



The Denodo Platform for Azure

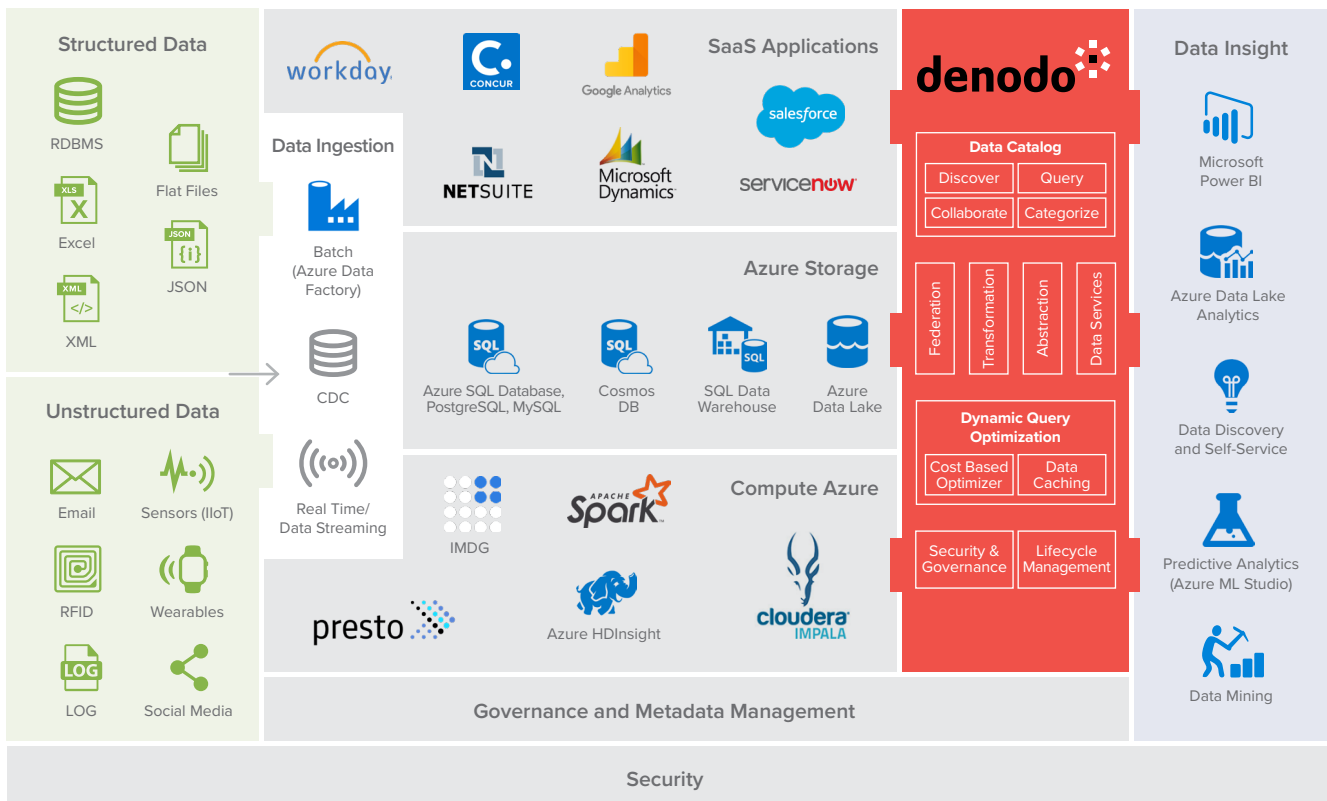
Data Management Reimagined

The Denodo Platform for Azure integrates all Microsoft Azure data sources – SQL Data Warehouse, Cosmos DB, SQL Server databases, HDInsights, Azure Data Lake, and more, including SaaS applications, such as Salesforce and Microsoft Dynamics – to deliver a standards-based data gateway that makes it quick and easy for users of all skill levels to access and use their cloud-hosted data. The Denodo Platform’s easy-to-use tools enable data engineers and integrators to quickly prepare integrated data sets for analysts to use in their Azure-based analytical sandboxes, while the Denodo Platform’s Dynamic Data Catalog enables data stewards to tag and categorize data assets for easy discovery.

Leveraging Azure’s flexible rent-by-the-hour licensing, the Denodo Platform for Azure is offered at a wide range of pricing options, including paying by the number of data sources or the volume of concurrent queries and results. The Denodo Platform for Azure offers the same features as the award-winning on-premises version of the Denodo Platform.

The Denodo Platform accelerates performance in big data scenarios by leveraging massively parallel processing (MPP) processing capabilities with support for Spark, Impala, and Presto, and its Dynamic Data Catalog provides easy access to needed data. Using the Denodo Platform for Azure as a cloud data gateway enables advanced analytics use cases such as analytical sandboxes (using Azure ML Studio), customer 360° analytics, and cloud data catalogs, and it simplifies the implementation of hybrid data architectures.

Denodo Reference Architecture - Azure



Licensing and Deployment Options on Azure

The Denodo Platform for Azure can be deployed in the Azure Cloud to support a distributed information architecture. It can be deployed via one of three options, and customers can choose the one that best meets their needs, depending on a variety of factors such as data-source location, the number of users and consuming applications, and the volume and type of queries.

