in the recent **Forrester TEI study**, database provisioning had become a bottleneck to new application deployments. With previous methods, it took several days to provision a new database. By switching to Nutanix and using Era to provision Oracle databases, the service provider eliminated bottlenecks, increasing DBA and developer productivity.

"What matters is how fast can we deliver, because there is a team on the other side waiting for a test environment. With Era, we can deliver an environment quickly, so the waiting time of our developers has been cut short."

- Database Application Operation Manager, Telecommunications

Available

Availability is more than just keeping your Oracle databases running, it means keeping them running at peak performance and mitigating the impacts caused by common operations such as software updates, patches, and backups.

Nutanix delivers the data protection, disaster recovery, and availability your business needs. The Nutanix Cloud Platform provides exceptional availability with a self-healing architecture that restores full resiliency without operator intervention. The addition of Nutanix Era improves performance and reduces the impact of operations that typically require planned downtime or cause your Oracle databases to run slow. Benefits include:

- Reduce or eliminate downtime for production workloads
- Avoid downtime losses due to patching
- Cut database backup windows up to 8X—from hours to minutes

Reduce or Eliminate Downtime

Downtime—whether planned or unplanned—can have a big impact on your Oracle database estate, your operations, and your customers. Nutanix Cloud Platform Solutions for Oracle Database enable you to minimize or eliminate sources of downtime with native tools to ensure business continuity, shortened backup windows, and more frequent backups.

In a **recent IDC study**, Nutanix customers were asked about business continuity. The study reported that Nutanix customers have "improved their business continuity and reduced operational risk by reducing the frequency of unplanned outages affecting applications and services running on their platforms and having more robust data backup and recovery environments. In particular, they cited benefitting from having a single view of their IT environments with Nutanix Prism as well as having improved disaster recovery and failover capabilities."

"With Nutanix, we're now up in the five-nines for availability because problems with hardware and the operating system are near zero... Revenue loss with Nutanix due to outages is nominal and we don't hear about it in our board meetings anymore. We're gaining back hundreds of thousands of dollars a year."

- IDC TCO & ROI Analysis

Avoid Downtime Losses Due to Updates and Patches

Applying software updates and patches has become a critical part—perhaps the most critical part—of ensuring security. You simply can't afford to leave unpatched CVEs in system, database, and application software longer than absolutely necessary. However, in any Oracle environment there's a constant tension between the need to perform updates and the desire to avoid downtime. Losses from Oracle database downtime can quickly run into tens of thousands of dollars an hour.

Nutanix significantly reduces downtime through automation, eliminating patching headaches. Nutanix Era lets you automate patching events and apply patches across all your Oracle databases with the least possible disruption. The **Forrester TEI study** found that Era reduced the time needed from 4 hours per patching event to just 30 minutes, with avoided losses averaging \$35,000 per hour. "We're under a lot of pressure to immediately apply patches when they are released quarterly. Seventy percent of all of our databases need to get patched right away, and with Era, it's all automated."

-Customer quote, Forrester TEI study

Shorten Backup Windows

When your Oracle backup window expands outside of non-peak periods, backups can interfere with production. Nutanix helps you cut database backups from hours to minutes—up to 8X faster using native snapshot and replication capabilities.

According to **Forrester**, Nutanix customers who began using Era backups:

- Reduced backup duration
- Increased frequency of backups from once a day to twice an hour
- Shrunk storage costs up to 80%

"The reason we use Era is that it saves us a lot of time."

-Customer quote, Forrester TEI study

The <u>Home Depot</u> Chooses Nutanix for Better Database Management

The Home Depot needed to improve infrastructure efficiency and reduce TCO. Before switching to Nutanix, the team tried updating to faster servers and more storage to accommodate growing database workloads but that didn't solve their problems. They were much happier with the results they got from adding nodes to an existing Nutanix VDI cluster to support the Oracle and SQL Server databases that run their operations. Home Depot eventually purchased a dedicated Nutanix environment to support its database teams, enabling these teams to manage their own infrastructure needs, which offloaded the IT team.

