SAP Business Intelligence
SAP NetWeaver BW
and BI Solution Platform Overview
including Sybase Solutions

Roland Kramer
Product/Solution Management BW/BI/In-Memory | SAP AG
June 2013
1. SAP Businesswarehouse (BW) 7.30
   - Overview and Roadmap
   - Synergies with existing BW Accelerator 7.20

2. SAP BusinessObjects BI 4.0
   - Overview and Roadmap
   - Synergies with existing BW 7.01 and BW 7.30

3. Next Generation In-Memory (High Performance Analytical Appliance)
   - Overview and Roadmap HANA
   - Synergies with Business Suite and SAP BusinessObjects
   - Synergies with Sybase Portfolio

4. On Demand and Mobile Solutions
   - Current Information on bi.ondemand and streamwork
   - Mobile Solutions on Apple Devices
Quick Recap on Naming/one Voice

Conclusion

- Business Warehouse BI ➔ BW (Business/Enterprise Warehouse)
- Business Warehouse Accelerator BIA ➔ BWA
- BusinessObjects BO (BOBJ) ➔ SAP Business Objects BI
- BusinessObjects Polestar ➔ SAP BusinessObjects Explorer
- Project Pioneer (Successor of BEx) ➔ SAP BusinessObjects Analysis
  Office Version and OLAP Version (former Voyager)
- SAP BusinessObjects WebI ➔ Interactive Analysis (with BI 4.0)
- Xcelsius 2008 ➔ Dashboard Builder (with BI 4.0)

Business Intelligence at SAP is not only BI (former BO) for collecting Data (Data Services) and distributing Data (XI Platform), it is the combination TOGETHER with Business Warehouse (BW) and the In-Memory Technology (BWA) which makes the Solution a real Valuable scenario, including the NEW Products like SBO Explorer or the upcoming Advanced Analysis Frontend Product.

In-Memory (HANA and BWA) is the MAYOR Driver for the usage of the complete SAP BW/BI Solution.

HANA is not replacing BW, it is the database foundation for it

Sybase Portfolio complements the existing SAP Business Intelligence Architecture.
New Approved Naming for SAP BusinessObjects BI 4.0 suite

<table>
<thead>
<tr>
<th>No Equivalent Name</th>
<th>OFFICIAL APPROVED NAMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP BusinessObjects Enterprise Premium</td>
<td>SAP BusinessObjects Business Intelligence suite</td>
</tr>
<tr>
<td>Crystal Reports</td>
<td>SAP Crystal Reports</td>
</tr>
<tr>
<td>SAP BusinessObjects Xcelsius Enterprise</td>
<td>SAP BusinessObjects Dashboards</td>
</tr>
<tr>
<td>SAP BusinessObjects Web Intelligence</td>
<td>SAP BusinessObjects Web Intelligence (Note that the term Interactive Analysis was not communicated)</td>
</tr>
<tr>
<td>SAP BusinessObjects Voyager (aka Advanced Analysis Web; Pioneer)</td>
<td>SAP BusinessObjects Analysis, edition for OLAP</td>
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<tr>
<td>SAP BusinessObjects Advanced Analysis (aka Advanced Analysis Office; Pioneer)</td>
<td>SAP BusinessObjects Analysis, edition for Microsoft Office</td>
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<tr>
<td>SAP BusinessObjects Explorer</td>
<td>SAP BusinessObjects Explorer</td>
</tr>
<tr>
<td>SAP Business Intelligence BI, BIA</td>
<td>SAP Business Warehouse, BW, BW-Accelerator</td>
</tr>
</tbody>
</table>
New SAP In-Memory Computing & SAP HANA Naming Summary - Final 6/19/2011

Category
SAP in-memory computing

Appliance
SAP HANA appliance

Database
SAP HANA database

Cloud
SAP HANA application cloud

Applications
Application Name, powered by SAP HANA
Example: SAP Smart Meter Analytics, powered by SAP HANA

Studio
SAP HANA studio

Note: Name should always be “SAP HANA”, never without “SAP”
The New Business Intelligence Platform
Best BI and EIM in an SAP landscape (Version 3.1)
The New Business Intelligence Platform
Best BI and EIM in an SAP landscape (Version 4.0)
The New Business Intelligence Platform
Best BI and EIM in an SAP landscape (Version 4.1)
Next generation SAP Real-time Data Platform communicated 10\textsuperscript{th} of April 2011

SAP innovation without customer disruption
Positioning Database Technologies
SAP Sybase ASE, SAP Sybase IQ, and SAP HANA

- Retail
- ERP
- CRM
- BW
- DW

Performance

Transactional (OLTP) vs. Analyze (OLAP)

- SAP Sybase ASE
- Real-Time Reporting
- OLTP
- SAP Sybase IQ
- Traditional Reporting / Analytics
- SAP HANA
- Real-Time Analytics
- HANA

SAP Sybase ASE

Retail

ERP

CRM

BW

DW

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BW Enhancements Delivered in 2009/2010:
Updating your software stack is key

SAP NetWeaver BW 7.0 EhP1 (7.01) as THE foundation for all new BI Solutions

Available with BW 7.01

BEx
Explorer acc.

