

# The Smarter Way to Manage Data

Oracle Autonomous Data Warehouse is more than just a new way to store and analyze data; it's a whole new approach to getting more value from your data.

**ORACLE**  
Cloud





# Redefining Data-Management Clouds

Market leaders in every industry depend on analytics to reach new customers, streamline business processes, and gain a competitive edge. Data warehouses remain at the heart of these business intelligence (BI) initiatives, but traditional data-warehouse projects are complex undertakings that take months or even years to deliver results.

Relying on a cloud provider accelerates the process of provisioning data-warehouse infrastructure, but in most cases database administrators (DBAs) still have to install and manage the database platform, then work with the line-of-business leaders to build the data model and analytics. Once the warehouse is deployed—either on premise or in the cloud—they face an endless cycle of tuning, securing, scaling, and maintaining these analytic assets.

It's complicated—at a time when analytics has vaulted to the top of the CIO agenda. According to a recent article in the *Economist*, many organizations now

consider data to be one of the most valuable assets on their balance sheets. Smartphones and the internet have made data abundant, ubiquitous, and far more valuable than ever before.<sup>1</sup> The average internet user now spends around six hours each day using internet-powered devices and services, and the number of people using top social-media platforms increases by almost 1 million new users every day.<sup>2</sup>

Many organizations are trying to leverage all of this online data, even as burgeoning internal data requirements place crushing demands on their data marts, enterprise data warehouses, and analytic systems. Some businesses look to the cloud to help solve these scalability issues. However, most cloud providers simply shift your old problems to a new infrastructure—and it's up to you to keep the entire platform running efficiently.

Oracle has a better way.

“We are at the dawn of the intelligent, autonomous age, and having a self-driving database is a natural progression. Freeing DBAs from the basic operational nuances of running a database is of tremendous value. I feel that autonomous databases will become ubiquitous in the future.”

Clark A. Kho,  
Senior Technology Architect, Accenture

<sup>1</sup> The Economist, “The World’s Most Valuable Resource Is No Longer Oil, but Data,” May 6, 2017, [economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data](http://economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data).

<sup>2</sup> Simon Kemp, “Digital Trends 2019: Every Single Stat You Need to Know About the Internet,” The Next Web (blog), January 30, 2019, [thenextweb.com/contributors/2019/01/30/digital-trends-2019-every-single-stat-you-need-to-know-about-the-internet](http://thenextweb.com/contributors/2019/01/30/digital-trends-2019-every-single-stat-you-need-to-know-about-the-internet).



# Another First from the Company That Brought You the World's Most Popular Database

Oracle Autonomous Data Warehouse represents a game-changing category of data-management cloud—an easier way to store, manage data, and access your analytics quickly. It's based on Oracle Autonomous Database, the foundation of many unique database cloud services coming from Oracle, now and in the future.

Oracle Autonomous Database is self-driving, self-securing, and self-repairing, designed to eliminate manual, error-prone management processes. You can deploy a data warehouse in the cloud in minutes, and Oracle customer benchmark studies demonstrate performance of up to 14 times faster than Amazon Redshift. Provisioning, patching, updating, backing up, tuning, and applying security patches are all taken care of while the system is running, giving your DBAs more time to focus on obtaining insights, architecting new applications, and solidifying security.

## Self-driving.

Oracle Autonomous Database eliminates human error when provisioning, securing, monitoring, backing up, recovering, troubleshooting, and tuning your database. In addition to reducing the need for manual input, it cuts costs and allows your IT staff to concentrate on higher-value tasks. Thanks to adaptive machine-learning (ML) algorithms, the database can automatically tune itself—allowing you to submit queries, visualize data, and share results without getting bogged down in mundane management tasks.

## Self-securing.

Devastating security lapses can occur if patches are not applied in a timely manner. Oracle Autonomous Database patches itself automatically to avoid human errors or omissions.

It automatically applies the latest security patches, reducing the risk of vulnerability and minimizing application downtime. Always-on encryption lets you control your own keys to further enhance security. Oracle Autonomous Database comes with Data Safe, which helps identify and mask sensitive data, and alerts you to suspicious attempts to access data.

