

FOUR REASONS WHY ORACLE AUTONOMOUS CLOUD DATA WAREHOUSE IS RIGHT FOR ENTERPRISE IT AND DATA CONSUMERS

INTRODUCTION

Data is the new crude of the modern enterprise. And intelligence is the refined oil that makes the modern business run more efficiently in the digital economy. How quickly a company can execute this transformation from data to intelligence is known as "time-to-value." This metric is perhaps the most critical measure of an organization's competitive advantage. In short, those who can gain actionable insights fastest and put them into action in production systems have the greatest chance of winning in the marketplace today.

In this modern data era, a new employee archetype has emerged – the data consumer. We often associate data consumption with data scientists trying to glean insights from the most complex data models. However, the reality is that the data consumer is often an embedded line of business professional trying to glean the same insights but without the necessary expertise.

Many would think of this scenario as data management. However, this is a very abstract vision of data management. Data management's real work sits below the waterline, so to speak, with the deployment, management, and ongoing optimization of database and data warehouse environments.

This conflict – the business' needs pitted against what IT can deliver – has given rise to cloud vendors delivering data management services, including AWS Redshift, Snowflake, and Microsoft Azure Synapse, to name a few. But there is one data warehouse service that stands out for its genuinely autonomous nature – Oracle Autonomous Data Warehouse (ADW), one of the three variants of Oracle Autonomous Database (ADB).

This research report will dig deeper into ADW and articulate the unique capabilities (autonomous, elastic, converged, and purpose-built for both technical and non-technical

users) that make it a "must-buy" for any organization wanting to shorten the time from data to decision.

SETTING THE STAGE: THE CHALLENGES FACING ENTERPRISE IT

As previously mentioned, business managers and users of business intelligence services share an abstract vision of data management. For such users, data management is all about the tools that they are using to generate reports.

What is not considered is the burden put on enterprise IT organizations to stand up and manage the platforms that collect, aggregate, and transform such data to support the digitized business. Data is generated everywhere, in different formats, with different data models and associated devices. Somehow, IT must automate the coalescing of these disparate data types and store everything in an easily consumed format.

Additionally, the complexity associated with deploying and maintaining such a data management environment is overwhelming. The human capital necessary to architect, deploy, tune, and continuously manage such an environment can seem prohibitive. Further, extending access to developers and data consumers embedded in business units can be equally vexing.

Summed up more succinctly, the challenges facing the modern IT organization boil down to costs. These include capital expenses associated with hardware and software and operational costs related to maintaining the environment(s) and supporting line of business requests. A common theme in Moor Insights & Strategy's discussions with enterprise IT is, in fact, this dynamic of spiraling costs associated with managing data environments – a theme that cuts across company type and size.

So how can an IT organization enable its business units to make more informed decisions? The traditional method consists of standing up and managing disparate data management systems and associated data silos running on generic, non-optimized hardware. These slow-performing, isolated data management systems fail to deliver the results that organizations need to succeed in today's increasingly competitive environment.

These challenges have led to the rising adoption of "the cloud" to deliver data services in a fashion that are easily consumable to the business. As previously mentioned, providers such as Redshift from AWS, Snowflake (which employs AWS cloud infrastructure), and ADW from Oracle offer cloud data warehouse services. In Oracle's

recent quarterly earnings call for Q3 FY2021, the company cited a 55% increase in its Autonomous Database growth (in constant currency). This number should not be surprising, given the product's depth of features and self-driving capabilities. Additionally, the company's enterprise reach makes ADW a natural landing spot for organizations.

AUTONOMOUS DATABASES ARE THE ANSWER, BUT AUTONOMOUS DOESN'T ALWAYS MEAN AUTONOMY

The number of service and cloud providers offering database services is too long to list. Each provider claims market leadership regarding cost, performance, and functionality, with virtually all of them touting a point-and-click nature. While not using the term “autonomous” explicitly, many would have the consumer believe that simply creating or moving some tables and assigning keys is all that’s needed to begin gleaning insights.

However, the reality is starkly different from the marketing messages. The complexity associated with migration, management, and expansion of data services does not address IT’s real issues. Further, while modern businesses rely on multiple data sources and types to gather intelligence, many cloud services still offer separate services for the multitude of data types and models, such as relational, graph, JSON, spatial, OLAP, time series, blockchain, and the like. Indeed, with so many disparate data types, the challenges of managing the integration are no less complex – regardless of where the data management platform is hosted.