Crystal Reports
Web Intelligence

Xcelsius
Live Office
QaaWS

Universes

SQL Access
MDX Access
ODA

Data Federator
XMLA
OLAP BAPI
ODBO

BICS Access

RDBMS

DF Façade*

BWA
Analytic Engine

BICS Component

Further optimizations delivered in SPSs and SPs based on BW 7.01 and XI 3.1

10+ Improvements on BW 7.01 + XI 3.1 SP2

☑ Removal of 1 millions cells limitation
☑ Up to 15% performance gains with query streaming
☑ Up to 25% performance gains in the MDX driver
☑ Better OLAP universe change management with LCM

* DF Facade = new communication Interface with EhP1 between Data Federator and the BW Datasources

EhP1 and SBO Details: http://www.sdn.sap.com/irj/sdn/go/portal/prtroot/docs/library/uuid/808c3535-e378-2c10-83b4-cff07abef8e3

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Customer
Reporting on HANA 1.0 SPS02+ with BI 4.1+ Client and connectivity options

Are part of SBO BI 4
Outside or as part of SBO BI 4
Outside of SBO BI 4

Major Enhancements in red

Crystal Reports for Enterprise
Web Intelligence
Dashboards
Semantic Layer (universe UNX)

Excel
CR 2008
CR 2011
Explorer
Analysis Office v1.1
Analysis OLAP

MDX
SQL
ODBC
JDBC
MDX
SQL
ODBC
JDBC
MDX
SQL
ODBC
JDBC

ODBO
JDBC
ODBC
JDBC
ODBC
JDBC

SAP HANA Database
SAP NetWeaver BW 7.3

Performance & Scalability
- Scalable data models with built-in Semantic Partitioned Object (SPO)
- Optimized load performance for DataStore Objects and Master Data
- Enhanced built-in analytical capabilities for SAP NetWeaver BW Accelerator
- Query as an InfoProvider enabled for mass data handling

Integration with BusinessObjects
- Tighter Integration with SAP NetWeaver BW 7.3 and SAP BusinessObjects Tools: Data Services and Metadata Manager
- Optimized integration of SAP BusinessObjects BI Tools Xcelsius, WebI

Development Efficiency
- Combining real-time transactional data with historical data via HybridProvider
- Smarter data flow modeling with remarkably reduced manual effort
- Hierarchies integrated into SAP NetWeaver BW 7.x data flow
- Flexible modeling environment for analytical indices
- ABAP based Planning Modeler

Simplified configuration & operations
- Faster system set-up with a wizard-based system configuration
- Enhanced monitoring capabilities with new content for SAP NetWeaver BW Administration Cockpit and integration in SAP Solution Manager

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Continued investments for enhanced TCO of SAP NetWeaver BW integrated planning

**ABAP Planning Modeller**

- ABAP based Planning Modeler for a non-disruptive customizing of planning objects and their related BW objects
- The ABAP-based Planning Modeler does not require functionalities from the Java Stack for BEx Analyzer based planning applications
Implement operational reporting scenarios leveraging new modeling objects

**HybridProvider**
- Consists of a DataStore object and an InfoCube with automatically generated data flow in between
- Combines mass data with latest delta information at query runtime
- DSO object can be connected to a realtime data acquisition DataSource/DTP
- If the DataSource can provide appropriate delta information in direct access mode a VirtualProvider can be used instead of the DSO.
- Facilitates replication of DSO-/VirtualProvider data to SAP NetWeaver BW Accelerator by switching off database persistency of the InfoCube

**Enhancements Real-Time Data Acquisition**
- Possibility to load master data with RDA
- Enhanced error handling and scalability (daemon can handle more DataSources more efficiently)
Design Aspects – Near-line Storage vs. BW Accelerator/HANA

BWA
- Replication of the BW Star Schema including master data
- DB volume not affected
- Roll-Up and Change Run possible after data loads
- Optimized for fast BW Query access (load balancing by hash partitioning)

NLS
- Alternative storage types with direct access capabilities for reporting and loading
- Extracted partitions are deleted in RDBMS (NLS storage and Online Storage together consistently reflect the BW data persistency of an InfoProvider)
- NLS data is read-only
- NLS part of an InfoProvider are write-protected
- NLS is primarily partitioned by time/age

RDBMS

Access - very frequently frequently not frequently rarely
SAP NetWeaver BW 7.30 NLS with Sybase IQ fully integrated with PBS CBW NLS IQ

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SAP-owned Implementation for Sybase IQ

