



Highlights

- Simplify your journey to the cloud with integrated IBM data warehouse solutions
 - Continuously meet service-level agreements (SLAs) by adjusting workloads across cloud and on-premises data stores
 - Enable self-service access and facilitate analysis of large data volumes through in-database IBM® Netezza® and Apache Spark analytics
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IBM data warehouse solutions

Hybrid data warehousing to meet new analytics

IT groups today need a new approach to data warehousing—a modern one that enables them to respond rapidly to requests for analytic resources from business groups without increasing costs or complexity. For many IT groups, a hybrid data warehouse environment is the answer.

A hybrid data warehouse environment taps into cloud services to extend the traditional on-premises data warehouse. Integrating cloud and on-premises data warehouses lets you maintain control of your environment while reducing risks. You gain the agility to support changing business demands and the scalability to accommodate a growing amount of data, analytics capabilities and users.

Data warehouse solutions from IBM offer a low-risk approach to hybrid data warehousing. Quickly deploy integrated and elastic cloud data warehouse services to support new, time-sensitive business needs. Deliver high-performance analytic resources and enable self-service access to new data sets and analytic techniques, such as in-database Netezza, R and Spark analytics. Reduce administrative overhead by using the IBM Data Server Manager console to manage, monitor and adjust workloads across data stores to meet SLAs.



Simplify the path to cloud: Build your hybrid data warehouse environment with IBM solutions

IBM offers a deep portfolio of interoperable data warehouse solutions, including IBM Db2® products and IBM PureData® System for Analytics. These solutions share a common analytics engine, giving you choice in using the best data store—or the best combination of data stores—as your requirements change.

IBM Db2

Db2 offers a robust enterprise database with exceptional availability, massive scalability, deployment flexibility and a low total cost of ownership. Integrated IBM BLU® Acceleration® technology uses in-memory computing and other techniques to deliver breakthrough performance for data warehousing.

IBM Db2 Warehouse products

Db2 Warehouse products allow you to simplify your journey to the cloud by building a hybrid data warehouse environment. These products are flexible SQL databases built for the cloud and are available as IBM fully managed or client-managed services. You can deploy them as a stand-alone cloud data warehouse solution or integrate them with on-premises data warehouses as a hybrid data warehouse solution.

Built from the ground up by fusing IBM BLU Acceleration and IBM PureData System for Analytics (formerly Netezza) technologies, Db2 Warehouse products combine the agility of cloud with the simplicity of an appliance. The result is a high-performance analytics engine that melds in-memory processing with in-database analytics on a massively parallel processing

(MPP) architecture. But the real power of Db2 Warehouse products is their built-in Spark integration, which enables users to run SQL or Spark Analytics for machine learning and advanced analytics.

- **Db2 Warehouse on Cloud** is a fully managed, public cloud service on IBM Bluemix® and Amazon Web Services (AWS) that offers a SQL database optimized for analytic workloads. IBM also offers Db2 on Cloud—another fully managed service in the public cloud that supports transactional or operational workloads.
- **Db2 Warehouse** is a client-managed service that provides a SQL database optimized for analytic workloads in a software defined environment such as a private cloud, virtual private cloud or another infrastructure that supports Docker container technology. Choose Db2 Warehouse when internal requirements and other mandates require you to maintain control of your data on a private cloud or on premises.

IBM PureData System for Analytics

Powered by Netezza technology, IBM PureData System for Analytics is a data warehouse appliance that delivers built-in expertise and robust performance while simplifying your data warehouse and analytics infrastructure. Software licenses included with the appliance allow you to get started immediately with IBM Cognos® for business intelligence, IBM InfoSphere® DataStage® for data integration, and IBM Streams for real-time streaming analytics.

Why adopt a hybrid data warehouse approach?

- Leverage current investments while taking advantage of new analytics.
 - Respond quickly to new requests for analytic resources.
 - Maintain control of your environment and reduce risks.
 - Enjoy higher performance at scale without having to increase budget or learn new skills.
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Optimize your hybrid environment and free up capacity

The common analytics engine shared by data warehouse solutions from IBM lets you continuously optimize your environment by moving analytics workloads among on-premises, off-premises, fully managed and client-managed data warehouses with minimal or no application change (Figure 1). Choose the platform best suited for particular data, users or analytics requirements. Balance workloads to meet critical peaks and free up capacity for innovation.

