Microsoft Power BI Desktop and Teradata Database

Users of Teradata solutions can take advantage of Microsoft® Power BI™ Desktop and Teradata® Database, to combine data from disparate sources and create visually rich analytic reports and dashboards. Use the Power BI service to publish your work for others to use, including those on mobile devices.

Teradata provides the ideal platform for hosting data on the terabyte and petabyte scale that organizations—especially those tapping into big data and real-time analytics—require.

The value of data can be measured in the number of users who can access it to find actionable insights. And the power of BI is amplified when it can be pushed out to mobile devices to empower those working away from traditional desktop environments.

Seamless Teradata Integration

Microsoft, working closely with Teradata, has created seamless integration for organizations wanting to take advantage of the Microsoft Power BI suite of tools that provides an analytics layer for Teradata and other data stores.

Microsoft Power BI Desktop enables you to pull data from disparate sources into one place to quickly gain a 360-degree view of your business—and create highly visual reports and dashboards. Power BI Desktop is a complete self-service BI solution, with a collection of online services and features that enable you to find and visualize data, share discoveries, create data mashups, and collaborate in intuitive new ways.

Whether using Power BI Desktop for Teradata as a stand-alone client tool or through Microsoft Excel®, Power BI helps you make better decisions, faster than ever.

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The Need:

The world runs on data and the insights organizations can pull from it. A growing challenge for data-driven organizations is finding the most efficient way to unite data from disparate sources and draw value from the data through analytics and visually rich reporting.

The Solution:

Microsoft Power BI Desktop for Teradata provides a stand-alone BI solution that gives you the ability to easily combine, shape, and analyze data from disparate sources, with a powerful but user-friendly interface.

The Benefits:

- Seamless integration with Microsoft Power BI Desktop via the .NET Data Provider for Teradata.

- Faster query results using the DirectQuery feature of Power BI Desktop to process queries directly on your Teradata Database system, rather than on mobile devices and other clients used to launch the query.

- Automated refresh of data using the Power BI Gateway, for non-Direct Query operations that require data refreshes.

- Ease of design for your models with the Power BI Desktop Query Editor and Power Query Formula Language.

- Greater query efficiency through automated use of Query Folding to perform server-side filtering and joining for faster query performance.

Microsoft

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Create Once, Publish Anywhere

Connecting your Teradata Database with Power BI Desktop, you can explore your data in fresh ways. You can also combine relational and non-relational data to gain a fuller view or create dynamic reports to uncover new insights.

Once you create your reports and visualizations, you can use the Power BI service to publish your findings so they will be available to others from any modern browser—whether they are working from a desktop, laptop, or mobile device.

Direct Connectivity via the .NET Data Provider for Teradata

Teradata and Microsoft worked together to integrate the .NET Data Provider for Teradata, which provides seamless integration with Microsoft Power BI Desktop and Power BI service.

The .NET Data Provider for Teradata is an implementation of the Microsoft ADO.NET specification. Once installed, the .NET Data Provider for Teradata, as the advocated

interface, supports all required ADO.NET interfaces and classes, including for Microsoft SQL Server® Reporting Services and SQL Server Analysis Services.

DirectQuery to Teradata

The DirectQuery feature of Power BI Desktop enables you to execute queries directly against your Teradata Database, whether your Teradata Database is on premises or in the cloud. Working with DirectQuery frees users from having to import data to their client device before performing analytics. Using DirectQuery also frees you from scheduling data refreshes, as you are always working with current data.

