Magic Quadrant for Cloud Database Management Systems

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Initiatives: Data Management Solutions

> The market is converging on a set of advanced capabilities resulting in a complex landscape ready to launch into the next wave of disruption. This Magic Quadrant will help data and analytics leaders make the right cloud DBMS choices in a complex and fast-evolving market.

This Magic Quadrant is related to other research:

Critical Capabilities for Cloud Database Management Systems for Operational Use Cases

View All Magic Quadrants and Critical Capabilities

Strategic Planning Assumptions

By 2025, 90% of new data and analytics deployments will be through an established data ecosystem, causing consolidation across the data and analytics market.

Through 2024, organizations that adopt aggressive metadata analysis across their complete data management environment will decrease time to delivery of new data assets to users by as much as 70%.

Market Definition/Description

Gartner defines the Cloud DBMS market as follows:

Core capabilities are that vendors fully supply provider-managed public or private cloud software systems that manage data on cloud storage. Data is stored in a cloud storage tier. Optionally, they may cater to multiple data models and data types — relational, nonrelational (document, key value, wide column, graph), geospatial, time series and others.

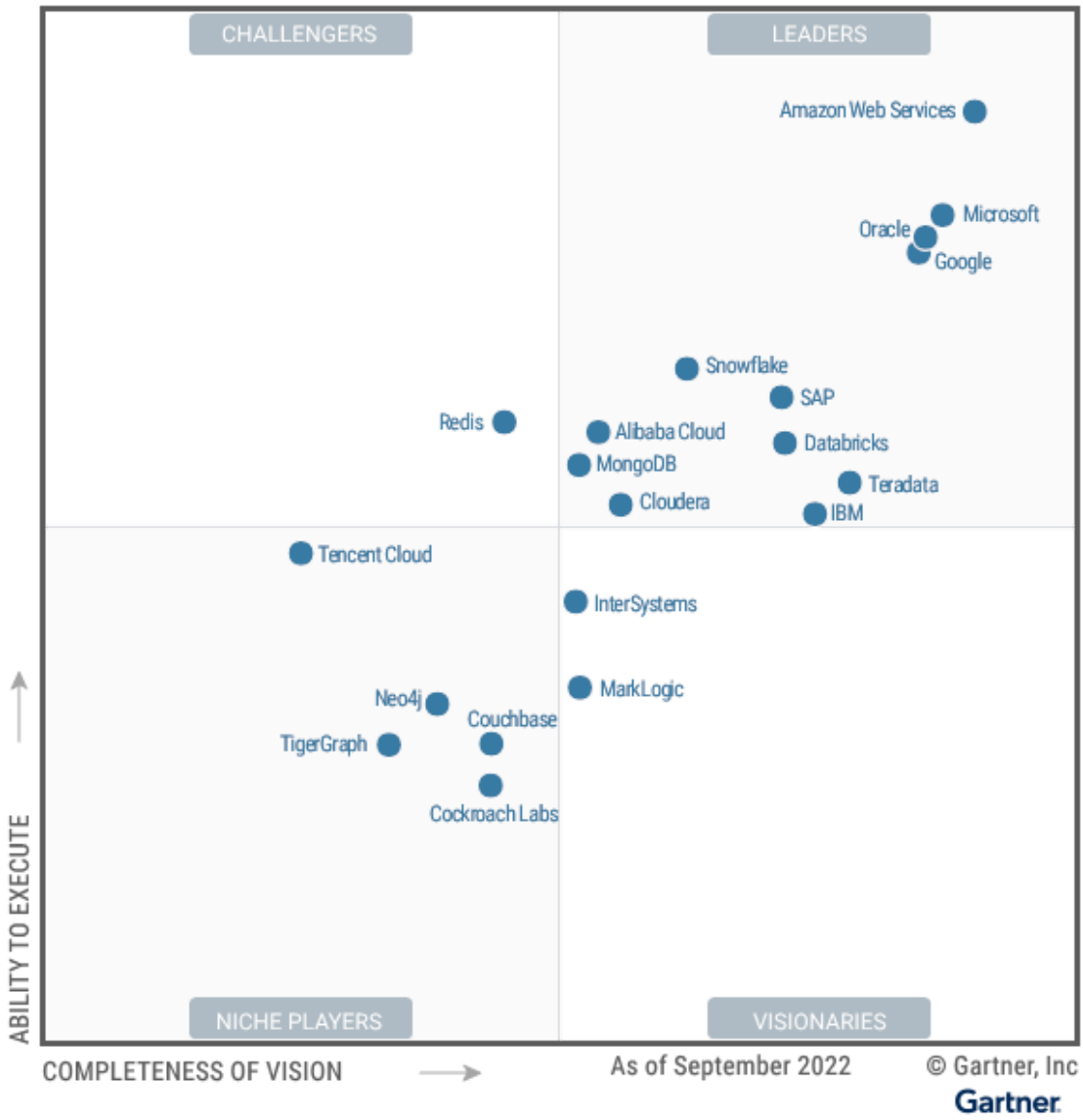
These DBMSs reflect optimization strategies designed to support transactions and/or analytical processing for more than one of the following use cases:

- OLTP transactions
- Lightweight transactions
- Augmented transactions
- Stream event processing
- Traditional data warehouse
- Logical data warehouse
- Data lake
- Stream analytics

This market does not include vendors that only provide DBMSs hosted in infrastructure as a service (IaaS), such as in a virtual machine or container managed by the customer.

Magic Quadrant

Figure 1: Magic Quadrant for Cloud Database Management Systems



Source: Gartner (December 2022)

Vendor Strengths and Cautions

Alibaba Cloud

Alibaba Cloud is a Leader in this Magic Quadrant. Its DBMS offerings include PolarDB (compatible with MySQL, PostgreSQL and Oracle) and PolarDB-X for operational use cases. For analytical use cases, it offers AnalyticDB and MaxCompute. It also provides Lindorm, Graph Database (GDB) and Tair for nonrelational and real-time use cases.

Alibaba Cloud's operations are primarily based in China, but it also has a global presence including APJ, Middle East, Europe, North and South America based on its global headquarters in Singapore. Its DBMS customers cover a wide range of industries and different organization scales.

Strengths

- **Breadth of Product Portfolio and Vertical Presence:** Alibaba Cloud offers a wide range of DBMSs for operational, analytical, multimodal and real-time use cases. Combined with its cloud infrastructure, AI and SaaS solutions, Alibaba Cloud has delivered success stories in various industries including finance, retail, logistics, gaming, automobile and others.
- **Proven High-Performance Capability:** PolarDB is well-known for its capability to handle extremely high concurrency and elasticity use cases. Alibaba Cloud has delivered many proven results for this capability, both internally such as the "Double 11" Global Shopping Festival in November and externally for gaming and retail clients.
- **Business Viability:** Alibaba Cloud is the largest cloud service provider in China and Asia by market share, and the fourth largest cloud service provider in the world by revenue. Its cloud DBMS business is growing at a high rate. With Alibaba Group's continuous focus on enterprise business and foundational technology innovation, organizations can expect a sustainable product evolution and service enhancement for DBMS.

Cautions

- **Limited Growth in Europe and North America:** Alibaba Cloud does not have breakout business progress outside of China and APJ region, especially in North America and Europe. It plans to be more aggressive in exploring global operations, such as by expanding its partner ecosystem and local service teams.

- **Geopolitical Headwinds:** Although clearly not something it can control, the overall geopolitical tensions remain high, which objectively impacts Alibaba Cloud's global business expansion. This is usually manifested as data security concerns or global viability concerns from western clients.
- **Customer Service:** Gartner's inquiry service clients have reported negative experiences from Alibaba Cloud's customer service when they have DBMS operational problems. Gartner expects Alibaba Cloud to improve service quality as well as usability of DBMS admin tools to raise its customer satisfaction.

Amazon Web Services

Amazon Web Services (AWS) is a Leader in this Magic Quadrant. It offers a range of database management services. Some are aimed at operational use cases, including Amazon Relational Database Service (RDS), Amazon Aurora, Amazon DynamoDB, Amazon Neptune, Amazon DocumentDB, Amazon KeySpaces (for Apache Cassandra) and Amazon MemoryDB. Others are aimed at analytics use cases, as is the case with Amazon Redshift, Amazon Athena and Amazon EMR. AWS also provides specialized offerings, such as Amazon Timestream and Amazon Quantum Ledger Database, and two database caching services, Amazon ElastiCache for Redis and Amazon ElastiCache for Memcached.

AWS is the largest cloud service provider in the world by revenue, with an international presence and a global client base across all major industries. Its operational focus is for both transactional and analytical workloads and customers of all sizes.

Strengths

- **Leading Market Presence:** AWS is the world's largest cloud database service provider by revenue, coming to this leading position barely a decade after the first of these services were introduced. AWS has the underlying infrastructure to support its leading position, and includes the largest base of production users in the industry.
- **Breadth of Services:** AWS believes in a best-fit philosophy, offering multiple services targeted to specific use cases as needed by various applications and microservices. This focus has led to the development of more than a dozen database management services. Collectively, these services offer an unparalleled set of functionalities.

- **Progress Toward Integration Roadmap:** The AWS roadmap has changed to offer solutions that will address integration of both its wealth of services and the world outside of AWS at multiple levels of the stack. The tendency of AWS to only focus on its own platform has been a detriment in the past, but its changing direction is directly addressing this to turn it into a strength.

Cautions

- **AWS-Centric Focus:** AWS has traditionally not concerned itself with data outside its cloud. But as multicloud becomes standard for enterprises, regardless of its necessity for individual business units, AWS' traditional lack of focus on non-AWS systems in the data ecosystem can be a concern for customers looking at the current product stack.
- **Integration of Services:** AWS uses a best-fit approach to database services, which enables it to deliver focused solutions for different types of use cases. But multiple services also require integration of those services, so AWS has to offer a more robust solution to bring the different services together in its current offering.
- **Complexity of Setup and Management:** AWS offerings can be complex to keep all the parts working together in sync, especially in the initial setup. However, AWS aims to deliver the best toolbox in the market, with a best-of-fit approach for flexibility.

