



SQL Server Analysis Services

MULTIDIMENSIONAL VS TABULAR

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Our Discussion...

Discussion Scope

- Power Pivot for Excel
- Power Pivot for SharePoint
- Analysis Services Tabular
- Analysis Services Multidimensional

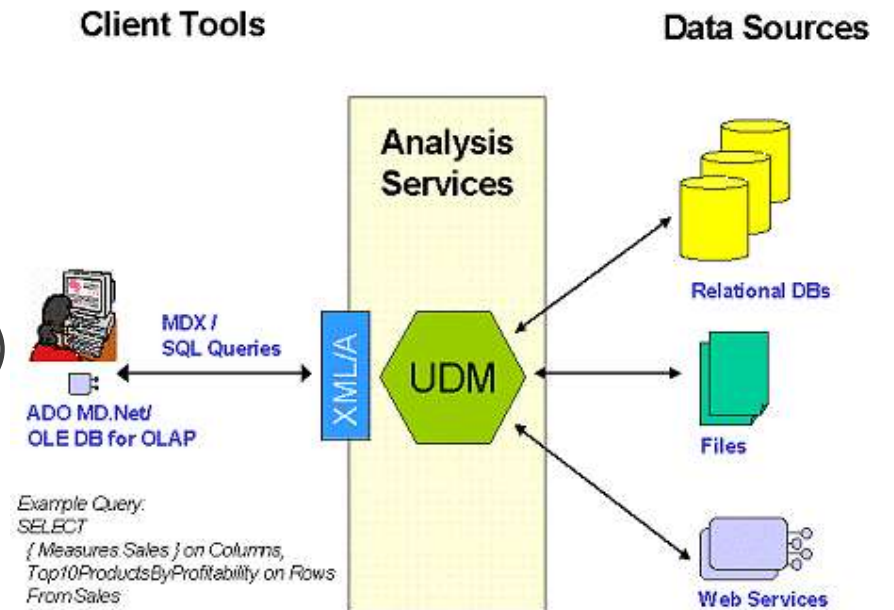
Analysis Services

- Analysis Services Tabular
- Analysis Services Multidimensional



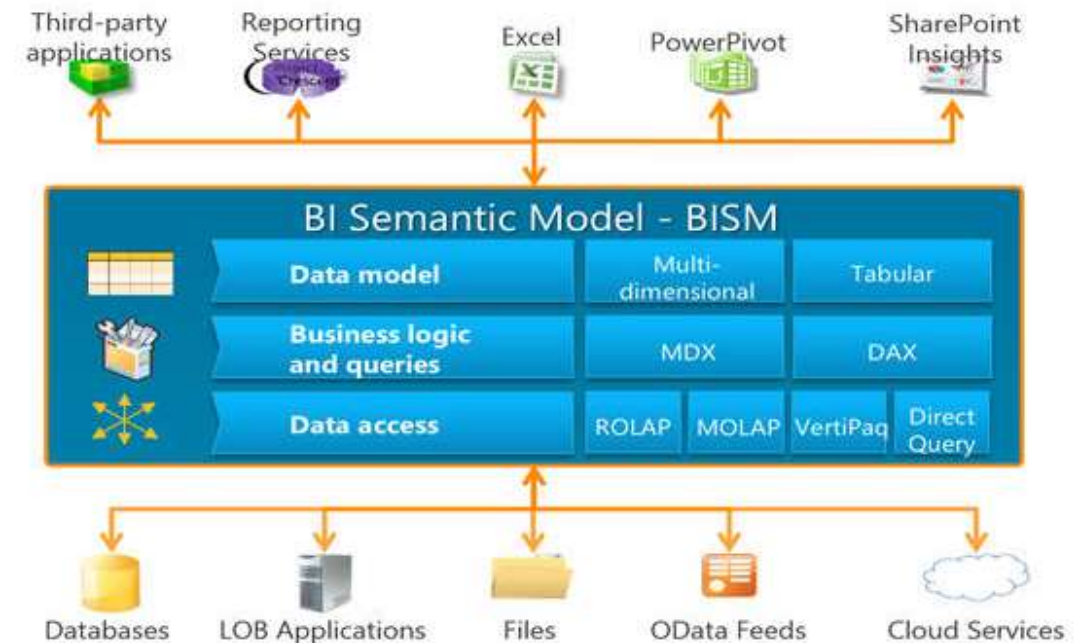
History – Multidimensional (UDM)