HANA DB

InfoProvider

Nearline Adapter (ABAP based)

DBSL for Sybase ASE (/w IQ ext.)
(Kernel based; Open SQL + Native IQ SQL via ADBC)

ODBC Driver from IQ

NLS Interface

BW Porting

General Porting

DB Client

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SAP BusinessObjects Explorer accelerated
Accelerated version for any Data with BW Accelerator 7.20

Analyze BW and any data – using the Search and Explore paradigm

Load data from any source
- Extended support for SAP NetWeaver BW data models including hierarchies
- Load any kind of data into SAP NetWeaver Accelerator using SAP Business Objects Data Services
- New calculation engine providing support for calculated key figures and restricted key figures
- Updated user interface
Optional persistency for InfoCube data in SAP NetWeaver BW Accelerator only

- Persists data of InfoCubes only in SAP NetWeaver BWA to:
  - reduce data redundancy
  - save disk space
  - Increase data base performance by reducing system load
- E- and F- fact tables as well as dimension tables are indexed
- Master data will be persisted in both SAP NetWeaver BW and SAP NetWeaver BW Accelerator
- A normal Data Transfer Process can be used to load data directly into SAP NetWeaver BW Accelerator
- Data of a downstream DataStore object can be replicated into BWA w/o InfoCube database persistency
**Analytic Index (AI)**

- Is a data container maintained in Analysis Process Designer whose data is stored in the BW Accelerator
- Analytic Index is exposed as InfoProvider to define Queries on it

**QueryProvider**

- Queries can be enabled as InfoProvider
- Supports mass data access from Queries in Analysis Process Designer scenarios
SAP NetWeaver BW Accelerator
Flexible modeling with APD & BWA in SAP NetWeaver BW 7.30

Ad-hoc joins/unions of analytical indexes in SAP NetWeaver BWA

- Composite Provider describes a union/join of analytical indices
- Lean Modeler tool is the Design-time environment to build Composite Providers
- Join/Union operation is processed on the fly by BWA
- Composite Providers are exposed to SAP BusinessObjects Explorer
- For all other BI Clients Composite Providers are exposed as standard SAP NetWeaver BW InfoProvider
Introducing BW Workspaces

A BW Workspace is a dedicated area in a BW system where new models can be created based on central BW and local data (e.g. flat files). Workspaces can be maintained and controlled by IT and used by local departments to react quickly to new and changing requirements. Workspaces can bridge the gap between central governance requirements and local flexibility needs.
BWA Workspaces for individual BWA usage within Departments

- All new BW/BWA features available in one workspace with IT governed, e.g. assigned Memory, etc. and used by local departments.

Excel/CSV upload by Business User

Any BW InfoProvider with a BWA Index
- InfoCube / VirtualProvider
- Masterdata Provider
- QueryProvider

Analytic Indexes
- APD
- SAP BO DataServices / IndexDesigner

Query results
- QueryProvider
- APD → AnalyticIndex
- Query result → Excel → Upload
- Query copy / Query definition re-use on Workspace Provider
Introducing BW Workspaces
Dedicated views for both IT and business

Workspace Designer for key users in business departments

- **Browser-based** tool running in SAP NetWeaver Business Client or SAP NetWeaver Portal
- **Easy upload** of local flat files, Query results and BW DataSources into Local Provider
- **Merge data** of Local Providers with data from SAP NetWeaver BW to create new data models (CompositeProvider)
- **Monitor** Workspace with regards to size and number of objects created
SAP NetWeaver BW 7.0 / SAP NetWeaver BWA 7.0
Starting point of BW and in-memory

Highly scalable in-memory solution to improve query performance while lowering the cost of operation

- Speed up query performance factor 10 to 100
- Save time to build and maintain aggregates at the same time saving disk space
- Extremely shortened roll-up and change run times
Accelerate and Improve Any of Your Data  
Map, transform, cleanse, and index In-Memory

(1) Define In-Memory Index model using SAP BusinessObjects Data Services
- Use Index Designer add-in to define model
- Index model is a flattened view of information

(2) Map In-Memory Index to 1 or more data sources
- Transform, cleanse and merge data from any data source
- Broad connectivity to databases, apps, legacy, file formats, and unstructured data

(3) Schedule & run SAP BusinessObjects Data Services jobs
- New data and changed data is automatically indexed
Significant performance enhancements and new object support

- Acceleration of additional EDW objects like DSOs, Master Data Objects, Analytic Indexes
- New delegated calculations to BWA and accelerated analytic operations (e.g. count distinct)
- New “SAP NetWeaver BWA only” InfoCube data persistency option
SAP NetWeaver BW 7.3 SP05 running on HANA
Rampup started 7th of November 2011 with HANA 1.0 SP03

SAP NetWeaver BW on HANA based system (HANA as DB foundation)

