

SQL Server 2016 Business Intelligence – Analysis Services

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Analysis Services

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SQL Server Analysis Services 2016

Improved productivity and performance



- Use SQL Server Analysis Services as a semantic model only
 - High performance DirectQuery for Tabular
- Make it easier to create powerful models
 - Tabular modeling capabilities and performance
- Improve manageability and security
 - Provide additional tools for administrators
- Strengthen Multidimensional
 - Performance and data source updates

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Analysis Services as the BI Semantic Model

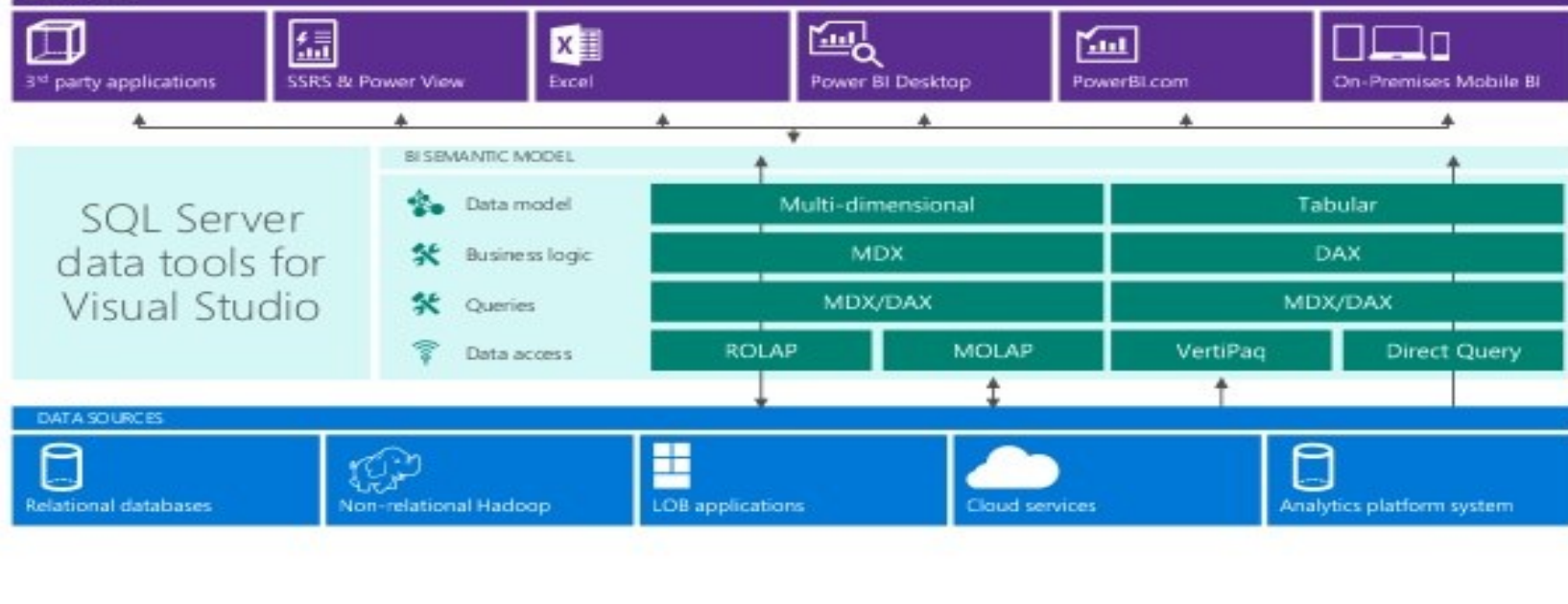
One Semantic Model for BI

For reporting, analytics, dashboards
A single semantic layer to abstract business problems in an easy way
One model for client tools, two ways to build it – tabular & multidimensional

Tabular models in Analysis Services	Multidimensional models in Analysis Services
<ul style="list-style-type: none"> Tables and relationships Fast by default (in memory) Easy to get started, reduced complexity 	<ul style="list-style-type: none"> Dimensions and measure groups Highly scalable and mature Very feature rich, but complex

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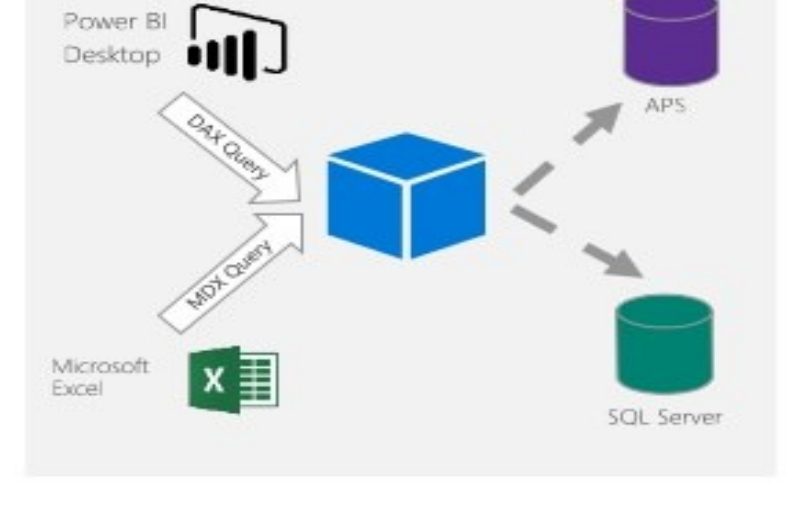
SQL Server Analysis Services



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Analysis Services as a Semantic Model