Cloudera

Cloudera is a Leader in this Magic Quadrant. Cloudera Data Platform (CDP), available on-premises and as managed services in AWS, Azure and GCP, includes CDP Data Hub, CDP DataFlow, CDP Data Engineering, CDP Operational Database, CDP Data Warehouse and CDP Machine Learning for operational and analytics use cases. CDP Shared Data Experience (SDX) provides hybrid, intercloud and multicloud unified security, governance and metadata management.

Cloudera's global operations are strongest in North America and Europe, mainly in financial services, healthcare, retail and utilities. In October 2021, Cloudera was taken private in an acquisition by affiliates of Clayton, Dubilier & Rice and KKR. Cloudera's positioning focuses on providing an open, multifunction, hybrid multicloud platform that enables portable data management and data analytics on data anywhere.

Strengths

- **Continuing Open-Source Innovation:** Cloudera has added Apache Iceberg to its portfolio of more than 30 open-source components such as Apache Hive, Impala, HBase, Phoenix, OMID, Spark, Flink and Kafka. Its single set of binaries and common Kubernetes abstraction are strengthening its ability to deliver a portable, hybrid and multicloud containerized platform.
- **Cloud Migration Progress:** Cloudera claims over 50% of its more than 2,000 on-premises customers have completed their migration to the cloud, with significant expansions in many of those deployments. Its introduction of CDP One, a SaaS implementation designed to enhance its ease of use leveraging its acquisitions of Cazena and Data Coral, is capturing new name accounts.
- **Maturing Market Outreach to Industries:** Cloudera has focused on developing relationships, partnerships and content for key vertical markets with offerings and templates targeted at specific transformative business use cases. Its applied machine learning prototypes enable clients to focus on deploying solutions to production rather than on the complex details of engineering, leading to easier adoption.

Cautions

- **Customer Satisfaction Challenges:** Inquiry input from clients shows Cloudera's customers highlighting difficulties with responsiveness to support questions and other reported technical issues. These challenges seem to be easing with recent version introductions, but they remain a concern given the complexity of the core offerings.
- **Competitive Environment:** All CSPs offer alternatives that compete with Cloudera's offerings. This is a fact of life for all ISVs, even where effective partnerships coexist with the competition. Some clients have noted in inquiries that using multiple platforms can still result in complexity in usage reporting and workload management. Cloudera's strong focus on multicloud and hybrid operations is an effective competitive strategy that will require sustained effort by Cloudera.
- **Operational Use Cases Have Lagged:** Cloudera CDP is less broadly used for operational use cases because Apache HBase, the foundation for transactional workloads, has not historically been optimized for high-speed, high-volume multiuser transaction scenarios. Awareness of Cloudera's more recent integration of Apache Phoenix and Apache OMID are not yet reflected in client inquiry. Broader adoption will take time.

Cockroach Labs

Cockroach Labs is a Niche Player in this Magic Quadrant. It offers CockroachDB, a distributed transactional DBMS compatible with PostgreSQL, and can be deployed in both public and private clouds and on-premises. It also offers two DBaaS deployment options: CockroachDB dedicated, a single-tenant offering available on AWS and Google Cloud Platform (GCP), and CockroachDB serverless, a multitenant offering.

Established in 2015, Cockroach Labs now has a client base across multiple industries spanning finance, manufacturing, retail, social media, and gaming. Its business is mainly in North America, but it also has a presence in Europe, APAC and Latin America.

Strengths

- **Innovation in Distributed Transactions:** Cockroach Labs is one of the pioneers in distributed transactional DBMS technology, aiming to address the requirements for high scalability, high availability and geographically dispersed data operations. Its continuous innovation and evangelization in this field make it an emerging challenger against traditional operational DBMSs.
- **Evolution in Cloud Capabilities:** Cockroach Labs is continuously evolving its cloud-native capabilities including consumption-based pricing and resource optimization. This makes it a potentially reliable candidate when selecting cloud-agnostic transactional databases on complicated infrastructure environments.
- **Customer Experience:** Gartner clients highly rate Cockroach Labs for its professional and proactive engagement with users during both presales and postsales customer service, which helps generate and sustain strong customer relationships.

Cautions

- **Competition From Other Vendors:** In recent years, both CSPs and new DBMS vendors from the U.S. and China have started offering distributed transactional DBMSs. Cockroach Labs needs to respond to this aggressive competition to remain competitive in this market.
- **Implementation Skill Requirements:** Due to CockroachDB's distributed nature, additional expertise is required to both realize its claimed benefits and ensure stable performance, which is reported as an issue by some Gartner clients. Some innovations have been made recently in the company's DBaaS offering to eliminate these operational burdens.

- **Lack of Vertical Ecosystem:** Cockroach Labs has not yet put a strong focus on vertical solutions and partnerships. Many clients are lacking vertical service providers or application vendors to help them build industrial applications on CockroachDB. This impedes more direct recognition from data and analytics leaders.

Couchbase

Couchbase is a Niche Player in this Magic Quadrant. The Couchbase Capella multimodel DBMS has a heritage in high-performance nonrelational operational databases, with a more recent focus on relational capabilities such as SQL, schema and transactions, deepening hybrid analytical use cases, and extending cloud provider support. Its operations are primarily based in North America, but it has a substantial presence in Europe and growth in the Asia/Pacific region. It is broadly represented across major market sectors.

Strengths

- **Online and Offline Capabilities:** In addition to its document-based multimodel database approach, Couchbase has positioned itself as a leading player in the mobile and edge space, allowing for synchronization with edge data stores even if they are periodically not connected to a central service. Couchbase is unique in its peer-to-peer sync offerings for this space. Couchbase is also very strong in its support for mobile applications for this reason.
- **Flexibility of Multimodel Approach:** With its heritage as a memory-first document database, Couchbase offers support for many different types of database storage and operations, including JSON, key-value, search, SQL, eventing, analytics and geospatial.
- **Developer-Led Approach:** Couchbase appeals to developers who like the flexibility of a document-based approach. Although this narrows its overall market, it is one of the few competitors who focus on this sector.

Cautions

- **Market Awareness:** Couchbase lags behind other document databases in market awareness. There were significantly fewer Gartner client inquiries for Couchbase in the last two years than for other similar vendors.

- **Missing Some Features:** Couchbase uses a rule-based optimizer for analytics and does not provide data virtualization, which would allow transparent access to other DBMSs. As a result, Couchbase does not support the logical data warehouse and data lake use cases as well as many other vendors.
- **Low Ratings on Support:** Gartner's Peer Insight reviews show Couchbase as having one of the lowest scores for support among vendors in the Magic Quadrant. This could be due to the nature of products in this market subsegment. Regardless, it is an area where Couchbase can improve.

Databricks

Databricks is a Leader in this Magic Quadrant. It offers Databricks Lakehouse Platform on Microsoft Azure (Azure Databricks), AWS, Alibaba and GCP. Databricks also offers Unity Catalog, a metadata catalog and governance hub for data in Databricks and outside repositories, and Delta Live Tables simplifies ingest and ETL with declarative pipeline development for streaming and batch data.

Databricks SQL provides a serverless data warehouse for data analysts to run SQL and BI applications at scale directly on the data lake.

Lakehouse Platform consists of data stored in a data lake, including open-source formats. The data lake can also be used through Delta Lake, which adds metadata and structures to the underlying data to deliver some of the capabilities of a traditional data warehouse. Databricks focuses on analytical use cases, worldwide but mainly in North America and Europe.

Strengths

- **Lakehouse Concept and Implementation:** Databricks is the leading proponent of the concept of the lakehouse, where data in a data lake is stored in the same repository as data used for data warehouse use cases. The market has reacted enthusiastically to this converged architecture given the lakehouse's simplicity and its ability to enable multicloud deployments.
- **Openness:** Databricks believes in openness in virtually all portions of its offerings. Delta Lake is the open-source lakehouse storage format that can be transparently accessed regardless of the compute platform. Unity Catalog enforces data governance for any client or through Delta Sharing, which is the open protocol to exchange large datasets between various platforms. Databricks' open philosophy delivers benefits now and into the future as a protection against proprietary lock-in.

- **Vision for Unity Catalog and Delta Live Tables:** Unity Catalog or Delta Live Tables offer a strong vision, which will assist in the move to data ecosystems. They offer innovative and productive approaches to a metadata catalog, virtualized data access, and evolving ETL and governance needs.

Cautions

- **Relatively New Relational Capabilities:** The lakehouse architecture provides relational capabilities on top of data lake storage. Given the relative newness of this architecture, customers and prospects should ensure that their robust relational needs are appropriately addressed by Databricks.
- **Increasing Competition for the Lakehouse Space:** As the lakehouse concept has gained traction, other vendors have rushed to develop their own versions of this architecture. Because the basics of the architecture — combining data warehouse, data lakes and a semantic layer — have been in the logical data warehouse for years, the first-mover advantage for the lakehouse is no longer a clear differentiator.
- **Production Versus Preview:** Some of the key features of Databricks, such as its Unity Catalog, were in preview at the time of this writing. Clients should ensure that any functionality required for their production needs is in general availability.

Google

Google is a Leader in this Magic Quadrant. It operates globally and addresses both transactional and analytics use cases. Google has customers worldwide, in a wide spread of industries and of all sizes. Google Cloud Platform supports many database platform as a service (dbPaaS) products including Google Cloud SQL, Cloud Spanner, Cloud Bigtable, BigQuery, Dataproc, Cloud Firestore, Firebase Realtime Database and BigLake, with Dataplex as the data fabric. Google also recently added AlloyDB, which provides a PostgreSQL front-ended hyperscale cloud-native database. This contributes to the trend of open-source database front ends forming the interface to hyperscale and other systems in the cloud.