- Integrated engine for data management and in-memory processing of analytical capabilities
- Reduced TCO compared to conventional RDBMS
- Pure DB conversion. No re-implementation required.
DB Conversion can be performed starting with SAP NetWeaver BW 7.30 SPx (x = tbd)

- SAP standard DB migration procedure via R3load (includes Hana/ICE specific adjustments and cleanups)
- BW on Hana natively delivers BWA functionality for BW objects. It is not required to run a separate BWA.
- Post-DB Conversion process: a conversion of InfoCubes and DSOs into new Hana-optimized object types must be performed to make optimal use of new In-Memory technology. Objects can be converted on an object-by-object basis.
- For BW 7.3 Objects with primary persistence in BWA, these objects can be rebuilt from their associated data source (e.g. BWA Infocubes and SnapshotIndexes for VirtualProvider, QueryProviders, and MultiProviders)
- After conversion, all query, OLAP, planning, load, etc processes run as before, adjustments are only required with the customer wants to leverage in-memory optimizations
Planned functionality of the database migration option (DMO for SUM)

SAP HANA database migration option will be a SUM-based tool simplifying the migration process:

- Pilot *(planned until end of Q2/2013)* Upgrade and Migration of BW system in one Step
- First shipment *(planned for H1/2013)* Unicode Conversion, Upgrade and Migration for SAP NetWeaver BW Systems
- GA Version available Q3/2013
- Future direction
  - Cover additional products
  - Further downtime reduction

1. **Upgrade “Prepare”**
   - Setup SAP HANA specifics (client, schema …)

2. **Execute Upgrade**
   - (until downtime phase)

3. **Switch database connection**

4. **Migrate application data**
   - (incl. data conversion)

5. **Finalize Upgrade**

6. **Start SAP HANA-based system**

Note:
- Traditional database continues to run

Traditional DB

Uptime

Downtime

Time
database migration option (DMO) and end to end implementation roadmap

http://help.sap.com/nw731bwhana#section2
Evolving In-Memory Footprint in SAP NetWeaver BW

Data Modeling
- Planning Engine
- Analytic Engine
- Data Manager
- InfoCubes
- DataStore Objects
- EDW Processes

Data Persistency and Runtime
- BW 7.0 DB + BWA 7.0
- BW 7.3 DB + BWA 7.2
- Planned: BW 7.3 on HANA SP5 and beyond

- In-memory planning engine
- Additional calculations in-memory
- Consumption of HANA models in BW
- In-Memory optimized InfoCubes
- In-Memory optimized DataStore Objects
- HANA data for BW Staging

First calculation scenarios in BWA
Filter + aggregation
MultiProvider handling and flexible joins
BWA instead of aggregates
BWA-only InfoCubes
BWA reporting for DSOs
Consumption of HANA models in BW
In-Memory optimized InfoCubes
In-Memory optimized DataStore Objects
HANA data for BW Staging

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Introducing the SAP Business Analytic Engine

In-Memory Computing to provide immediate results

Business Modeling

<table>
<thead>
<tr>
<th>In-Memory Computing</th>
<th>Calculation Engine</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL</td>
<td>MDX</td>
</tr>
</tbody>
</table>

Data Utilities

Business Analytic Engine

Transactional and analytic data acceleration and management in a single environment:

- a high performance in-memory computing engine
- a powerful and flexible data calculation engine
- supports SQL & MDX
- a unified information modeling design environment
- a data repository to persist views of business information

HANA - The High Performance ANalytical Appliance by SAP

HANA = BAE as Appliance (next Generation BWA)
What is SAP HANA?

SAP HANA is a preconfigured out of the box Appliance
- In-Memory software bundled with hardware delivered from the hardware partner (HP, IBM, CISCO, Fujitsu)
- In-Memory Computing Engine ("IMCE")
  - Tools for data modeling, data and life cycle management, security, operations, etc.
- Real-time Data replication via Sybase Replication Server
- Support for multiple interfaces
- Content packages (Extractors and Data Models) introduced over time

Capabilities Enabled
- Analyze information in real-time at unprecedented speeds on large volumes of non-aggregated data.
- Create flexible analytic models based on real-time and historic business data
- Foundation for new category of applications (e.g., planning, simulation) to significantly outperform current applications in category
- Minimizes data duplication
SAP HANA is planned to be ...

