



Microsoft

Business Intelligence

Microsoft Business Intelligence on SAP NetWeaver data

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ALTERATE

SAP BI Landscape

- Requirement:
 - Reporting and analysis on data held in SAP transactional systems (e.g. mySAP ERP / R/3)
- Multiple vendor solutions:
 - SAP NetWeaver Business Intelligence
 - Microsoft SQL Server
 - Other BI vendor solutions:
 - Business Objects
 - Cognos

SAP BI Choice

- 1. Choose the SAP solution
 - Pros
 - Integrated with SAP mySAP / R/3
 - Who knows SAP data better than SAP?
 - Pre-defined business content
 - Single vendor transaction processing and business intelligence solution
 - Cons
 - Questionable performance and scalability
 - Difficult to integrate non-SAP data
 - Difficult to customize and extend business content

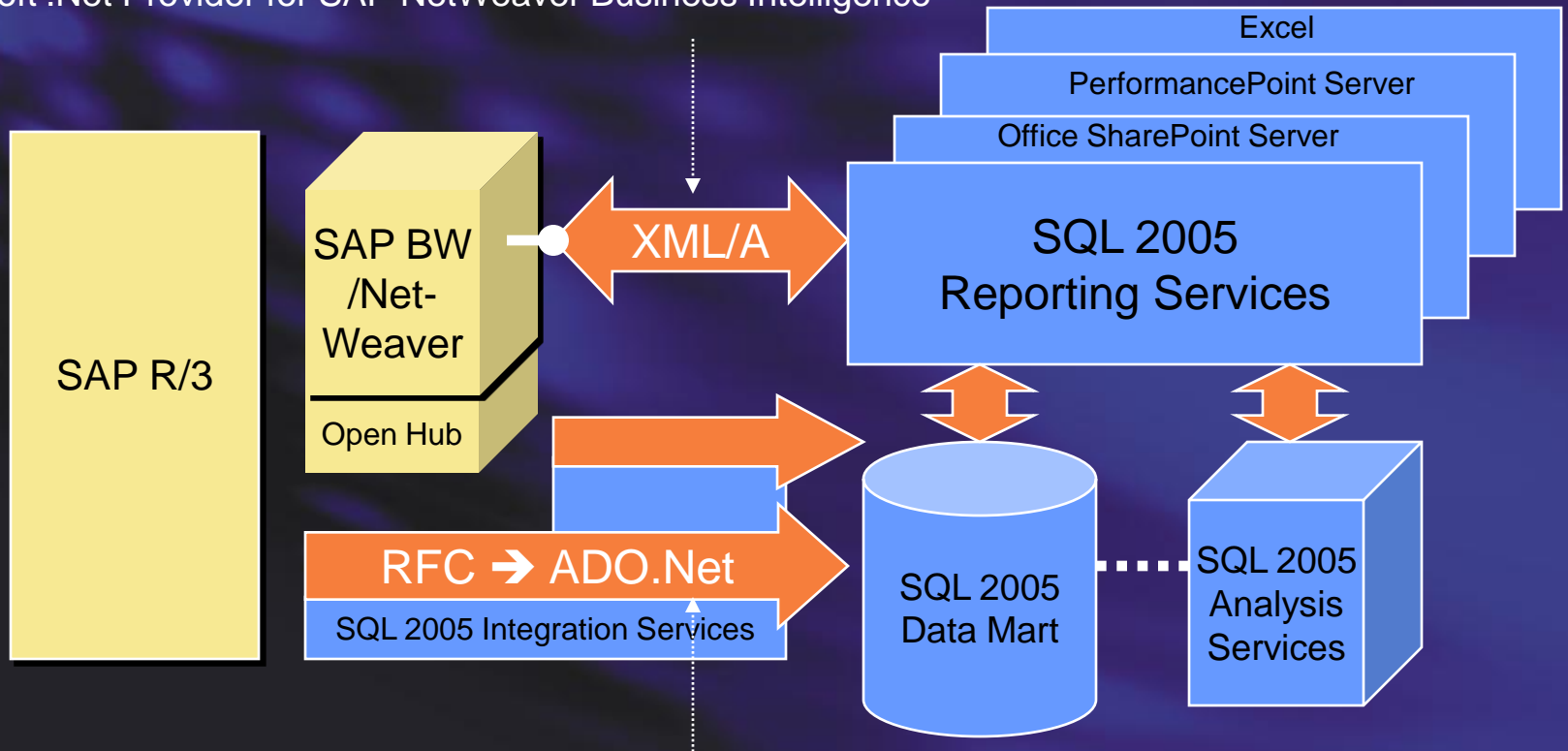
SAP BI Choice

- 2. Choose a Microsoft solution
 - Pros
 - Leverage SAP BW business content and R/3 integration
 - Flexible free-form reporting on SAP BW
 - Enables integration of non-SAP data
 - Deployment using market leading OLAP server
 - Flexibility, through deployment options
 - Cons
 - Some limitations in different scenarios (see solution scenarios)

Solution Architecture

Microsoft SQL Server 2005 BI solution

Microsoft .Net Provider for SAP NetWeaver Business Intelligence



Microsoft .Net Provider for SAP mySAP Business Suite

Solution Scenario 1



Embrace BW

- Overview:
 - Reporting Services as a client tool for SAP BW, using Microsoft .Net Provider for SAP NetWeaver Business Intelligence
- Issues addressed:
 - SAP BW reporting
 - Uses SAP security (no additional layer)
- Known issues:
 - Provides support for InfoCubes, QueryCubes and Multiproviders only. ODS objects can be exposed through QueryCubes.

Solution Scenario 1

Report Manager - Microsoft Internet Explorer

Address: http://localhost/Reports/Pages/Report.aspx?ItemPath=%2FSAP+BW+Reporting%2FSAP+BW++...

SQL Server Reporting Services
Home > SAP BW Reporting >
SAP BW - Sales by Material by Year

View Properties History Subscriptions

New Subscription

1 of 1 100% Find Next Select a format Export

Microsoft SQL Server 2005 *Sales by Sales Org by Material Tre*
Microsoft | SAP SAP NetWeaver Business Intelligence Info

Calendar Year :2003

Material	Net Value	Billed Qty	Tax Amount	Costs	Gross Mar
Paris	\$130,950	647	\$13,041	\$109,878	\$21
Philadelphia	\$2,320	7	\$216	\$1,822	\$
Toronto	\$308,706	553	\$29,446	\$257,324	\$51
Total M18	\$441,976	1,207	\$42,703	\$369,024	\$72
GRAND TOTAL	\$441,976	1,207	\$42,703	\$369,024	\$72

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Report Manager - Microsoft Internet Explorer

Address: http://localhost/Reports/Pages/Report.aspx?ItemPath=%2FSAP+BW+Reporting%2FSAP+BW++...+Sales+by+Sales+Org+Trend&ExecId=w0emsh55juvzm145sq55nl45l...

SQL Server Reporting Services
Home > SAP BW Reporting >
SAP BW - Sales by Sales Org Trend

View Properties History Subscriptions

New Subscription

1 of 1 100% Find Next Select a format Export

Microsoft SQL Server 2005 *Sales by Material by Sales Org by Calendar Year*
Microsoft | SAP SAP NetWeaver Business Intelligence InfoCube: Sales Overview