Strengths

- **Increasing Ecosystem Support:** Google's support for data ecosystems has expanded with its open and unified Data Cloud concept, building on previous offerings such as BigQuery Omni, BigLake and Google Dataplex. Google is also implementing a common PostgreSQL-compatible semantic access layer across engines and use cases. This will allow AlloyDB, Cloud SQL, BigQuery and Cloud Spanner to all have a common API, promoting a vision for distributed engines on unified storage.

- **Serverless by Default:** Google uses a serverless approach, which enables pricing and resource fluidity. Although not every product has this blended approach yet, BigQuery is a prime example. This enables flexible pricing for customers and positions Google well for AI-driven optimization.
- **Cloud Infrastructure and Unified Storage:** Google Colossus provides a very capable, unified storage layer on which to host Google Cloud services. Although infrastructure is generally regarded as invisible in the cloud, differences in the design of Google's infrastructure and networking backbone can make implementation of cloud services more efficient or effective. Google Cloud Spanner performance and its global consistency are a good example. Google Cloud offers an industry leading 99.999% uptime SLA for products including Cloud Spanner, Bigtable and Firestore.

Cautions

- **Breadth of Portfolio:** Currently, some services such as time-series and graph databases are provided through integration with partners rather than being provided by Google. Their appeal will depend on your organizational preferences on use of integrated, third-party products versus those tied to a particular cloud. However, Google is continuing to expand the number of cloud-native services in its portfolio, with BigLake and AlloyDB being recent examples.
- **Smaller but Growing Market Share:** Google currently has a lower market share compared to other major cloud vendors, though it has established a major presence in the market with high growth. Evaluators should ensure their teams do not think Google is mainly about data science — its capabilities extend to a broad range of personas.
- **Enterprise Perception:** Google is perceived as having less of a presence in large enterprises. Although it is true Google was late in addressing this sector of the market, it now has many large, global enterprise customers with significant investment in vertical industry solutions and teams.

IBM

IBM is a Leader in this Magic Quadrant. Its offerings coalesce around Cloud Pak for Data, a unified integration layer for containerized DBMS including IBM Db2 on Cloud, IBM Db2 Warehouse on Cloud, IBM Cloud Data Engine, IBM Cloudant, IBM Netezza, the IBM Cloud Database family and IBM Event Streams, plus managed services for third-party offerings.

The IBM Cloud Database family provides a variety of other managed data technologies, including PostgreSQL, MongoDB, Elasticsearch, Redis, RabbitMQ, DataStax and EnterpriseDB. IBM operates globally, and in all industries and organization sizes. It addresses both operational and analytical use cases in this Magic Quadrant.

Strengths

- **Range of Data Management Offerings and Deployment:** IBM Cloud Pak for Data (CP4D) provides a portable platform that can be run in public and private clouds, on-premises and in virtualized environments. This enables a wide range of deployment options and prepackaged integration between IBM data management offerings such as its database, data integration and BI products.
- **Industry Expertise:** IBM displays presence and expertise within multiple industries organizationally and in complementary offerings such as its comprehensive off-the-shelf industry data models. This helps IBM to tackle all aspects of very large architectures and projects with its professional services or through IBM service partners.
- **Innovation:** IBM excels at technical innovation, particularly in the areas of database optimization, portability and distributed access to data through data virtualization. IBM also invests in primary research into advanced technologies such as quantum computing.

Cautions

- **Mind Share:** IBM has lost ground in terms of mind share within the cloud DBMS market. Gartner interactions indicate that it is no longer top of mind in competitive scenarios despite the technical capabilities of its offerings. Evaluators, especially those with IBM heritage, should ensure they are using the most current information.
- **Strategy Can Be Confusing:** IBM's broader strategy remains confusing for clients and prospects. This is confounded by a wide range of product offerings, many of which overlap in their capabilities, with IBM Db2 Warehouse in the Cloud and IBM Netezza being examples. Previous stop-start behavior on products has added to this perception. However, it should be noted that some buying organizations value having a wide choice.
- **Skills Availability:** Despite double-digit growth of IBM in the cloud DBMS market, it still lags in cloud market share. This can mean that it can be less easy to find experienced practitioners. A proactive approach to recruiting and training making use of the broad and deep training curriculum provided by IBM may be required.

InterSystems

InterSystems is a Visionary in this Magic Quadrant. It offers InterSystems IRIS, a multimodel hybrid DBMS. InterSystems has a global presence in healthcare and increasingly in other industries such as financial services and supply chain. InterSystems IRIS is available as a public, fully managed dbPaaS cloud service on Amazon Web Services, Google Cloud Platform, Microsoft Azure and Tencent. A private, fully managed dbPaaS version is also available. InterSystems provides support for both operational and analytical use cases and operates worldwide with predominance in North America, Europe and Asia/Pacific. It is active in the healthcare, information, finance, manufacturing and other industries.

Strengths

- **Strong Support for AI and ML Features:** InterSystems has dramatically enhanced its capabilities for in-database processing of machine learning models with its embedded Python and AutoML capabilities and support for Predictive Markup Modeling Language (PMML) for exchange of models.
- **Continuing and Enhanced Strength in Healthcare:** Gartner's client inquiries continue to show customer reliance on the support and functionality InterSystems offers for key healthcare concerns, including graph-based support for the FHIR standard API for sharing healthcare data. This includes providing these capabilities to other DBMS vendors.
- **Increasing Adoption in Other Industries:** InterSystems is expanding its expertise-based approach to supporting customers in financial services and other vertical markets, leveraging its ability to directly target customers' critical business use cases.

Cautions

- **Slow Move to Cloud:** As noted last year, InterSystems was late to offer a managed dbPaaS on public and private clouds. In 2021, through the acceleration of new cloud services and industry-specific SaaS offers, InterSystems matched the industry's cloud DBMS revenue growth rate.
- **Limited Availability of Skills:** Customers may struggle to find personnel skilled with InterSystems IRIS and other InterSystems products. It continues to be a challenge potential customers must consider. Python support provides familiar access for those users and developers who wish to use it.

- **Analytics Feature Gaps:** InterSystems column-based storage for analytics is not yet generally available. This is a key capability to compete for large-scale analytic workloads; it is currently in preview.

MarkLogic

MarkLogic is a Visionary in this Magic Quadrant. MarkLogic focuses on solving complex data problems. Its MarkLogic Data Hub service is primarily offered on the AWS and Azure clouds and is supported on Openshift, GCP, Docker Hub and Kubernetes. MarkLogic focuses on data management and is built around a multimodel data platform and an integration hub. Both the integration hub and the platform enable users to access data stored remotely through a universal index, which enables reduced remote data movement through optimization of remote access.

MarkLogic's operations are primarily in North America and Europe. It has customers in a range of industries, but particularly in the public/government, finance/insurance, high-tech manufacturing and healthcare/life sciences sectors.

Strengths

- **Uniquely Addresses Key Issue of Integration:** MarkLogic has focused on implementing its data hub as a unique approach to data integration that allows it to include data in remote sources not only in its catalog, but also in the key index used to access data. In addition, users can move data from remote sources to MarkLogic without changing any of their applications. Integration is becoming one of the most important challenges facing the data ecosystem, so this is a strength for MarkLogic.
- **Enhanced Integration and Metadata Handling:** MarkLogic acquired the metadata management software company Smartlogic in November of 2021. By adding metadata management and the Semaphore semantic interface with Smartlogic, MarkLogic deepens its reach and value in the integration space it targets.
- **Combination of Operational and Analytic Capabilities:** MarkLogic's roots were as a transactional document database that primarily focused on operational use cases. The addition of more data capabilities, such as graph, relational, geo, object and SQL, as well as other analytic operations, makes MarkLogic a good choice for use cases requiring a combination of these types of capabilities working together.

Cautions

- **Market Awareness:** Although customers are frequently very happy with the unique capabilities of the product, MarkLogic's mind share and market share remain small. MarkLogic is not well-known in the broad market. In the past two years, MarkLogic's share of client inquiries fielded by Gartner is less than 10% of the inquiries about other cloud DBMS vendors, and MarkLogic has a limited number of Peer Insights reviews.
- **Limited Availability of Skills:** The MarkLogic service has an impressive depth of functionality. Skilled practitioners can build amazing functionality using the capabilities of the product. But these skilled practitioners can be hard to find in the marketplace, limiting the potential of MarkLogic adoption.
- **Market Capabilities Catching Up:** MarkLogic's vision for optimized integration across the data ecosystem was compelling and unique when it was introduced several years ago. It is still compelling, but other vendors have started to offer their own versions of this functionality. The "good enough" approach of many larger competitors may make MarkLogic's expansion more challenging.

Microsoft

Microsoft is a Leader in this Magic Quadrant. It is a leading Cloud Service Provider and provides a broad range of cloud DBMS offerings. These include Azure SQL, Azure Database for PostgreSQL, Azure Database for MySQL, Azure Database for MariaDB, Azure Cache for Redis, Azure Managed Instance for Apache Cassandra, and Azure Cosmos DB. Deployment alternatives include Azure SQL Edge, on-premises SQL Server, containerized SQL for Linux and Kubernetes, virtual machines, and Azure Arc, as well as SQL Server on Alibaba Cloud, AWS, Google Cloud Platform and Oracle Cloud Infrastructure.

Microsoft's operations are geographically diversified, and its customers are spread across a wide range of industries and deployment sizes worldwide.

