



Building Business Agility with Data Virtualization



Every organization realizes data is a strategic asset and needs a data management strategy to unlock the full potential of their data. Taking a technology-centric approach is necessary to solve data challenges such as the increasing volume, complexity, silos, integration, governance, security, and number of data sources.

Emerging trends in data management



Cloud data management

Most organizations are in some phase of the cloud adoption journey, with hybrid multicloud being very common. Although migration to the cloud assures performance and scalability, it opens up challenges in terms of integration (on-premises or multicloud), managing upfront or long-term costs, and security (protecting sensitive data).



Data fabric

Data, in various forms and complexities, is distributed across on-premises, hybrid, and multicloud infrastructures, potentially leading to data silos. Enterprises can avoid these issues by creating a data fabric, or an integrated data architecture, across their infrastructure. This enables them to more effectively manage and analyze data, as well as handle high-cost integrations, data replication, and a rising demand for real-time data sharing. A data fabric provides a unified way to access and analyze data enterprise-wide in real time, enabling faster integration, data governance, and security.

The key challenges organizations face while implementing data management solutions

Data silos

Data silos are the result of data that isn't integrated with enterprise-wide systems and is unable to be gathered and analyzed effectively. When this occurs, organizations have a limited ability to unify their data and maintain data integrity, resulting in data replication, increased storage costs, and a lack of collaboration within the enterprise.

Real-time data access

Enterprises are moving toward self-service analytics, and business users need real-time access to all the disparate data available, irrespective of its format, location, or type, for faster decision-making.

Data democratization, governance & security

Data democratization is an important aspect of becoming a data-driven enterprise. With the increases in both data volume and data users, the need exists to democratize data by making it available to employees throughout an enterprise. This entails ensuring trusted data is accessed and used in compliance with organizational policies; i.e., data is only accessed by the right users and used in compliance.

Data virtualization addresses each of these challenges by creating a logical data layer that integrates all enterprise data across the disparate systems, whether they be siloed on premises or in a private or public cloud. Data virtualization manages the unified data for centralized security and governance, and delivers it to business users in real time.

Five tasks data virtualization can help accomplish

Enable a data fabric architecture

Data virtualization can help build the unified logical data fabric to integrate physically distributed data:



It helps provide a single view of logically integrated, disparate data sources, along with supporting federated queries to these sources.



Users need not be aware of where the data resides or how to go about accessing it.



Data virtualization takes advantage of the underlying sources' processing power, along with any massively parallel processing (MPP) made available to it, for scalability and faster processing.

By using data virtualization to create a data fabric, businesses can integrate data across hybrid, multicloud data platforms, resulting in reduced data movement, a unified view of their data, and logical data warehouses.

Manage data integration strategies in the new hybrid world

For enterprises that have adopted a hybrid cloud infrastructure, data resides on premises and in the cloud (including multicloud platforms). Making sure that data is fully integrated and accessible despite its locations requires the use of data virtualization or extract, transform, and load (ETL) tools. Organizations also need to integrate new data sources as quickly as possible to obtain insights from them.

ETL is useful when data must be consolidated into a data warehouse and it can also be used for data mining or historical data analysis.

Data virtualization, on the other hand, connects to the disparate data sources and then abstracts, federates, and makes the data accessible to consuming applications in real time. It does not replicate data, leaving the data in the original source. It's a more agile way of integrating new data sources in comparison to ETL.

Data virtualization complements an enterprise's ETL operations and enterprise data warehouse (EDW) data sources by providing a unified virtual data layer.

It can help extend or enhance ETL and EDW activities by integrating new data sources, abstracting the location or complexity of underlying sources (in the cloud or on-premises), and provide a single view of data.

Handle data governance, lineage & security

By providing the unified logical layer for the underlying sources and single point of control to access data, data virtualization can enable enterprises to:



Manage metadata and understand where the data resides, along with its context.