Sales Report

Calendar Year :2003

Sales Organization :Paris

Material :M18

Net Value Trend by Calendar Year/Month

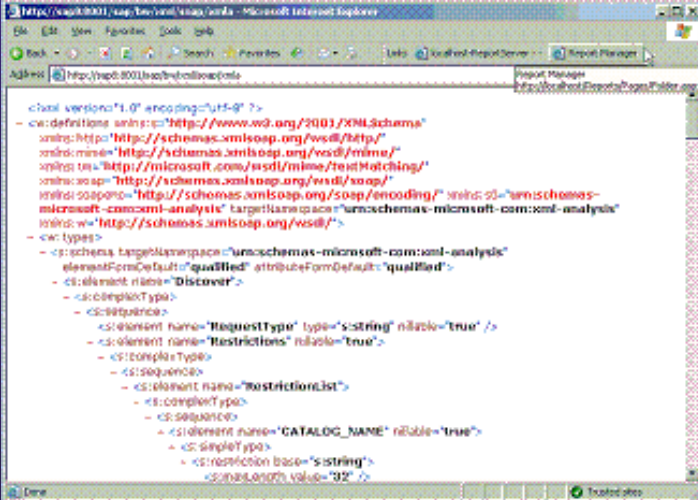
Sold To Customer	Net Value	Costs	Gross Margin	GM %
Total Hever Industrial UK	\$33,882	\$27,631	\$6,251	18 %
Total HTG Components	\$56,196	\$46,662	\$9,534	17 %
PERNR: 1205	\$3,310	\$2,603	\$707	21 %
PERNR: 1701	\$2,320	\$1,822	\$498	21 %
PERNR: 1205	\$5,321	\$4,180	\$1,141	21 %
PERNR: 1701	\$5,321	\$4,180	\$1,141	21 %
PERNR: 1205	\$12,300	\$11,400	\$900	7 %
PERNR: 1205	\$12,300	\$11,400	\$900	7 %
Total Infix Co.	\$40,872	\$35,585	\$5,287	13 %
GRAND TOTAL	\$130,950	\$109,878	\$21,072	16 %

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Solution Scenario 1

– Tips and Tricks

- Test the SAP BW XML/A Provider
 - Use Internet Explorer to open the XML/A provider's URL
 - Success look like...



The screenshot shows a Microsoft Internet Explorer window displaying the XML/A provider's response. The address bar shows the URL `http://sap01001.sap.tu-berlin.de/sap/xml/a/`. The main content area displays the XML response, which includes a schema definition and a `<Discover>` element. The `<Discover>` element contains a `<RequestType>` element and a `<Restrictions>` element. The `<Restrictions>` element contains a `<RestrictionsList>` element, which in turn contains a `<CatalogName>` element with a `<RestrictionBase>` element.

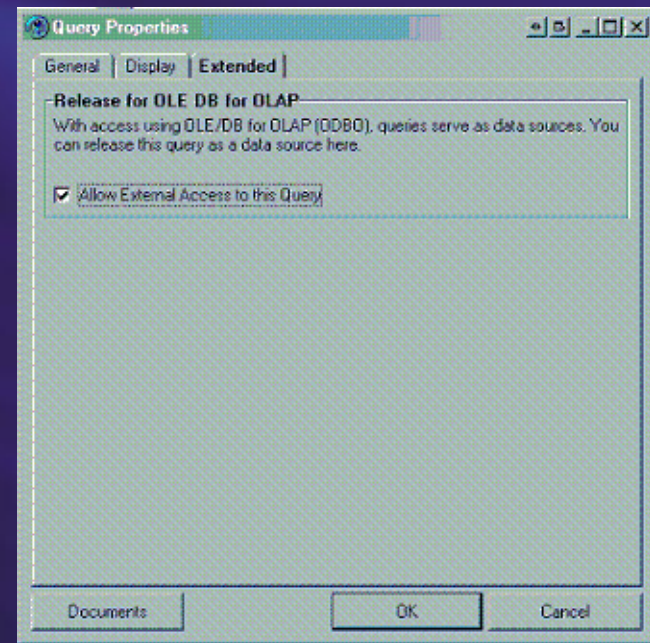
```
<?xml version="1.0" encoding="utf-8" ?>
<definitions xmlns:cs="http://www.w3.org/2001/XMLSchema"
xmlns:tns="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
xmlns:tns1="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/" xmlns:sd="urn:schemas-microsoft-com:soap1:soapencoding" targetNamespace="urn:schemas-microsoft-com:xml-analysis"
xmlns:xs="http://schemas.xmlsoap.org/wsdl/">
<complexType>
<schema targetNamespace="urn:schemas-microsoft-com:xml-analysis"
elementFormDefault="qualified" attributeFormDefault="qualified">
<element name="Discover">
<complexType>
<sequence>
<element name="RequestType" type="string" nillable="true" />
<element name="Restrictions" nillable="true">
<complexType>
<sequence>
<element name="RestrictionsList">
<complexType>
<sequence>
<element name="CatalogName" nillable="true">
<complexType>
<restriction base="string">
<minInclusive value="32" />

