

Power BI on SAP HANA

by Gerhard Brueckl and Markus Begerow



Who we are

Gerhard Brueckl

- Analytical Databases (SSAS, HANA)
- Power BI and Office 365
- Windows Azure



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SSAS
MAESTRO
by Microsoft

Markus Begerow

- DWH: SSIS & SSAS
- Power BI: Power Query & PowerPivot
- SAP HANA



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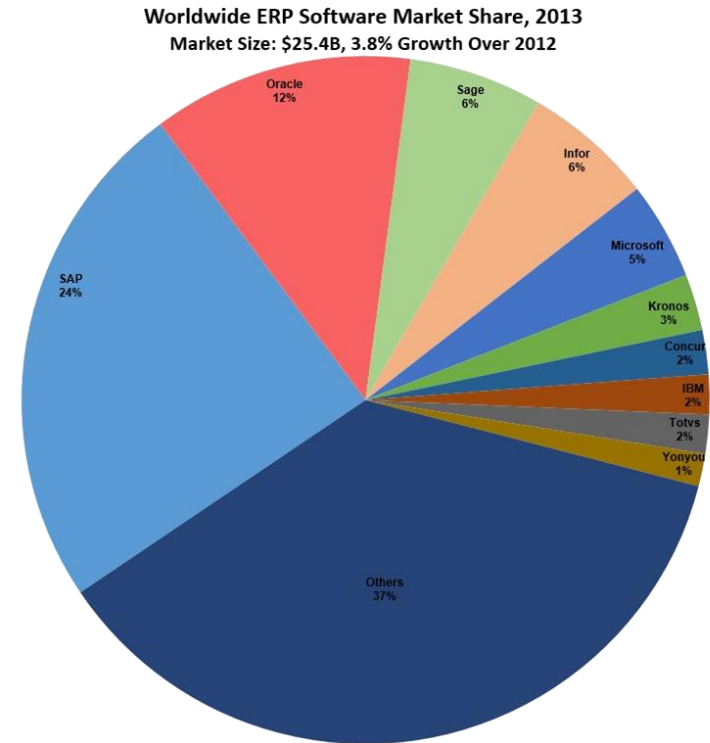
Agenda

- Background
- What is Power BI
- What is SAP HANA
 - Architecture
 - XS Engine
 - Connectivity
- Integration Scenarios

Background

- Why is this scenario so important (for us/for you)
- SAP is Market Leader in ERP
 - Especially in Germany
- Lack of Third-Party Integration
- 2011
 - Introduction of SAP HANA
 - Introduction of Power BI v1.0
- Late 2014: Introduction of Power BI v2.0

24%



<https://www.gartner.com/doc/2729518/market-share-analysis-erp-software>



What new Power BI v2.0?

- Power BI Designer
- Platform-Independent / Excel-Independent
- HTML5 / Mobile
- New License Model

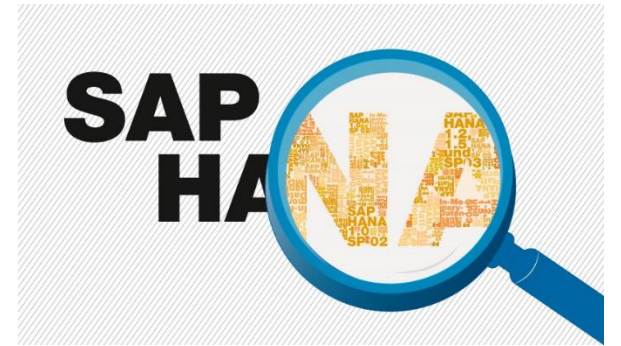


What new Power BI v2.0?