Strengths

- **Comprehensive Data Ecosystem Vision:** Microsoft Azure Synapse Analytics includes end-to-end security and metadata support, strong development tools and BI capabilities, and integration with third-party ISV offerings. The addition of Dataverse provides a direct link to Microsoft's Dynamics 365 series of applications. Implementation of this vision remains in the early stages.

- **Global Presence and Delivery:** As a leading CSP and DBMS provider, Microsoft's global presence and wide industry coverage makes it attractive for both local and global consideration. It can support and connect customers and partners around the world with local resources. Industry cloud platforms for financial services, healthcare, manufacturing, nonprofit and retail leverage the company's size to add more contextual value to customers.
- **Rich Developer Support:** Microsoft Visual Studio provides support for its broad portfolio of DBMS engines. Microsoft Power Apps provides a low-code platform for working with data in both Azure SQL and Microsoft's nonrelational flagship DBMS CosmosDB, which includes open-source-compatible APIs for MongoDB, Apache Cassandra, PostgreSQL and Apache Gremlin.

Cautions

- **Emerging Governance Capability:** Although a good complement to its databases to provide governance, Microsoft Purview is still relatively new and has incomplete support for Dataverse. Data and analytics professionals should identify which components are generally available, and which, like Data Quality and Data Policy, are still in preview.
- **Pricing Challenges:** In feedback from Gartner clients, pricing is an extremely frequent complaint. Complex pricing models spanning different service offerings remain an area to be streamlined and optimized.
- **Support and Deployment Challenges:** In Peer Insight reviews, Microsoft lags most vendors in this Magic Quadrant on service and support. Comments mention the complexity of configuration and of security, the inability to choose maintenance windows, and difficulty in migration between Azure and SQL Server on-premises.

MongoDB

MongoDB is a Leader in this Magic Quadrant. It offers the document-based nonrelational MongoDB Atlas on AWS, Azure and Google Cloud Platform; the on-premises MongoDB Enterprise Server; and the supported source available and free to use open-source Community Server. It also offers MongoDB Charts, Atlas Data Federation, Atlas Search, Atlas Application Services and Realm, a mobile object database for remote and edge use. Its operations are global, and MongoDB is in wide use across all industry segments and in enterprises of all sizes.

MongoDB did not respond to requests for supplemental information for this document. Gartner's analysis is therefore based on other credible sources.

Strengths

- **Strong Market Presence:** MongoDB has been one of the most successful entrants into the DBMS market in the past decade. It has been extraordinarily effective in moving to the cloud. Its revenues were approaching the $1 billion mark in 2021 — its seventh consecutive year of above-market growth.
- **Customer Satisfaction:** MongoDB received positive feedback from Gartner clients for customer satisfaction. For Gartner Peer Insights, 96% of respondents said they would recommend MongoDB — an extremely strong result that suggests that when used for use cases that are appropriate, MongoDB is an excellent choice.
- **Expanding Product Vision:** MongoDB has recently announced plans for more comprehensive analytics support and SQL capabilities, and it has added numerous capabilities to extend the document DBMS model in recent years, including time series and overhauled search features in order to provide multimodel support.

Cautions

- **Document Model Requires a Different Design:** For performance reasons, MongoDB discourages the use of extensive JOINs, which are essential to relational use cases. MongoDB stores data in a JSON-like format, which requires an approach to data modeling that may be unfamiliar for designers and developers accustomed to working with relational databases.
- **External Data Access:** Some users of Gartner's Inquiry service and Peer Insights reviewers point to MongoDB's poor support for external data via CSV and JSON files. However, MongoDB can connect to Spark via plugins. Atlas Data Federation was announced as generally available, and Data Lake capabilities announced as preview, in June 2022, and both will provide support for Parquet files in AWS S3.
- **Data Science:** MongoDB does not offer built-in data science capabilities to support models, algorithm libraries or feature store capabilities. This limits its use in augmented transaction use cases. Some third parties offer model creation and execution capabilities using MongoDB as a data source.

Neo4j

Neo4j is a Niche Player in this Magic Quadrant, its first appearance. The AuraDB managed service, available on AWS and GCP, became generally available in September 2019. The company also offers the Neo4j graph database on-premises and for private clouds, and the AuraDS "data science as a service" library for integrated AI/ML. Its support for ACID transactions makes it suitable beyond the typical data science use cases associated with graph. Neo4j has customers worldwide across several vertical markets including financial services; transportation and warehousing; and professional, technical and scientific services.

Strengths

- **Graph Market Leadership:** As a pioneering developer and evangelizer of Graph DBMS beginning with its open source version, Neo4j has a broad community of users and loyal customers. Its Cypher and openCypher property graph query language is used by a dozen other vendors in their own graph offerings. Cypher is also the foundation for the Graph Query Language standard currently in development under the auspices of the ISO/IEC Joint Technical Committee and available in open-source subset form.

- **Strong Data Science Support:** Neo4j internally supports numerous frequently used algorithms in categories including pathfinding and search, centrality and importance, community detection, similarity, heuristic link prediction, and graph embeddings. It also offers a Python client for external libraries, a Spark connector to tap into tools like MLLib and integration with AutoML platforms — including AWS Sagemaker and Google Vertex AI.

- **Strong Customer Satisfaction:** Peer insights reviewers of the on-premises offering ranked Neo4j high for integration and deployment and service and support. The graphical representation and speed to develop were cited as useful features. 80% of reviewers would recommend Neo4j.

Cautions

- **Maturing Cloud Features:** AuraDB's Professional tier is relatively new to the cloud and, as with other vendors' cloud offerings, this is reflected in some of its product capabilities. In Critical Capabilities for Cloud Database Management Systems for Analytical Use Cases, we note that managing resource usage and automated performance tuning fell short of most competitors.

- **Growing Competitive Landscape:** Numerous graph DBMS competitors have entered the market. Not all the cloud platform providers are fielding their own graph databases. For example, Neo4j is partnering very directly with Google Cloud in addition to its relationships with AWS and Azure. Still, the overall competition is becoming fierce. Multimodel DBMSs often add graph database functionality as one of their first added engines, and customers will find them suitable for many early graph projects.
- **Lack of Broad Vertical Focus:** Neo4j has fielded a team approach to selling into several vertical markets, which shows its growth, but will need some time to broaden with offerings for multiple markets. Customers will need to assess how Neo4j compares in specific industries.

Oracle

Oracle is a Leader in this Magic Quadrant. Oracle Autonomous Database (including the Autonomous Transaction Processing and Autonomous Data Warehouse services) is available in Oracle Cloud Infrastructure (OCI) and on the Oracle Exadata Cloud@Customer (ExaCC) private cloud. Oracle also offers Autonomous JSON Database, Oracle Graph with Autonomous Database, Oracle MySQL Database Service, Oracle NoSQL Database Cloud Service and a service designed to support its rapid development tool APEX and others.

Oracle is active in all areas of the world, and its database offerings address a wide variety of vertical industries and use cases.

Strengths

- **Augmented DBMS Technology:** The Oracle DBMS has long had one of the richest sets of technologies in the market. In the cloud, it has enhanced its capabilities by adding autonomous tuning and extended management capabilities, which reduces overhead for the full range of maintenance operations.
- **Hybrid Cloud:** Oracle has had a strong position in the on-premises DBMS world for decades, and database deployments are not easy to move without extensive migration costs. Oracle has created a range of options to include on-premises solutions integrated with its cloud solutions. It also uses the cloud as a disaster recovery solution and provides a strong private cloud implementation.

- **Pricing Model:** The Oracle Autonomous Database allows you to get the price and predictability of a resource-based model with the automatic scalability of a consumption-based model. In addition, Oracle gives a credit for on-premises support costs based on the amount of cloud spend. Oracle's pricing model is a real advantage — this is a departure from how many Gartner clients describe Oracle's pricing.

Cautions

- **Limited Support on Multiple Clouds:** Oracle has taken its own path to use on multiple clouds. Historically, it has not had its primary offerings available on other clouds, although it has sought to engineer implementation architectures to remove any ill effects from accessing data across clouds, like latency. This approach has been implemented with Azure, and solutions are evolving for use with AWS and Google, but the perception of being proprietary hurts Oracles with buyers looking for multiple cloud access.

- **Perception of Cost:** Oracle has a reputation for tough licensing terms and negotiation techniques, as mentioned by Gartner clients, which has lost it some customers over the years. The perceptions created by these practices lingers, resulting in the perception that Oracle's cloud offerings will be more expensive than others.

- **Growth Challenges:** Although slow to get to the cloud, Oracle is all in on the cloud now. But its lack of customer awareness in the cloud world, where the overwhelming number of new systems are being implemented, has hurt it. Although Oracle's offerings and vision are near the top of the pack, its products are evaluated much less frequently than the all-cloud vendors and offerings from cloud service providers.

Redis

Redis is a Challenger in this Magic Quadrant. It offers Redis Enterprise Cloud, the commercial offering based on the popular open-source caching database Redis, available on AWS, GCP, Azure, Alibaba Cloud, IBM and on-premises deployment. It is a multimodel data platform that is specialized in real-time use cases, but also capable for transactions and augmented transaction processing.

Redis' operations are primarily in North America, but it also has a substantial footprint in EMEA and the Asia/Pacific region. Its client base spans a broad range of industries. Its wide adoption in the AI/ML ecosystem is particularly noteworthy.

Strengths

- **Real-Time Capability:** Redis is well-known for its real-time data processing capability. Its performance in this area meets organizations' increasing demands for time-sensitive use cases like real-time online campaigns for retail, real-time fraud detection for financial institutions and industrial Internet of Things (IIoT) for manufacturers.
- **Multicloud:** Redis is available on many prominent CSPs including AWS, GCP, Microsoft Azure, Alibaba Cloud and IBM, enabling customers to deploy and use Redis on them. It also provides container technologies to achieve combination and portability across environments. This wide number of deployment choices brings flexibility to organizations who are in a complicated environment.
- **AI/ML Use Cases:** Redis' flexible data structure and real-time capability caters well to the data management life cycle for AI and ML. It has been widely adopted for online feature stores to supplement productionized AI/ML use cases.