- ❑ 1998: OLAP Services – SQL Server 7
- ❑ 2000: SQL Server 2000 - SQL Server Analysis Services
 - ❑ Enhanced Support for Business Dimensions
 - ❑ Only 1 Fact Table per Cube
- ❑ 2005: SQL Server 2005 – Unified Dimensional Model (UDM)
 - ❑ First Semantic Layer for Analysis Services
 - ❑ Bridge Between Data Sources and Client Tools
- ❑ 2008: SQL Server 2008 – Enhancements
 - ❑ Aggregation Design
 - ❑ Cube Design
 - ❑ Dimension Design



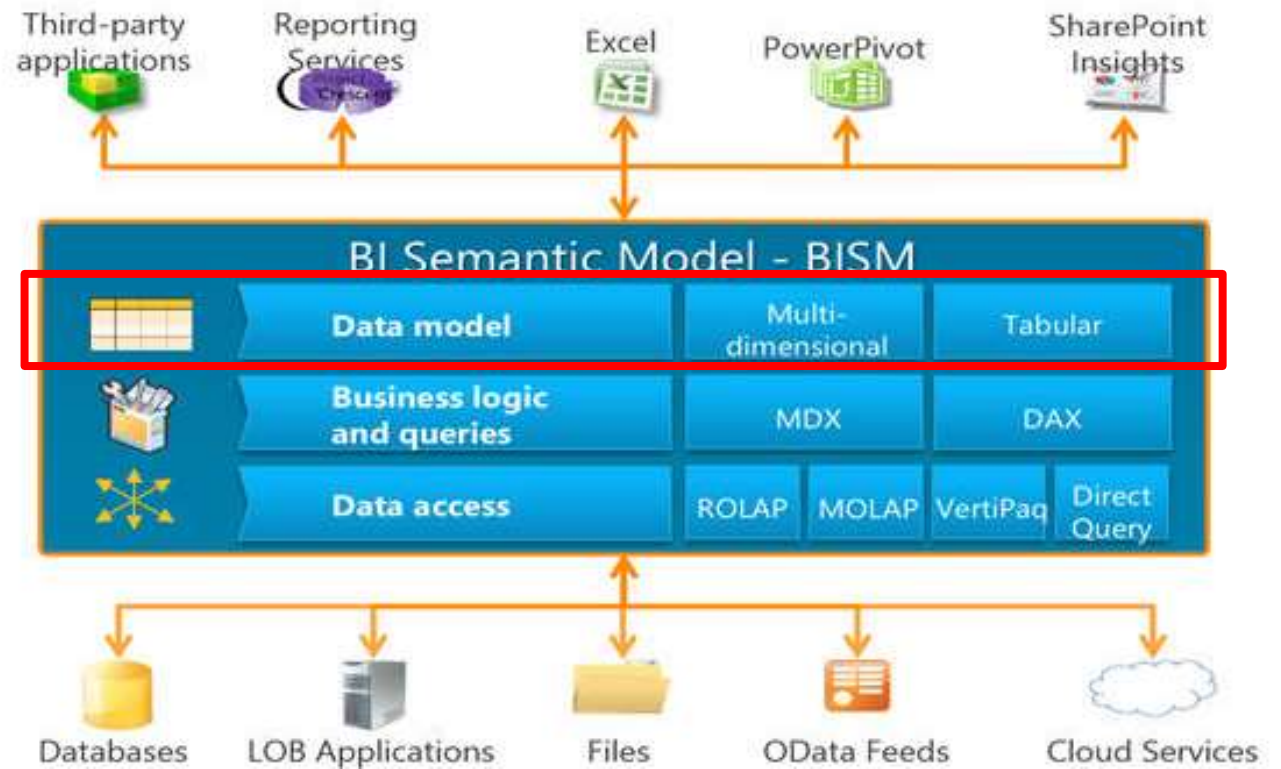
History – Tabular (BISM)

- ❑ 2010: Microsoft Excel 2010 Add-In (PowerPivot) - VertiPaq
- ❑ 2012: SQL Server 2012 – xVelocity
- ❑ BISM – Business Intelligence Semantic Model
 - ❑ Includes both Multidimensional and Tabular Models
 - ❑ Bridge Between Data Sources and Client Tools