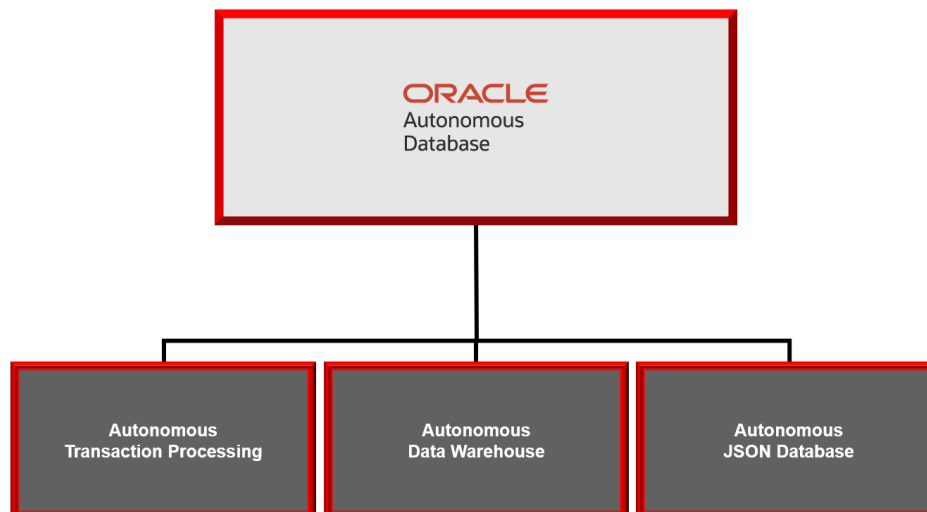
The needs are simple. The data consumer wants access to data with a simple-to-use query tool to gain instant insights. The business unit wants to integrate apps and data into a single platform that can be consumed as a utility. Point-and-click simplicity for the less technical, yet rich in capabilities. IT wants a solution that can support these needs with minimal drag on their organization – simple setup, self-optimized, auto-tuning, self-monitored, and self-managed. This, in essence, is Oracle ADW.

ORACLE AUTONOMOUS DATABASE: A QUICK OVERVIEW

Oracle Autonomous Database is a rich set of automated data management capabilities complemented by end-user tools based on Exadata infrastructure, which is designed, built, and optimized to deliver significant performance gains compared to the more generic infrastructure in other database cloud providers. In addition, Oracle offers Autonomous Database in a customer’s premises with Exadata Cloud@Customer and Dedicated Region Cloud@Customer deployment options.

Oracle Autonomous Database includes workload-optimized offerings such as Autonomous Transaction Processing (ATP), Autonomous JavaScript Object Notation (JSON) Database (AJD), and Autonomous Data Warehouse (ADW).

FIGURE 1: ORACLE AUTONOMOUS DATABASE OFFERINGS



Source: Moor Insights & Strategy

DOES DEDICATED & OPTIMIZED HARDWARE MATTER?

In short, yes. Oracle Exadata Database Machine provides state-of-the-art silicon, memory, caching architectures, connectivity of compute and storage components, plus co-engineering at the source code level with Oracle Database to deliver significant optimized performance compared to generic infrastructure. In an era where data management and high performance matter more than ever, constructing such an environment should begin with the most robust and secure foundation. In the case of Oracle ADB, that infrastructure is Exadata running on Oracle Cloud Infrastructure (OCI). The less time you spend computing on the cloud, the lower your bill, which is why Exadata is a competitive advantage for Oracle in the cloud wars.

WHY ORACLE'S ADW IS THE RIGHT CHOICE FOR TODAY'S ENTERPRISE

As previously mentioned, there are many benefits to utilizing cloud services to support the data management needs of an enterprise. However, not all data management services are created equal. Following are four distinct advantages of Oracle ADW: true autonomy, serverless elasticity, one converged database, and democratized data management.

AUTONOMOUS MEANS AUTONOMOUS

The key benefit to utilizing a cloud service is removing the need to continually monitor and manage an environment. Database and data warehousing is no different. However, any skilled IT professional or database administrator (DBA) knows that constant tuning is required for a data warehouse to run optimally.