Cautions

- **Administrative Overhead:** Realizing real-time performance on in-memory DBMS requires deep understanding of resource management and performance optimization. Gartner clients report both complex configuration tools and inadequate documentation, which increases users' learning overhead.
- **Limited SQL Capabilities:** Redis' SQL compatibility is still very limited. Users without nonrelational knowledge who want to use Redis will have to adopt additional tools, which leads to complex data architecture. Recently, some new DBMS vendors offering both real-time capability and SQL compatibility are gaining market traction, making this market more competitive.
- **Dependency on Additional Data Storage:** Due to the in-memory nature of Redis, some users still need to integrate it with their incumbent data storage, which complicates system architecture, to enable a comprehensive real-time solution. Redis makes innovations like data-persistence option and Redis on Flash (RoF) to address this challenge, which are getting customer recognition.

SAP

SAP is a Leader in this Magic Quadrant. Its products include SAP HANA Cloud, SAP Data Warehouse Cloud (DWC), SAP Adaptive Server Enterprise, SAP IQ and SAP SQL Anywhere.

Products address both operational and analytical DBMS use cases. SAP operates on a global basis from diverse locations. It has enterprise customers of all sizes from all industries. SAP HANA Cloud is a managed database service that supports both transactional and analytical workloads in one solution including multimodel support. For analytical use cases, SAP offers SAP Data Warehouse Cloud for SQL-based development of data warehouses for both SAP and non-SAP data, and SAP BW/4HANA, a packaged data warehouse application that can be deployed on-premises and in the cloud.

Strengths

- **Multicloud, Intercloud and Hybrid:** SAP HANA Cloud and SAP Data Warehouse Cloud can be deployed on a variety of cloud providers' clouds: Alibaba, AWS, Azure and Google. Compatible SAP HANA systems can run on-premises, in private clouds, or in infrastructure as a service.

- **Completeness of functionality:** SAP HANA Cloud provides complete functionality for both transactional and analytical processing on the same database. SAP Data Warehouse Cloud provides a wide range of modern features such as embedded data science capability and federated access. This includes the concept of "Spaces," which can be thought of as physical or virtual data marts with both technical and business metadata views being supported.

- **SAP Application Integration:** There is comprehensive integration into the wider SAP and non-SAP ecosystems. For existing SAP Business Warehouse customers, that system's data can be made available as a space within the SAP Data Warehouse Cloud via the BW Bridge feature.

Cautions

- **Marketing and Sales Messaging:** Many SAP clients still tell Gartner that they are unaware of the breadth and depth of the SAP offerings such as the multimodel capabilities and embedded data science. They also remain unaware of its suitability for custom development and as an underpinning for SAP applications. Understanding of the full range of offerings can vary between sales and support teams.

- **A Plethora of Options:** SAP options are still often seen as being highly varied and confusing, especially with regards to using SAP data with non-SAP data. Evaluators with significant SAP estates should become familiar with these options by specifically requesting briefings from their account teams. SAP HANA Cloud's dynamic hybrid extension capabilities and SAP Data Warehouse Cloud in particular are good ways of tackling hybrid processing.

- **Cost Perception:** There is still a perception that SAP HANA-based systems are premium priced, which can cause prospects to not consider them. Much of this derives from the early customer experiences seven to 10 years ago. Evaluators should become familiar with SAP HANA Cloud pricing and the data tiering options that are available now.

Snowflake

Snowflake is a leader in this Magic Quadrant. The Snowflake Data Cloud addresses analytics, data warehousing and data lake requirements. Its operations are geographically diversified, and its clients are of all sizes.

Snowflake is active globally and predominantly in North America and Europe. It is active in multiple industries including finance, healthcare, retail, telecommunications and manufacturing.

It is investing in its Snowpark feature to provide AI/ML support, with Python support recently being added, and it recently announced its intention to also provide transactional capabilities. Earlier this year, Snowflake acquired Streamlit, a low-code application development framework, and Applica to extend analytics over unstructured data.

Strengths

- **Ease of Use:** Snowflake customers value the ease of use of the product and in calls state that they appreciate this as one of the main design principles for ongoing development. Ease of use is often quoted as one of the principle reasons for Snowflake being selected.
- **Expanding Mind Share and Partners:** Snowflake has rapidly expanded its portfolio of software and service partners, particularly in the data integration, metadata tools and professional services companies. This makes obtaining skills easier and provides many options for architecting systems that are a mix of Snowflake and other third-party products.
- **Multiple Cloud Support:** Snowflake runs on the AWS, Azure and Google Cloud Platforms. Cloud neutrality is also cited as a key reason for choosing Snowflake. Customers may already operate across multiple cloud providers, but wish a standard approach to be adopted within them. Customers may also wish to have the ability to move between clouds for commercial reasons — not being tied to a single provider or limited negotiation ability. Some customers will have regulations that require them to not be dependent on a single cloud provider.

Cautions

- **Predicting Spend:** Some Snowflake customers report that they find it hard to predict costs, an issue that is shared with some other cloud offerings. Gartner recommends developing predictive spend models as part of evaluation. This is an area of attention for Snowflake, and evaluators should ensure they are familiar with the features used for financial governance to match them to their needs.

- **Clarity on Feature Availability:** Gartner clients report that they are not always clear on which Snowflake features are in general availability, which are in preview and which are roadmap items. Snowflake is regularly delivering new functionality, so it is important to remain up to date on what features are in which status by working with your account team, monitoring the monthly release blog and release documentation to understand which features are available — with which variants, such as programming language support — and in which regions to understand availability.

- **Defining Scope of Use:** Snowflake is often promoted to do all the analytical processing for a customer, data warehouse, data lake and data science, but sometimes a mix of Snowflake and other components, preexisting or otherwise, will be more suited. Define a clear scope for what it will be used for and evaluate the mixes of components to check for an optimal solution.

Tencent Cloud

Tencent Cloud is a Niche Player in this Magic Quadrant. It provides TDSQL, an operational DBMS available on both Tencent Cloud and private cloud. Its analytical DBMS offering is Tencent Big Data Suite (TBDS), a one-stop cloud solution focusing on data warehouse and data lake use cases. Its DBMS product family includes nonrelational products like KeeWiDB for KV store, CTSDB for Time Series, and KonisGraph for Graph.

The Tencent Cloud product portfolio spans cloud platform, DBMS, AI and analytics. Its DBMS use cases cover a wide range of industries and companies of all sizes. Tencent Cloud's DBMS business mostly comes from China, but also has footprints in the Asia/Pacific region, Japan and Europe.

Strengths

- **Penetration to a Wide Range of Industries:** By continuous investment in operational DBMS capabilities, TDSQL is rapidly seizing the demand for the financial industry digital transformation in China. With this momentum, Tencent Cloud is steadily enhancing its recognition from a DBMS vendor only suitable for exploratory use cases in gaming and digital retailing, to a trustworthy DBMS vendor for traditional industries.

- **High-Quality Customer Service:** According to client feedback from Gartner Peer Insights and inquiries, Tencent is recognized by users for its high-quality service in DBMS migration and post go-live operations. This differentiates Tencent when competing in DBMS vendor selection for core business workloads.
- **Active Open-Source Contributor:** Tencent has become a leading contributor to many data and analytics open-source communities like Iceberg, Ozone, Alluxio and InLong. By doing this, Tencent improves its recognition in global developer communities, and keeps itself at the edge of data and analytics innovations.

Cautions

- **Less Mature Analytical Offering:** In contrast to its product portfolio in operational DBMS, Tencent's analytical DBMS offering, TBDS, is still a mix of proprietary products and open-source technologies with enhancements, which can be a source of confusion.
- **Limited Geographical Visibility:** Tencent Cloud has almost no DBMS market recognition outside China, Asia, the Pacific region, Japan and Europe. The company claims it will put more focus on the expansion of global markets, especially Europe and North America, in the next three to five years, but its current geographic footprint is limited.
- **Slow Public Cloud Business Adoption:** The DBMS adoption on Tencent public cloud in China is still limited to specific industries due to the general data security concern of public cloud. Motivating hyperscale organizations in traditional industries to massively migrate their DBMS to public cloud remains a long-term task for Tencent.

Teradata

Teradata is a leader in this Magic Quadrant. Teradata is focused on analytics, data warehousing and data lake requirements. Its operations are worldwide, and its clients tend to be of all sizes but are especially very large and sophisticated organizations. Teradata clients operate in a wide variety of business sectors including retail, manufacturing, telecommunications, healthcare and financial services. Teradata also provides distributed capability via its Teradata QueryGrid feature. Also provided are vertical industry offerings such as the Teradata Industry Data Models (iDMs) including data models for finance, retail, telecommunications, manufacturing and healthcare.

Strengths

- **Multicloud and Hybrid With Robust Operation:** Teradata runs on Azure, AWS and GCP and can also be deployed on-premises and in private cloud, giving a wide choice of deployment options and cloud independence. A common codebase is used across these deployments for compatibility, which offers a high degree of robustness, workload management and scalability.
- **Distributed Access:** Support for distributed access, multiple cloud, on-premises and hybrid solutions makes Teradata a good choice as both a central data warehouse and the enabling hub of a set of complementary analytical platforms. Teradata has invested further in distributed access and federation capabilities, thereby positioning it well for data fabric capabilities over heterogeneous analytical systems.
- **Wide Range of Analytical Tools:** Teradata supports a very wide variety of data science tools, both integrated within the DBMS itself or by interfacing with a wide range of external tools. Often, these are enabled for full parallel processing — which is not always the case with other vendors.

