W I N T E R C O R P O R A T I O N

ORACLE DATABASE 23AI BRINGS AI TO DATA

*Features Include GenAI on
Enterprise Data and Other Major Advances*

ORACLE DATABASE 23ai is now generally available in **Oracle Cloud Infrastructure (OCI)** on Oracle Exadata Database Service, Oracle Exadata Cloud@Customer and Oracle Base Database Service, as well as on Oracle Database@Azure. It brings the power of AI to a broad range of enterprise data and documents on a converged database that features uniquely reliable, cost-efficient, secure, performant operations along with over 300 other new features.

For customers with enterprise class requirements for data management — whether operational, analytical, or AI (and whether on hybrid or in the cloud) *Oracle Database 23ai* offers a compelling, unique value proposition: one that any such customer would do well to evaluate. ●

I **RECENTLY SPENT A DAY** with Oracle's product leadership at their annual Database Analyst Summit in Redwood Shores — along with a roomful of other industry experts from around the world — and listened as Oracle laid out recent progress, product announcements and plans. We also heard from a panel of major customers, large and small, running critical production systems on Oracle Database and MySQL HeatWave. Over the last 30 years, I have participated in hundreds of such one-day sessions with the product leadership of major vendors and startups in data and analytics. This day was one of the most impressive I have seen.

MY CONCLUSION: *Oracle Database 23ai* **is a remarkable product**. It stands out from the many databases on the market for its **combination of enterprise-class, mission-critical capabilities, its support of multiple data models and functions and its major new innovations in generative AI and in other areas**. There are 300 new features in 23ai: here I will highlight a few that I view as most significant.

Generative AI in Database Applications

Oracle Database 23ai offers a comprehensive array of capabilities to make it easy to incorporate GenAI into database apps. The features include:

● Vector datatype;
● Vector indexing;
● Similarity search;

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- Built-in functions for vector embedding;
- SQL extensions, so the GenAI functions are available via existing interfaces and can be combined with all other database operations, with full generality;
- Enhancements to Exadata intelligent storage to accelerate vector search and index creation at the storage level;
- Replication of vectors across data stores via GoldenGate 23ai, to facilitate remote and distributed vector search.

These capabilities enable users and partners to create GenAI solutions using the full range of enterprise data stored in Oracle databases and external tables. The value of this to customers is extended significantly via the combined search capability described in the next paragraph.

Combined Search & Structured Query

Oracle's converged database strategy — a major theme they have been pursuing for at least ten years — has resulted in a capability to manage databases that contain a wide variety of data not typically supported in relational databases. In addition to the structured tabular data one would expect, Oracle supports JSON data, XML data, text data, graph data, geospatial data and the vector indexes needed for GenAI similarity search. Oracle not only supports these data types — it provides built-in operations to retrieve, update and manipulate them in SQL. The Oracle optimizer is capable of generating efficient query plans to combine — for example — vector searches over documents and structured query over enterprise data.

This is exactly what will be needed by many customers to fully leverage GenAI in business applications. Several other leading vendors address this range of data needs with separate databases for each requirement: one database for documents; another for graph data; another for vectors, and, so on. This leads to fragmented data, data duplication, lack of business data consistency and greatly increased difficulty, time and cost in implementing business solutions.

The Oracle converged database approach has been steadily building value for customers as each new capability is incorporated. Now that Oracle has built in a capability for both GenAI and classic machine learning, the advantages of the converged approach are going to loom much larger for customers.

Oracle Database@Azure

In the last year we have seen Microsoft install large amounts of Exadata hardware in its Azure data centers. The result of this is that Oracle Database cloud services are now available to Azure customers as a fully integrated component of their environment. Not only can Azure customers seamlessly use Oracle Database cloud services, they can apply credits to these services that they purchased from Microsoft.

Oracle True Cache

Caching for low latency, high performance database applications has become a major area of interest as operational applications continue to increase in scale

and criticality. However, most of the solutions previously available have required that application developers resolve certain complications that arise in multi-user caching systems. In *23ai*, Oracle has introduced a caching capability branded True Cache in which the guarantees one expects from a database system — such as ACID compliance — are fully enforced by the system. This results in very high performance without additional complications for the developers — and hence with reduced risk that a developer error will result in hard-to-find transient data integrity problems.

JSON Relational Duality

With JSON Relational Duality Views, JSON data is stored in normalized relational tables, but simultaneously appears as both JSON data and relational data.

JSON Relational Duality provides the benefits of both JSON and relational capabilities: ease-of-use for the application programmer or end-user who wants to look at the data from a single point of view; along with the ability to add new use cases without disruption; and, with the ACID transaction properties that maintain data integrity across a wide range of situations and requirements. It really is a convergence of document management and data management in one solution — an industry first.

Other Advances

Oracle Database 23ai delivers many other significant advances: too many to discuss in this short note. Others of particular interest include graph relational unification; a free version of the database for developers; globally distributed databases with RAFT; and in-database SQL Firewall.

Recommendation

FOR CUSTOMERS with enterprise-class database needs, WinterCorp recommends taking a close look at *Oracle Database 23ai,* now generally available. This new version of the Oracle Database delivers comprehensive capabilities for Generative AI along with several other major advances.

As with any major new technical capability, WinterCorp recommends that customers do a thorough evaluation and test any capabilities on which they expect to rely for critical business outcomes.

In conclusion, Oracle's database mission is to "make it easy to develop and run modern apps and analytics for any use case at any scale." *Oracle Database 23ai* carries this mission a step further with major innovations that bring AI to data and deliver practical and substantial business value to customers with wide-ranging database requirements — and WinterCorp expects that capability to prove valuable to many customers. ●