

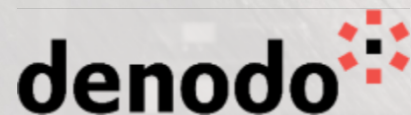


Enterprise Data Management
DEMO DAY

Denodo Data Virtualization and Data Integration

Building a Modern Enterprise Data Architecture

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Gartner Data Management Hype Cycle – DV and LDW



“Data Virtualization can be deployed with **low risk and effort** to achieve **maximum value**.”

Data Virtualization is a key component for **Logical Data Warehouse, Data Fabric, Data Hub, Microservices Architectures**

2020 Gartner MQ Data Integration – Denodo Leader






- “Fastest Growing DI Vendor” among Leaders
- Ability to handle multiple DI styles
- “Logical Data Fabric” positioning
- Augmented Data Integration
 - AI/ML, Data Prep
 - Active metadata
- Hybrid/multi-cloud integration

Visit Denodo website for more details:

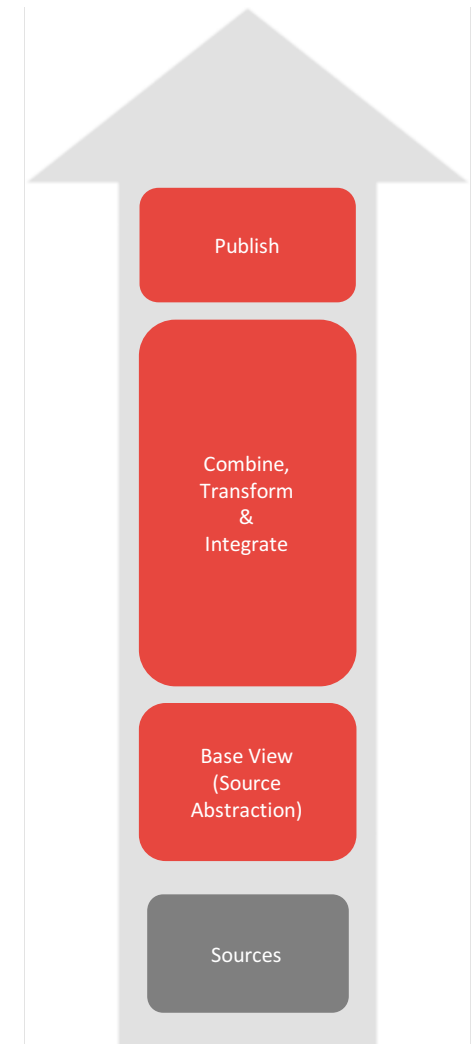
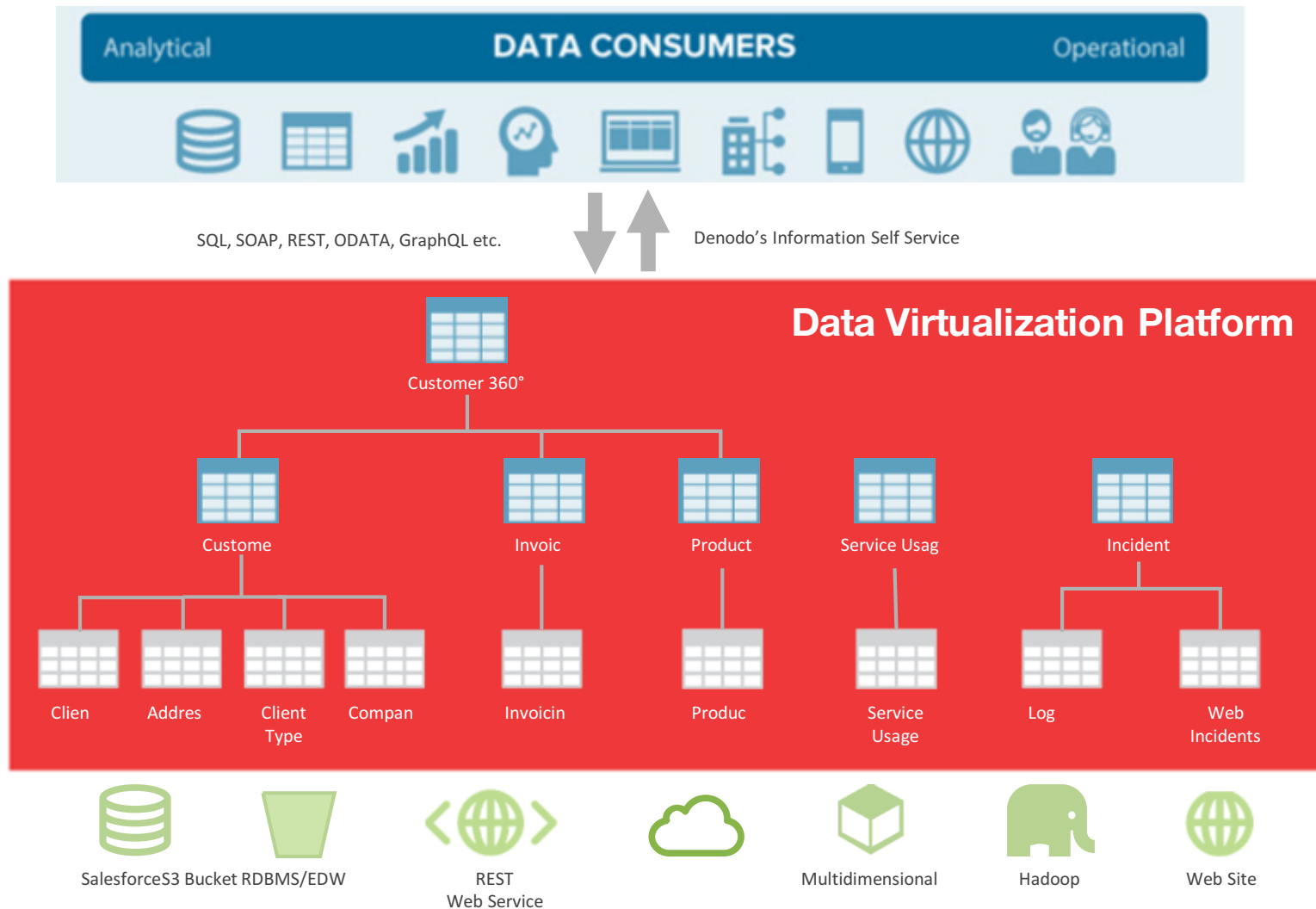
- <https://www.denodo.com/en/document/analyst-report/2020-gartner-critical-capabilities-report-data-integration-tools>
- <https://www.denodo.com/en/2020-gartner-magic-quadrant-data-integration-tools>