... the first product which incorporates the SAP In-Memory Computing Engine

... shipped as an appliance with our hardware partners

Access information via SQL or MDX from SAP Business Objects

Create views on data in a visual modeling environment

Load data using ETL or data replication

Create views on data in a visual modeling environment

SAP In-Memory Computing Engine

SAP High Performance Analytic Appliance
(SAP HANA) – current ideas
SAP High Performance Analytic Appliance
Potential use case with operational reporting

- No more query workload from reports on the database
- Data replication near real-time
- No change in the application

Flexible reporting with SAP BI tools and extreme performance
SAP High Performance Analytic Appliance
Potential use case for agile data marts

Flexible reporting with SAP BI tools and extreme performance

Load data w/ data services

Other data
(market data, demographical data)

Data Warehouse
(e.g. SAP BW)

Load data w/ data services

HANA

HANA modeling

Create views on data to expose agile marts to clients

BI

In-Memory
Business Intelligence Platform with HANA
Showing all components in the solution overview

SAP BusinessObjects Intelligence - BI 4.0

Analysis Office/OLAP
Explorer
Crystal Reports
Web Intelligence
Xcelsius

MSFT Excel
HANA Studio

SAP HANA

Data Integrator
Data Quality Management
Data Services - DS 4.0
Replication
ETL process

ERP
Financials
Operations
Human Resources
Corporate Services

CRM
SCM
SRM
PLM

SAP Business Suite

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SAP In-Memory Strategy
Product Strategy for HANA

In-Memory Analytics
- HANA 1.0 Real-time operational analytics with HANA 1.0
- Complete BI Suite with BI 4.0 (Aurora) runs on HANA
- SAP Business by Design 2.6 runs on in-memory

Next generation applications
- SAP BW fully running on HANA 1.0 SP03
- HANA 1.0 platform for In-Memory Apps
- Business Suite runs on HANA 2.0
- SBOP 4.x (Aurora) unified modeling with HANA
- Industry and LOB Business Analytics Solutions “BAS”

One Store for Data and Analytics
- HANA only persistence layer for SAP Business Suite
- SAP Business Suite optimized for In-Memory

Capabilities

Benefits
- Flexible real time analysis of operations at non-aggregated level
- Real-Time operational planning, simulation and forecasting: link to execution
- Reduced landscape complexity
- Value chain transformation

Q4 2010
“Renovation”
HANA 1.0

2011-12
“Innovation“
HANA 1.0 SP03 ff.

2012+
“Transformation”
HANA 2+

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### SAP HANA

**SAP HANA is:**
- A multi-purpose, data source agonistic in-memory appliance that combines SAP software along with hardware optimized and delivered by SAP’s leading hardware partners

**SAP HANA:**
- Enables organizations to analyze business operations on large volumes of SAP transactional information
- Allows real-time analysis of both SAP and non-SAP information as it happens in order to react quickly to market conditions

**SAP HANA** is the technology foundation going forward for innovative new applications based on in-memory technology

**SAP HANA**
- Is the evolution of SAP’s successful in-memory technology used today in many SAP solutions and by thousands of SAP customers

### Sybase IQ Analytics Server

**Sybase IQ is:**
- A highly optimized, persistent and multi-platform analytics server designed from the start for the most challenging analytics requirements

**Sybase IQ:**
- Supercharges analytics performance 10-100x times from extensive transaction histories and perform long-tail analysis on data
- Correlates current data with many years of company information including analysis of unstructured data

**Sybase IQ** is the ongoing analytics data management platform for SAP/Sybase

**Sybase IQ**
- is recognized as a leader in Gartner’s Magic Quadrant and Forrester Wave Data Warehouse reports
- is the foundation for analytical applications with more than 3500 installations worldwide

### SAP HANA vs. Sybase IQ

<table>
<thead>
<tr>
<th>SAP HANA</th>
<th>Sybase IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Memory Row/Column-based Analytic Appliance</td>
<td>Column-based RDBMS</td>
</tr>
</tbody>
</table>

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# Business Analytics Tools + Platform

SAP+Sybase Solutions

<table>
<thead>
<tr>
<th>Business Intelligence</th>
<th>SAP BusinessObjects BI Solutions</th>
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</thead>
<tbody>
<tr>
<td>Enterprise Information Management</td>
<td>MDM</td>
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<tr>
<td>Data Foundation</td>
<td>BW (Data Warehouse)</td>
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<tr>
<td>Operational BI/Complex Event Processing</td>
<td>Event Insight</td>
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<tr>
<td>Transactional RDBMS</td>
<td>MaxDB</td>
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</tbody>
</table>

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Future innovation for our joint acceleration technology will be optimized for seamless data management across Memory, Cache/SSD and Disk.
Sybase IQ 15 –
Next Generation Column Store Platform

Sybase IQ 15 Engine

- Communications & Security
- Query Optimizer
- Loading System
- Column Indexing Sub-system
- Column Storage Processor

Multiplex Grid Management

- Query parallelism
- Advanced query algorithms
- 3-byte tokenization
- Delayed projection
- Range partitioning
- Configurable table spaces
- Independent scale out
- Multi-reader, multi-writer
- Full duplex interconnect

Storage Area Network

- Bulk and incremental loads
- Grid based multi-node loads
- FDCC and IPV6 support
- Upserts, table lock loads
- Client side direct loads
- Web-based task monitoring