When moving workloads, you also have the ability to leave data where it resides and federate queries using IBM Fluid Query to maintain consistent security and governance. For example, a IBM PureData System for Analytics application can use built-in Fluid Query to federate queries to Db2 Warehouse products, which quickly enriches the analysis and helps eliminate costly extract, transform and load (ETL) processes.

Data warehouse solutions from IBM deliver value-add features and integrated products.

- **Unstructured data sources:** IBM Cloudant®
- **Data loading and integration:** IBM Bluemix Lift, IBM InfoSphere DataStage, IBM Aspera®
- **Data virtualization:** IBM Fluid Query
- **Real-time processing:** IBM Streams
- **BI tools and analytics:** IBM Cognos, IBM Watson®, IBM SPSS®

IBM also helps make cloud database migration easy. For example, Db2 Warehouse products work with supported Db2 drivers, and are compatible with IBM PureData System for Analytics, Db2 and Oracle SQL.

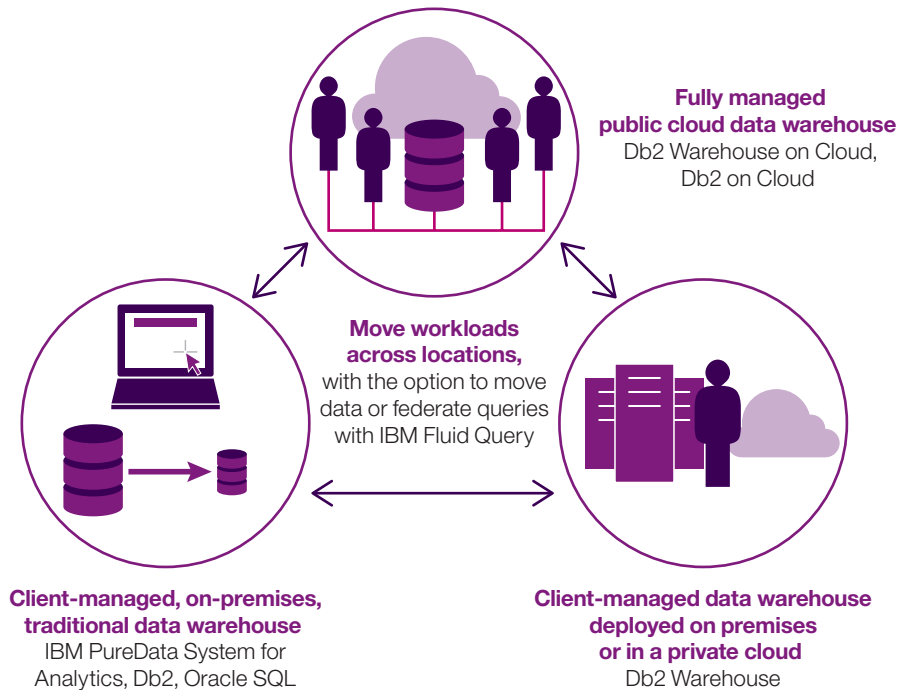


Figure 1: Create and optimize a hybrid data warehouse environment with data warehouse solutions from IBM.

Analyze all of your data, fast

Building a hybrid data warehouse environment with Db2 Warehouse products can help you achieve outstanding analytics performance. The Db2 Warehouse analytics engine combines IBM BLU Acceleration technology for in-memory processing and Netezza in-database analytics. MPP enables faster SQL and Spark query speeds and elastic scaling as demand grows. Analyze all available data with in-database analytics, with the option to use built-in Fluid Query capabilities to analyze other relevant data sources simultaneously to generate richer insights.

Capitalize on new data sources and analytic techniques to drive innovation

With Db2 Warehouse products as the foundation for your hybrid environment, you can tap into a wide range of new data types and sources—from mobile, web and Internet of Things (IoT) data to unstructured data from IBM and third-party sources. Use this variety of available data sources to test new applications, develop cloud-based services and enhance insights with geospatial analysis.

What makes IBM Db2 Warehouse products unique?