Data Virtualization, ETL, ESB Compared

Guiding principles on when to use DV versus other methods for data delivery are driven by your non-functional requirements (use cases, TCO, time-to-market)

	Physical Movement and Consolidation 		Logical Abstraction and Virtual Integration 	Synchronization and Propagation 
MIDDLEWARE	ET	CDC	Data Virtualization	EAI / ESB
PURPOSE	DB ↔ D	DB ↔ DB	DB ↔ Applications	Application ↔ Application
MODEL	Schedule	Event Driven	On demand	Event Driven
STRENGTHS	<ul style="list-style-type: none">▪ Building DWs and MDM Hubs▪ Complex workflows and DQ▪ Historical data and cubes		<ul style="list-style-type: none">▪ Distributed access and delivery▪ Agility and timeliness▪ Logical Data Warehouse	<ul style="list-style-type: none">▪ Business process automation▪ Transaction propagation▪ Messaging with small payloads

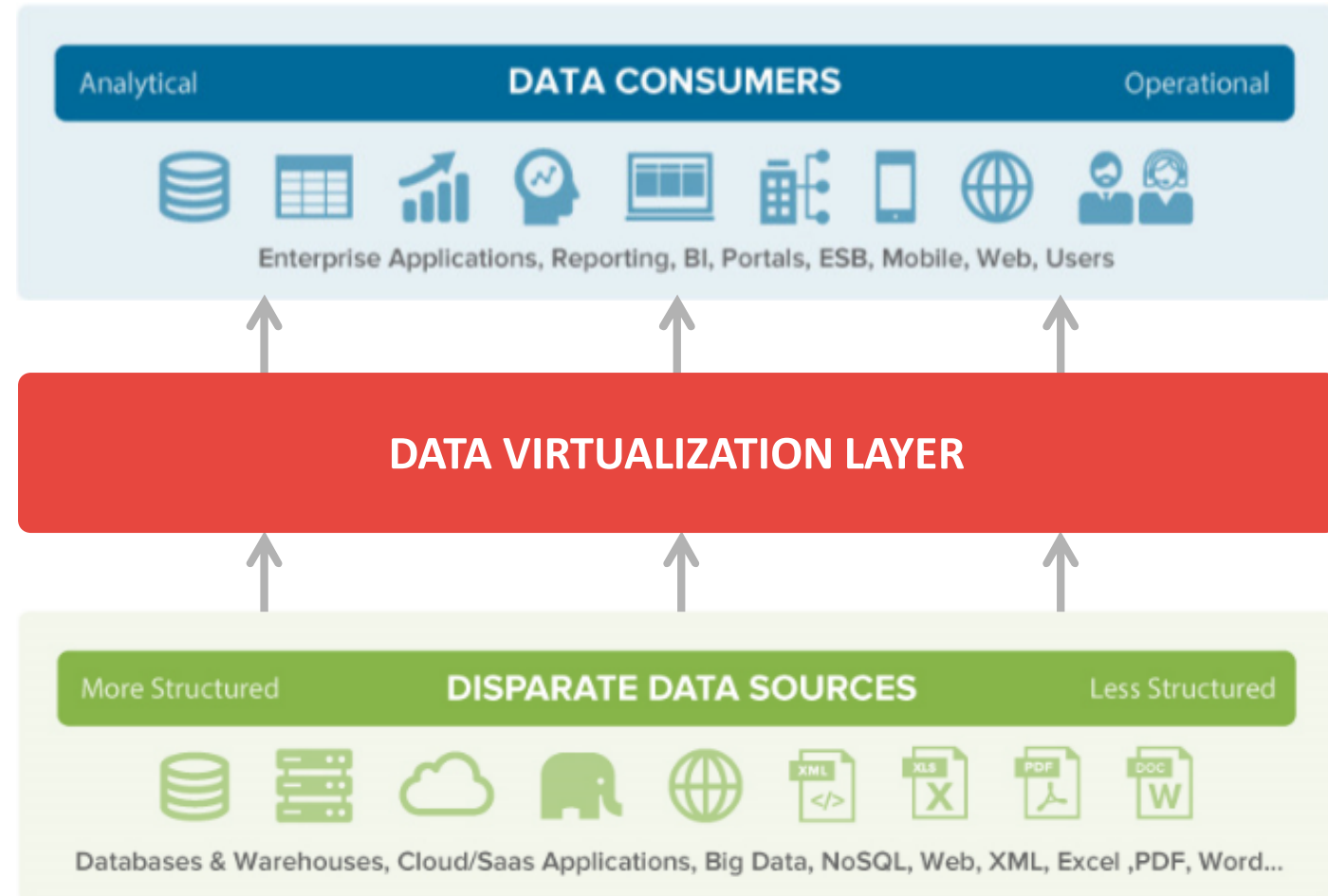
How Does It Work?



6 Essential Capabilities and Benefits of Data Virtualization

Unified Data Integration and Rapid/Agile Delivery of Data to Business

1. **Single Access Point to Data** – consumers decoupled from data sources (location agnostic)
2. **Semantic/Abstraction Layer** - Data in business friendly form (abstracts data source formats)
3. **Real-time information, Zero replication** – agility, lower costs, flexibility
4. **Access from any Tool / Protocol** – ODBC / JDBC / Data service / API Layer (microservices), etc.
5. **Centralized Metadata, Security & Governance**
6. **Self-Service Data Services** - Data Catalog