Sybase ETL 4.8 – Optimized for Sybase IQ 15

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Mapping the Right Solution for Your Environment

Enterprise Data Warehouse

Real-time, High-performance Operational Insight

SAP Data

SAP NetWeaver BW

SAP HANA

Sybase IQ

Other Data

Sybase IQ

*See use cases to make recommendation*
SAP HANA / Sybase IQ Deployment Scenarios
Side by Side

1. SAP BusinessObjects BI
   - SAP HANA 1.0
     - Hi-Value Scenarios
   - SAP BW
   - Traditional DB
     - ASE, Oracle, DB2, TD, SQL Server
   - SAP ECC
   - Traditional DB
     - ASE, Oracle, DB2, SQL Server

2. SAP BusinessObjects BI
   - Sybase IQ
   - Non-SAP Trans 1
     - Traditional DB
       - ASE, Oracle, DB2, SQL Server
   - Non-SAP Trans 2
     - Traditional DB
       - ASE, Oracle, DB2, SQL Server
SAP HANA / Sybase IQ Deployment Scenarios
Integration Scenarios Based on HANA 1.0

SAP
BusinessObjects BI

SAP
HANA
1.0
Hi-Value
Scenarios

SAP BW

Traditional DB
ASE, Oracle, DB2,
TD, SQL Server

Sybase IQ

SAP ECC

Traditional DB
ASE, Oracle, DB2,
SQL Server

Non-SAP
Trans 1

Non-SAP
Trans 2

Traditional DB
ASE, Oracle, DB2,
SQL Server

Traditional DB
ASE, Oracle, DB2,
SQL Server
Hybrid Analytical Solution SAP BW(A)/HANA und Sybase IQ

- SAP HANA 1.0
  - Hi-Value Scenarios
  - SAP BusinessObjects BI
  - SAP BW
  - Traditional DB
    - ASE, Oracle, DB2, TD, SQL Server
  - PBS NLS-IQ
    - RAYQ on IQ (Datamining)
  - Sybase IQ
    - Traditional DB
      - ASE, Oracle, DB2, SQL Server

- SAP ECC
  - Traditional DB
    - ASE, Oracle, DB2, SQL Server

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## SAP Integration with BW 7.30 and DS 4.0

### SAP BusinessObjects Information Management (IM)

### SAP BusinessObjects Data Services

<table>
<thead>
<tr>
<th>Feature</th>
<th>Release: XI 3.2/ BW 7.0x</th>
<th>Next major DS Release/ BW 7.3</th>
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</thead>
<tbody>
<tr>
<td>Tighter integration of BusinessObjects Data Services into extended SAP NetWeaver BW data flow concept (DataServices to support BW 7.x DataSource concept)</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>New Source System type in BW: ‘Data Services’ with access to Data Services ‘Data Stores’ and generation of Data Services data flows (i.e. simple dataflow from DataStore to BW DataSource)</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Execute and control process chains from SAP BusinessObjects Data Services to extract data via Open Hub Service</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>SAP BusinessObjects Data Services to schedule loading processes of SAP NetWeaver BW</td>
<td>✔</td>
<td></td>
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### SAP BusinessObjects Metadata Management

<table>
<thead>
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<th>Feature</th>
<th>Release: XI 3.1/ BW 7.0x</th>
<th>Next major XI Release/ BW 7.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extend existing BOMM data lineage and impact analysis: include detailed mapping information from source to target</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Change impact analysis between SAP NetWeaver BW objects such as DataStore objects, InfoSets, BEx Queries, and InfoCubes</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>End-to-end capabilities for all data sources through SAP BusinessObjects Data Services</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>End-user access to data lineage information for trusted SAP NetWeaver BW deployment</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
SAP BusinessObjects Data Services 4.0
Scope and Overview

DATA SERVICES
Open Scalable Reusable

Enterprise Applications

Legacy
Business Intelligence

Systems with Unstructured Data
Data Services Is Your One-stop Solution
Data Integration, Data Quality, Information Stewardship, and Text Analytics

Data Services 4.0 provides access to all critical business data (regardless of data source, type, or domain) enabling greater business insights and operational effectiveness.

SAP BusinessObjects Data Services 4.0

- **Business UI** (Information Steward)
- **Technical UI** (Data Services)
- Unified Metadata
- One Runtime Architecture & Services
  - ETL
  - Data Quality
  - Profiling
  - Text Analytics
- One Administration Environment
  - (Scheduling, Security, User Management)
- One Set of Source/Target Connectors

MOVE

IMPROVE

GOVERN

UNLOCK
Empower data stewards with a single environment to discover, assess, define, monitor, and improve the quality of their enterprise data asset.

