POWER BI With SAP BW

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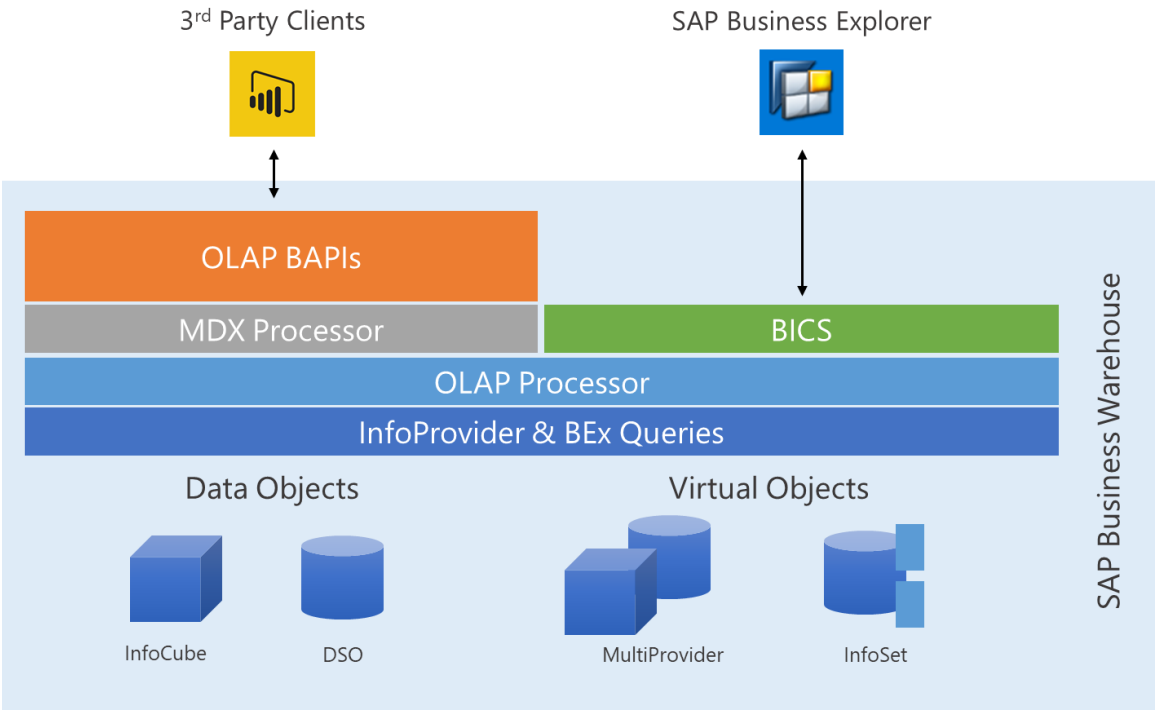
Power BI is dashboarding tool by Microsoft to compete against the likes of Tableau, Lumira, QlikView. It currently provides connectivity to more than 75 data sources. Power BI is investing a lot in terms of improving and enhancing connectivity. It is becoming one of the key players in the ever growing analytics market. However Microsoft still needs to do a lot in terms of connectivity when it comes down to pulling data from SAP systems. SAP ERP is most widely used by big and medium size organizations.

This article is going to focus on connectivity types between Power BI with SAP BW, limitations faced by customer and why Power BI is still not the go to tool when it comes to use against SAP BW.

As 3rd party client tool for SAP, Power BI does not get leverage to use BICS connectivity for consuming data stored in SAP BW. BICS is recommended way for SAP BI tools to connect against BW.
Power BI has to use OLAP BAPIs to connect against SAP BW. MDX statements are passed for execution to MDX processor by OLAP BAPIs. OLAP BAPI provide methods which can be utilized for browsing metadata and master data.



Reference: Paper Published by Microsoft

Pre Req For Power BI to Use SAP Data

- It requires SAP Netweaver library installed on the local machine. It is usually included in SAP client tools installation.
- On-premises data gateway installation is required and data source registered with the gateway when we want to use Power BI service(to publish and use the report from Power BI cloud) to connect with SAP BW.

Connection Types With SAP BW

- DirectQuery - This means live connection to SAP BW. We are able to see the list of available InfoProviders and Bex Queries in SAP BW when using this mode. We will be able to use prompt selection functionality if available in the Bex query.

- Import - This is offline connectivity which brings data in memory cache for Power BI to be consumed locally. The selection made in the Navigation window will define query that will return a flattened data set consisting of columns and rows. When we export the Power BI dashboard to cloud then it stores the data used in cloud memory too.

Microsoft recommends to use Import Data mode wherever possible. Direct Query method has a lot of limitations which should be considered carefully. Also it is important to note that Power BI is able to fetch user setting to determine the how decimal or date/time values are formatted. The settings are maintained in the SAP system in the User Profile. User should have necessary permission to execute the function module BAPI_USER_GET_DETAIL.

Navigation Experience

Microsoft has spent time to make sure end user is able to understand the navigation window to select BEX objects in the connecting pane. We can see data preview in Import mode as well before selecting content which needs to be brought in. This is a welcome feature. This will help end user to understand data and select only those objects which are required to be used and shown in the report.

Basic Schedule functionality is provided by Power BI when we have gateway connection configured to refresh report data automatically.

Performance Aspect

Clients needs to consider performance when deciding about which dashboarding tool to use for business analysis. Users have reported issues with slow performance and heavy usage when BW connector is used in Power BI. Power BI do provides options to encounter slow SAP BW query response time in DirectQuery mode. This means Power BI has options to send fewer queries but still performance is poor and cause of concern when using large datasets.

Limitations

There are many basic functionalities which are still not supported by Power BI. This is where Power BI lags behind other Dashboarding tools. For ex-

- Power BI add totals from different currencies in the same measure which makes difficult for analyst to understand.
- Local Calculation defined in Bex Query does not work as expected for Power BI. Number in Power BI can un-match with the ones coming in SAP client tools when using Bex query. For say – Running Sum does not reflect in Power BI report
- Currency symbols and UOM does not reflect(with numbers) out of box when coming from Bex query. This is very basic ask by end users to have this functionality work directly without spending extra time to find alternative solutions here.
- Attributes for characteristics are not available when using Direct Query mode.
- Multiple hierarchy usage for particular dimension can result in empty data being returned.
- Default filters does not work in Power BI. These filters work fine when using Bex Analyzer or OLAP Analysis tools.
- Numeric formatting might not reflect automatically. This can be customized but this means more work on frontend part.
- Sort order does not work in Power BI. Also sort order is not changeable directly in the Power BI
- Text Variable does not function in Power BI. These features are one of most handy ones in Bex query.
- Customer exit variables are not supported.

Please note this is not exhaustive list as far as limitations are concerned. Please follow below link to go through all the limitations we have currently when using Power BI with SAP BW.
https://docs.microsoft.com/en-us/power-bi/desktop-directquery-sap-bw