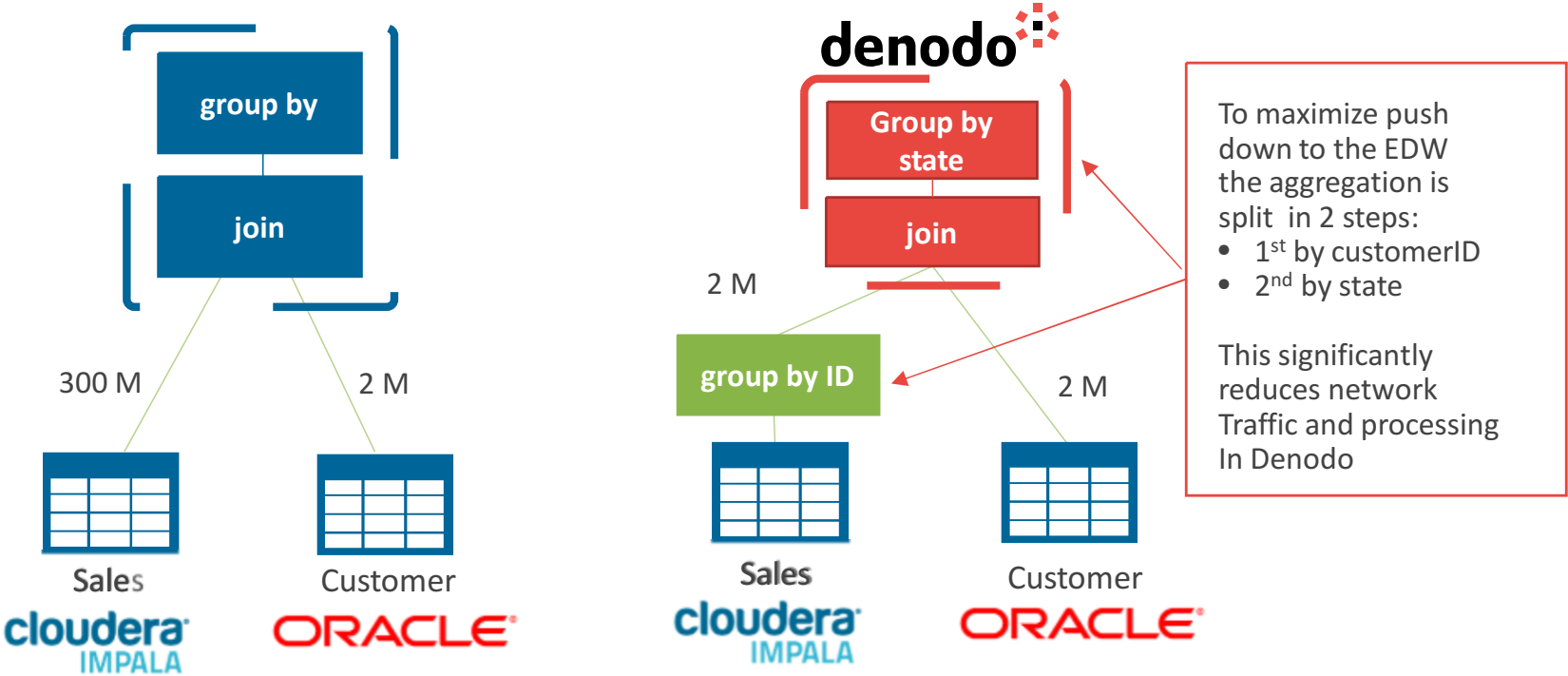


Performance Optimization

How does Denodo compare with some other tools

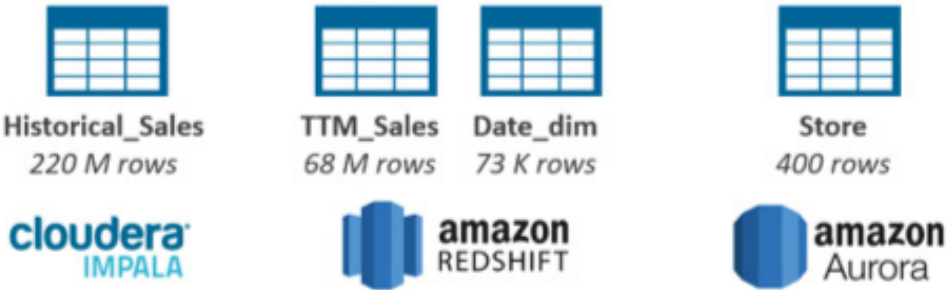
```
SELECT c.name, AVG(s.amount)
FROM customer c JOIN sales s
ON c.id = s.customer_id
GROUP BY c.state
```

System	Execution Time	Data Transferred	Optimization Technique
Denodo	9 sec	4	Aggregation push-down
Others	125 sec	302	None: full scan