- **Fast time to value:** Start gaining new insight in minutes with immediate access to high-performance, in-database analytics including geospatial analytics and Spark analytics.
 - **Flexible cloud database:** Deploy Db2 Warehouse products as a stand-alone cloud data warehouse or integrate it with on-premises data warehouses and other data stores, such as Hadoop and Spark, for a hybrid data warehouse solution.
 - **Optimized data warehouse infrastructure:** Capitalize on the common analytics engine to move Db2 Warehouse workloads to the most optimal environment—fully managed, client-managed, public cloud or private cloud—based on your changing analytics needs.
 - **Open source integration:** Choose to run in-database R or Spark without having to move the data to specialized servers.
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Db2 Warehouse products also enable you to capitalize on integrated open source R, Python and Spark technologies to uncover new insights. Supporting these open source technologies can help you eliminate the need for additional IT resources and expertise while fostering innovation.

Streamline administration and continuously meet SLAs

Db2 Warehouse products are optimized for analytic workloads, removing the need to tune the data warehouse. From simple to complex, your queries run swiftly from the start.

The software defined environment approach used with Db2 Warehouse helps optimize the entire data warehouse infrastructure, including compute, storage and network resources. In addition, it can automatically provision resources to handle changing workload needs, and streamline updates and upgrades. It can provision a full data warehouse stack—including Spark—in minutes so you can manage the service in your own private cloud while maintaining existing operational and security processes.

Empower users with self-service access

When you build a hybrid environment with Db2 Warehouse products, you can give users easy self-service access to data and analytics resources. Once a Db2 Warehouse product is provisioned, a web console makes it simple for users to quickly load data from the desktop as well as from enterprise and Internet sources. Auto-schema generation capabilities allow users to start analyzing data in minutes with familiar business intelligence tools. No matter how you employ Db2 Warehouse products, your teams can start driving innovation without having to learn new skills.

Explore new use cases with Db2 Warehouse products

Using Db2 Warehouse products as the basis for a hybrid data warehouse environment opens the door to multiple use cases. Consider what you could do with the greater agility and deployment options afforded by a hybrid approach:

- Rapidly implement a dev/test ecosystem to test new applications and data sources before deploying them in a production data warehouse.
- Accelerate analytics projects by quickly standing up an integrated data mart service that supports new data types, such as IoT data, and new analytics technologies, such as Spark Analytics.
- Quickly build data-driven, born-in-the-cloud applications using mobile, web or IoT data captured and analyzed in a cloud data warehouse.
- Consolidate and integrate data silos by migrating on-premises data warehouses and data marts plus multi-vendor cloud databases into a cost-effective, high-performance cloud data warehouse.
- Create new software-as-a-service (SaaS) applications that offer self-service analytics tools for capitalizing on massive amounts of mobile, IoT and web data.

Start your journey to a hybrid data warehouse

Move beyond the traditional on-premises data warehouse with a hybrid environment that capitalizes on cloud capabilities while leveraging your existing resources. Db2 Warehouse products—part of the interoperable portfolio of data warehouse solutions from IBM—help speed the way to hybrid data warehousing. With Db2 Warehouse products, you can respond quickly to business requests and empower self-service access to new data sources and analytics techniques, while controlling costs and complexity.

How does a hybrid warehouse help a music festival improve the visitor experience and enhance sustainability?

Each year, more than 100,000 visitors gather for the Roskilde Festival in Denmark for 10 days of music and cultural celebration. Recently, festival organizers, the [Copenhagen Business School](#) and IBM worked together to find ways for making the festival more efficient, sustainable and enjoyable. Technology teams used IBM Db2 Warehouse on Cloud to store and analyze an array of structured and unstructured data collected during the event. With new insights into attendee traffic patterns and behaviors, vendors were able to fine-tune their mix of products and food, optimize delivery and staff schedules, reduce energy use and more. Learn more: <http://ibm.co/2nl7JwS>

For more information

Find out how Db2 Warehouse products change the data warehouse equation, sign up for a no-cost [trial](#) now.

Download a trial version of Db2 Warehouse or try out Db2 Warehouse on Cloud and Db2 on Cloud on the IBM Bluemix platform at ibm.com/bluemix

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