```


Solution Scenario 1

– Tips and Tricks

- Enabling a QueryCube for XML/A Access
 - In BEx Query Designer open the Query Properties dialog box and click the Extended tab
 - Select : Allow External Access to this Query



Solution Scenario 1

– Tips and Tricks

- Variables

- Only in QueryCubes
- Similar to the parameter feature of Analysis Services 2005
- Populate Report Parameter Values by creating a new dataset

Solution Scenario 1

– Tips and Tricks

- Properties

- Additional properties for key figures

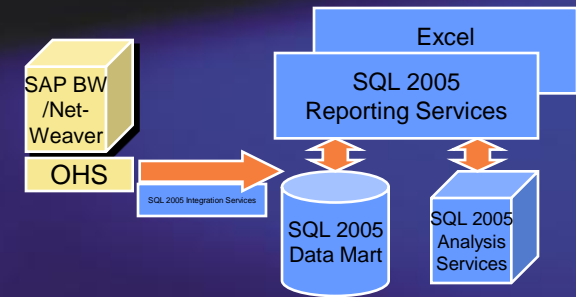
- VALUE (Default)
- FORMATTED_VALUE
- FORMAT_STRING
- BACK_COLOR
- FORE_COLOR

- Additional properties for dimensions

- MEMBER_CAPTION (Default)
- MEMBER_UNIQUE_NAME

- Syntax: `Fields!FieldName.PropertyName`

Solution Scenario 2



Use BW but feed data into other EDW

Overview:

- Use SAP Open Hub Service (OHS) to extract data into SQL Server 2005, from where Analysis Services and Reporting Services are used for analysis and reporting

Issues addressed:

- SAP BW reporting (re-use of business content)
- Flexibility to incorporate non-SAP data sources
- MOLAP technology - better performance and scalability

Known issues:

- OHS does not support extraction of BW hierarchies; need to use ABAP report
- SAP security applied only at time of export; need to maintain security in Analysis Services
- Customer needs to purchase SAP OHS license

Solution scenario 2 - demo

The image displays a solution scenario for SAP BW Staging and Reporting. It consists of three main windows:

- SAP BW Staging - Microsoft Visual Studio:** Shows a Data Flow Task with two sources: 'Read BIC OHOD_DECU' and 'Read BIC OHOLDTO'. The data flows through 'FBWStageSales' and 'DBWStageSoldTo' to a data source 'D_SOLD_TO_TXTSH'.
- SAP BW OHS Cube - Microsoft Visual Studio:** Shows the cube structure with measures (Sales Overview, Cost Amount, Invoice Quantity, Net Amount, Tax Amount) and dimensions (Division, Material, Sold To Party, Sales Organization).
- Report Manager - Microsoft Internet Explorer:** Displays a 'Sales Report' for 'Sales by Division by Sales Org'. The report includes a table of data and a bar chart of 'Net Value by Sales Organization'.

Sales Report Data Table:

Division	Net Amount	Invoice Qty	Tax Amount	Cost Amount
Frankfurt	\$1,008,604	1,886	\$117,131	\$412,080
Paris	\$168,886	1,113	\$17,211	\$138,070
Philadelphia	\$465,106	1,381	\$51,125	\$339,096
Toronto	\$584,229	2,331	\$59,753	\$457,666
Unknown	\$1,578,500	4,316	\$177,401	\$387,386
Total High Tech	\$3,805,325	11,027	\$422,621	\$1,734,298
Philadelphia	\$25,082	110	\$2,759	\$18,329
Total Internal	\$25,082	110	\$2,759	\$18,329
Philadelphia	\$42,089	438	\$4,635	-
Total Service	\$42,089	438	\$4,635	-
GRAND TOTAL	\$3,872,496	11,575	\$430,015	\$1,752,627