"Since Prism Pro is so easy to use, we told the database engineers they could quickly learn to manage their own environments and monitor capacity utilization. They really like the ability to see their VMs, servers, and storage, with detailed forecasting that shows when they're likely to run out of resources. It enables them to proactively ensure application performance and formulate more accurate budgets for their projects." —Kevin Priest, The Home Depot

Efficient

With complex management, constant performance tuning, too much downtime, and low hardware utilization, most Oracle environments are not as efficient as they should be. Setup and tuning can take days or weeks of administrative effort. Inefficient copy data management inflates database storage costs, while underutilized hardware raises total expenses—including licensing costs.

With built-in best practices and superior efficiency, Nutanix Era delivers distinct efficiency advantages for your Oracle estate. The benefits you've learned about in earlier sections add up to significant savings:

- Decrease database storage costs by 60%
- Cut hardware footprint by up to **40%**
- Generate ROI of 291% and payback within 6 months

Cut Database Storage Cost

The traditional approach to database management results in many physical copies of the same data—for backups, DR, analytics, and other functions. This not only leads to high storage costs, it complicates backup and recovery processes. Backup admins and DBAs often struggle to make sure they have adequate capacity.

Forrester found that customers using Nutanix Fra to create database clones rather than traditional database copies reduce storage **costs by 60%**. Storage cost savings were the single greatest financial benefit in Forrester's TEI study.



Decrease database storage costs by 60%



Cut hardware footprint by up to 40%



Generate ROI of 291% and payback within 6 months

Reduce Hardware Footprint

Legacy hardware is expensive to own and operate and scaling can be expensive, difficult, and disruptive. And, with datacenter space at a premium, the large footprint of legacy compute and storage hardware consumes too much rack space, adding to your costs.

Nutanix runs on industry-standard hardware (from the industry's leading vendors) and scales easily, non-disruptively, and—relative to legacy hardware—with less cost. Our hyperconverged approach combines storage, compute, and other capabilities to be inherently more space efficient. Nutanix can also take advantage of storage efficiency technologies like compression, deduplication, and erasure coding for even greater savings. The result is more capability in a smaller footprint.

For example, when **RBL Bank** switched to Nutanix from a legacy three-tier architecture with separate storage, compute, and storage networks, it not only improved performance and employee satisfaction, it reduced the hardware footprint of its solution by 40% and cut storage needs by 90TB.

Achieve Rapid Return on Investment

In case there were any questions, streamlining operations and increasing efficiency results in significant financial benefits. The **Forrester TEI study** concluded that, for the customers studied, "Nutanix Era simplifies database management, enabling a new level of efficiency, standardization, cost savings, and improved employee experience." A composite organization would experience an ROI of 291% over three years with a payback period under six months.

Telecom Provider Relies on Era for Efficiency and Cost Savings

A telecommunications provider needed to implement DBaaS to host databases supporting various applications across a geographical region. Nutanix Era has made provisioning and patching processes more efficient, leading to significant cost savings. For this provider, the ability to perform Oracle RAC provisioning from scratch in less than 40 minutes on a live, on-premises cluster was a clear demonstration of the efficiency advantages that Nutanix Cloud Platform and Era delivers.

Flexible

Oracle databases deployed on traditional IT infrastructure with separately sourced servers, storage, and storage networks—are often expensive, difficult to manage, and lack the flexibility and scalability that modern business requires. This forces your IT team to spend far too much time and effort on mundane management tasks that keep the lights on, but don't move your business forward.