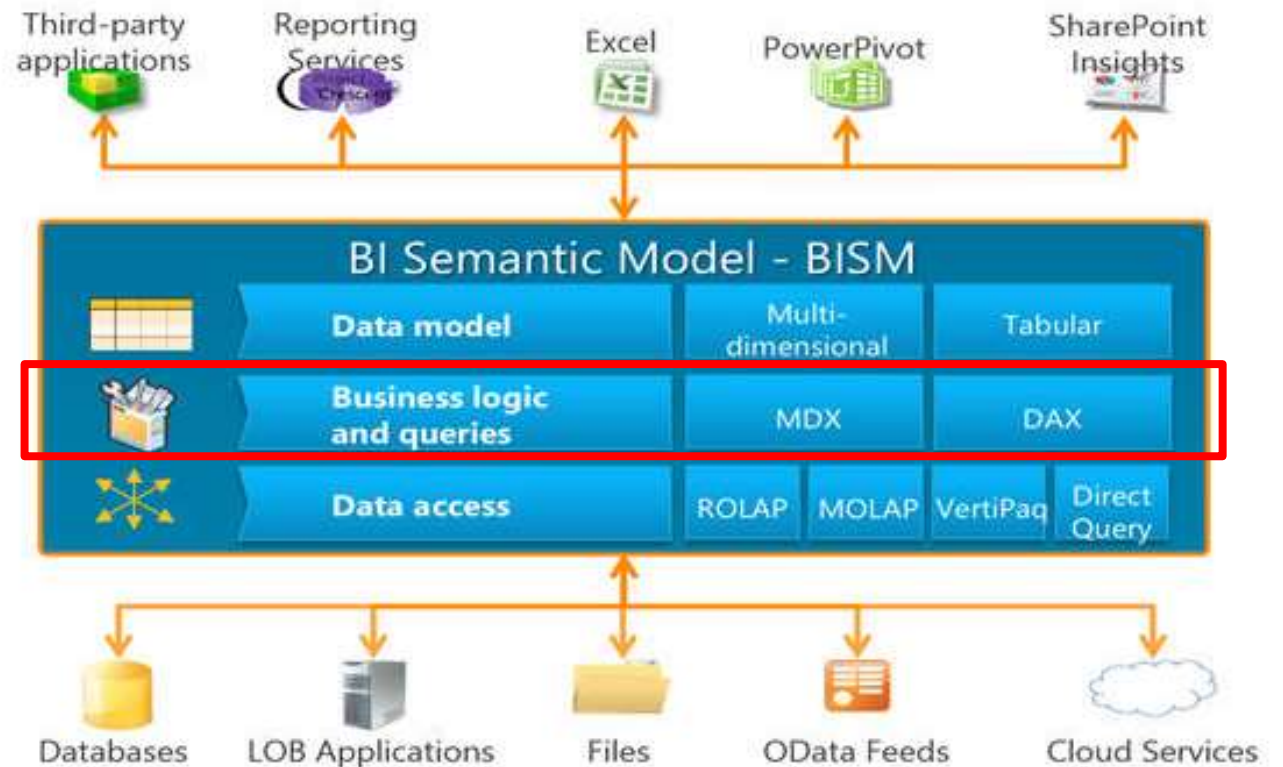
Data Model

- ❑ Multidimensional
 - ❑ "Cube"
- ❑ Tabular
 - ❑ Relational (Dimensional or 3NF)