Cautions

- **Cost Perception:** Teradata has been viewed by many as a premium-priced product, a perception which mainly comes from historic on-premises costs. Evaluators are advised to check actual costs as part of proof-of-concept exercises. This is especially true of current cloud costs, which provide a greater degree of transparency.
- **Availability of Skills:** Teradata still occupies a significant part of the data warehousing market but has lost ground to others — in particular the cloud service providers. This can mean that it can be more difficult to find experienced Teradata staff in some geographic regions.
- **Legacy Perception:** Because of its longevity, Teradata is often regarded as being legacy technology. Evaluators should ensure that they consider Teradata on its merits in the light of modern analytics working practices. These include cloud neutrality, efficient distributed access, robustness and scalability, programming language and data science support.

TigerGraph

TigerGraph is a Niche Player in this Magic Quadrant, and is a new entrant this year. It offers TigerGraph Cloud on AWS, Microsoft Azure and Google Cloud Platform (GCP). TigerGraph Cloud is a native graph DBMS solution covering both operational and analytical workloads.

TigerGraph has a broad geographical market presence. In addition to North America and Europe, it also has a footprint in the Asia/Pacific region, including China, India and ASEAN. TigerGraph offers industrial graph applications for graph-enabled use cases in retail, finance and manufacturing.

Strengths

- **High Performance:** TigerGraph is well-known for its high-performance capability based on its distributed architecture and advanced massively parallel processing (MPP)-native graph engine. Its innovation on fast data processing and strong scalability makes it suitable for data-intensive graph use cases.
- **Continuous Enhancement on Graph AI/ML:** TigerGraph caters well to graph machine learning use cases. Its continuous enhancement on machine learning workbench and open-source graph algorithm libraries make it a good candidate for not only a graph DBMS, but also a comprehensive graph AI platform.
- **Ambitious Product Vision:** With the strong financial backing from recent investment rounds, TigerGraph has planned a bold product roadmap spanning scalability, real-time analytics and cloud ecosystem integration.

Cautions

- **Limited Vertical Coverage:** TigerGraph puts its primary focus on specific vertical use cases like financial, retail, healthcare and supply chain. A broader range of industries and organizations who have potential needs for graph technology remain outside of its radar at this moment.
- **Cost and Financial Governance:** Gartner clients report challenges with cost control when they scale up the use of TigerGraph. At the same time, financial governance tools and best practices are still inadequate for users to fully control their cost in use cases with unpredictable workloads.
- **Steep Learning Curve of GSQL:** According to feedback from Gartner inquiries and Peer Insights, clients still need to invest a lot of money and time to upskill their data and analytics users to handle GSQL. GSQL is the SQL-like query language used to operate graph data on TigerGraph. This need for investment impedes broader adoption of TigerGraph.

Vendors Added and Dropped

We review and adjust our inclusion criteria for Magic Quadrants as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant may change over time. A vendor's appearance in a Magic Quadrant one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. It may be a reflection of a change in the market and, therefore, changed evaluation criteria, or of a change of focus by that vendor.

Added

The following vendors were added this year because they met this Magic Quadrant's inclusion criteria, including the market momentum index:

1. MongoDB
2. Neo4J
3. Tencent Cloud
4. TigerGraph

Dropped

While they met this Magic Quadrant's other inclusion criteria, the following vendors did not rank among the top 20 organizations in a market momentum index defined by Gartner for this Magic Quadrant. Data inputs used to calculate market momentum include the following measures, among others:

- Gartner customer search and inquiry volume and trend data
- Volume of job listings on a range of employment websites in the U.S., Europe and China
- Frequency of mentions as a competitor to other Cloud DBMS vendors in reviews on Gartner's Peer Insights forum during the year ending March 2022

Noninclusion due to the market momentum index should not be seen to reflect negatively on these vendors.

1. Exasol

2. Huawei
3. MariaDB
4. SingleStore

Inclusion and Exclusion Criteria

Gartner Magic Quadrants identify and analyze the most relevant providers in a market. Gartner imposes an upper limit of 20 vendors to aid in identification of the most relevant providers. The following inclusion criteria represent the specific attributes that Gartner analysts consider necessary for a vendor to be included in this Magic Quadrant.

Inclusion Criteria

To qualify for inclusion in this Magic Quadrant, a vendor had to:

- Offer a generally available software product that met Gartner's definition of a Cloud DBMS.
- Support more than one of the following cloud DBMS use cases:
  - OLTP transactions
  - Lightweight transactions
  - Augmented transactions
  - Stream event processing
  - Traditional data warehouse
  - Logical data warehouse
  - Data lake
  - Stream analytics

- Rank among the top 20 organizations in a market momentum index defined by Gartner for this Magic Quadrant. Data inputs used to calculate market momentum include the following measures, among others:
  - Gartner customer search and inquiry volume and trend data
  - Volume of job listings on a range of employment websites in the U.S., Europe and China
  - Frequency of mentions as a competitor to other Cloud DBMS vendors in reviews on Gartner's Peer Insights forum during the year ending March 2022

Noninclusion due to the market momentum index should not be seen to reflect negatively on these vendors.

- Have market presence in at least three of the following regions (regional market presence is defined as the existence of dedicated sales offices or distribution partnerships in a specific region) and a minimum of 5% of the cloud revenue:

- North America (Canada, Mexico and the U.S.)
- Central and South America
- Europe (including Western Europe and Eastern Europe)
- Middle East and Africa (including North Africa)
- Asia/Pacific
- Japan

- Have a cloud DBMS service generally available as of midnight, U.S. Eastern Daylight Time on 1 July 2022. This includes any new functionality added to the service(s) by the specified date. We did not consider beta, "early access," "technology preview," or other not generally available functionality or services. Additionally:
  - Any acquired product or service must have been acquired and offered by the acquiring vendor as of 1 July 2022. Acquisitions after this date were considered under their preacquisition identities, if appropriate, and are represented separately until the publication of the following year's Magic Quadrant.

Exclusion Criteria

Vendors marketing only products from the list below are explicitly excluded from this Magic Quadrant and Critical Capabilities research.

They include:

- Streaming services, whose use cases are dominated by immediate event processing, and which are rarely, if ever, used for subsequent management of the data involved
- Prerelational DBMS products
- Object-oriented DBMS products
- Data grid products
- BI and analytical solutions that offer a cloud DBMS that is limited specifically to the vendor's own BI and analytical tools
- Analytics query accelerators (SQL interfaces to object stores or file systems)
- Vendors of data virtualization, data fabric and data federation that do not provide data persistence of their own

Honorable Mentions

The vendors mentioned below were either featured in the 2021 edition of this Magic Quadrant or have a presence in the market that will make them of interest to organizations in addition to the vendors covered in this year's Magic Quadrant.

While they met this Magic Quadrant's other inclusion criteria, the following vendors did not rank among the top 20 organizations in a market momentum index defined by Gartner for this Magic Quadrant. Data inputs used to calculate market momentum include the following measures, among others:

- Gartner customer search and inquiry volume and trend data
- Volume of job listings on a range of employment websites in the U.S., Europe and China
- Frequency of mentions as a competitor to other Cloud DBMS vendors in reviews on Gartner's Peer Insights forum during the year ending March 2022

Noninclusion due to the market momentum index should not be seen to reflect negatively on these vendors.

The following list, which does not include all the notable vendors absent from this Magic Quadrant, is in alphabetical order.

Aerospike

Based in Mountain View California, Aerospike offers the Aerospike Real-Time Data Platform, Aerospike Database and Aerospike SQLPowered by Starburst. It focuses on extreme high-performance real-time working. Aerospike will be of interest to companies seeking to run workloads that scale to millions of transactions per second with submillisecond latency. Aerospike offers strong consistency, multisite clustering and cross-data-center replication (XDR).

These capabilities are delivered using the Aerospike real-time engine. As well as scaling to very high levels, Aerospike offers operational simplicity by allowing large transactional workloads to run on smaller, less-complex clusters than would otherwise be the case.

DataStax

DataStax's Astra DB, which is available on AWS, GCP and Azure, is the vendor's multicloud, multiregion, serverless, pay-as-you-go managed service built on Apache Cassandra. With built-in gRPC, GraphQL, REST and document APIs, Astra DB delivers multimodel capabilities. DataStax's cloud offerings also include Astra Streaming, a real-time messaging and event streaming service based on Apache Pulsar. A change data capture (CDC) feature in Astra DB, powered by Astra Streaming, gives Astra DB the ability to stream real-time operational data across an enterprise data ecosystem. The company also offers DataStax Enterprise (DSE), a multimodel DBMS based on Apache Cassandra, for enterprises that want to self-manage their databases.

EDB

EDB's (EnterpriseDB's) PostgreSQL-managed cloud database service, EDB BigAnimal, is a relational, multimodel, multicloud platform based on open-source PostgreSQL with enhanced encryption and security, and optional features like Oracle compatibility, extreme high availability and multimaster replication. BigAnimal runs on both AWS and Azure. It uses a Kubernetes-based control plane for automating the full database life cycle. EDB is a leading contributor to PostgreSQL, contributing approximately 30% of the code over multiple years. EDB is owned by Bain Capital and Great Hill Partners. Bain made a majority investment in EDB in 2022. In 2020, EDB acquired 2ndQuadrant, the PostgreSQL services and tools company.

Exasol

Exasol is headquartered in Nuremberg, Germany and provides the Exasol database, an in-memory analytics database. Exasol is a specialist vendor focused solely on analytics database solutions such as data warehouse and data lake. Historically, most of its business has been in Europe, but it now has a presence in North America and the Middle East. Exasol has long experience in data warehousing, starting as an on-premises product. It provides Exasol SaaS and offers both fully supply provider-managed private and public cloud offering. Its product provides the main features that customers in this market expect, such as in-memory columnar processing, data lake integration and the ability to work with integrated machine learning. Exasol has also moved into assisting business and technical users in automation of building data warehouses following its acquisition of Yotilla.