Control access to data sources for security and governance purposes to comply with data privacy regulations.



Capture the data lineage of the data source, along with the aggregation or transformation information applied prior to data delivery.



Track dependencies and impact analysis for any change to the source system.



Integrate with other enterprise governance or metadata tools and version control systems.



Reuse enterprise authentication LDAP or AD policies or help create any custom security policies.



Provide granular security as needed (even on the row or column level).



Perform data quality validations.

Adopt self-service analytics

Self-service analytics is an approach to advanced analytics that enables businesses to conduct analyses, perform queries, and generate reports on their own, with minimal IT support. Powered by data virtualization, business users can access data seamlessly and in real time through a self-service model. No matter where the data resides, users can access it effortlessly via the logical data fabric.

By providing these benefits, data virtualization makes better and faster decision-making possible and significantly improves an enterprise's agility. It also frees the IT team and analysts from the burden of repetitive or simple tasks and lets them concentrate on other technical priorities.

Businesses can also make use of the catalog within data virtualization to find the data they need and improve the self-service experience. A data catalog offers data and metadata search capabilities to data analysts, business users, and application developers in a business-friendly manner that enables self-service exploration and analytics.

Enhance data sharing and consumption

Even though data virtualization can help integrate multiple disparate sources, the challenge of improving data consumption still exists. Hence, business teams need a data marketplace or data exchange built on top of the data virtualization platform to improve data sharing and collaboration. This can also help create new data products (any packaged application or tool using data assets to improve business decisions and processes) and lead to data monetization.

Wipro's Data Marketplace is a one-stop shop for meeting these needs, with Denodo's data virtualization platform as the foundation. As a simple platform that obtains data from across enterprise systems, Data Marketplace provides users with a fast and effective way to find the exact data they need, resulting in streamlined data operations. Some of its features include:



Categorization: Data Marketplace organizes data into relevant categories to simplify browsing experiences. For example, a researcher seeking health data doesn't need to browse through unrelated data sets about customers, employees, or other data.



Curation: It selects and qualifies data sets, describes each data set, and collects and manages metadata about the collection and each individual data set.



Cataloging: The platform exposes data sets for data shoppers, including descriptions and rich metadata. It provides a view into the inventory of curated data sets, delivering powerful search features.



Governance and security: Embrace self-service data access while maintaining control and governance. Data consumers have the ability to report any anomalies in cataloging, curation, and categorizing data, leading to improvements in the quality and value of the available data.



Paving the way to data monetization via data as a service (DaaS)

Data in itself has value, which can grow the more ways it's utilized and the more meaningful insights are drawn from it. An approach that businesses can take to maximize their use of data is data monetization, which is the ability to increase the economic value of data. With data monetization, organizations can treat data as a business asset and benefit financially from maximizing its value. Data can either be leveraged internally to improve productivity, operations, and services, or externally to create new revenue streams by making data available to customers and partners.

To achieve their data monetization goals, businesses can adopt a data as a service (DaaS) model and achieve greater business agility.

Data virtualization provides an effective way to fuel DaaS, which helps:

- Manage the massive amounts of data that organizations generate every day and use it to improve decision-making.
- Provision data from a variety of sources on demand through application programming interfaces (APIs).
- Simplify access to data and deliver curated data to be consumed in different formats.
- Take advantage of increasingly vast and complex data sources to deliver the most important insights to users.
- Democratize data for any business wanting to turn data into a truly valuable asset.

Monetizing data is still a relatively new experience for many organizations. With data increasing at an exponential rate, the companies that understand its potential and monetize it will have an advantage over their competitors.

The Wipro advantage

Wipro has deep data management expertise across a wide variety of industries, including manufacturing, banking, insurance, telecommunications, healthcare, and energy. Based on our domain knowledge and experience, we enable companies in these sectors to

transform their data management operations with implementations that improve business processes and outcomes. Wipro works in collaboration with our clients to ensure our solutions meet their long-term goals, and our technology expertise drives our ability to meet intricate, industry-specific business requirements with innovative new solutions.