By offloading the query to the data center, rather than running it on the client device, Power BI Desktop Direct-Query lets you benefit from the computing horsepower of your backend systems. An analyst, for example, working from a Microsoft Windows®-based tablet, could use Power BI Desktop to run a DirectQuery against billions of rows on a Teradata Database system—and see results in virtually real time. That information can then be shaped into reports, dashboards, or other formats and published to the Power BI service.
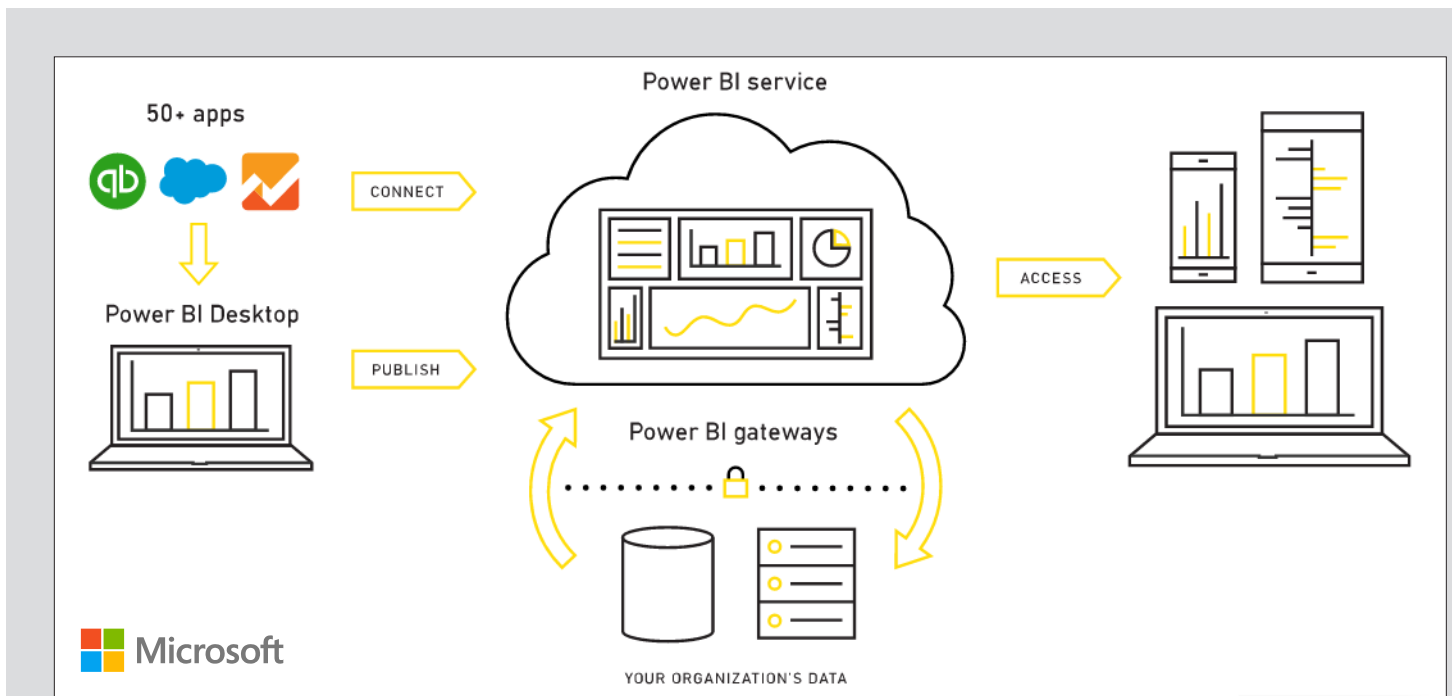

Figure 1. Connect, Create, and Publish. The Power BI Desktop provides a robust analytics layer for Teradata Databases.

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Power BI Gateway and Scheduling Data Refresh

Power BI Desktop supports working with cached data from your Teradata Database or other source, and a refresh mechanism through the use of the On-Premises Data Gateway once the report gets published to the service.

If your connection uses a live connection or DirectQuery, the data is updated automatically. But in cases where manual data refreshes are required, you can use the On-Premises Data Gateway to declare the sources allowed to connect to Power BI, which enables to schedule recurring refreshes from data stores.

When Power BI refreshes data from an on-premises data source, such as a Teradata Database, the gateway confirms your Power BI account has the right permissions to connect to and query data from the source. Data transfer between Power BI and the gateway is secured through Microsoft Azure® Service Bus, which creates a secure channel between the Power BI service and your computer.

Query Editor

The Query Editor in Power BI Desktop provides a user-friendly GUI environment for assembling queries. The Query Editor makes it easy to assemble step-by-step instructions for shaping data and combining data from multiple sources.

The Query Editor GUI provides point-and-click ease of use across a range of functions including choosing columns, removing columns, removing duplicates, group rows, pivot columns, and a wealth of other formatting and data shaping options.

Power Query Formula Language

Power BI Desktop uses Power Query (known as Get & Transform in Excel 2016) and the Power Query Formula Language (informally known as "M"), a powerful mashup query language optimized for building queries that combine data. It is a functional, case sensitive language similar to F#, which can also be used with Power Query in Excel.
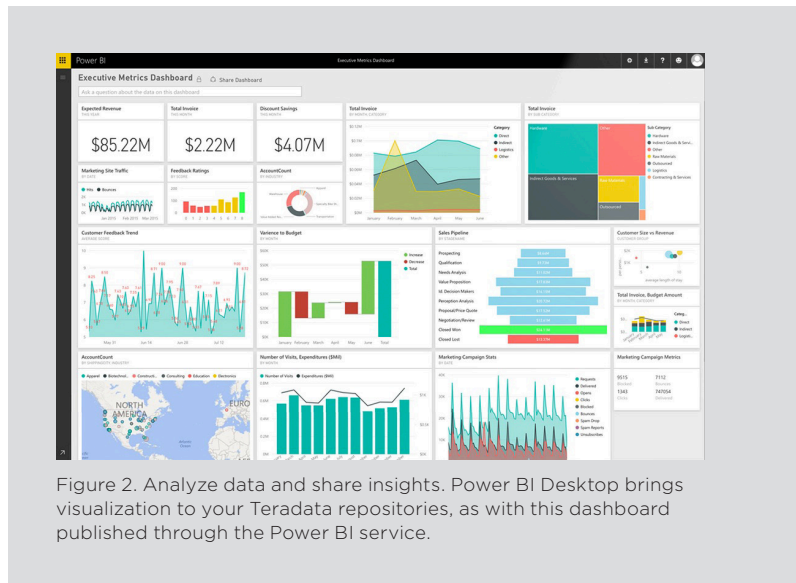

