Digital Transformation for Federal Agencies

Forward-Thinking Agencies are Leveraging Data Virtualization to Gain Unprecedented Agility and Constituent Responsiveness

SOLUTION
Data Virtualization for Federal Agencies

WEBSITE
www.denodo.com

PRODUCT OVERVIEW
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 timeframe than traditional data integration tools.

As industries continue to engage in digital transformation, enabling people to interact with organizations in a more seamless, intuitive manner, people are naturally beginning to expect that government agencies will follow suit.

Unfortunately, as Gartner observed, in *Transitioning to Digital Government Primer for 2018*[1], "The structure of government has remained largely the same for more than half a century, even as citizen expectations have outpaced government's ability to address them. The process improvements of earlier e-government programs have yet to produce integrated, cross-organizational service models that deliver better outcomes for citizens."

To successfully undergo digital transformation, federal agencies will need to undergo changes at many levels of the organization. In particular, they will need to:

1. **Strengthen security, safety, and risk tolerance.** Digital transformation includes integrating between widely heterogeneous sources, but this cannot be supported unless security and safety are givens, and risk is effectively managed.
2. **Modernize to cloud-based infrastructure.** Cloud technologies are an essential component of most modern infrastructures, but such modernizations can be costly. Agencies need to minimize modernization costs and any associated downtime.
3. **Enhance analytics.** By integrating a wide variety of disparate systems, agencies can engage in more powerful analytics, to aid in faster, more effective decisions.
4. **Improve operations.** To be optimally effective, agencies must also be able to implement systems for capturing real-time data from transactional systems and levering this data for improving operations.
5. **Optimize costs.** In addition to cloud migrations, digitization itself is inherently costly, so agencies undergoing digital transformation must find ways to optimize cost.

Data virtualization is a modern data integration technology that facilitates digital transformation by enabling each of the above activities. In this brief, we illustrate how data virtualization can help to transform federal agency with respect to each of these core capabilities.

1 Gartner ID: G00344026

How Does Data Virtualization Work?

Data virtualization is a data management and data integration technology. But whereas most data integration solutions move a copy of the data to a new, consolidated source, data virtualization offers a completely different approach.

Rather than moving the data, data virtualization provides a view of the data, leaving the source data exactly where it is. This means that agencies do not have to pay the costs of moving and housing the data, and yet they still gain all of the benefits of data integration.

Because data virtualization accommodates existing infrastructure in its existing state, it is relatively easy to implement, compared with other solutions. And because it provides data in real time, from a variety of systems that are normally very time consuming to integrate, such as transactional processing systems and cloud-based storage systems, it can support a wide variety of uses cases, including the five listed at the start of this brief.

Data Virtualization Benefits

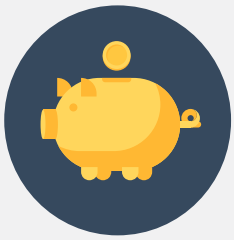
By leveraging data virtualization, federal agencies can gain:

Improved security management, by implementing a single layer for accessing myriad data sources, and by leveraging data for reducing fraud

Zero-downtime cloud migrations, by enabling simultaneous, real-time access to legacy and cloud sources

Enhanced analytics, via real-time access to a wider variety of data sources, and by providing this data to a wider variety of downstream applications

Streamlined operations, by capturing transactional data in real time and establishing real-time feedback loops



An affordable solution with a low maintenance costs, since there is less of a need to replicate and store data

In the next section, we cover how data virtualization can help to transform federal agencies with respect to each of the five capabilities listed above.

Below are three use cases illustrating how data virtualization can help to transform federal agencies.

Seamless Modernization to Cloud

By providing real-time access to myriad heterogeneous data sources, including cloud sources, data virtualization enables seamless modernizations to cloud-based applications and storage systems, without downtime. Because data virtualization abstracts users from the complexities of accessing the individual data sources, users will often not even notice that a modernization has taken place, behind the scenes, while they work.

A federal government agency responsible for enhancing national security (The Agency) relied on the Denodo Platform during and after a critical transition to a new, modern infrastructure that included big data and external cloud storage systems. The new infrastructure unifies information silos and enables the rapid, secure transmission of product life-cycle information across the agency's multiple sites, up to 10 times faster than before, while costing as much as 80% less than traditional data integration alternatives.

Security, Safety, and Risk

Data virtualization establishes a single, unified access layer to all of the applicable data sources. In addition to improving and accelerating data access, this architecture also improves security, safety, and risk aversion, by establishing a single point from which to manage access credentials, user privileges, and other access-specific parameters.

By implementing data virtualization, any organization has already gained an advantage over security, safety, and risk. **An oversight division of a federal or state agency,** however, has taken this one step further. By implementing the Denodo Platform for its data virtualization capabilities, this agency gained a **seamless, consolidated view across hundreds of structured and unstructured data sources**, including Oracle, SQL Server, Lotus Notes, and VSAM files, enabling powerful predictive and statistical analysis dedicated to the proactive identification of fraudulent usage patterns.

Enhanced Analytics

Data virtualization can not only access data from a wide variety of sources, including cloud-based sources and transactional sources, but it can also deliver integrated views of the data across myriad applications. The combination results in faster, more capable analytics.

By implementing the Denodo Platform, **Lawrence Livermore National Laboratory** (LLNL), established a self-service data delivery interface that greatly enhanced the laboratory's analytics capabilities. **IT stakeholders could provide a foundation of reusable data services**, and business stakeholders could extend those services to address myriad business needs, while maintaining full control over business rules.

In addition, **a national laboratory (The Laboratory)** leveraged the Denodo Platform to facilitate a seamless transition from a traditional, physical data warehouse to a logical data warehouse, which is capable of connecting to a wide variety of other data sources that are normally not compatible with a physical data warehouse. The logical data warehouse enabled The Laboratory to create a self-service portal centralizing data distribution for data scientists and others, enhancing analytical capabilities. **The new data infrastructure also reduced production cycles by more than 40%**. Similar to a cloud modernization effort, in addition to enabling access to a wider variety of digital information, **the logical data warehouse saved The Laboratory millions in development, software, and hardware costs, and shortened project schedules by years.**

Improved Operations

By providing real-time access to data, including transactional data, data virtualization can enhance operations as well as analytics. Savvy organizations are using data virtualization to establish feedback loops that engage specific processes in response to changes reflected by incoming data streams.

A federal Cabinet-level agency implemented the Denodo Platform to gain a comprehensive view across the agency's complex data center architecture. As a result, the agency **dramatically improved data center uptime which, in turn, enabled the processing of hundreds of thousands more claims per day**, to more than satisfy a congressional mandate for improved operational throughput.

Optimized Cost

Because data virtualization avoids physically moving and storing data, it is a fundamentally cost-effective approach.

A branch of the U.S Military (The Branch) wanted to combine two data centers into one, so as to provide higher readiness for its personnel in the field. These types of projects tend to be time consuming, costly, and complex, due to the amount of data replication involved, along with its attendant storage costs. By implementing the Denodo Platform, The Branch was able to provide simultaneous access to both data centers, during the transition. ***And by leveraging the Denodo Platform, rather than costlier data integration approaches, The Branch reduced data integration expenses by 80%.***

The Power of Digital Transformation

In time, all federal agencies will engage in some form of digital transformation, to unlock greater efficiencies and capabilities. Using data virtualization, however, agencies will be equipped to begin sooner rather than later. As illustrated in this brief, some agencies have already begun.