The Forrester Wave™: Cloud Data Warehouses, Q2 2023

The 15 Providers That Matter Most And How They Stack Up

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Summary

In our 22-criterion evaluation of cloud data warehouse providers, we identified the 15 most significant ones and researched, analyzed, and scored them. This report shows how each provider measures up and helps data management professionals select the right one for their needs.

Additional resources are available in the online version of this report.

Cloud Data Warehouses Help Modernize Your Analytical Platform

Cloud data warehouse (CDW) solutions have been around for more than a decade, helping organizations accelerate analytics and insights by allowing users to focus on data rather than dealing with technical complexity. CDW solutions can provision data warehouses in minutes, tune queries automatically, scale up or scale down resources based on demand, and back up data continuously. They can also ingest data from multiple sources, perform integrated insights with built-in analytical functions, and self-upgrade without downtime. To address the growing need for more integrated, real-time, and self-service analytics, CDWs offer more advanced capabilities, including native integration with data lakes and object stores, self-service data sharing and collaboration, integration with serverless, low-latency data ingestion, automated query optimization, and integration with new data architectures. Although CDW use cases have grown over the years to include business intelligence (BI) acceleration, customer analytics, real-time analytics, data sharing, IoT analytics, and data warehouse automation, we have not included these use case criteria in this Wave. Most vendors serve almost any new use case, and our assessment does not find differentiation among vendors around specific use cases.

As a result of these trends, CDW customers should look for providers that:

- **Simplify data warehouse deployments with advanced automation.** CDW can automate administration functions, including loading, processing, transforming, tuning, optimizing, scaling, orchestration, and security. Look for solutions with expanded automation capabilities with zero-administration and self-service capabilities to automate query tuning, ingestion, data processing, and data integration and to accelerate modern business use cases.

- **Support real-time analytics with high-speed ingestion.** CDWs enable real-time analytics by integrating streaming sources and executing analytics pipelines in real time to generate actionable insights. They offer the ability to store, process, and access large amounts of data to support real-time analytics. Look for vendors that offer integration with serverless, support intelligent data tiering across memory and storage devices, and have high-speed data ingestion capabilities.

- **Deliver the performance and scale requirements your enterprise needs.** Performance and scale are critical for a CDW. Look for solutions that support thousands of concurrent users and queries per second and offer the ability to scale up and down based on business requirements. Ask the vendor for customer references to validate performance and scale, particularly if your enterprise needs

require storing and processing more than 100 terabytes of data or dealing with more than 100 concurrent users.

- **Integrate with other platforms to future-proof your architecture.** CDWs should not be used in isolation but integrated with other architectures such as data fabric, data mesh, globally distributed data platforms, multimodel platforms, graph data platforms, and translytical platforms to accelerate new and emerging use cases. Look for CDW solutions that seamlessly integrate with other modern data platforms to broaden the use cases and future-proof your data architecture.

Evaluation Summary

The Forrester Wave™ evaluation highlights Leaders, Strong Performers, Contenders, and Challengers. It's an assessment of the top vendors in the market; it doesn't represent the entire vendor landscape. You'll find more information about this market in our reports on CDWs.

We intend this evaluation to be a starting point only and encourage clients to view product evaluations and adapt criteria weightings using the Excel-based vendor comparison tool (see Figures 1 and 2). Click the link at the beginning of this report on Forrester.com to download the tool.