Discover & understand enterprise data
- Data profiling
- Metadata management

Discover
- Catalog data assets

Define business terms, validation rules, cleansing rules, models

Define
- Define data ownership:
  - Assign data ownership, accountability & roles

Monitor & Remediate
- Monitor data quality
- Surface data quality score in business user applications
- Workflows to resolve data quality issues
Common Server and Services Layer for Both SAP BusinessObjects BI and Data Services Solutions

Enable synchronized, dependable, and reliable management of your Users, Access, and Processing across all systems via common central services for BI and Data Services.

SAP BusinessObjects Data Services 4.0

- Business UI (Information Steward)
- Technical UI (Data Services)
- Unified Metadata
- One Runtime Architecture & Services
- ETL
- Data Quality
- Profiling
- Text Analytics

SAP BusinessObjects BI 4.0

- BI Client Interfaces
- BI Platform

Common Services: User Administration, Security, and Scheduling
Data Services is the engine to load all data into NewDB (in-memory)

The HANA Modeler will generate initial loading jobs

- Modeler will use Data Services to browse and ‘import’ external metadata
- Modeler will generate initial flows to load data into NewDB tables
- Further modifications to flows done via Data Services Designer
Best Run Businesses with the SAP BusinessObjects 4 Suite
Complete BI Suite to Put Together Information in the Users’ Preferred Format

How do I visualize key performance indicators for better decision making?

How do I answer ad hoc questions and interact with shared information?

How do I uncover trends from historical data and make possible better forecasts?

How do I find immediate answers to business questions?

How do I turn data into pixel-perfect formatted reports for greater insight?
Key Benefits

- Acceleration of all BI Solutions
- High Performance
- Truly Scalable BI
- Rapid ROI & Low TCO
Common Semantic Layer with BI 4.0

Common semantic layer = one unified approach for meta data support

- One consistent user experience across all BI front-ends
- One abstraction layer for BW and other data sources
- Adapt and leverage data source capabilities without requiring to change data models and/or move data
- Smooth evolution from universes for existing customers

Preserve investments in BEx Queries by enabling direct consumption across all BI front-ends
- Consume existing BEx Queries across all BI front-ends
- Transition to common semantic layer for new projects
Common Semantic Layer - Details
Building on common foundation layers

Target audience
- Metadata designers
- Power users

Key value-add
- Enable consistent business user experience
- Trusted access to information
- Heterogeneous access over all sources
- Multi-source access
- Secured and controlled by IT
How does it work: Basic architecture
Synergy from Data Federation and New Semantic Layer

Connections  Data Foundation  Business Layer

Relational source

Relational source

SAP BW

Data Foundation

Business Layer

Connections

SAP BW
Best Access to All Heterogeneous Data Sources
Unique Options for Bringing BW and 3rd-Party Data Together

- Best access method for each specific data source: BICS, SQL, MDX
- New dimensional universes for 3rd-party OLAP data sources
- New multi-source universes with built-in data federation

Crystal Reports, Web Intelligence, Explorer, and Dashboards

Analysis

Universe

Multi-Source Universe

3rd-party OLAP Server

3rd-party Data Warehouse

BEx Query

InfoProviders

SAP NetWeaver BW

3rd-party OLAP Server

MDX

SQL

MDX

BICS

BICS

SQL

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New Information Designer Tool
Single Environment for Accessing Multiple Data Sources

Faster access to many data sources

- Single development environment for building BI solutions and data federation jobs for multi-source universe data access
- Data Federator is integrated to leverage common security and administration
- Performance enhancements with engine update to support native DB syntax and new query optimizations

Color allow to discriminate the tables from both sources

Heterogeneous joins between tables coming from different sources
Engaging New User Experience
SAP Crystal Reports

Next-Generation Report Designer Experience

- New styling with ribbon bar look and feel
- Common query design experience across all data sources with new semantic layer
- Automated report translation for global deployments
Engaging New User Experience
SAP BusinessObjects Web Intelligence

Refined User Experience and Interactivity

- Refined user experience with new charting options and toolbar
- Expanded interactivity for ad hoc and guided analysis workflows
- On-the-fly data browsing and query result validation
Engaging New User Experience
SAP BusinessObjects Dashboards

Simpler Authoring Experience

- Common design experience across all data sources with support for new semantic layer
- Improved authoring via query integration and direct access to semantic layer
- Alert consumption via BI platform services
Engaging New User Experience
BI Launch Pad

Self-Service Information Consumption

- New self-service BI access making it easier to find all available content
- Enhanced filtering and search options reducing page scrolling
- Enhanced navigation for working with multiple documents at the same time
Engaging New User Experience
BI Workspace

Personalized Information Consumption

- Organizing and displaying any BI content with decreased IT dependency
- Simple WYSIWYG authoring for creating and modifying content
- Inter-portlet communication enabling information exchange between components
Improved SAP BusinessObjects BI Platform
Local – Regional – Global