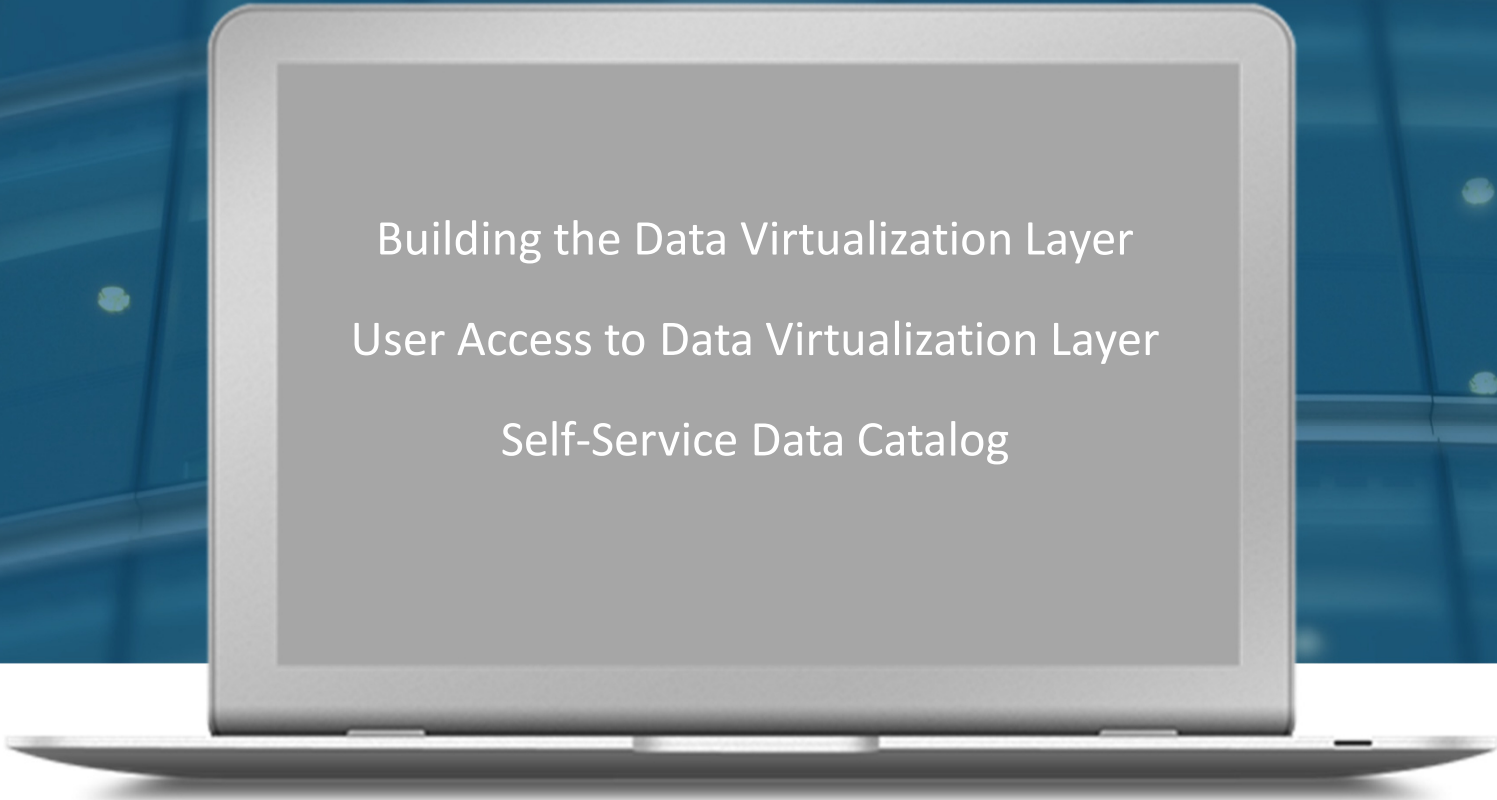
Query Acceleration with Aggregate Awareness

- TPCS-DS data:
 - Distributed in 3 different systems
 - Tables with hundreds of millions of rows
- Summary: total sales by store id, sold_date_id