Figure 1

Forrester Wave™: Cloud Data Warehouses, Q2 2023

THE FORRESTER WAVE™

Cloud Data Warehouses

Q2 2023

Figure 2

Forrester Wave™: Cloud Data Warehouses Scorecard, Q2 2023

	Forrester's weighting	Actian	Alibaba Cloud	Amazon Web Services	Cloudera	Exasol	Google	IBM	Microsoft
Current offering	50%	1.68	3.39	3.52	3.43	2.36	4.12	3.46	3.00
Administration	15%	3.00	3.80	3.80	2.60	3.00	3.80	3.00	3.00
Analytics	20%	1.00	3.60	4.30	4.30	3.00	5.00	3.70	3.00
Security	15%	3.00	3.00	3.80	3.00	3.00	3.00	4.20	3.00
Performance	20%	1.00	5.00	4.00	4.00	1.00	5.00	3.00	3.00
Data types and model	15%	1.00	1.80	1.80	2.60	1.00	3.80	3.40	3.00
Deployment	15%	1.50	2.50	3.00	3.60	3.40	3.50	3.50	3.00
Strategy	50%	2.40	2.50	3.30	2.20	2.30	3.70	2.70	3.20
Vision	30%	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Innovation	25%	3.00	1.00	3.00	1.00	3.00	3.00	1.00	3.00
Roadmap	25%	1.00	3.00	3.00	1.00	1.00	5.00	3.00	3.00
Partner ecosystem	10%	3.00	3.00	5.00	5.00	1.00	5.00	5.00	5.00
Adoption	5%	1.00	3.00	5.00	1.00	1.00	3.00	3.00	3.00
Pricing flexibility and transparency	5%	3.00	3.00	3.00	5.00	5.00	3.00	3.00	3.00
Market presence	0%	1.00	4.00	4.00	1.60	1.00	3.40	3.00	3.00
Revenue	60%	1.00	4.00	4.00	2.00	1.00	3.00	3.00	3.00
Number of customers	40%	1.00	4.00	4.00	1.00	1.00	4.00	3.00	3.00

All scores are based on a scale of 0 (weak) to 5 (strong).

Source: Forrester Research, Inc. Unauthorized reproduction, citation, or distribution prohibited.

	Forrester's weighting	OpenText	Oracle	SAP	Snowflake	Tencent Cloud	Teradata	Yellowbrick
Current offering	50%	3.42	4.24	2.59	3.64	3.16	3.61	2.05
Administration	15%	3.00	4.20	3.00	4.20	3.00	3.00	2.20
Analytics	20%	4.40	3.70	2.40	3.60	3.70	3.00	2.40
Security	15%	3.00	5.00	3.00	3.80	3.00	4.20	3.00
Performance	20%	4.00	4.00	1.00	5.00	4.00	4.00	1.00
Data types and model	15%	2.60	3.80	4.20	1.80	1.80	3.00	1.80
Deployment	15%	3.00	5.00	2.50	3.00	3.00	4.50	2.10
Strategy	50%	1.70	4.30	3.80	4.20	1.30	3.60	2.10
Vision	30%	1.00	5.00	5.00	3.00	1.00	5.00	1.00
Innovation	25%	3.00	3.00	3.00	5.00	1.00	3.00	3.00
Roadmap	25%	1.00	5.00	3.00	5.00	1.00	3.00	3.00
Partner ecosystem	10%	3.00	5.00	5.00	5.00	1.00	3.00	1.00
Adoption	5%	1.00	3.00	3.00	3.00	3.00	3.00	1.00
Pricing flexibility and transparency	5%	1.00	3.00	3.00	3.00	5.00	3.00	3.00
Market presence	0%	1.60	3.00	3.00	3.20	2.40	2.60	1.00
Revenue	60%	2.00	3.00	3.00	4.00	2.00	3.00	1.00
Number of customers	40%	1.00	3.00	3.00	2.00	3.00	2.00	1.00

All scores are based on a scale of 0 (weak) to 5 (strong).

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Vendor Offerings

Forrester evaluated the offerings listed below (see Figure 3).

Figure 3

Evaluated Vendors And Product Information

Vendor	Product evaluated	Product version evaluated
Actian	Avalanche Cloud Data Platform	Avalanche Cloud Data Platform
Alibaba Cloud	MaxCompute, AnalyticDB, Hologres, EMR	MaxCompute 2.0, AnalyticDB3.0, Hologres 1.3, EMR
Amazon Web Services	Amazon Redshift	N/A
Cloudera	Cloudera Data Platform	Cloud-based service with no version number
Exasol	Exasol SaaS	N/A
Google	Google BigQuery	Cloud-based service with no version number
IBM	Db2 Warehouse	11.5
Microsoft	Azure Synapse Analytics	Azure Synapse Analytics
OpenText	Vertica or OpenText AI & Analytics	VA 1.3 C 12.0.3
Oracle	Oracle Cloud Database	19c
SAP	SAP Datasphere (formerly SAP Data Warehouse Cloud)	2023.06
Snowflake	Cloud Data Warehouse	7.10 (biweekly updates)
Tencent Cloud	Tencent Cloud	Could Data Warehouse V4.2, Elastic MapReduce V4.0, WeData V2.3
Teradata	Teradata VantageCloud	N/A
Yellowbrick	Yellowbrick Data Warehouse	AWS, Azure, on-premises (private cloud)

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Vendor Profiles

Our analysis uncovered the following strengths and weaknesses of individual vendors.