- Live-Reporting
- APIs / Extendibility
- Integrated Security

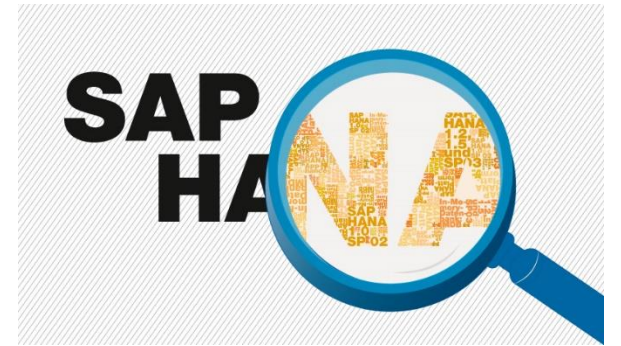
What is SAP HANA?

- It's a RDBMS Appliance
 - Row- and Column-Store
 - In-memory only
- MPP-Architecture
- Deep Integration with other SAP Products

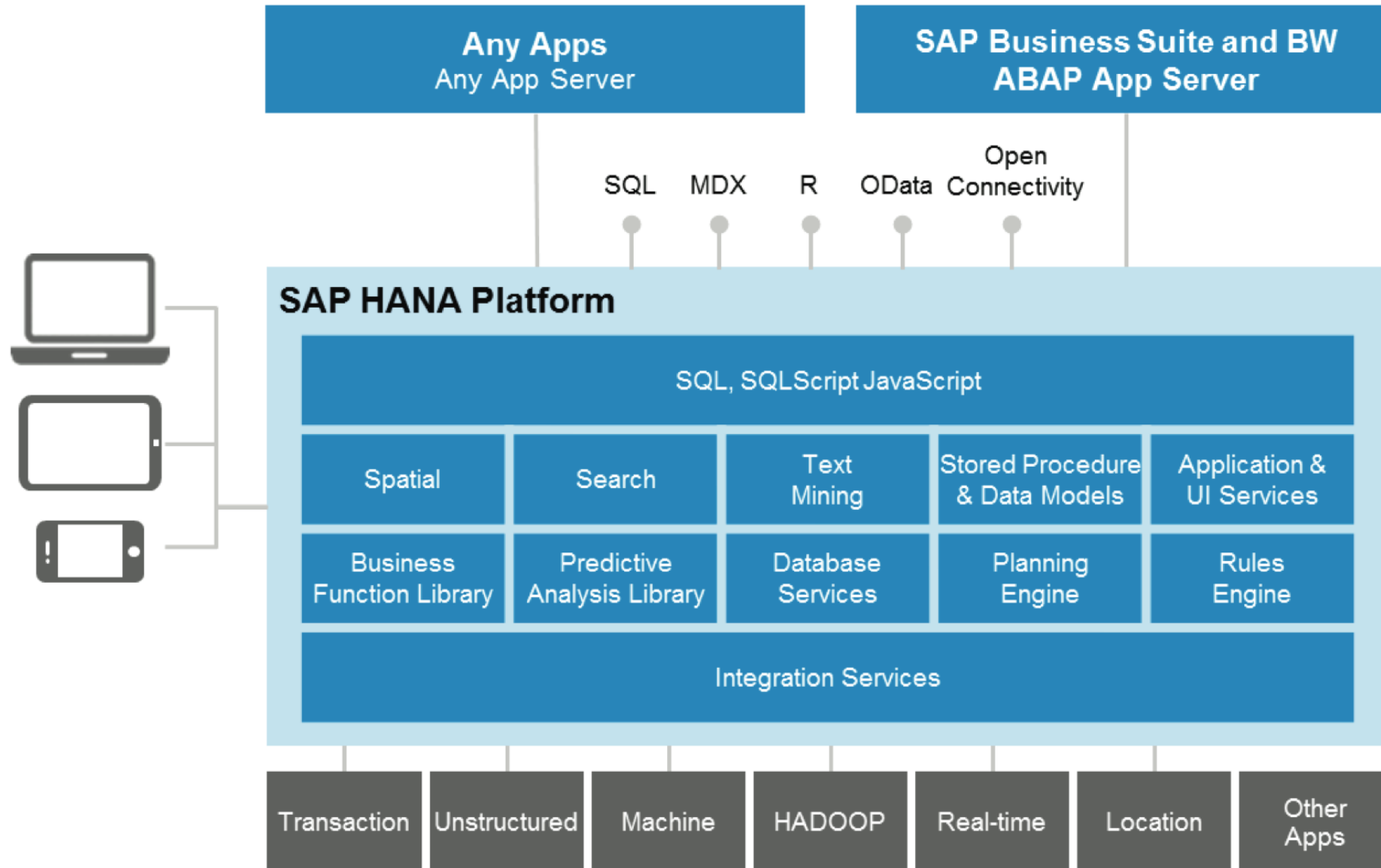


What is SAP HANA?

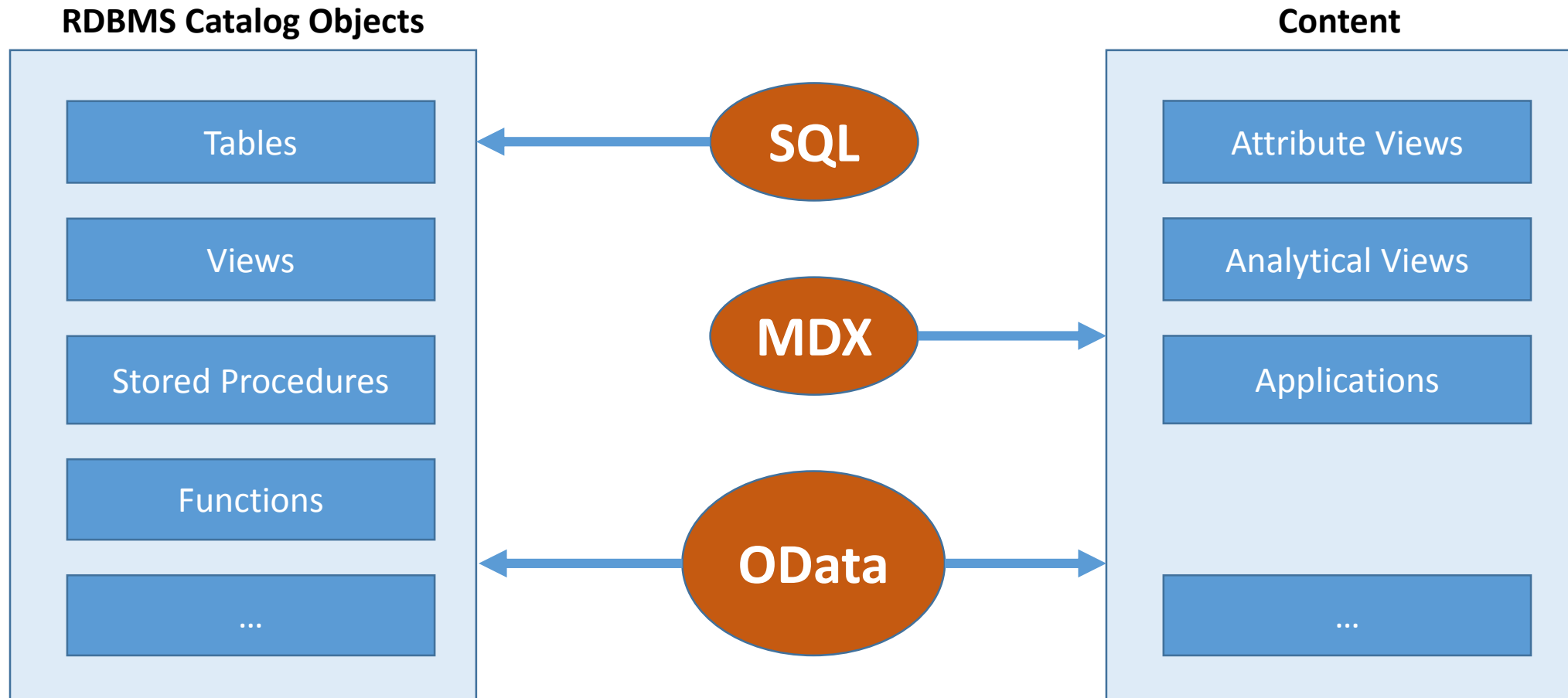
- Standard Interfaces for Data Extraction
- Real-Time capabilities
- Built-In Application Layer / XS Engine