Nutanix Cloud Platform Solutions for Oracle Database provide cloud-like services to your organization—on-premises, in the public cloud, or through Nutanix-powered service providers. Nutanix Era delivers the flexibility and agility you need to succeed, letting you create, operate, and manage Oracle on your terms, and enabling you to offer DBaaS without loss of control. With Nutanix, you can:

- Deploy and manage any database anywhere
- Move database workloads from one cloud to another
- Satisfy developer needs more quickly

Deploy Anywhere

Operational simplicity and flexibility in your Oracle environment are more important than ever, yet many IT teams spend weeks standing up a single database. Nutanix Era makes Oracle provisioning simple, fast, and repeatable. You can provision standalone, HA, and DRenabled databases across multiple Nutanix clusters—in a datacenter or in the cloud—in a fraction of the time you previously spent.

Move Easily Between Cloud

Because of the rigidity inherent in traditional infrastructure, moving a running database can take weeks of planning. And, if you're moving a database from a datacenter to the cloud or from one cloud to another, the situation gets even more complicated since you have to ensure that all the services your database needs are available in the new location—and find alternatives if they're not.

The Nutanix Cloud Platform provides the flexibility to operate Oracle databases across datacenter and cloud environments using a single set of tools with no surprises. You can seamlessly move Oracle workloads between clouds using automated operations that reduce complexity and minimize the downtime needed for cutover. Nutanix lets you quickly leverage the full potential of hybrid and multicloud environments, with near-zero service outages when you move a database from one location to another.

Accelerate Development

For most development teams, databases are an impediment to productivity. Software and test engineers waste valuable time waiting for databases to be provisioned for testing. There are never enough copies of the production dataset to validate features and bugfixes, and the copies that do exist may be weeks or months out of date.

Nutanix Era eliminates these bottlenecks. New Oracle databases can be provisioned in a fraction of the time using pre-defined templates and best practices that ensure consistency and eliminate guesswork. Flexible and efficient database clones allow every developer and tester to have an up-to-date copy of the latest production dataset, ensuring that all code changes are tested effectively.

By combining the capabilities of Nutanix Era and Nutanix Calm, you can offer your development teams self-service access to infrastructure, data copies, and full development and test environments, speeding their efforts—and getting DBAs out of the line of fire.

Before moving to Nutanix, the DBAs at **RBL Bank** were continually playing catch up on maintenance tasks and new services requests. They typically spent at least 70% of their time handling requests for testing environments from the business. Creating physical copies of existing databases took up to one terabyte of storage each time, increasing the company's IT costs. Nutanix Cloud Platform and Nutanix Era changed all that.

"With Nutanix, we overcame the challenge of speed-to-market while maintaining the administrative rigor for data security. We've hit that sweet spot where we can maintain a pace of development that keeps us out front, at the same time ensuring costs are under control." — Nimish Valia, **RBL Bank**

Getting Started with Nutanix Cloud Platform Solutions for Oracle Database

Nutanix solutions can increase the simplicity, performance, and availability of your Oracle estate—on-premises and in the cloud—while increasing your operating efficiency and delivering the agility you need to take your Oracle operations to the next level. If you're ready to find out more about running Oracle on Nutanix, the analyst studies referenced in this book are a great place to start:

- The Total Economic Impact Of Nutanix Era, A commissioned study conducted by Forrester Consulting on behalf of Nutanix, October 2020
- Performance Analysis of Databases Running on Nutanix
 Hyperconverged Infrastructure, ESG, September 2020
- Nutanix Cloud Platform: A Scalable, High-Performing, and Cost-Effective Infrastructure Foundation, IDC, January 2020

To learn more about Nutanix Cloud Platform Solutions for Oracle Database visit **<u>nutanix.com/oracle</u>**. You can contact Nutanix at **<u>info@nutanix.com</u>**, follow us on Twitter <u>@nutanix</u>, or send us a request at <u>www.nutanix.com/demo</u> to set up your own customized briefing.

You can also take a test drive of Nutanix infrastructure with no hardware, setup, or cost. Experience the simplicity and agility of public cloud combined with the performance, security, and control of private clouvd via an easy-to-follow guided tour.

Take a Test Drive

Nutanix is a member of the Oracle Partner Network.