The Denodo advantage

Denodo is the leader in data virtualization, providing agile, high-performance data integration, data abstraction, and real-time data services across the broadest range of enterprise, cloud, big data, and unstructured data sources at half the cost of traditional approaches. Denodo's customers across every major industry have gained significant business agility and ROI by enabling faster and easier access to unified business information for agile BI, big data analytics, Web and cloud integration, single-view applications, and enterprise data services.

The Denodo Platform offers the broadest access to structured and unstructured data residing in enterprise, big data, and cloud sources, in both batch and real time, exceeding the performance needs of data-intensive organizations for both analytical and operational use cases, delivered in a much shorter time frame than traditional data integration tools.

The Denodo Platform drives agility, faster time to market, and increased customer engagement by delivering a single view of the customer and operational efficiency from real-time business intelligence and self-serviceability.

The award-winning Denodo Platform, already known for the broadest connectivity to structured, unstructured, and nontraditional data sources and universal applicability to both operational and analytical use cases, accelerates fast data strategy with its new 8.0 data virtualization product that delivers breakthrough performances in big data, logical data warehouses, and operational scenarios; accelerates solution adoption with data virtualization in the cloud; and expedites the use of data by business users with self-service data discovery and search. Companies can make rapid decisions with real-time performance, achieve the shortest time-to-data with on-demand product availability, and improve business-user productivity with unconstrained access to data.

Some of the key features of the Denodo platform include



Cloud-native deployments, available through AWS, Azure, or Google Cloud Marketplace.



Support for data science by providing integration with Apache Zeppelin as well as other key data science tools.



Performance acceleration for complex analytical scenarios.



Enhanced data services and API support with GraphQL.



A web-based user interface with SSO integration capabilities.



Visual Design Studio for the rapid development of data views and data services.



Integrated machine learning (ML) and an assisted active data catalog.



A modern data services layer with automated no-code creation and the deployment of data APIs using the latest standards, including OAuth 2.0, SAML, OpenAPI, OData 4, and GraphQL.

Denodo truly is the industry-leading data virtualization vendor with over 20 years' experience in the data management marketplace.

Industry-specific solutions

The following examples are based on real companies leveraging the combined Wipro–Denodo solution to gain tangible benefits:

Energy

The largest energy company in Europe made substantial investments in a data warehouse but still faced challenges: Business users were unable to access data quickly enough and often had to rely on

IT to initiate projects for integrating the data. Upper management, in turn, was critical of the costs these projects pulled from other areas of the enterprise. Wipro and Denodo worked with the client to establish a data services marketplace for delivering trusted, integrated data to business users in a self-serve fashion, with IT provisioning this capability more efficiently. This new data delivery platform accelerated data delivery speeds by as much as 70% and enabled IT to perform higher-priority initiatives.

Telecommunications

The enterprise data were federated across various databases Hive, Impala, MySQL, Vertica, and the business users needed reports to be built on integrated data. Due to huge manual efforts, business teams had to wait for more time to work on those integrated data reports. The client needed Self Service capabilities with limited IT dependency.

Wipro's data virtualization solution enabled a logical layer of integrated data view to provide data to specific business groups based on user roles. It provide end users with direct access to the data with no intervention of IT. The solution helped the client with 40% cost saving enabling customer use cases like reliability analysis and condition monitoring.

Healthcare

The client's data from clinical trials, safety procedures and pharma R&D were stored in multiple intractable & disparate systems, in different formats, across different business functions and geographic regions. Existing data access processes were inefficient and counterproductive.

Wipro built a unified data fabric to Connect to data sets in real time without replication enabling end-users consume data through web services. Single access point for the R&D Data Science ensured delivery consistency and enabled Data Scientists to work more on analytic use cases, rather than spending time on data wrangling.