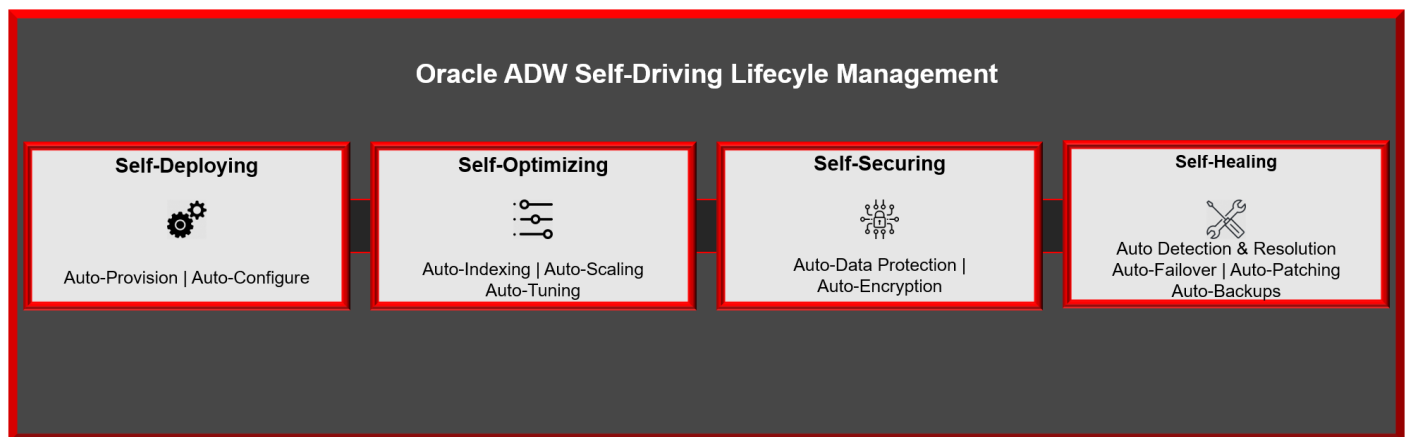
With Oracle ADW, machine learning (ML) algorithms and built-in best practices are used to deploy, manage, and secure data management environments. These are true self-learning, self-managing environments that deliver secure, optimized performance without the need for a team of DBAs. While technology providers often overstate the claims of autonomy, Moor Insights & Strategy finds Oracle ADW differentiated in several key ways:

- **Self-deploying:** With Oracle ADW, mission-critical databases are automatically deployed and configured on optimized, fault-tolerant, high-performance OCI infrastructure. ML is used to configure databases for specific workloads; memory allocation and configuration, data formats, and access structures are automatically tuned, enabling customers to indeed just “load and go.” What does this mean for IT? No architecting, procuring, configuring, and tuning hardware for that optimal data warehouse environment.
- **Self-optimizing:** Perhaps one of the more onerous tasks of a DBA is the constant tuning of database environments. Are the proper indexes set? Is the database over-indexed? Is the database appropriately normalized? Are resources able to scale automatically to meet current demand and scale back when not required? This is another area where Oracle excels, automatically optimizing data environments for the best performance as workloads change and using ML to learn from its own decisions and apply those learnings across its environment.
- **Self-securing:** Security is multi-dimensional. Hardware must be hardened against threats. Access must be limited, and those roles with access must be monitored. Activity must be scrutinized to detect patterns of abnormal activity quickly. And finally, data must be protected – data at work, data in flight, and data at rest. Through Oracle ADW, the entire stack's protection ensures what Moor Insights & Strategy sees as the highest levels of protection of the applications and data. Oracle includes Data Safe, which is used to identify and mask sensitive data. This too is offered with a business-friendly UI that does not require a security expert to manage.

- Self-healing:** Perhaps the most significant benefit of any autonomous offering is the notion of "always on." It doesn't matter how well an application performs if it's not available. Likewise, if optimizing a database requires much manual intervention that puts the database at risk, then the value of those optimizations is diminished. With the self-healing capabilities built into ADW, backups, patching, and failover are all automated and performed online. While some of this is common in the cloud world, what is uniquely interesting is the notion of auto-patching. As any DBA can attest, the process of validating and deploying patches to a line of business application can be overwhelming, though necessary. With ADW, this is one less onerous task with which to be concerned. It eliminates a key stressor – is our patching current? – in many corporations' daily lives. This is increasingly becoming a boardroom discussion as a simple missed patch can make a multi-billion-dollar corporation susceptible to a security breach – the precise reason not to rely on manual patching practices, which are increasingly error-prone.