Net Value by Sales Organization:

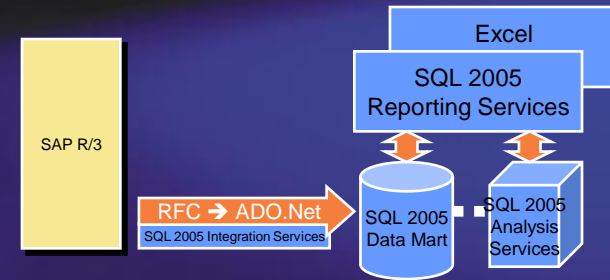
- Frankfurt - Net Amount: \$1,008,604
- Paris - Net Amount: \$168,886
- Philadelphia - Net Amount: \$465,106
- Toronto - Net Amount: \$584,229

This report is constructed based on an Analysis Services cube, SAP OHS Cube, which is based on tables delivered by SAP Open Hub Service from existing InfoCube and InfoObject(text) objects.

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Solution Scenario 3

ETL data from transaction DB (SAP)



Overview:

- Extraction of data directly from SAP R/3 using Integration Services and the Microsoft .Net Provider for SAP mySAP Business Suite into a SQL Server 2005 data mart, where Analysis Services and Reporting Services are used to deliver an analysis and reporting solution

Issues addressed:

- Alternative solution to SAP BW (no SAP BW license required)
- Flexibility to incorporate non-SAP data sources
- More productive ETL / Cube development environment

Known issues:

- Direct access to SAP R/3 tables is not recommended
- SAP do not support a “non BW” BI solution
- No access to SAP BW business content
- SAP security applied only at time of export; need to maintain security in Analysis Services