Financial Services

For a global ratings company, manual processes were creating inefficiencies and delays in service deliveries (Time to market), impacting the customer experience. In addition, the legacy product landscape was not scalable to enterprise data consumption needs and use cases. The client also wanted to provide self-service offerings to create what-if scenario analysis capabilities to create new evaluation possibilities.

Wipro created an API-driven scalable architecture and implemented a unified data fabric across the organization data landscape, leveraging the leading data virtualization platform from Denodo. This new age data modernization coupled with real-time analytics and visualization helped provide single view to data stored across 61 scattered database systems. The automated ratings process helped increase operational efficiency by 20%, improving time to market for roll out of its new product and features. The future-ready platform provided a new set of capabilities to its customers including uncovering hidden credit risk profiles.

Manufacturing

The enterprise data for a medical device manufacturer were stored in multiple ERP and legacy systems in different formats, across different business functions, and geographic regions. The customer was producing high volume operational data, and had duplicated/redundant reporting processes.

Wipro built a data fabric to connect to source data systems leveraging machine learning, ad-hoc analytics and visualization and enabled near real time data access (from 2 business days to 2 hours for sales reporting). The bi-directional virtual data fabric abstracts physical system properties, simplifies accessing/combining data sets, enables staging database for caching and keeps data in the native source system saving 50% time over traditional ETL projects. The solution led to Implementation of various uses cases in supply chain, corporate finance, master data management, quote to cash, customer 360 degree view and IT strategy to operations

Our denodo competency & partnership

- **Wipro** is a **gold partner** of Denodo.
- We have **150-plus** Denodo-certified consultants across over **20** global rollouts and engagements.
- Our combined expertise drives our **collaborative innovations** and provides unique solutions built on leading-edge technology platforms. .
- We deliver **industry-specific go-to-market (GTM) alignments** that facilitate knowledge sharing.
- **Our technology-sharing** practice ensures we have priority access to vendors' premier products, educational resources, and technical services.
- **Our joint centers of excellence** monitor our solutions' performance, competency development, and beta testing and they provide proof of concepts (POCs) as well as our customer success stories showcase.
- **Our proven delivery** and execution methodology is the basis for our clients' digital transformations.
- **Wipro** is a **platinum sponsor** of Denodo's APAC, EMEA, and AMERICAS **Datafest** events.

“Our collaboration with Wipro has helped transform business processes for Fortune 500 companies. As one of our top GSI partners globally, Wipro provides deep expertise in data virtualization and data-integration tools with more than 170 consultants trained on the Denodo platform. I expect the Wipro–Denodo partnership to grow exponentially in the near future, establishing Wipro as a preferred partner for data management, leveraging the Denodo platform,”

Susan Eckenberger,
Partner and Channel Sales Director
at Denodo.

Wipro and Denodo are helping organizations around the globe accelerate their data and analytics transformations with customized data virtualization solutions. Together we offer effective, unique methods for modernizing data strategies and developing logical data catalogs that provide real-time access, resulting in better quality information and reduced costs.

About Denodo

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For more information, visit
www.denodo.com
Email: info@denodo.com





Wipro Limited

Doddakannelli,
Sarjapur Road,
Bangalore-560 035,
India

Tel: +91 (80) 2844 0011

Fax: +91 (80) 2844 0256

wipro.com

Wipro Limited (NYSE: WIT, BSE: 507685, NSE: WIPRO) is a leading global information technology, consulting and business process services company. We harness the power of cognitive computing, hyper-automation, robotics, cloud, analytics and emerging technologies to help our clients adapt to the digital world and make them successful.

A company recognized globally for its comprehensive portfolio of services,

strong commitment to sustainability and good corporate citizenship, we have over 200,000 dedicated employees serving clients across six continents. Together, we discover ideas and connect the dots to build a better and a bold new future.

For more information,
please write to us at info@wipro.com