1. Using cloud **Infrastructure-as-a-Service (IAAS)** and leveraging **BYOL (Bring your Own License)**. This option is best for customers with complex architectural deployments. Licensing is based on the number of cores on which the Denodo Platform is installed.
2. Using the **Azure Cloud Marketplace**. This option provides pay-as-you-go flexibility and self-serviceability. This option provides multiple offerings based on the number of data sources that customers need to connect to, as shown in the table below.

Offerings available on the Azure Marketplace

UNRESTRICTED	RESTRICTED BY DATA SOURCES
<p>This category has one option, unrestricted, which allows users to connect to an unlimited number of data sources without restrictions on the number of concurrent queries or returned results. This unleashes the full enterprise capabilities of the Denodo Platform for Azure.</p>	<p>This category has four options, enabling users to select between two and ten data sources. For each of these options, there is no limit on the number of queries or result sets.</p> <ul style="list-style-type: none">• 2 data sources• 5 data sources• 8 data sources• 10 data sources

Data Virtualization Use Cases in the Cloud

Abstracting SaaS APIs in the Cloud: Enables traditional reporting tools to work with any kind of SaaS API. For example, for SQL-to-SaaS processes, data virtualization abstracts SaaS APIs (usually REST services) as part of a relational model and avoids replicating cloud data back to the data center.

Integrated Security for Cloud Sources: Data virtualization acts as a gatekeeper to the cloud, extending cloud sources with limited security features. This enables single sign-on (SSO) for external sources and the integration of local users and groups (LDAP, Windows AD) with cloud sources that do not offer such capabilities by default. It also enables fine-grained security such as column and row level restrictions and masking and integration with cryptographic appliances.

Simplifying Cloud Migration (Data warehouse modernization or data lake creation): Data virtualization acts as a common access point for both internal and external data sources, providing a single schema with no replication: Virtual data lakes enable the combination of data across sources, regardless of type or location, enabling the definition of a common semantic model across disparate sources.

Machine Learning/Artificial Intelligence (ML/AI) and Data Science in the Cloud: Customers can now leverage the power of Denodo data catalog functionality to search and tag the right datasets for analytics and ML projects. This will also help data scientists to combine data stored in the virtual data lake and data virtualization layer to build models in a quick and easy manner, putting cloud elasticity to work, and using the data lineage capabilities of the Denodo Platform to access all of the data in a governed fashion.

Key Data Sources Supported in the Azure Cloud

- **SQL Data Warehouse and SQL Database** (Azure Database for MySQL, Redis Cache, Microsoft SQL Server, PostgreSQL) – Easily connect using the SQL DW JDBC driver or native database JDBC drivers.
- **Azure Databricks, HDInsight** – Run popular open-source frameworks, including Apache Hadoop, Spark, and Kafka. Databricks support in-memory Spark Clusters processing.
- **Blob Storage** – Access data stored in Blob storage files directly from the Denodo Platform. Access CSV, JSON, XML, delimited, and Parquet files in Azure Blob storage.
- **Snowflake, Presto** – Snowflake is a cloud-based data warehouse as a service (DWaaS) offering on Azure. Connect to Snowflake using the Snowflake JDBC driver.
- **A Wide Variety of SaaS Data Sources** – These include Microsoft Dynamics 365, Salesforce, and ServiceNow.

Cloud-Specific Features and Optimizations in the Denodo Platform for Azure

- Specific connectors for cloud-based databases (SQL DW, Snowflake, Spark SQL. etc) and native bulk-data load techniques for query optimization and caching support
- Highly configurable vendor- and version-agnostic connectors for REST and OData, enabling connection to any HTTP API endpoints.
- Support for different formats (XML, JSON, CSV) and HTTP methods (GET, POST), Native support for OAuth, NTLM, SPNEGO, etc.
- Native SFDC adapter with full SOQL support, taking advantage of Salesforce-specific query language
- Caching with incremental queries (Merge cached data and fresh data to provide fully up-to-date results with minimum latency)

Best Practices for Architectural Considerations

The Denodo Platform can be deployed and used in a multi-cloud environment. It can be installed on-premises in the cloud, or both, to support a hybrid configuration. Ideally, it should be installed closer to where the majority of data sources reside, to minimize data movement through the network. The cache should be in the same location as the Denodo server (e.g. Azure SQL Database). The Denodo Platform for Azure enables users to start small and scale easily by increasing the number of cores or data sources. Users can also scale horizontally by adding more virtual images and leveraging Azure auto-scaling groups (scale sets) to manage the scaling. This can reduce costs in scenarios with highly variable loads (e.g., when the load is heaviest during end-of-the month report processing).

14-DAY FREE TRIAL

A [free 14-day trial](#) of the Denodo Platform on Azure Marketplace is the fastest way to get started with a fully functional Denodo Platform environment. Start small and grow at your own pace. The Denodo Platform for Azure offers a variety of deployment options, such as unlimited data sources, depending on the scope and complexity of each customer's environment. Technical support is included.



Those new to the Denodo Platform can also leverage the free Denodo [Test Drive](#) on Azure, which provides a quick and easy way to get started.

Sample List of Customers Leveraging the Denodo Platform for Azure



TransAlta



Data virtualization has been helping us ensure a smoother transition to the cloud environment but also it is very important for us in terms of data governance for multiple compliance reasons and also for integrations with many applications. We use it heavily in this regard, minimizing ETL and accelerating our time to deliver on our integrations to many users.”

Alejandro Ocando, Business Analyst Consultant, TransAlta



Denodo Technologies 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.