SAP HANA Architecture



Objects in SAP HANA



SQL Connectivity with ODBC

- ODBC is an industrial standard
- Native to Power Query / Power Pivot
- Cumbersome to get ODBC Connection String
- Easy to implement SQL Queries to get data that YOU want
 - ANSI-SQL
 - SAP HANA SQLScript

SQL Connectivity with ODBC



Note: Does not work with Data Management Gateway yet (!)

DEMO

SQL Connectivity with ODBC

MDX Connectivity with Excel Pivot Tables

- Using SAP HANA MDX Provider
- Analytical Views / Calculation Views
- Currently some Limitations
 - Stability
 - (Formattings)
 - Session calculations
 - Drill-Through

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MDX Connectivity and Excel Pivot Tables

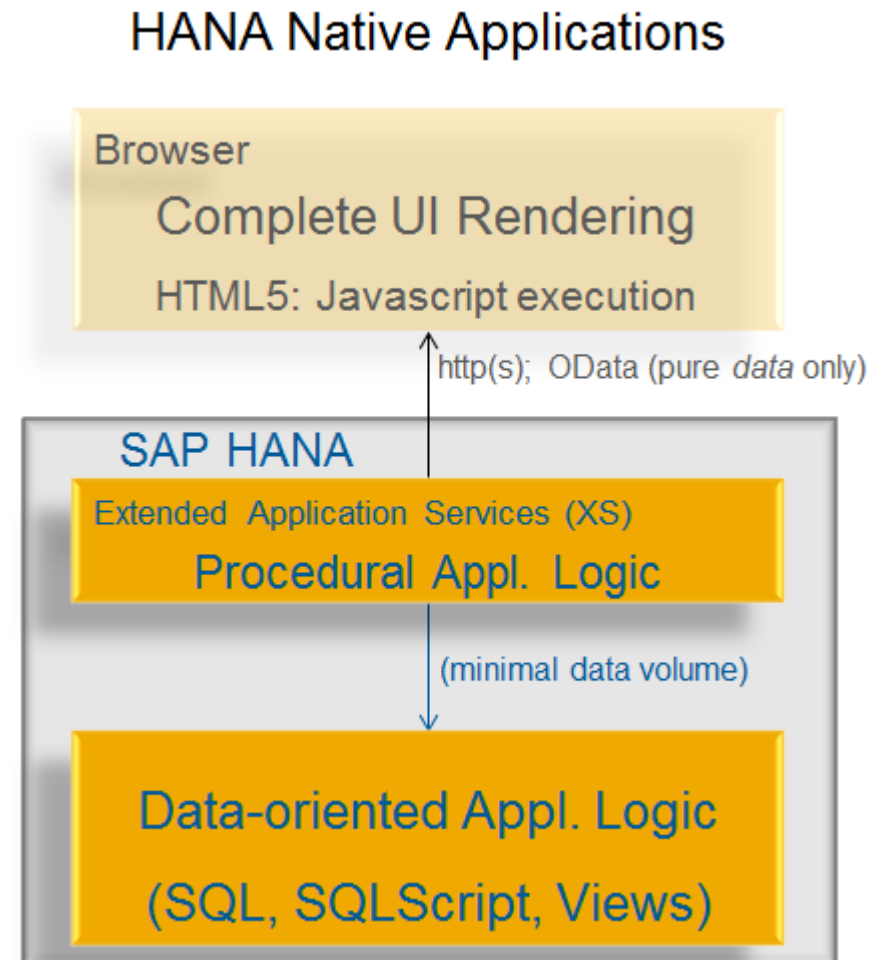
OData Connectivity – What is OData?