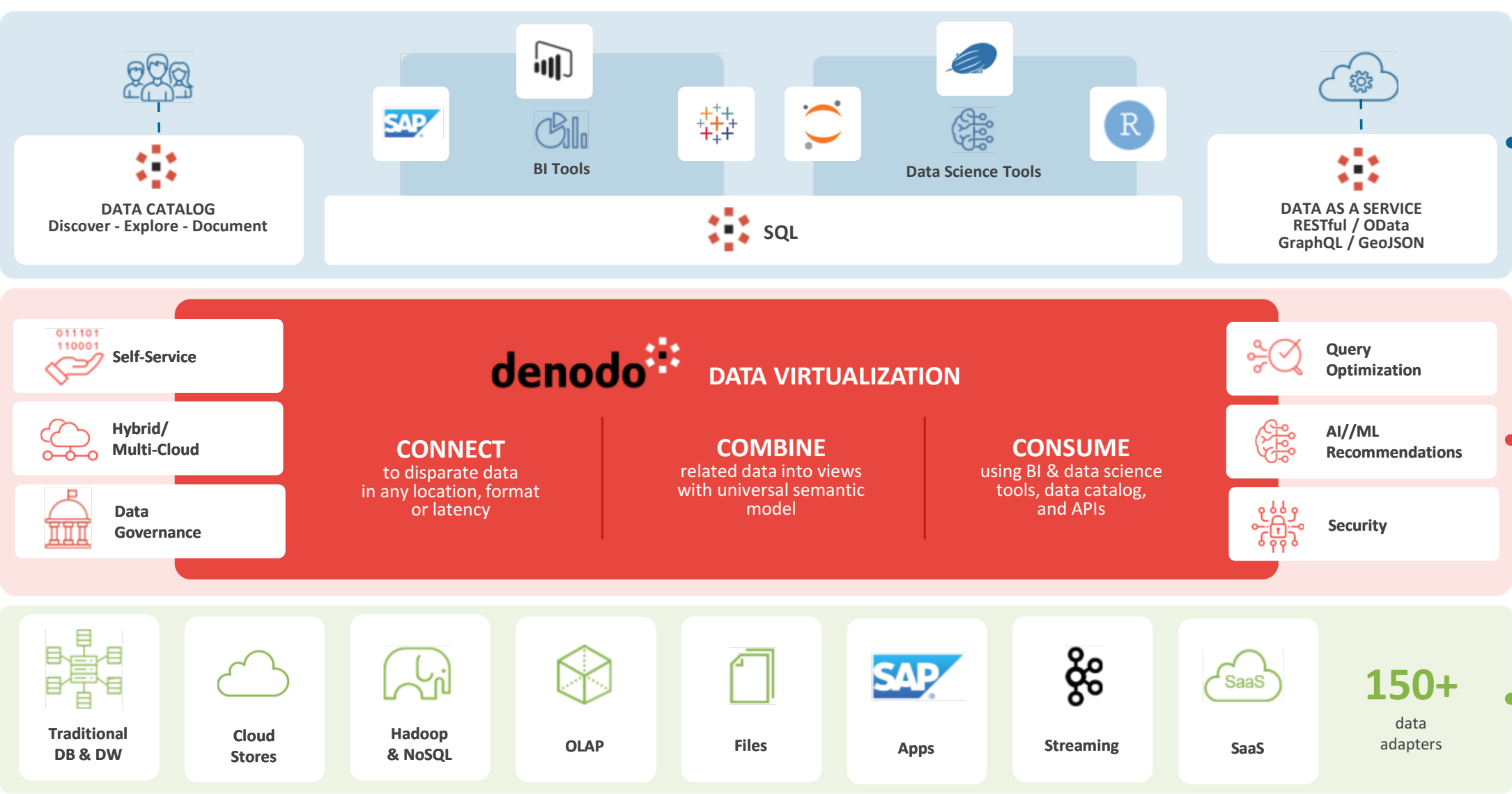
Query	Execution Time (no acceleration)	Execution Time (acceleration)	Performance Gai	Summary used
Total sales by year	15.45	2.38	6.5	summary_total_by_store_day
Total sales by quarter, store name and city	22.49	2.62	8.57	summary_total_by_store_day
Total sales by store and City for last quarter	14.71	0.47	31.1	summary_total_by_store_day
Total sales in a specific store	14.36	2.66	5.39	summary_total_by_store_day
Total sales in a specific store and year	14.32	3.18	4.0	summary_total_by_store_day

Demonstration



Building the Data Virtualization Layer
User Access to Data Virtualization Layer
Self-Service Data Catalog

Denodo Data Virtualization Platform



Key Take-Away



“ Through 2022, 60% of all organizations will implement **data virtualization** as one key delivery style in their data integration architecture”

Source: Gartner Data Virtualization Market Guide, Dec 2018

- Benefits
 - Quickly deliver data to users and business units
 - Enable user self-service to all your data in a secure and governed manner
 - Agility, Flexibility, Speed, Rapid prototyping
 - Lower costs and increased productivity
 - Abstraction layer – Migration to the cloud, Decouple and Futureproof your IT architecture

Denodo Resources

www.denodo.com

- [Denodo DataFest 2020 Conferences](#) (online for 2020)

- APAC: Nov 24-25
- EMEA Dec 2-3
- AMERICAS Dec 9-10
- JAPAN: Dec 16



- [Denodo Test Drives on AWS, Azure and GCP](#)

- [Denodo Express download](#)

- [On Demand Webinars](#)

- [Analyst Reports](#)

- [Case Studies](#)

- [Data Virtualization for Dummies](#)

Thanks!

Q&A