## Self-repairing.

Oracle Autonomous Database automatically recovers from any physical failures—at both the server and data-center levels. In addition, by applying software updates in a rolling fashion across multiple nodes within a cluster, it ensures your applications remain online. Thanks to AI diagnostics, Oracle Autonomous Database detects errors by continually gathering statistics, analyzing the root cause of problems, and resolving them quickly. It uses AI to deliver unprecedented reliability, performance, and elasticity to data-warehouse deployments.



Watch the video (3:42) →

## Executive Viewpoint

Oracle SVP Çetin Özbütün explains how Oracle Autonomous Data Warehouse can help your organization reduce costs and boost efficiency for all types of analytic workloads.



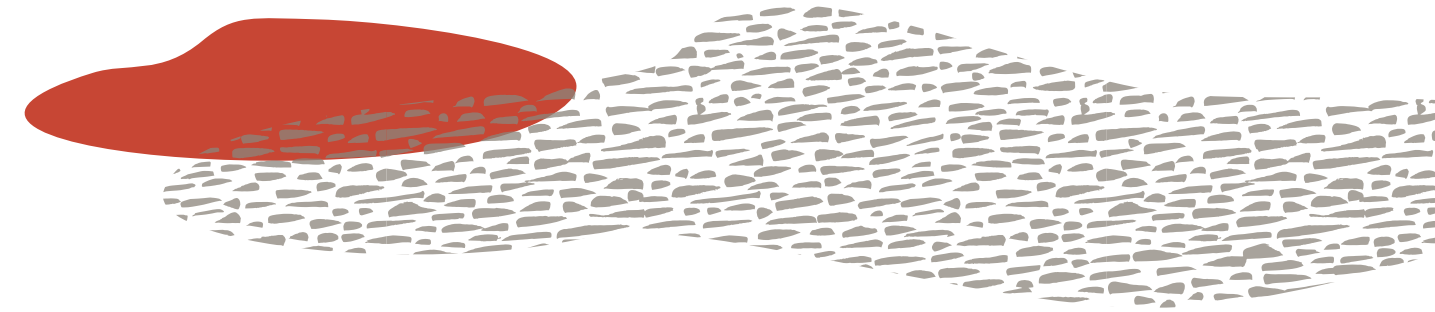
# Simplify IT and Unleash New Business Opportunities in the Cloud

Industry research firm IDC found that as much as 75 percent of the total cost of database management can be attributed to labor. According to IDC analysts Carl Olofson and David Schubmehl, Oracle Autonomous Database delivers major labor-saving benefits to customers by automating database tuning and problem detection. It also reduces downtime from both planned and unplanned outages, and software or system maintenance.

“When one considers both the database tuning and maintenance, and also the software maintenance, Oracle Autonomous Database is likely to save the average organization hundreds or, in some cases, thousands of FTE hours per year for each major database,” the analysts reported. “These major savings should also provide Oracle Database users with a major incentive to move to Oracle Cloud.”<sup>3</sup>

Oracle offers a complete path to the cloud that encompasses integrated IaaS, PaaS, and SaaS solutions. You end up with a complete data ecosystem in which a broad set of related cloud services work together automatically—and in many cases, autonomously. Adaptive machine learning and AI help your IT team anticipate downtime, spot performance anomalies, identify security risks, and automate troubleshooting activities. In addition, all Oracle Cloud solutions allow for flexible deployment models, enabling you to seamlessly migrate your IT workloads from an on-premise data center to the cloud, and back again. Best of all, Oracle offers competitive cloud pricing for all types of businesses in every industry, with affordable solutions for companies of all sizes.

<sup>3</sup> Carl W. Olofson and David Schubmehl, “Oracle’s Autonomous Database: AI-Based Automation for Database Management and Operations,” IDC, February 2018, IDC #US43571317, [oracle.com/au/database/autonomous-database-downloads/07\\_ADWC/Bericht\\_von\\_IDC.pdf](https://www.oracle.com/au/database/autonomous-database-downloads/07_ADWC/Bericht_von_IDC.pdf).



“Oracle is at the vanguard of a movement to make enterprise software easier to deploy, use, and administer, using artificial intelligence and machine learning to provide automation capability requiring little or no human intervention to manage the software.”