Enhanced performance DirectQuery for Tabular



- Direct access without storing data in Analysis Services
- Improved performance
- Support for row level security
- Support for intra-row calculated columns
- Support for MDX
- Support for more data sources: Oracle, Teradata, APS

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Tabular Models in SQL Server 2016

Enhanced capabilities and performance



- Allow M:M and 1:1 relationships with bi-directional cross filtering
- Access to 50+ new DAX functions and support for variables
- Enable users to view semantic models in their preferred language(s)
- Organize calculations in display folders for easier navigation
- Enhanced performance through processing partitions in parallel

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Tabular Scripting Language & Object Model

Improved development

Tabular scripting language

```

{
  "name": "Demo Model",
  "description": "Demo model description",
  "culture": "en-US",
  "dataSources": [
    ...
  ],
  "tables": [
    {
      "name": "Customer",
      "description": "Customer information.",
      "columns": [
        {
          "name": "ID",
          "dataType": "int64",
          "sourceColumn": "customer_id",
          "sortByColumn": "Last Name"
        }
      ]
    }
  ]
}
    
```

- New tabular script and object model allows for simplified scripting and development
- Metadata changes only change a single object that makes the metadata operations fast
- Localized metadata changes also allow for simple code merges
- Parity with Power BI API's allows for reusability between products

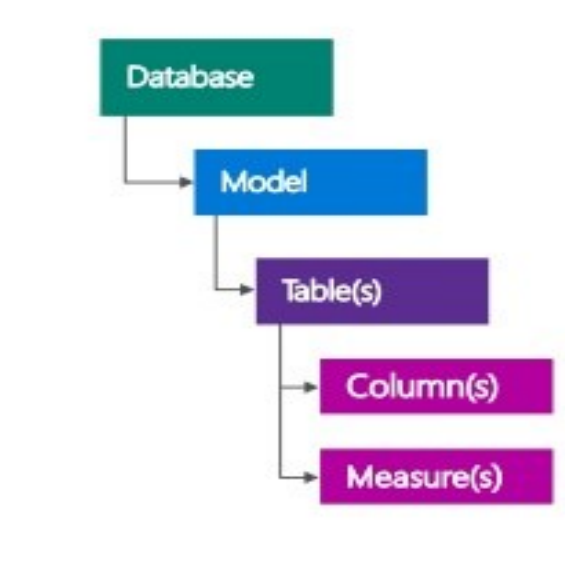
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Developing Tabular Models in 2016

Object model

```

public void RefreshTable()
{
    var server = new Server();
    server.Connect(ServerConnectionString);
    //Connect to the server
    Database Db = server.Databases["TMDB"];
    //Connect to the DB
    Model m = Db.Model; //Get the model
    //Mark the Sales table to be refreshed
    m.Tables["Sales"].Refresh(RefreshType.Full);
    m.SaveChanges(); //Commit the changes
}
    
```



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Multidimensional Enhancements

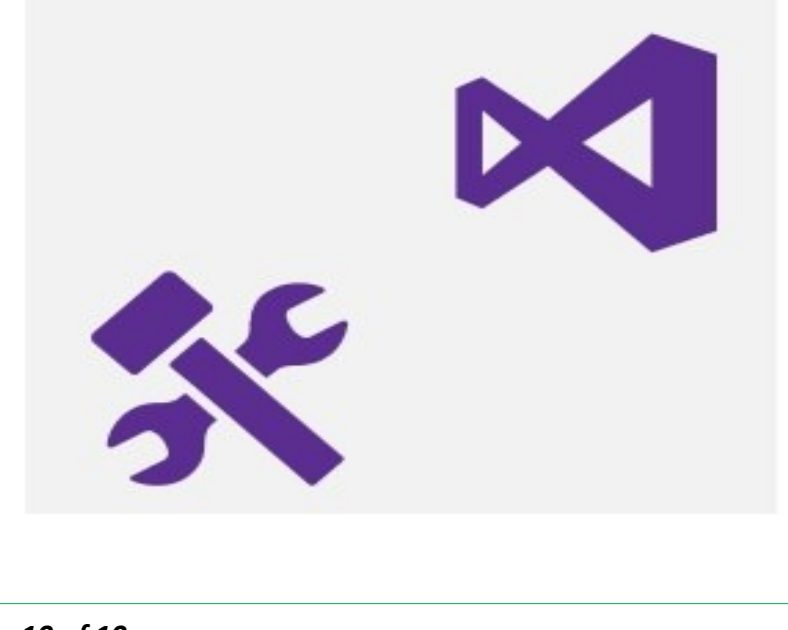
Build on your existing BI investments

- Improved Connectivity**
Visualize and explore existing models with Power BI and Power BI Desktop
Support for Netezza as a data source
- Performance**
Distinct count ROLAP optimization for data sources like DB2, Oracle and Netezza
- New Drill-Through Features**
Customization options for drill-through behaviors for actions
Drill-through multi-selection support with Excel 2016

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Dev / Ops in SQL Server 2016

Improved manageability and development



- Single SQL Server Data Tools for Visual Studio 2015
- DBCC support allows checking for corruption across the database or on individual objects
- SSAS now supports XEvents for trace events to be analyzed from SSMS
- "Serverless tools" for Tabular
- Management of DAX through a calculation script

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Enhancements for SharePoint BI

- Support for SharePoint 2016**
Edit mode for PowerPivot workbooks
Support for Excel 2016 workbooks
Scheduled Data Refresh for Power Query connections
- Reporting Services improvements for SharePoint 2013 and 2016**
New chart types and HTML5 rendering
Plugin-free printing and export to PowerPoint
Updated Report Builder