Leaders

- **Oracle's CDW has the broadest capabilities coupled with a strong vision.** A long-standing player in the data warehouse market, Oracle offers comprehensive capabilities, including support for zero-administration, hybrid and multicloud, integration with the high-performance Oracle Exadata server, integrated Azure/OCI cloud service, and broad in-database analytical capabilities. Oracle has a clear, differentiated vision for its product that supports accelerating use cases via a more automated and intelligent CDW that includes completely autonomous data warehouse administration, AI/ML, intelligent data tiering, and built-in security capabilities as well as extending to data fabric strategies. Oracle's superior roadmap promises expanded capabilities for data streaming, ML/data science, data collaboration, data lake integration, and multicloud support.

  Oracle's current offering stands out for its autonomous data warehouse, real-time analytics, in-database analytics, data access and protection, deployment options, and broad use cases. Oracle's capabilities in data models, data streaming, and data lake integration are on par, but they should improve to stay ahead of the market. Reference customers praise the Oracle Exadata platform's high-end performance, Azure/OCI cloud cohosting, extensive partner network, and broad vendor technical support. Oracle is an excellent fit for customers who need to support large, complex, high-performance analytical workloads, including real-time analytics and operational workloads.

- **Snowflake offers excellent self-service for a variety of analytical use cases.** Snowflake is known for its self-service and its elastic, scalable CDW platform. Its solution is highly automated to simplify provisioning, ingestion, transformation, and data processing, requiring zero administration. Snowflake is ahead of other vendors evaluated in innovation. It has invested quickly in new and emerging capabilities, including compute and storage separation, cross-cloud geodistributed business continuity, integrated pipeline, zero-copy cloning, cross-cloud governance, and Snowpark, which can push and run code on virtual warehouses. On Snowflake's superior roadmap are improvements in data sharing, governance, distributed data processing, pipelining, and workload management as well as further extension of self-service capabilities across regions.

  Snowflake excels in advanced CDW automation, ML/data science optimization, data protection, performance, scalability, and broad horizontal and vertical use cases. Snowflake has relatively few weaknesses in its current offering; data

modeling is a notable one. Reference customers report that Snowflake is exceptionally easy to use, delivers high performance and scale, works as designed, and has remained incident- and issue-free for years. However, they also raise concerns about cost control, growing ecosystem complexity, governance, and manageability. Snowflake is a great fit for enterprises seeking a self-service CDW with BI at the core that want to expand to support broader use cases, including ML/data science, data marketplace, and data collaboration.

- **Google has a scalable and performant CDW with a strong AI/ML focus.** Google BigQuery is a fully managed serverless CDW that utilizes columnar storage and can scale to hundreds of petabytes leveraging standard SQL. BigQuery integrates with Cloud BigTable, Google Cloud Storage, Cloud AI Notebooks, Dataplex, Looker, and Google Sheets, allowing users to join data across various systems. BigQuery focuses on high-speed, real-time data ingestion, fast data transformation, and automation with AI/ML to simplify administration. Google's partner ecosystem stands out; the Google Cloud Platform marketplace has more than 500 partner solutions and offers analytics hub integration for data sharing with thousands of commercial/public data sets. Google has a superior roadmap emphasizing a more open and intelligent CDW, broader data connectivity and streaming, data quality, distributed data governance, and multicloud.

  Google is strong in data lake integration, ML/data science workloads, in-database analytics, data streaming, performance, scale, multistructured data, high-availability (HA)/disaster recovery (DR), and broad use cases. However, its semantic data models are primarily supported through Looker and its LookML modeling language. Reference customers like Google's serverless architecture, high-end scale and performance, geospatial and robust AI/ML capabilities, and support for broad analytical use cases. Some have reported a lack of support for local regulation compliance and performance issues when dealing with complex multiregional queries. Google is an excellent fit for enterprises that need a CDW with high-end performance and scale to support large, complex analytical workloads, including real-time analytics, AI/ML-driven, and data collaboration workloads.

- **Teradata has exceptional analytics at scale and a strong vision.** Teradata Vantage is a hybrid multicloud data analytics platform that unifies data warehouses, data lakes, analytics, and new data sources such as sensor data, IoT data, social media, and clickstreams. It combines open source and commercial technologies to operationalize insights; enable descriptive, predictive, and prescriptive analytics; and deliver performance with high query concurrency.