Open Data Protocol (OData) is a RESTful data access protocol initially defined by [Microsoft](#). Versions 1.0, 2.0, and 3.0 are released under the [Microsoft Open Specification Promise](#). Version 4.0 is being standardized at [OASIS](#),^[1] and was released in March 2014.^[2]

The protocol enables the creation and consumption of REST APIs, which allow resources, identified using URLs and defined in a data model, to be published and edited by Web clients using simple HTTP messages. It shares some similarity with JDBC and ODBC but OData is not limited to relational databases.

SAP HANA and OData – The XS Engine

- *Extended Application Services*
- Built-In Application and Web Server
 - Lightweight
 - Integrated Security
- Development Server
- Fully integrated

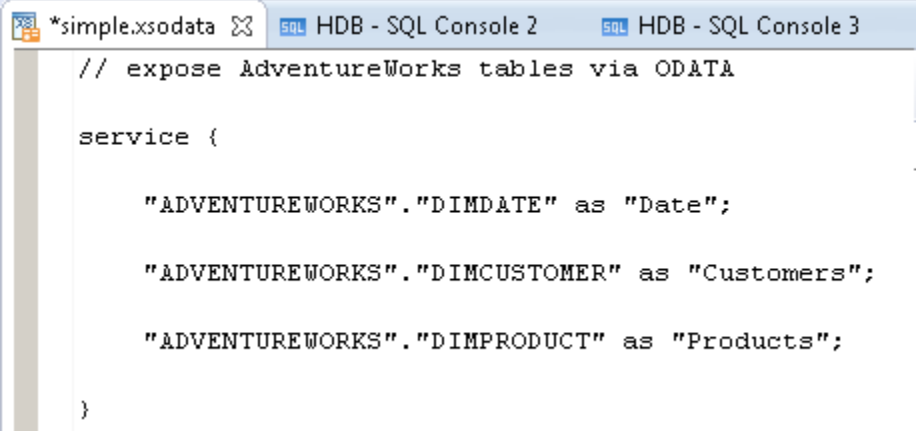


SAP HANA and OData – The XS Engine

- Build Applications
 - HTML5
 - JavaScript (Server-Side)
 - OData
- SAP Web IDE
 - Hosted within the XS Engine (!)
- SAP HANA Studio

SAP HANA and OData – The XS Engine

- Using .xsodata
- Catalog Objects
 - Tables
 - Views
- Content
 - Attribute Views
 - Analytical Views
 - Calculation Views



```
*simple.xsodata // expose AdventureWorks tables via ODATA

service {

    "ADVENTUREWORKS"."DIMDATE" as "Date";

    "ADVENTUREWORKS"."DIMCUSTOMER" as "Customers";

    "ADVENTUREWORKS"."DIMPRODUCT" as "Products";

}
```

OData Connectivity with Power Query

- Native Integration / Open Standard
- SAP HANA Security
 - Basic Authentication
- Query Folding
 - \$filter
 - \$orderby
 - ...
- Detect Relationship

DEMO

XS Engine and OData Connectivity

What's next? (hopefully)

- Live OData support in Power BI (?)
 - Mapping of Security credentials?
 - Not only for HANA, also for other Data Sources
- Native Support for SAP HANA (?)
 - Dedicated provider
 - Similar to SAP Business Objects BI Universes

Summary

- SAP HANA offers various Interfaces
 - ODBC
 - MDX
 - OData
- Power BI works with most of them smoothly
- However, choose the right Interface!
 - Supported Objects
 - Performance
 - Security and Integration