Huawei Cloud

Huawei Cloud is a leading cloud service provider in China. It offers a wide variety of DBMS products. These include GaussDB, GaussDB(for MySQL) for OLTP use cases, GaussDB(DWS) for analytical use cases, GaussDB(for Mongo), GaussDB(for Influx), GaussDB(for Cassandra) and GaussDB(for Redis) for nonrelational use cases. In addition, it provides UGO and DRS for database migration, FusionInsight MRS for data lake, GES for graph, and DataArts Studio for governance. All are available on Huawei Cloud and Huawei Cloud Stack for on-premises deployment. Huawei's operations are primarily in China, but it is also expanding its footprints in APJ, Europe, South America and Africa. Its two flagship products, GaussDB and GaussDB(DWS), are mainly deployed as the replacement of aging competitor solutions for local organizations in China, and have gained steady growth last year. At the same time, its DBaaS deployment on public cloud is also growing rapidly in China, especially for the manufacturing, retail and gaming industries. However, geopolitical concern still remains a main challenge for Huawei to explore its business effectively in North America and Europe.

InfluxData

InfluxDB is the main product of InfluxData, headquartered in San Francisco California, and is a specialized time series database. InfluxDB is designed to help build real-time applications for analytics, IoT and cloud-native services faster and with less code by being oriented specifically for time series problems. It is an elastic, serverless real-time monitoring platform, dashboarding engine, analytics service and event and metrics processor. The database engine is capable of ingesting millions of events per second. InfluxDB runs in the Azure, AWS and GCP public clouds and can also run on-premises on a customer's own infrastructure including on developers' laptops. InfluxDB developers can use a variety of popular programming languages including Java, JavaScript, Python and Go.

MariaDB

Headquartered in Redwood City and Helsinki Finland, MariaDB has employees in 28 countries. MariaDB collaborates with customers to solve its data storage and access challenges using its popular open-source relational database, which is compatible with MySQL. MariaDB has more than 600 customers in over 60 countries. MariaDB can be downloaded for trial and is in use among a large number of Fortune 500 companies, being used for many types of use cases across all industries and the public sector. MariaDB provides SkySQL, a database as a service that allows customers to deploy and manage in the cloud their MariaDB Enterprise Server, Xpand distributed SQL or ColumnStore analytical databases. SkySQL combines automation and human expertise to support and manage mission-critical deployments. It addresses both transactional and analytical use cases.

Micro Focus

The core analytical platform within the Micro Focus software portfolio, the Vertica Analytics Platform, is a massively parallel processing (MPP) column store analytical database that can run in the Alibaba, AWS, Azure or GCP public clouds; as Kubernetes containers; on virtual machines; and on on-premises or hybrid environments leveraging its separation of compute and storage architecture. It is compatible with many modern extraction, transformation and loading (ETL) and BI tools. Vertica's unified analytical approach combines data in the data warehouse and data lake for SQL, ML and AI. The company is currently the subject of an acquisition attempt by OpenText.

SingleStore

SingleStore offers SingleStoreDB Cloud, a fully managed, on-demand cloud database service that is compatible with the MySQL wire protocol. Today it is offered as a managed service on the AWS, GCP and Microsoft Azure clouds, as well as self-managed on private clouds, IBM Cloud Pak for Data and Red Hat OpenShift. SingleStore's operations are primarily in North America and Europe. It has a limited presence in the rest of the world. It has hundreds of customers including Fortune 500 customers across 30 verticals with the top three verticals being financial services, media and telecommunications, and SaaS technology companies. SingleStore provides its Universal Storage technology, which combines the attributes of in-memory row store, on-disk column store and cloud object storage in a single table storage type, to support high-performance use cases for both transactions and analytics.

Yellowbrick Data

Yellowbrick Data provides a data warehouse solution for hybrid environments that features novel cloud infrastructure exploitation to provide extreme performance and ease of use for classical data warehouse analytical requirements. In addition, the vendor is well-positioned for data fabric adoption through what it terms "distributed data clouds" — interconnected resources across private data centers, multiple public clouds and on-premises. Its system is PostgreSQL-compatible and thus integrates well with common BI, analysis and ETL tools. In addition, it addresses high-volume, high-speed requirements such as IoT and deployment at the network edge. It provides for modern requirements such as integration with data lakes.

Evaluation Criteria

Ability to Execute

Product or Service: Core goods and services that compete in and/or serve the defined market. This includes current product and service capabilities, quality, feature sets, skills and so on.

We look at products and services that address both operational and analytics use cases. We focus on features influencing performance, scalability, availability, security and integration.

Overall Viability: Includes an assessment of the organization's overall financial health as well as the financial and practical success of the business unit. We assess the likelihood of the organization to continue to offer and invest in the product, as well as the product position in the current portfolio. We use Gartner's published estimates on revenue, as well as our assessment of share of market and trends in revenue. Changes in organization structure, personnel, and roadmap are also included.

Sales Execution/Pricing: The organization's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support and the overall effectiveness of the sales channel. We also evaluate the variety and suitability of a vendor's pricing models.

Market Responsiveness/Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness to changing market demands. Timely creation of and fielding of a cloud offering, as well as competitive feature development and delivery in "cloud release cadence," will be considered.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message in order to influence the market, promote the brand, increase awareness of products and establish a positive identification in the minds of customers. This mind share can be driven by a combination of publicity, promotional activity, thought leadership, social media, referrals and sales activities. We will compare the consistency, channels, volume and differentiation of marketing messages heard by prospects to those presented to analysts.

Customer Experience: Products and services and/or programs that enable customers to achieve anticipated results with the products evaluated. Specifically, this includes quality supplier/buyer interactions, technical support or account support. This may also include ancillary tools, customer support programs, availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet goals and commitments. Factors include quality of the organizational structure, skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently.

Table 1: Ability to Execute Evaluation Criteria

Evaluation Criteria ↓	*Weighting* ↓
Product or Service	High
Overall Viability	Medium
Sales Execution/Pricing	Medium
Market Responsiveness/Record	Medium
Marketing Execution	Medium
Customer Experience	Medium
Operations	Medium

Source: Gartner (September 2022)

Completeness of Vision

Market Understanding: Concerns the ability to understand customers' needs and to translate that understanding into products and services. Vendors that show a clear vision of their market listen to, and understand, customers' demands, and can shape or enhance the market with their vision.

We look for awareness of customers' concerns about issues such as price transparency, license portability, migration assessment, execution and cost, security gaps, and intercloud and hybrid operations.

Marketing Strategy: Looks for clear, differentiated messaging consistently communicated internally, and externalized through social media, advertising, customer programs and positioning statements. We assess the clarity and consistency of messages that articulate the value of the cloud DBMS, especially as compared with similar on-premises products (where they exist) and other cloud DBMS offerings.

Sales Strategy: Looks for a sound strategy for selling that uses appropriate networks, including direct and indirect sales, marketing, service and communication. It also considers any partners that extend the scope and depth of a vendor's market reach, expertise, technologies, services and customer base. We evaluate relationships between CSPs, ISVs and systems integrators, use of app stores and co-marketing, and the degree of focus on the ease of onboarding.

Offering (Product) Strategy: An approach to product development and delivery that emphasizes market differentiation, functionality, methodology and features as they map to current and future requirements. We evaluate whether the product strategy builds on existing product strengths and moves toward addressing emerging market needs. This includes the response to such issues as separation of compute and storage, CSP-managed instance definitions and availability, and response to security requirements for object storage.

Business Model: Considers the design, logic and execution of an organization's business proposition to achieve continued success. We consider the vendor's relationships to CSPs, financial model changes, geographic and vertical adjustments driven by cloud opportunities, and the design of engineering and support in relation to cloud realities.

Vertical/Industry Strategy: The strategy to direct resources (sales, product, development), skills and products to meet the specific needs of individual market segments, including verticals. We look at breadth and depth of vertical and industry focus. Information on specific successes in particular verticals or industries is useful.

Innovation: Considers direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or preemptive purposes. We judge a vendor's innovativeness by the extent of its truly new capabilities or combinations in the market, rather than by its matching of the capabilities of existing products from other vendors.

Geographic Strategy: Considers a vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside its "home" or native geography, either directly or through partners, channels and subsidiaries, as appropriate for the geography and market. We examine factors such as local language support, on-the-ground resources and the marketing focus on multiple geographies.

Table 2: Completeness of Vision Evaluation Criteria

Evaluation Criteria ↓	*Weighting* ↓
Market Understanding	High
Marketing Strategy	High
Sales Strategy	High
Offering (Product) Strategy	High
Business Model	Medium
Vertical/Industry Strategy	Low
Innovation	High
Geographic Strategy	Medium

Source: Gartner (September 2022)

Quadrant Descriptions

Leaders

Leaders generally demonstrate support for a broad range of DBMS use cases, based on support for a wide range of data types and/or diversity of deployment models (such as multicloud, intercloud and hybrid). These vendors demonstrate consistently high customer satisfaction and strong customer support. Many have mature products created for the cloud or migrated to be cloud-native. Hence, Leaders generally represent the lowest risk for customers in the areas of performance, scalability, reliability and support. As the market's demands change, Leaders demonstrate strong vision in support not only of the market's current needs, but also of emerging trends. These include requirements for multicloud, intercloud and hybrid models, as well as native cloud serverless DBMS and financial governance with diverse pricing models. Finally, the marketing messages, product research and development, and delivery of Leaders suit today's market for public and private cloud services.