Another uniquely compelling capability of ADW is what Oracle refers to as Automated Detection and Resolution. ADW uses pattern recognition to predict component and hardware failures. As an abnormality is detected, ADW will automatically move IOs to avoid disruption of performance or service. Other cloud solutions lack an Autonomous Linux-type OS capability. Oracle OCI offers Linux patching, including security patching, with zero downtime.

FIGURE 2: AUTONOMOUS MANAGEMENT OF ADW



Source: Moor Insights & Strategy

CLOUD ELASTICITY BRINGS PERFORMANCE AND COST OPTIMIZATION

Sizing a cloud-based data warehouse environment is nearly impossible, given the billing methods. Suppose an organization chooses to size for average consumption and consume more as needed. In that case, it is likely to face performance and availability issues as additional resources must be added and "warmed up" (e.g., caching, etc.), and data is moved to the new configuration. Conversely, if a company sizes for maximum usage, budget is wasted every month for resources sitting on standby.

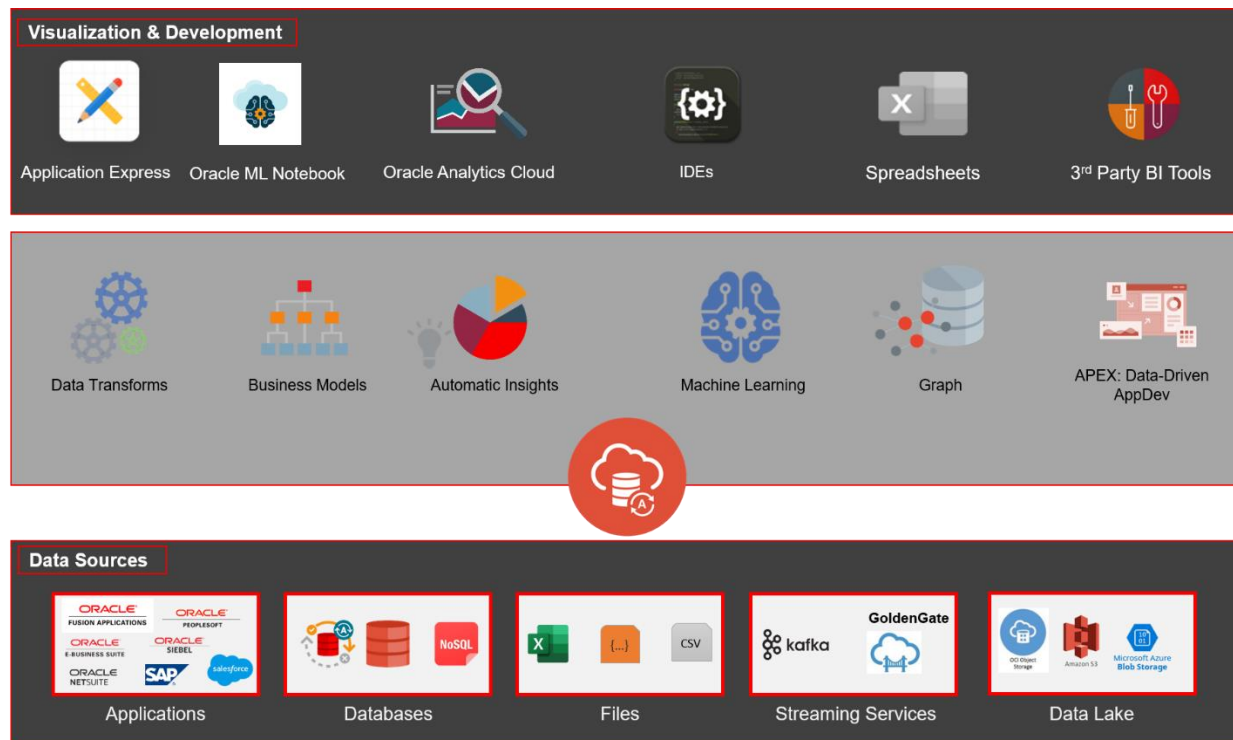
With Oracle ADW, the choice of cost vs. performance goes out the window. Organizations size their requirements and pay for what is used. Through Dynamic Auto Scaling, the Oracle cloud cluster anticipates peak usage and dedicates additional resources instantaneously to support up to a 3x scale. As a serverless architecture, no new clusters must be added. There is no "warmup" as a workload, and data is distributed among newly added resources. And as resources scale down, so does cost. Unique to Oracle ADW, this capability alone should make ADW a natural choice for any enterprise. Further, when auto-scaling is combined with Exadata's high performance and pay-for-what-you-use pricing model, costs can be as little as half of what some other cloud database service providers offer today.