IDC

## Why move your data warehouse to the cloud?

- Rapid turn-up of departmental data marts
- Easy migration of on-premise databases
- Automated management and cloud tooling to eliminate mundane labor
- Elastic compute and storage resources to scale effortlessly
- On-demand analytics for improved business agility







Dain Hansen, vice president, product marketing (PaaS/IaaS), discusses the distinguishing features of Oracle Autonomous Data Warehouse.

# New Levels of Automation

## Easy.

With Oracle's new autonomous database, creating a data warehouse is a load-and-go process. Users simply specify tables, load data, and then run their workloads; no manual configuration or tuning needed. All management tasks are fully automated, including all database-tuning chores. Data is automatically compressed and encrypted.

"Oracle has been in the data-management business for more than four decades, and we have worked closely with DBAs in the largest data centers in the world. We know that DBAs spend nearly 70 percent of their time maintaining information systems rather than focusing on innovation. Now they can elevate their presence within the organization and become true data administrators who drive data-management strategy and move the business forward."

## Elastic.

Both computing and storage capacity are instantly elastic, meaning you can expand or shrink computing and storage resources independently, with no downtime. Because Oracle Autonomous Data Warehouse is built on Oracle Database, all business intelligence tools and services and all data-integration tools and services that support Oracle Database also support this service.

"Oracle is enabling organizations to innovate much faster, to gain rapid insights from their data, and to bring new products and services to market much more quickly than ever before. Technology's role is to make people's lives easier. This is what Oracle has accomplished with Oracle Autonomous Data Warehouse."

## Fast.

Autonomous Database for Data Warehouse requires very little administration. A data warehouse can be created in a matter of minutes. Because it is preconfigured for automated patches and upgrades, your organization can eliminate manual, error-prone management processes that characterize traditional data-warehouse implementations. The database detects available patches and automatically applies them, without human intervention.

"Oracle Autonomous Data Warehouse lowers security risks, since all patches and security updates are installed automatically. It's perfect for small and midsize organizations. You can deploy a new data warehouse in minutes, and obtain analytic results very quickly. It's very easy to use, and Oracle provides migration tools to move on-premise data warehouses into the cloud."



# Data Warehousing Made Easy

Modern businesses need real-time data more than ever before—but they don't need more data-management headaches. As a turnkey cloud service built on self-driving, self-tuning, self-securing Oracle Autonomous Database technology, Oracle Autonomous Data Warehouse uses AI to improve security, reliability, and performance, continually learning from its environment. This easy-to-use, fully autonomous database scales elastically and delivers incredible query performance—without requiring IT pros to perform routine database administration.



Watch the animated video:

Oracle Autonomous Data Warehouse →

## What's your incentive to move to the cloud?

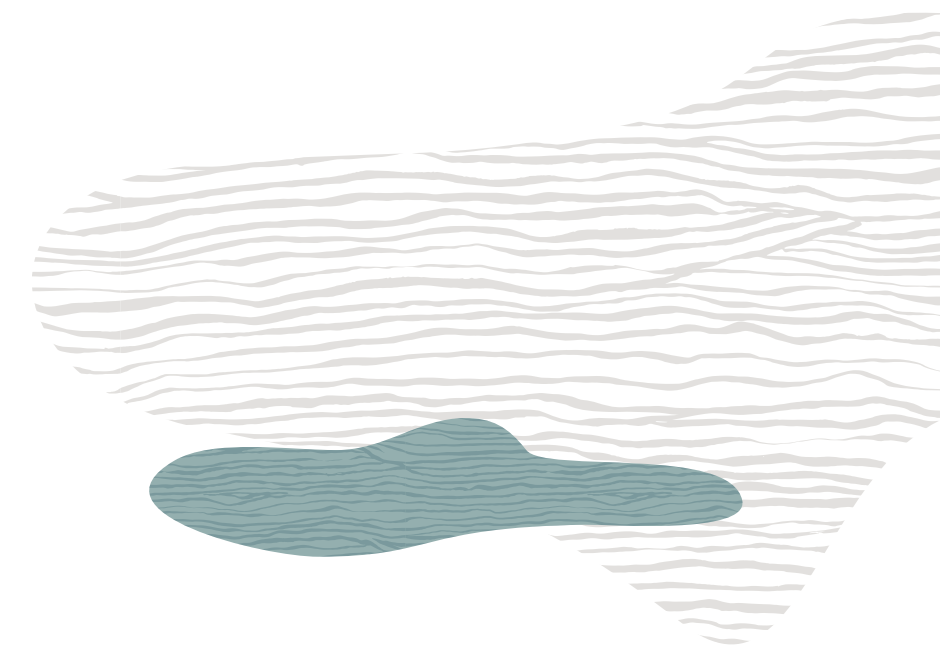
Developing and deploying applications using a cloud model is fast becoming the status quo. But how do you use the cloud to completely transform your business?