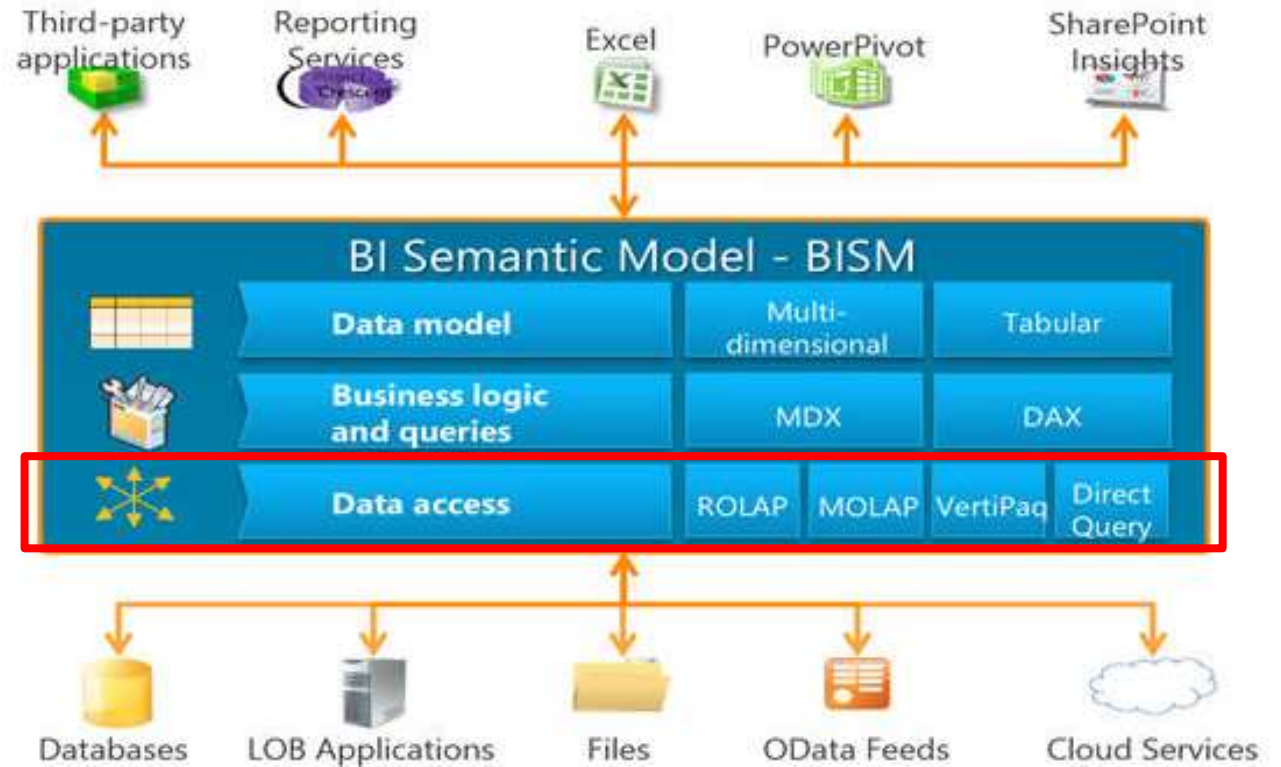
Business Logic

- ❑ **Multidimensional**
 - ❑ MDX (Multidimensional Expressions)
 - ❑ Complex Language to Learn
 - ❑ More Support for Complex Models
- ❑ **Tabular**
 - ❑ DAX (Data Analysis Expressions)
 - ❑ DAX is Easier to Learn
 - ❑ Less Support for Complex Models



Data Access

- ❑ Multidimensional
 - ❑ MOLAP
 - ❑ ROLAP
- ❑ Tabular
 - ❑ xVelocity (in-Memory/Columnar Storage)
 - ❑ Direct Query



DEMO



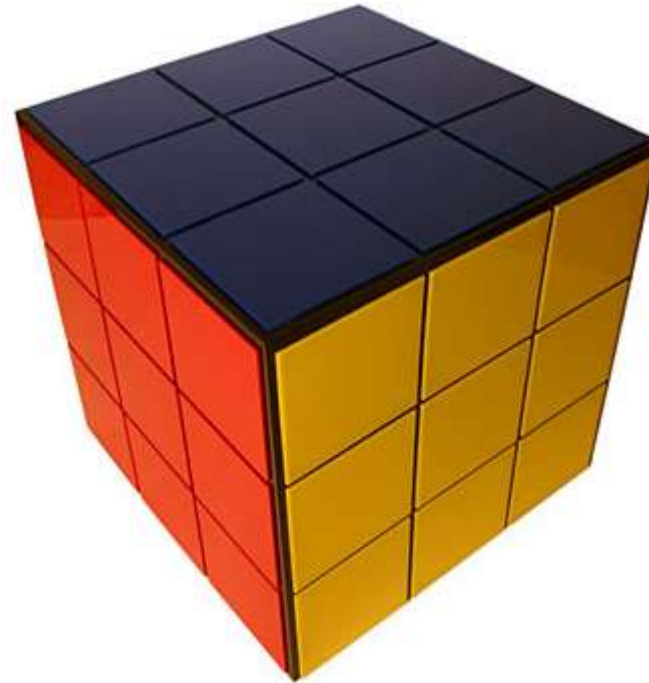
Multidimensional – Pros and Cons

❑ Pros

- ❑ Relatively Mature
- ❑ Many current installations

❑ Cons

- ❑ No significant updates expected in future releases
- ❑ Steeper learning curve than tabular



Tabular – Pros and Cons

□ Pros

- Easier to Implement
- Utilizes Existing Relational Knowledge
- Can promote existing PowerPivot models

□ Cons

- Not as robust as Multidimensional
- Doesn't handle Role Playing Dimensions well
- Doesn't handle Many to Many Relationships well

The screenshot shows the 'Model.bim' window in Microsoft Visual Studio. The table displayed is a customer table with the following data:

Customer ID	Geography	Customer Alternate Key	Title	First Name	Middle Name	Last Name	Name Style	Birth Date	Marital Status
11471		207 AW00011471		Latesha		Suarez	FALSE	9/25/1973 1...	S
11602		135 AW00011602		Larry		Gill	FALSE	4/13/1977 1...	S
11604		275 AW00011604		Edgar		Sanchez	FALSE	6/3/1977 12...	S
12513		189 AW00012513		Shelby		Boiley	FALSE	6/3/1977 12...	S
12517		133 AW00012517		Alexa		Watson	FALSE	8/25/1977 1...	S
12518		161 AW00012518		Jacquelyn		Dominguez	FALSE	9/27/1977 1...	S
12524		211 AW00012524		Kate		Shan	FALSE	1/24/1975 1...	S
12714		157 AW00012714		Coleen		Lu	FALSE	7/17/1973 1...	S
12716		185 AW00012716		Dore		Shen	FALSE	3/16/1974 1...	S
12718		193 AW00012718		Tammy		Sai	FALSE	11/14/1974 ...	S

Which Do I Choose?

IT DEPENDS

- Business Requirements
- Hardware Requirements/Limitations
- Current Skillset
- Size of Data



Recommendations

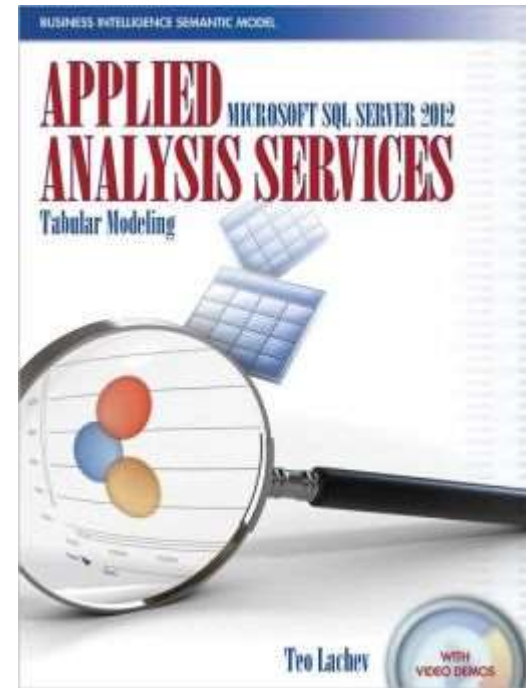
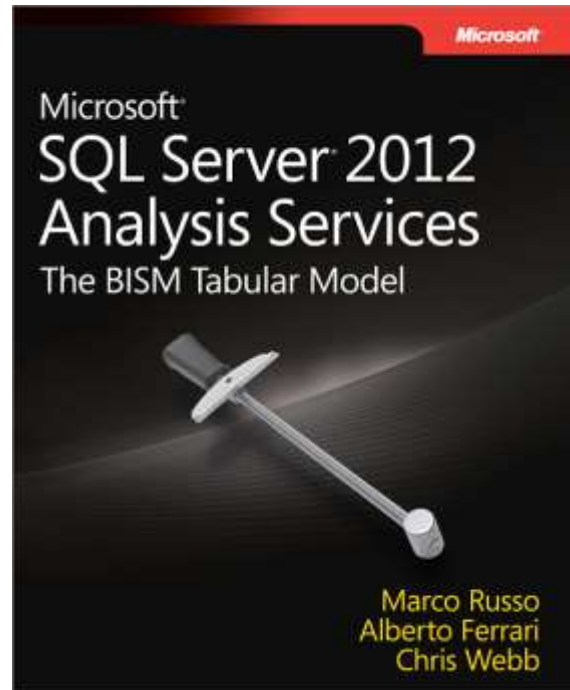
- ❑ Don't Convert Existing Multidimensional Solutions
- ❑ For new development, consider Tabular



Hardware Requirement

Hardware	Multidimensional	Tabular
RAM	16/32 GB	64/128 GB
RAM Speed	Important	VERY Important
Number of Cores	4/8/16	4/8/16
Core Speed	Somewhat Important	VERY Important
Disk Speed	VERY Important	Not Important
SSD Usage	HIGHLY Recommended	Not Important

Recommended Reading



Recommended Links

- ❑ [Decisions: PowerPivot, SSAS Tabular, or SSAS Multidimensional in SQL Server 2012](#)
- ❑ [Javier Gullien Blog](#)
- ❑ [Choosing a Tabular or Multidimensional Modeling Experience in SQL Server 2012 Analysis Services](#)
- ❑ [Chris Webb Blog](#)
- ❑ [Alberto Ferrari Blog](#)
- ❑ [Marco Russo Blog](#)

Questions