Teradata's strong vision focuses on a strategy that includes AI/ML at scale, integrated data plane, data fabric, data mesh, semantic mapping, data intelligence, and hybrid multicloud. Teradata has demonstrated commitment to the category by working directly with customers (big and small) to ensure its current and planned enhancements align to customers' data and analytics strategies through meaningful partnerships. Teradata's roadmap focuses on expanding capabilities around data collaboration, data intelligence, data modeling, distributed query, and data governance.

Teradata's strengths are in-database analytics, scale-out optimization, deployment options, multiregional support, and a broad set of analytics use cases. Teradata can continue to improve its support for data lake integration, data access, multistructured data, data models, and HA/DR capabilities. Reference customers praise Teradata Vantage's hybrid cloud platform, reliability, elasticity, ease of cloud migration, integration with public cloud applications, and system tooling. However, some references report concerns about inconsistencies between on-premises and cloud in cost predictability and support services. Teradata is an excellent fit for firms that want to support hybrid cloud CDW deployment with progression toward data mesh and data fabric architectures where reliability and availability are critical.

Strong Performers

- **Amazon Web Services has been broadly adopted but lags in semantics and modeling.** Amazon Redshift is a mature CDW with broad capabilities and an expanding ecosystem to support any workload and use case. It is a fully managed, petabyte-scaled data warehouse that's part of analytics on Amazon Web Services (AWS). AWS's vision and roadmap are on par with others evaluated. Although AWS has offered innovative features in the past, its current innovative capabilities are on par with others in this evaluation. However, its strong partner ecosystem continues to help organizations support nearly any data and analytical requirement. The vendor's roadmap includes expanding capabilities to support data sharing; geodistributed data; zero extract, transform, load; advanced AI/ML; and improvements in performance and scale.

  AWS offers strong support for data lake integration, ML/data science workloads, data protection, compliance, performance, and a broad set of use cases. It is on par with others evaluated in in-database analytics, data access, multistructured data, deployment options, and administration automation. However, it lags in

offering semantic data models to help with various industry-specific deployments. Reference customers like AWS's data lake integration, Postgres compatibility, serverless architecture, reliability, resiliency, and AI/ML capabilities. Some references have concerns about the lack of clarity and predictability in serverless costs, data mesh and data fabric strategy, and advanced automation. AWS is a great fit for customers that want to migrate from on-premises to the cloud and need to support an integrated data warehouse with data lakes and AI/ML capabilities.

- **SAP has a solid CDW offering that is evolving toward a data fabric solution.** SAP joined the CDW bandwagon a few years ago, offering a unified data and analytics solution that enables you to connect, transform, model, and visualize data and gain real-time insights. SAP's strategy is shifting to focus on broader data and analytics offerings, including data fabric and data mesh, expanding support for workload management, intelligent data tiering, multimodel, and distributed queries. While SAP has a strong vision that focuses on delivering an integrated data fabric through advanced intelligence, domain semantics, automation, and personalized self-service experience, its roadmap for CDW is on par with others evaluated. It continues to make strategic investments to broaden its partner ecosystem, including integration with non-SAP environments.

  SAP's strengths are in-database analytics, semantic data modeling, data transformation, and visualization, but it lags in built-in data streaming, ML/data science optimization, high-end performance and scale, and HA/DR capabilities. Reference customers appreciate SAP's frequency of releases, technical support, ease of use, establishment of a common semantic layer, business value, and integration with enterprise resource planning data. However, some indicate SAP's solution is expensive, available skills lack, and cloud capabilities lag, compared with on-premises. SAP is a good fit for large organizations using SAP products or evolving their architectures from a data warehouse to a data fabric strategy.

- **Microsoft offers broad use cases but lags in automation and high-end scale.** Azure Synapse is an analytics service that combines data warehouse, data integration, real-time operational analytics, and data analytics to deliver a unified experience to ingest, explore, prepare, manage, and serve data for BI and ML use cases in a single cloud service. Microsoft's vision, roadmap, and innovation are on par, but it has a strong partner ecosystem of global and regional system integrator and ISV partners that go through a rigorous certification process to ensure standards across various vertical industries. Although Microsoft has a broad offering and adoption, it lacks the cutting-edge CDW capabilities to differentiate it

from the competition. Microsoft's roadmap focuses on improved data warehouse automation, data streaming, data security, data modeling, and AI/ML capabilities.