Challengers

Challengers are vendors with strong, established offerings, but are somewhat lacking in vision for the cloud DBMS market. It can be difficult for some vendors to improve both vision and execution at the same time. However, it is normal for some to have high scores for Ability to Execute one year and high scores for Completeness of Vision another year. Challengers normally show strong corporate viability and financial stability and demonstrate strong customer support. However, they lack some features to support the latest trends in the cloud DBMS market, such as support for a broad set of use cases and a roadmap for moving to multicloud/intercloud implementations. Although they may be lacking in relation to some of the market's innovative concepts, Challengers have strengths in relation to many of the Ability to Execute criteria.

Visionaries

Visionaries have a strong market understanding and a robust roadmap for the cloud DBMS market. They have innovative ideas about functionality and demonstrate advanced use of new deployment models. Typically, they have fewer customers and are smaller than Leaders. Although they may lack the market momentum of Leaders, they have potential for growth in the market, due, in many cases, to elements of their vision that are market leading. Visionaries are often young and small vendors, but can also have innovative ideas that push the market — and its leaders — in new directions.

Niche Players

Niche Players generally deliver a highly specialized product with limited market appeal. Often a Niche Player will not support multiple cloud DBMS use cases, but will support one, two or more use cases particularly well. Niche Players may lack one or all of the following: (1) A strong or large customer base, (2) the breadth of functionality of Leaders, (3) penetration of a broad range of industries or geographies or (4) proven, mature products that present low risk.

However, if an organization has a need for the specific set of capabilities that a Niche Player provides, then it can be a good fit.

Context

This Magic Quadrant evaluates vendors that supply fully managed cloud DBMS services (dbPaaS offerings) for some or all operational and analytical use cases. It should interest anyone involved in defining, purchasing, building or managing a cloud environment involving data management — notably, data and analytics leaders (including CIOs, CTOs and CDAOs), infrastructure managers, database and application architects, database administrators, and IT purchasing managers.

This Magic Quadrant assesses vendors' capabilities on the basis of their execution in 2021 and early 2022 and future development plans. Because vendors and the market are evolving, the assessments may be valid for a limited duration.

Readers should not use this Magic Quadrant in isolation as a tool for selecting vendors and products. They should treat it as one reference point among the many required to identify the most suitable vendor and product.

When selecting a platform, they should use this Magic Quadrant in combination with the two related documents

- Critical Capabilities for Cloud DBMS for Operational Use Cases
- Critical Capabilities for Cloud DBMS for Analytical Use Cases

We also recommend using Gartner's client inquiry service.

This Magic Quadrant assesses databases that run as cloud services. 2020 was the first year that Gartner combined the assessment of vendors offering analytical database systems (previously referred to as data management systems for analytics [DMSAs]) with the assessment of operational DBMSs. This was in line with the observation that the database market was converging, with vendors providing solutions for both types of DBMS — sometimes with the same product, and sometimes with separate products.

In 2022, the Magic Quadrant continues with this combined evaluation because it is clear that this trend is firmly established and is not likely to reverse itself. In the Vendor Strengths and Cautions section above, we make clear whether the vendor addresses operational or analytical use cases, or both. Although it is advantageous for a vendor to address both types of use cases, it is not essential. A vendor can still be a Leader if it serves its single chosen market particularly well.

It is important to remember that the scoring of the vendors in the Magic Quadrant is relative and not absolute. Movements of vendors from one iteration to another must be considered within this context. This market continues to show growth in cloud revenue, growth in the percentage of revenue in the cloud versus overall DBMS revenue and, correspondingly, the decreasing interest in on-premises products.

Market Overview

There has been a general lifting of capabilities across the market. Whereas in the last two to three years, the emphasis has been moving to the cloud, often with basic capability, this last year has seen a marked maturing of the majority of offerings.

The DBMS market, and the Cloud DBMS market in particular, continued healthy growth.

According to Gartner's DBMS market numbers: [1]

- The overall database management system (DBMS) market saw strong growth of 22.3% in 2021 to reach $80.3 billion.
- The 2021 growth in this market is an expansion of its 2020 growth of 17.1%, and exceeds the overall software market growth rate of 16%.
- The overall DBMS market is on course to be a $100 billion market by 2023. This was primarily driven by cloud database platform as a service (dbPaaS), whose share has reached nearly 50% of the overall 2021 market.
- For 2021, greater than 84% of the overall DBMS market growth came from dbPaaS.

- Database software now accounts for 12.9% of the overall software market. [2]
- Readers will see a change in profiled vendors because the team chose to focus on vendors that demonstrate they're capturing a high degree of global interest, instead of relying on a revenue threshold. This is evident in the change in inclusion criteria year on year. This means that some well-known and financially successful vendors may not appear because they did not generate enough end-user discussion as measured by our market momentum index, for example because their offerings and positioning are already well-understood. Their noninclusion should not be taken as a negative reflection on those products.

In prior years, for analytical databases, the ability to access remote databases, invoke machine learning, incorporate low-code capability, provide efficient workload management and operate multimodel were seen as advanced — yet now they are standard parts of many offerings. For operational systems, the ability to do distributed transactions across many processors and geographic areas and to take advantage of hyperscale architectures is now normal. For both types of systems, elastic scalability, SQL support (including for nonrelational databases) and the ability to mix operational and analytical working is becoming business as usual. Thus, all enterprises now have easier access to a wide range of database capabilities.

Although there is now a basic consensus on which advanced features make up a modern cloud DBMS, not all products provide all of the features. Thus, the pace of change continues, and there is constant improvement in each of the products as each seeks to fill in the gaps versus its competitors. Also, vendors' offerings do not implement all functions equally and have varying depths and scope of features.

Gartner clients should avoid choosing a product because they are attracted to a particular feature. If the feature is valuable, then it is likely that other participants in the market will copy it, or provide their own functionally equivalent features. Although some features will be unique for a time, most are copyable and will soon be promulgated throughout the cloud DBMS marketplace.

In the cloud, the main metric that matters is price performance (see Infographic: Cloud DBMS Resources and Costs), and implementations can vary greatly. A key consideration is financial governance — the ability to predict, monitor and control costs. This is a common problem across all cloud-based systems where customers pay according to consumption rather than by an upfront investment.

Enabling multicloud operations is also important from the point of view of cloud neutrality to enable a choice of clouds to run on. There are also the beginnings of regulatory bodies requiring that a company be capable of operating using more than one cloud to avoid the operational risk of their chosen cloud becoming unavailable. Thus, multicloud and intercloud working will become increasingly important.

In the same vein, the ability to operate on-premises can add value. Although this may seem odd when evaluating a cloud DBMS, an on-premises presence can be a useful complement to the core capabilities of a Cloud DBMS. This may include on-premises versions of the DBMS, migration and conversion tooling, or code compatibility with other on-premises DBMSs. The use of open-source interfaces such as MySQL and PostgreSQL, which are increasingly adopted as the public face of many different database systems, is also a consideration.

On the topic of open-source DBMS interface adoption, Gartner sees this as continuing to increase. There are now several databases that adopt a MySQL or PostgreSQL API with a variety of back ends. These might be relational database services for the actual open-source system themselves. They might be code-compatible commercial products, or they may form the front end for hyperscale engines from one of the major cloud service providers or third-party vendors. Adopting these interfaces can provide a great deal of choice in where to run applications and also a variety of useful exit strategies for customers who wish to avoid lock-in.

The trend toward data ecosystems continues. A data ecosystem occurs where a provider competes not just on a point solution for a particular service (for example, data warehouse, data lake or ML), but instead on the way in which multiple services are integrated (see The Impacts of Emerging Cloud Data Ecosystems: An Architectural Perspective). Data ecosystems will usually comprise components from a single vendor but can be constructed by the interfacing of multiple vendors' products. This interoperability is likely to be seen as a strategy for smaller vendors. We expect to see this feature much more prominently from 2023 onwards.

Although consolidation of advanced analytical and transactional function will continue, the next major area of disruption will likely be the participation of cloud DBMS systems in sophisticated data fabrics. (See Data and Analytics Essentials: Data Fabric and Data Fabric or Data Mesh: How to Decide Your Future Data Management Architecture.) This will entail a much greater degree of data management automation, metadata handling and interfacing, and incorporation of AI and machine learning into the business of data management itself. Although there are some very early indications of this in current offerings, this next wave has not yet begun but will likely begin another phase of disruption from 2023 onwards.

Evidence

Gartner client inquiry service data recorded from June 2021 through June 2022.

[1] Market Share Analysis: Data Management Software (Excluding DBMS), Worldwide, 2021

[2] Market Share Analysis: Database Management Systems, Worldwide, 2021

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor for the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability: Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness/Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word of mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.

Document Revision History

Magic Quadrant for Cloud Database Management Systems - 14 December 2021

Magic Quadrant for Cloud Database Management Systems - 23 November 2020

Recommended by the Authors

Some documents may not be available as part of your current Gartner subscription.

How Markets and Vendors Are Evaluated in Gartner Magic Quadrants

The Impacts of Emerging Cloud Data Ecosystems: An Architectural Perspective

Infographic: Top Trends in Data and Analytics, 2022

There Is Only One DBMS Market

The Future of the DBMS Market Is Cloud

Financial Governance Is Essential to Successful Cloud Data and Analytics

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Table 1: Ability to Execute Evaluation Criteria

Evaluation Criteria ↓	*Weighting* ↓
Product or Service	High
Overall Viability	Medium
Sales Execution/Pricing	Medium
Market Responsiveness/Record	Medium
Marketing Execution	Medium
Customer Experience	Medium
Operations	Medium

Source: Gartner (September 2022)

Table 2: Completeness of Vision Evaluation Criteria

Evaluation Criteria	*Weighting*
Market Understanding	High
Marketing Strategy	High
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Innovation	High
Geographic Strategy	Medium

Source: Gartner (September 2022)