When it comes to data warehousing, Oracle has the answer. Instead of getting bogged down securing, maintaining, and tuning data warehouses, IT platforms, and data-management infrastructure, forward-looking organizations are turning to the world's first fully autonomous data warehouse.

You can simplify your IT infrastructure and minimize capital investments by utilizing Oracle Cloud services for infrastructure, data management, applications, and business intelligence. Autonomous operations supported by high service-level agreement (SLA) guarantees provide further incentive to migrate IT operations to the cloud.

Oracle predicts that more than half of all enterprise data will be managed autonomously in the cloud by 2025. To find out how your cloud usage compares to your peers, read the report, "Cloud Predictions 2019."

<sup>4</sup> Oracle, "Cloud Predictions 2019," [oracle.com/assets/oracle-cloud-predictions-2019-5244106.pdf](https://oracle.com/assets/oracle-cloud-predictions-2019-5244106.pdf).



Prediction #2

# 80%

of all enterprise (and mission-critical) workloads will move to the cloud.<sup>4</sup>







## Case in Point: DX Marketing Maximizes Business Opportunities—and ROI

***“Autonomous Data Warehouse will help us roll out a data-management platform that our data analysts and data scientists can build themselves and use themselves, without involving any of our IT resources.”***

***Jerry Gearding,***  
*Chief Technology Officer, DX Marketing*

DX Marketing, based in Savannah, Georgia, offers multichannel marketing services ranging from research and analytics to digital, creative, and production. Its focus is on using its leading-edge marketing technology in conjunction with data-driven analytics to help its clients succeed.

By basing its data-management and analytics platform on Oracle Database Cloud, DX Marketing avoided the expense of hiring new IT staff and buying new infrastructure. Now DX Marketing is moving its analytics services to Oracle Autonomous Data Warehouse to increase automation even further. All of the company’s existing analytic investments will carry forward.

DX Marketing uses Oracle Cloud and Oracle Analytics Cloud to run analyses that compare clients’ data to the attributes in a data set, and it only takes a few days to accomplish what used to take several weeks with a third-party provider.

Thanks to the simplicity of the Oracle Cloud solution, DX Marketing avoided the expense of hiring new IT staff and acquiring new infrastructure, freeing up funds to hire a data scientist and focus on cultivating top-grade analytics talent. With Oracle Autonomous Database, DX Marketing is expanding its business potential—and growing to meet its customers’ needs.

***“We have been astounded at how fast and effectively we can get to market with our Oracle Cloud solution. Oracle’s multitenant and advanced analytics capabilities enable us to provide breakthrough solutions. It’s a huge differentiator that helps us deliver ROI to our customers, capitalize on business opportunities, and create new revenue streams.”***

***Ray Owens,***  
*CEO, DX Marketing*



# Today's DBAs Need Automation

## DBA and IT Challenges: The Numbers

Database-management workloads are approaching a tipping point. According to a recent Oracle survey of database administrators, 39 percent of DBAs are managing 50 or more databases, and 95 percent of those IT professionals manually create and update these databases. A high proportion of DBAs say they experience some type of unplanned downtime over the course of their careers, and most of these individuals struggle to coordinate multiple management and backup tools.



