INTRODUCTION
Are you considering data virtualization for your organization today? If so this whitepaper synthesizes the 10 things you need to know as you commence your data virtualization journey.

1. WHAT IS DATA VIRTUALIZATION?
Data Virtualization is software used by enterprises to reduce their analytic data bottlenecks so they can deliver more insights and better business outcomes. This software allows an analytic application to access and use data without requiring technical details about the data, such as how it is formatted or where it is physically located.

Functionally, data virtualization products are used to build, run and manage virtualized datasets and IT-curated data services that access, transform, and deliver analytic data far faster than traditional warehousing and ETL approaches with far fewer resources.

Learn more about TIBCO® Data Virtualization, and how others like you have benefited.

2. WHY USE DATA VIRTUALIZATION?
With data and analytics the new competitive battleground, businesses that take advantage will be the leaders; those that do not will fall behind. But gaining this advantage is a more difficult challenge than ever. Your analytic requirements, tools, and teams are exploding. And your data is more-widely distributed across all manners of traditional, big data, Internet of Things, and cloud repositories. Traditional data integration via warehousing and ETL cannot keep pace, creating huge analytics data bottlenecks.
Data virtualization can help you overcome your data bottlenecks. Recommended by Gartner and Forrester as must-have additions to your IT tool sets, only data virtualization lets you build and manage the virtualized datasets and IT-curated data services your analytics require with the breakthrough speed and cost effectiveness your business demands.

3. WHAT ARE THE BENEFITS OF DATA VIRTUALIZATION?
Data Virtualization is:

- **Fast and Economical** – Integrate data reliably at a fraction of physical warehousing and ETL time, cost, and rigidity. Evolve rapidly when requirements change.
- **Immediate** – Securely deliver up-to-the-minute data as needed, using advanced performance optimization algorithms.
- **Business friendly** – Transform native IT structures and syntax into easy-to-understand, IT-curated data services sharable using business self-service tools.
- **Wide-ranging** – Access data from distributed data sources including traditional enterprise, big data, cloud, and IoT. Use it across myriad analytics, self-service, business intelligence, and transactional applications.
- **Enterprise-grade** – Support multiple lines of business, hundreds of projects, and thousands of users.

4. WHO USES DATA VIRTUALIZATION?
Data virtualization is used across your organization. Here are some examples:

- **Analytics Leaders** – Data virtualization simplifies and speeds access to the data you need to power your analytics.
- **Business Analysts, Data Scientists** – Data virtualization provides instant access to all the data you want, the way you want it.
- **CIOs and Data Engineering Leaders** – Data virtualization’s agile integration approach lets you respond faster to ever changing analytics and BI needs and do it for less.
- **CTOs and Data Architects** – Data virtualization adds data integration flexibility so you can successfully evolve your data management strategy and architecture.
- **Data Engineers** – Easy to learn and highly productive to use, data virtualization lets you deliver more data, and thus more business value, sooner.

5. HOW DOES DATA VIRTUALIZATION WORK?
Data virtualization helps your IT teams do everything required to provide instant access to the analytics data you need.

- **Install** – Start quickly and scale successfully with easy-to-adopt middleware that fits with your existing infrastructure.
- **Develop** – Your data engineering staff uses data virtualization’s rich data analysis, and design and development tools to create the virtualized datasets and IT-curated data services your analytics require.
- **Run** – Whenever you run a report or refresh a dashboard, data virtualization’s high-performance query engine accesses the data sources in real time, makes the all needed transformations, and then quickly delivers the exact data requested.
- **Manage** – Data virtualization’s management, monitoring, security, and governance functions ensure you can meet your security, reliability, and scalability SLAs.
6. WHEN TO USE DATA VIRTUALIZATION FOR A PROJECT?

There are a number of project-scale scenarios where data virtualization is an optimal choice.

- **Rapid IT-grade Datasets** – Data virtualization is a proven way to provide IT-grade datasets with rapid time-to-solution. Deliver the dataset in hours instead of weeks.

- **Evolving Requirements** – When the business requirements are not firm, your users will appreciate IT’s ability to deliver and iterate a new dataset quickly. This agile approach lets IT service the business quickly, and then fine tune the engineering later, perhaps converting to ETL if appropriate.

- **Multiple Sources** – Federating data from lots of sources is easy with data virtualization.

- **Up-to-the-Minute Data** – Unlike the batch approaches of ETL where you may settle for yesterday’s data, data virtualization can serve fresh data every time.

- **When Data Consolidation is Inappropriate** – Drilling into the nature of source data can uncover use cases not amenable to physical integration such as data outside the warehouse or firewall, or data too large to integrate physically. Data virtualization is a great way to access data where it lies.

7. WHEN TO USE DATA VIRTUALIZATION TO SUPPORT MULTIPLE PROJECTS?

Data virtualization is also an excellent choice to provide curated (IT-built and tested, standardized, secured, and governed) data services in support of multiple analytic projects.

- **Rapid Multiple Project Data Services** – Support multiple analytic projects from myriad data sources with shared data services to save development time and expense.

- **Greater Consistency** – Improve data quality by sharing frequently used data, while avoiding unnecessary replication that can lead to inconsistencies.

- **IT Grade** – Provide needed analytic data with all the performance, scalability, security, and governance you require.

- **Modern Data Services Architecture** – Enable data-as-a-service, a semantic data layer, Gartner’s Logical Data Warehouse, Forrester’s Data Fabric, Forrester’s Systems of Insight, and other modern data services architectures.

8. WHEN NOT TO USE DATA VIRTUALIZATION?

Data virtualization is not the answer to every analytics data requirement. Sometimes data consolidation in a warehouse or mart, along with ETL or ELT is a better solution for a particular use case. And sometimes a hybrid mix is the right answer.

You can use TIBCO’s Data Integration Strategy Recommendation Tool to help you decide when to use data virtualization, data consolidation, or perhaps a hybrid combination.
9. WHAT IS THE BUSINESS CASE FOR DATA VIRTUALIZATION?
Data virtualization has a compelling business case. The following drivers make data virtualization a "must have" for organizations like yours.

- **Profit Growth** - Data virtualization provides the analytic data your organization requires to increase revenue and reduce costs.
- **Risk Reduction** - Data virtualization’s up-to-the-minute business insights help you manage business risk and reduce compliance penalties. Plus, data virtualization’s rapid development and quick iterations help you reduce your IT project risk.
- **Time-to-solution Acceleration** - Your data virtualization projects are completed faster so business benefits are derived sooner. Lower project costs are an additional time-to-solution benefit.
- **Technology Optimization** - Data virtualization improves utilization of existing server and storage investments. And with less data replication required, hardware and governance savings are substantial.
- **Staff Productivity** - Data virtualization’s easy-to-use, high-productivity design and development environments improve your staff’s effectiveness and efficiency.

10. HOW TO DEPLOY DATA VIRTUALIZATION?
Data virtualization installs quickly on standard IT infrastructure. You can start your data virtualization adoption by building virtualized datasets for specific projects that address immediate needs. You can then expand your data virtualization to enterprise scale in support of multiple analytic projects within a broader data services architecture initiative such as Logical Data Warehouse, Big Data Fabric, System of Insight, and more.

CONCLUSION
In this paper you have learned 10 core truths about data virtualization and gained the essential knowledge required to overcome your analytic data bottlenecks and drive better outcomes.

Learn more about TIBCO® Data Virtualization, and how others like you have benefited.