Microsoft has a broad range of data warehouse capabilities, mostly on par with others evaluated. Microsoft is a good fit for organizations looking to expand their traditional SQL server and Azure SQL data warehouses to support real-time analytics and broader CDW use cases. Microsoft did not provide any reference customers for this evaluation.

- **IBM offers a viable CDW but trails in innovation and high-end scale.** IBM Db2 Warehouse on Cloud is an elastic, fully managed CDW that delivers independent scaling of storage and compute to support various use cases. IBM is known for its in-database analytics, automated resource management, data models, and support for data fabric platforms. IBM's partner ecosystem is outstanding, and IBM's vision and roadmap are on par with the competitive set. However, IBM hasn't demonstrated innovation in the data warehouse space and is mostly playing catch-up with leading CDW vendors. IBM's roadmap promises improvements in its price/performance ratio, scale, data intelligence, open data formats, lakehouse integration, advanced automation, and cloud and hybrid deployment flexibility.

  IBM's key strengths lie in in-database analytics, data models, HA/DR, and broad vertical use cases. It needs to improve on ML/data science workloads, high-end performance, and support for multistructured data. Reference customers regard IBM's flexible platform, stability, vendor support, and data models positively. Some references called out performance and scale issues when dealing with very large data (hundreds of terabytes), while others have cited high-cost concerns. IBM is a good fit for customers that have Db2 or are looking to support the new generation of real-time analytics workloads spanning hybrid cloud and multicloud environments.

- **Alibaba Cloud has a viable analytical solution for global use cases.** Alibaba offers a broad range of infrastructure, platform, and analytics services, including MaxCompute, AnalyticDB, Hologres, and EMR to support various large-scale data warehouse use cases. Although most of Alibaba's CDW deployments remain in China, the products are available in 16 countries and regions, with customers in the finance, internet, biomedical, energy, transportation, and media industries. Alibaba offers real-time and exabyte-scale capabilities to support any CDW requirement. Alibaba has an on-par vision and roadmap. However, it lags other vendors evaluated in data warehouse innovation. Alibaba's roadmap emphasizes expanding capabilities around data streaming, data protection, global compliance,

data models, global data centers, and automation.

Alibaba is strong in data lake integration, ML/data science platform optimization, performance, and scale. However, it lags in data models and could improve automation, built-in data streaming, and multistructured data. Reference customers praise Alibaba's ML operations (MLOps) integration, scalability, serverless architecture, governance, and performance. Alibaba is a good fit for customers with presence in China that need to globally support large and complex data and analytics implementations for data engineering, data science, ML, customer 360, and operational analytics.

- **Cloudera excels in large-scale analytics but lags in automation and data models.** Cloudera Data Platform (CDP) delivers a broad data lifecycle ecosystem across hybrid and multiple clouds to support modern data-driven insights and analytics. Cloudera Data Warehouse fully integrates with CDP to provide easy-to-use self-service and advanced analytics use cases at scale. Cloudera's strategic advantage is its partner ecosystem, resulting from its long presence in the data platform market. Due to less alignment between its offering and the needs of the CDW market, Cloudera has a weaker roadmap than others in this evaluation. Its overall vision is on par with competitors. Forrester expects Cloudera to focus on distributed data processing, ease of use, observability, lakehouse, and improved management.

  Cloudera is strong in data lake integration, built-in data streaming, ML/data science optimization, multistructured data, multiregional deployment, and broad use cases. However, it lags in automation and semantic data models. Reference customers praise Cloudera's ML capabilities, support for open source tools, and price/performance. Cloudera is a good fit for customers that require data processing and persistence for large and complex data to support modern use cases, including data engineering, data science, ML, customer 360, and operational analytics.

Contenders

- **OpenText delivers a scalable low-cost CDW that needs better automation.** Vertica by OpenText is a massively parallel processing (MPP) shared-nothing data warehouse that scales to support CDW workloads. Vertica is optimized and preconfigured to run on multiple clouds and on-premises. Vertica's Eon Mode separates compute from storage and leverages low-cost S3 object storage, the ability to compute to variable workloads, and optimized analytical performance.

While Vertica's innovation is on par with other vendors evaluated, its roadmap and vision lag. Vertica's roadmap includes serverless, workload management, MLOps, and geodistributed data improvements.

Vertica is strong in in-database analytics, scalability, built-in data streaming, multistructured data, and broad use cases. Although it offers AI-automated data modeling capability, it lags in semantics. Reference customers like Vertica's reliability, scalability, and support. Vertica is a good fit for enterprises looking for a hybrid cloud and multicloud deployment that supports ease of deployment, in-database analytics, streaming data, and AI/ML capabilities.