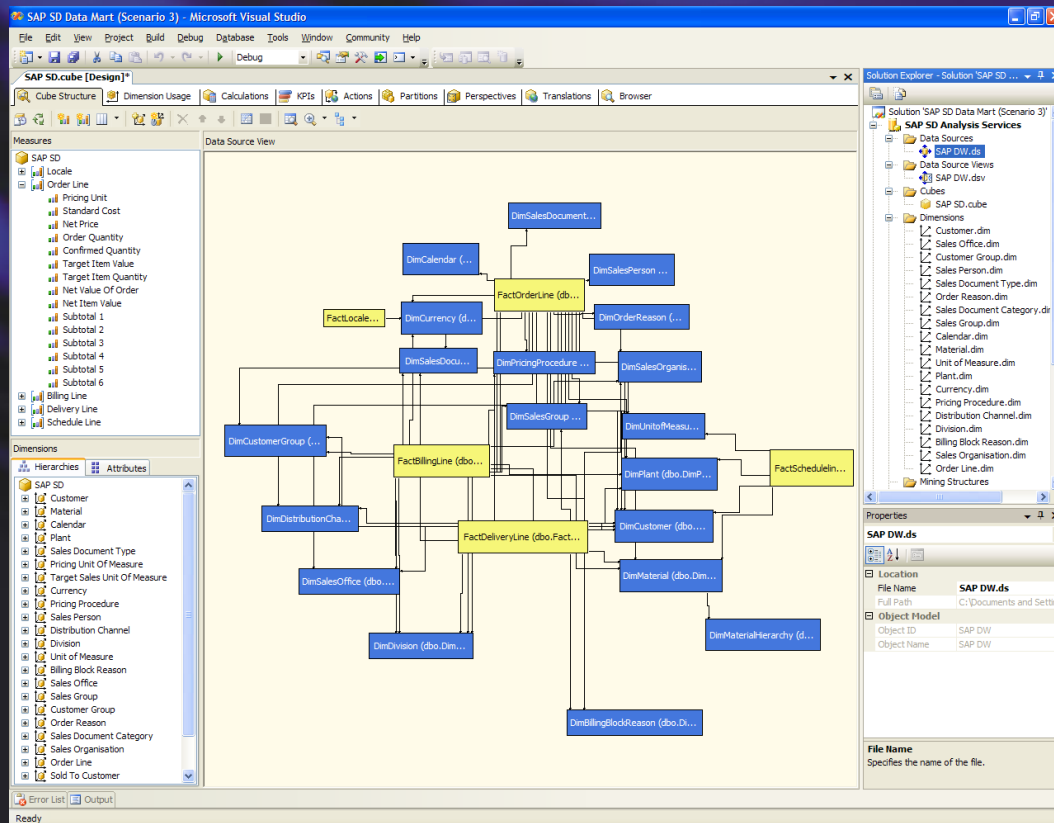
Solution scenario 3

Integration Services - Extraction, Transformation and Loading

The image displays two instances of Microsoft Visual Studio, each showing an SSIS package design. The left instance shows the 'Dim Material Load.dtsx' package with a control flow containing tasks: 'Set Up Audit Metadata', 'Truncate Dim Material', 'Insert Default Row', 'Load Dim Material', and 'Update audit metadata'. The right instance shows the 'Load Dim Material' data flow task, which is a complex ETL process. It starts with a 'Flat File Source' (Main Dimension table) and proceeds through several 'Merge Join' and 'Sort' tasks to load data into 'SAP DW OLEDB' and 'SAP STAGING' destinations. The 'Solution Explorer' on the right lists various data sources and SSIS packages, including 'SAP Data Load', 'SAP DW OLEDB', 'SAP STAGING', and 'SAP DW ds'. The 'Properties' window for the 'Load Dim Material' task shows settings for 'Forced Execution Value' (0), 'Forced Execution Value Type' (Int32), and 'Force Execution Value' (False).

Solution scenario 3

Analysis Services – Unified Dimensional Model



Solution scenario 3

Reporting Services – Enterprise Reporting

Report Manager - Microsoft Internet Explorer

Select Currency: American Dollar | Select Pricing Procedure Name: Standard | View Report

Select Year: Calendar 2003

Document Map: Sales by Material Division Hierarchy > Motorcycles > Trading goods > Accessories > Motorcycles

Microsoft SQL Server 2005 Sales by Material Division Hierarchy by Year

Microsoft | SAP | SQL Server SAP SD Data Mart UDM: SAP SD

Calendar Year: Calendar 2003

Division / Material Type / Material Group / Material	Gross Value	Net Value for Item	Standard Cost	Order Quantity	Gross Margin	GM %
Accessories	\$661,708	\$661,708	\$142,644	10,519	\$519,064	78 %
CrossFun / 350 cm3	\$690,575	\$690,575	\$241,611	99	\$448,963	65 %
CrossFun / 350 cm3	\$613,844	\$613,844	\$214,766	88	\$399,078	65 %
CrossFun / 350 cm3	\$334,824	\$334,824	\$117,145	48	\$217,679	65 %
SunFun / 1200 cm3	\$1,106,115	\$1,106,115	\$271,463	74	\$834,652	75 %
SunFun / 1200 cm3	\$881,903	\$881,903	\$216,437	59	\$665,466	75 %
Motorcycles	\$3,627,260	\$3,627,260	\$1,061,422	368	\$2,565,838	71 %
--Trading goods	\$4,288,968	\$4,288,968	\$1,204,066	10,887	\$3,084,902	72 %
Motorcycles	\$4,288,968	\$4,288,968	\$1,204,066	10,887	\$3,084,902	72 %
GRAND TOTAL	\$4,288,968	4,288,968	\$1,204,066	10,887	\$3,084,902	72 %

Net Value by Material Group

Legend: Accessories - Net Value, Motorcycles - Net Value

This report is constructed based on a SQL Server 2005 Analysis Services cube, populated by extracting data directly from SAP R/3 /mySAP using Integration Services into a SQL Server data mart (designed using dimensional modeling techniques).

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Solution Summary

- Flexible deployment options based on customer requirements
- Any customer may implement all scenarios
- Microsoft extends the SAP NetWeaver platform by following
 - Greater reporting flexibility and features
 - MOLAP technology - better performance and scalability
 - Multi-language support
 - More productive ETL / Cube development environment
 - Better integration with .Net development environment and other Microsoft products (e.g. SharePoint, PerformancePoint Server)