Workloads for DBAs are increasing: 39% of DBAs handle 50 or more databases



Automation is lacking: 95% of DBAs create or upgrade databases manually



78% of DBAs will experience unplanned downtime from untested database changes during their careers



DBAs and IT staff are struggling to provide full protection: two out of three organizations use multiple tools to back up a single database

## Maintenance Versus Innovation

It's no wonder that 72 percent of IT budgets are spent merely maintaining existing information systems, leaving only 28 percent for innovation.



of IT budget is spent on maintenance versus innovation



Keeping pace with service demands from lines of business



Ensuring performance SLAs, security, regulatory compliance, and availability



# New Opportunities for DBAs

We've all heard horror stories about data-warehouse implementations that required heavy IT dependency and took years to complete. Those days are gone. With Oracle Autonomous Data Warehouse, business users can build their own data warehouses, data marts, and sandboxes in minutes. They can specify tables, load data, and run analytic workloads with a few clicks.

Since no manual tuning or maintenance is required, DBAs can eliminate mundane maintenance activities—such as provisioning, patching, and backing up databases—and work more closely with the business to select service levels and extract more value from their company's data.



According to Maria Colgan, master product manager for Oracle Database, with Oracle Autonomous Database Cloud, DBA responsibilities don't go away. They just get more interesting.

***“DBAs who are not currently experts in data modeling, security, data lifecycle management, or application tuning will have an opportunity to move into those areas.”***

Read the article in *Oracle Magazine*, [“Driver's Education for the Self-Driving Database.”](#) →

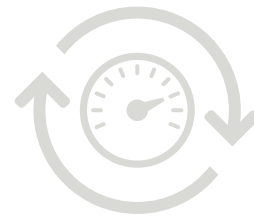


# New from Oracle

Only Oracle has the autonomous database technology you need to create and support today's demanding business models. Oracle Autonomous Database consists of a single set of technologies available in multiple products, each tailored to a different workload.

- **Oracle Autonomous Data Warehouse is the simplest and most efficient database for data marts and reporting databases.**
- **Oracle Autonomous Transaction Processing, is designed to run mission-critical enterprise applications (including mixed workloads and real-time analytics) with exceptional application performance. It makes it easy to develop and deploy new applications with no complex management or tuning required.**

## Autonomous Database: Two Deployment Options



### Serverless: simplicity and elasticity.

- Instant provisioning of Oracle Database, regardless of database size
- Independent scalability of compute and storage resources
- No upfront infrastructure required



### Dedicated: customizable private cloud in a public cloud.

- Private customizable self-service database
- Complete hardware isolation from other tenants
- Hardware-enforced virtual cloud network
- Policies governing the operational lifecycle



## Summing up the Benefits



### Secure.

Oracle Autonomous Data Warehouse not only automatically monitors user and query activity to detect threats; it also applies patches across the entire stack of software that supports your analytic applications—all while those apps are running.

Oracle Data Safe (included) helps you identify sensitive data and mask it for use in partner or development environments, alerts you to risky users and system configurations, and monitors database activity to quickly discover suspicious access attempts.



### Reliable.

Your business's success and reputation depend on your ability to maintain system uptime. That's why it's essential your chosen cloud architecture is able to handle every threat it faces—from software and hardware failures to maintenance repairs and natural disasters. Oracle Autonomous Database reduces downtime, both planned and unplanned, to less than 2.5 minutes per month, or 99.995 percent availability.



### Fast.

Anchored by the high-performance Oracle Exadata platform, Oracle Autonomous Data Warehouse can run analytic workloads up to 100 times faster than with the commodity infrastructure popular with other cloud providers. You get a high-performance data warehouse, straight out of the box, that has been optimized for data-warehouse workloads.



### Flexible.

Oracle's Autonomous Database integrates directly with the full spectrum of business analytics, data integration, and IoT services within Oracle's comprehensive range of integrated cloud solutions. You can use existing development tools such as Oracle APEX, or the web version of Oracle SQL Developer, which includes enhanced support for Oracle Autonomous Data Warehouse.



### Economical.

With Oracle Autonomous Data Warehouse, you can create and expand the compute and storage capacity of your data warehouses independently of each other, with no downtime. With Amazon Web Services, by contrast, you have to scale storage and compute capacity at the same time, not independently—and you incur downtime.





## Prove it.

Calculate your potential savings versus an on-premise solution with the [Oracle Autonomous Data Warehouse TCO calculator](#).

## Learn more.

[oracle.com/database/data-warehouse.html](https://oracle.com/database/data-warehouse.html)



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