- **Exasol has a reliable low-cost CDW solution but lags in high-end performance and scale.** Exasol is a fully managed, column-oriented data warehouse that supports real-time analytical use cases. Although Exasol is designed to run in memory, data is persisted to disk with ACID compliance and has self-tuning capabilities to optimize performance. Exasol's vision and innovation are on par with other vendors evaluated. However, its roadmap mostly plays catch-up on CDW capabilities. Exasol's roadmap emphasizes improved CDW automation, performance, scale, support for semantic-driven data modeling, broader HA/DR across geodistributed regions, and expansion of business use cases.

  Exasol is strong on deployment options, including support for on-premises and multicloud. However, it is on par with others in data lake integration, in-database analytics, built-in data streaming, administration automation, ML/data science optimization, data access and protection, and multiregional support. Exasol lags in high-end performance and scale and semantic data modeling. Reference customers like Exasol's reliability, cost, and technical support but have concerns about the scalability, performance, lack of administration tools, and partner ecosystem. Exasol is a good fit for enterprises looking for a low-cost solution for hybrid and multicloud environments to support real-time analytics for CDW deployments of fewer than 100 terabytes.

- **Tencent offers a viable CDW in the APAC region but lacks a differentiated roadmap.** Tencent Cloud offers a full-stack cloud-native data warehouse that focuses on supporting various BI and AI/ML data science use cases in an online and offline hybrid deployment. Tencent's roadmap and vision lag largely because the vendor's focus and investments have mostly been in data center infrastructure, IoT, security, and AI, with CDW not getting the spotlight. Also, Tencent offers no standout or differentiated capabilities in its CDW offering. Pricing flexibility and transparency have been strong, offering organizations a low-cost alternative.

Tencent's roadmap focuses on data services, data security, performance improvement, and collaboration.

Tencent is strong in scale-out optimization and built-in data streaming and on par with competitors for most other capabilities. Tencent lags the competitive set in semantic data modeling. Reference customers like Tencent's scalability, reliability, cost, and technical support but have concerns about compatibility in a multicloud environment, upgrade efficiency, customization of platform, and vendor lock-in. Tencent is a good fit for enterprises with a regional focus in APAC looking for a scalable solution with high-speed streaming data ingestion with AI/ML capabilities.

- **Yellowbrick offers a basic CDW for straightforward use cases of limited scale.** Yellowbrick Data Warehouse is a full-service MPP analytic database that runs in public clouds (e.g., AWS, Google Cloud Platform, and Microsoft Azure) and on-premises. It offers native real-time streaming ingest, hybrid cloud georeplication across data centers, and access to data from multiple public clouds simultaneously. Although Yellowbrick has doubled the number of partners over the past year with the addition of channel and cloud technology partners, it lags in supporting end-to-end data and analytical frameworks and complex migrations with partners for simplified implementations. Yellowbrick's innovation and roadmap are on par with other vendors evaluated, but its vision is not differentiated. Yellowbrick's roadmap focuses on performance, geospatial data, data lake integration, and scalability.

  Yellowbrick is on par with other vendors in administration automation, in-database analytics, built-in data streaming, data access, data protection, multistructured data, HA/DR, and multiregional support. However, many enterprise features trail others evaluated, including data lake integration, ML/data science optimization, high-end performance and scale, and semantic data models to support large-scale mission-critical analytical requirements. Reference customers voiced concerns about the backup automation, software release quality for major changes, partner ecosystem certification, FedRAMP timeline, and DR automation. Yellowbrick is a good fit for enterprises looking for a low-cost solution to support small to medium-size BI and SQL analytical workloads.

- **Actian's CDW lags in core features and best suits basic use cases.** Actian Avalanche Cloud Data Platform provides a unified experience for ingesting, transforming, analyzing, and storing business data. It offers flexible deployment options, including support for on-premises, cloud, hybrid, and multicloud environments. The platform goes beyond data warehouse capabilities to support

data integration, data management, and data analytics services for insights, analytics, and applications. Although Actian's vision and innovation are on par with other vendors, its roadmap is not differentiated. Actian mostly plays catch-up on foundational CDW capabilities. Actian's roadmap will likely see enhancements to the broader platform offering to improve data management, data marketplace, data sharing, and AI/ML.