Figure 2. Analyze data and share insights. Power BI Desktop brings visualization to your Teradata repositories, as with this dashboard published through the Power BI service.
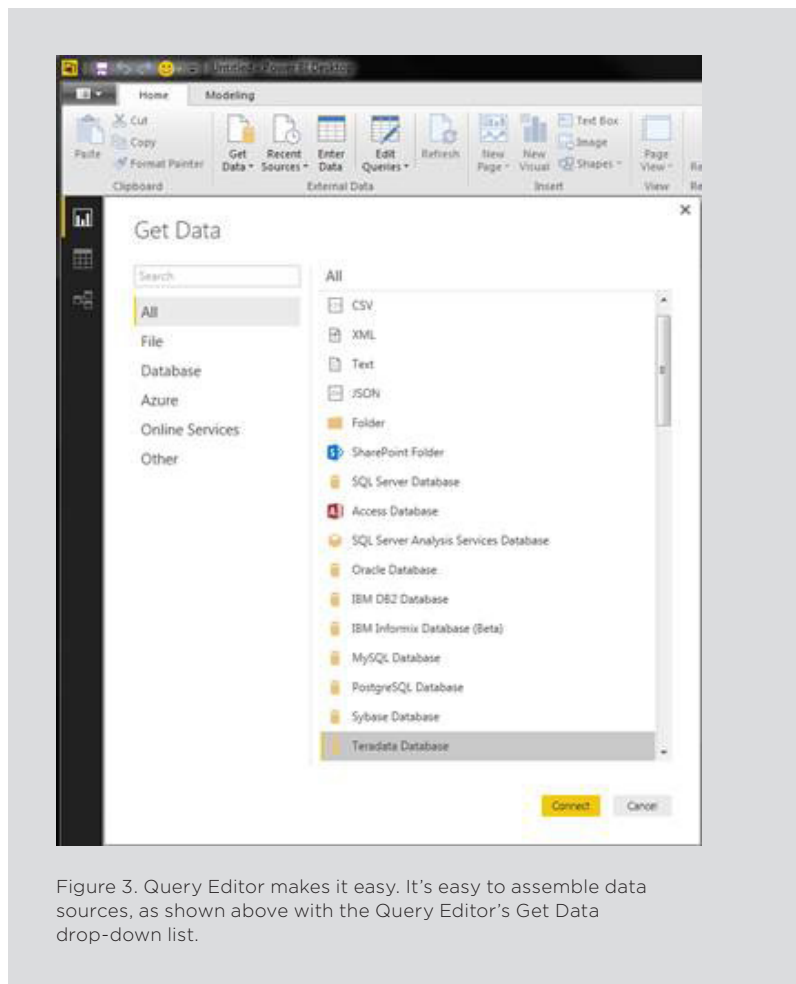

Figure 3. Query Editor makes it easy. It's easy to assemble data sources, as shown above with the Query Editor's Get Data drop-down list.

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Working from the Query Editor, analysts and others can use Power Query Formula Language for self-service data integration and shaping over a diverse set of data sources, ranging from simple text files to massive Teradata Databases, to unstructured Hadoop-based information.

The standalone Windows Desktop application combines Power Query, Power Pivot Data Model, and Power View into a seamless experience that enables users to build Power BI elements in an offline fashion, and then upload to the Power BI service.

Query Folding for Performance

Power BI Desktop takes advantage of the Query Folding feature in Power Query to perform server-side filtering (add) and joining for faster query performance.

Query Folding makes use of merges for "only include matching rows" and other functions to help ensure that data selections are made on the server, and only matching rows are returned. By pushing back to the server as many query transformations as possible, Query Folding significantly reduces the data load back to the client. Query Folding is automated, using an internal algorithm, so the user doesn't need to invoke it.

Continuous Improvement

Power BI Desktop is delivered on a software-as-a-service basis, so you benefit from a continuous improvement process. Microsoft deploys dozens of new features and enhancements each month for Power BI Desktop.

About Teradata

Teradata helps companies get more value from data than any other company. Teradata's leading portfolio of big data analytic solutions and services can help organizations gain a sustainable competitive advantage with data.

For more information, please call 1-866-548-8348, or visit our web site at **Teradata.com**.