ONE CONVERGED DATA MANAGEMENT PLATFORM TO RULE THEM ALL

In conversations with IT professionals at all levels and across industry types, one thing has been clear: Data is coming from everywhere, and everyone needs it. What does this mean? Relational, spatial, graph, XML, OLAP, JSON – all data models in all formats need to be accessed and analyzed to support intelligence-based decisions by the business. Further, the ability to query against multiple sources simultaneously is critical. This may seem obvious, but to a DBA or IT professional, this can translate into standing up and supporting multiple, disparate data management environments with dedicated teams that all must be integrated on the back end.

Moor Insights & Strategy sees Oracle's support for these multiple data types, multi-tenancy, and multiple workloads in a single platform as a big benefit for customers – end-to-end data management. No specialized databases or data management tools are required for the collection, analysis, and cataloging of data for business users – no data silos and no extract, transform, and load (ETL) tools.

FIGURE 3: AUTONOMOUS DATA MANAGEMENT ARCHITECTURE



Source: Moor Insights & Strategy

ANALYTICS FOR EVERYONE

At the end of the proverbial day, an autonomous data warehouse's goal is to democratize data management. This means giving advanced data management capabilities to just about anyone in companies and organizations of all sizes, further enabling the modern business to gain a competitive advantage in a market and supporting the transformation of IT organizations—from service organizations to enablers of business.

This democratization can only happen when data consumers of all stripes – data scientists, business analysts, and business users – can directly gain insights into corporate data without the support or intervention of DBAs or other technical IT staff. Companies in the throes of digital transformation – that is, becoming data-driven in every way – should strongly consider ADW because it brings Oracle's capabilities to any company and any business unit. A self-service cloud data warehouse is now a tangible reality as virtually anyone can now load a .CSV file into the cloud, do some data transformation and cleansing, work on some business modeling, and apply ML with an interface as simple and intuitive as a modern gaming console.

While Oracle has traditionally been thought of as a large enterprise data management company, ADW opens Oracle's data management platform's power and capabilities to companies of all sizes and across any industry. Its four key advantages that we highlighted in this research are not available from AWS, Snowflake, Google Cloud, Azure, Alibaba, or other vendors in our cloud coverage universe. In short, Moor Insights & Strategy believes that for any company that relies on data to drive its business, Oracle ADW should be strongly considered.

CALL TO ACTION

In the era of digital transformation, data-driven business decisions have never been more critical. However, this can be difficult as data is generated everywhere in so many different formats. Further, more and more non-technical consumers of data have emerged, such as business analysts looking to drive operational efficiencies and marketing professionals looking to target a precise segment of customers for a new campaign.

The job of managing this complex data environment falls on IT, even as budgets and resources are reduced year after year. Indeed, the mantra of "do more with less" is a stark contrast with the reality in which many organizations live. Managing a data platform comprised of multiple, disparate database systems on the back end and enabling a set of non-technical users on the front end is seemingly impossible.

Because of these dynamics, the cloud has become an attractive option for many organizations. However, choosing a specialized database for each data type and model can add to the cost and create additional levels of complexity that further burden IT organizations and business units alike.

Moor Insights & Strategy sees Oracle as uniquely qualified to deliver on the concept of the converged, full-service, hands-free cloud data warehouse with ADW. From setup to management, security, and cost to democratizing analytics across data consumers and organizations, ADW has a set of features and capabilities that are unmatched in the market today. Indeed, ADW is the only autonomous data warehouse offering that Moor Insights & Strategy has seen.

For more information on ADW, visit [here](#).

For a free ADW trial, visit [here](#).

IMPORTANT INFORMATION ABOUT THIS PAPER

CONTRIBUTOR

Matt Kimball, Senior Analyst at Moor Insights & Strategy

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