Actian is on par with other vendors for administration automation, data lake integration, data access, data protection, and HA/DR capabilities. However, many key CDW foundational features lag the competition, including the in-database analytics, built-in data streaming, ML/data science optimization, performance, scale, multistructured data, data model, and multiregional support. While some reference customers praised the support and business value proposition, others expressed concerns around scalability and performance. Actian is a good fit for enterprises looking for a low-cost solution to support data warehouses with an eye to expand to broader data platforms, including data fabric and data mesh architectures.

Evaluation Overview

We grouped our evaluation criteria into three high-level categories:

- **Current offering.** Each vendor's position on the vertical axis of the Forrester Wave graphic indicates the strength of its current offering. Key criteria for these solutions include administration, analytics, security, performance, data types and model, and deployment.

- **Strategy.** Placement on the horizontal axis indicates the strength of the vendors' strategies. We evaluated vision, innovation, roadmap, partner ecosystem, adoption, and pricing flexibility and transparency.

- **Market presence.** Represented by the size of the markers on the graphic, our market presence scores reflect each vendor's revenue and number of customers.

Vendor Inclusion Criteria

Each of the vendors we included in this assessment has:

- **A comprehensive CDW offering.** A key component of the CDW architecture is leveraging the public cloud for all data warehouse functions including provisioning, persistence, processing, transforming, and accessing of data. The CDW should provide data access and monitoring tools, HA/DR options, automation

capabilities, and features to secure data, enable elastic scale, and support loading and unloading of data.

- **A standalone CDW service running in the public cloud.** The vendors included in this evaluation provide CDW services that organizations can implement or use independent of other analytics, data science, and visualization tools. The service being evaluated should not technologically tie to or bundle with any application or broader non-data-warehouse solution.

- **Data warehouse use cases.** The CDW should have customers supporting one or more of the following use cases — IoT analytics, customer 360, advanced analytics, and real-time analytics.

- **Referenceable install bases.** The CDW should have 25 or more unique paying customers using the CDW service that span more than one major geographical region. Each vendor must provide at least three customer references.

- **Forrester customer interest.** Forrester only included vendors that were mentioned several times by customers during Forrester inquiry calls during the past 12 months related to CDW topics.

Supplemental Material

Online Resource

We publish all our Forrester Wave scores and weightings in an Excel file that provides detailed product evaluations and customizable rankings; download this tool by clicking the link at the beginning of this report on Forrester.com. We intend these scores and default weightings to serve only as a starting point and encourage readers to adapt the weightings to fit their individual needs.

The Forrester Wave Methodology

A Forrester Wave is a guide for buyers considering their purchasing options in a technology marketplace. To offer an equitable process for all participants, Forrester follows The Forrester Wave™ Methodology to evaluate participating vendors.

In our review, we conduct primary research to develop a list of vendors to consider for the evaluation. From that initial pool of vendors, we narrow our final list based on the inclusion criteria. We then gather details of product and strategy through a detailed questionnaire, demos/briefings, and customer reference surveys/interviews. We use those inputs, along with the analyst's experience and expertise in the marketplace, to score vendors, using a relative rating system that compares each vendor against the others in the evaluation.

We include the Forrester Wave publishing date (quarter and year) clearly in the title of each Forrester Wave report. We evaluated the vendors participating in this Forrester Wave using materials they provided to us by April 7, 2023, and did not allow additional information after that point. We encourage readers to evaluate how the market and vendor offerings change over time.

In accordance with our vendor review policy, Forrester asks vendors to review our findings prior to publishing to check for accuracy. Vendors marked as nonparticipating vendors in the Forrester Wave graphic met our defined inclusion criteria but declined to participate in or contributed only partially to the evaluation. We score these vendors in accordance with our vendor participation policy and publish their positioning along with those of the participating vendors.

Integrity Policy

We conduct all our research, including Forrester Wave evaluations, in accordance with the integrity policy posted on our website.

FORRESTER

We help business and technology leaders use customer obsession to accelerate growth.

Obsessed With Customer Obsession

At Forrester, customer obsession is at the core of everything we do. We're on your side and by your side to help you become more customer obsessed.

Research

Accelerate your impact on the market with a proven path to growth.

- Customer and market dynamics
- Curated tools and frameworks
- Objective advice
- Hands-on guidance

Learn more.

Consulting

Implement modern strategies that align and empower teams.

- In-depth strategic projects
- Webinars, speeches, and workshops
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