Global Readiness and Scalability

- Multilingual BI delivery across geographic locations
- Enhanced scalability with virtualization and 64-bit support
- Continued heterogeneous platform and database support
Comprehensive System Monitoring and Diagnosis

- Automatic diagnosis for performance optimization
- Health dashboard, watches, and alerts for tailored system insight
- Complete auditing tracking for compliance and usage analysis

Improved SAP BusinessObjects BI Platform
System Monitoring and Diagnosis
Analysis, Edition for MS Office
MS Excel Add-In with Query Panel

![Excel Screen with Query Panel]

- **Data Source Name**: TechEd Sales Analysis 01
- **Last Data Update**: 21.08.2009 11:21

The image shows a spreadsheet with data divided by division, showing columns for Sales Volume EUR, Incoming Orders EUR, and Sales Order Item. A pie chart is also present, illustrating the sales volume breakdown by division and subcategories.
The Right Tool For The Job
Providing best fit solutions across the range of BI requirements
The Right Tool For The Job
Providing best fit solutions across the range of BI requirements

SAP Business Objects Analysis Clients

- **Reporting**
  - Crystal Reports

- **Dashboards & Visualization**
  - Dashboards (fka Xcelsius)

- **Interactive Reporting**
  - Web Intelligence

- **OLAP Analysis**
  - Analysis

- **Data Exploration**
  - BEx WAD
  - Explorer

Professionally Informed
Executives, Managers
Information Consumer
Business Analysts
Technically Capable

Limited
Interactive Experience, Responsiveness
Full
Analysis Clients for Web
User Groups and Tool vs. Application

WebI
Voyager
Analysis OLAP
BEx Web
Analysis Studio

Power User to End User
End User to End User

Analyst to Analyst

Tool
Ad-hoc and self-service
End user empowerment
Full set of functionality
De-centralized content creation

Application
Custom/specific analysis / guided navigation
Planning application
Selected set of functionality
(IT-)centralized content creation

Designer to End User / Analyst

Power User to End User / Analyst
BI 4.0: Analysis Clients

Custom Analytic & Planning Apps
- BEx WAD
  - IT / Developer for task workers
  - Technical expertise (design), business domain expertise (consumer)
  - Purpose-built BW-based apps for routine analytic & planning scenarios
  - BEx WAD runtime integrated into BI Platform, Publishing into InfoView

Ad-Hoc OLAP Analysis
- Analysis, Edition for OLAP
  - Data Analyst(s)
  - Analytical expertise
  - Analytical question can be immediately pursued
  - Optimized for highly interactive analysis
  - Limited layouting & formatting

Self-Service Reporting
- Web Intelligence
  - Business Users
  - (Limited) technical expertise (report designers), business domain expertise (consumer / prosumer)
  - Interactive report creation
  - Flexible formatted reports with built-in analysis features

Instant Exploration
- Explorer
  - Search and navigation tool for casual users to access business data
  - No training required
  - Ability to search, explore and visualize massive data volumes via BWA
  - Smart visualization capabilities

Analysis, Edition for Microsoft Office
- IT / Developers, Data Analysts, Business Users
- Excel-based OLAP analysis
- Excel-based BI applications
- Live PowerPoint presentations
Using of BEx Web Application Designer Templates in BO Enterprise/InfoView in BI 4.0

Integration of SAP BEx Web Application Java runtime into SAP BusinessObjects BI platform

No additional SAP NetWeaver J2EE stack required
Interoperability Between Analysis and Other Clients in 2010 based on BI 4.0

- Interoperability through Analysis View
  - Captures view on the data including filters and other features (similar to BEx query view)
  - Stored in BI platform
  - Can be created in SAP BusinessObjects Analysis (both editions)
  - Can be consumed by SAP BusinessObjects Analysis (both editions), Web Intelligence and Crystal Reports (each tool interprets the analysis view in a way that is consistent with its native environment)
### Analysis, Edition for OLAP & Design Studio

- Integrated Offering that includes dedicated Ad-Hoc OLAP client for business users as well as design studio for power users to create purpose-built OLAP analysis & planning apps
- Customer- and SAP-delivered content
- Seamless interoperability between designer and ad-hoc client
- HANA support

### Web Intelligence

- All-Terrain analytic self-service reporting on any type of data source
- Intuitive design of interactive reports with built-in analytical features
- Full replacement of Desktop Intelligence
- New optimized direct & native access to OLAP sources
- HANA support

### Explorer

- Search and navigation tool for casual users to access business data
- Guided Analysis & Smart Visualizations
- Creation, Bookmarking & Sharing of Exploration Views
- Interop to other clients
- HANA support

### Analysis, Edition for Microsoft Office

- IT / Developers, Data Analysts, Business Users
- Excel-based OLAP analysis
- Excel-based BI applications
- Live PowerPoint presentations
SAP BO Analysis, Edition for MS Office: Benefits of the BI Platform

BI is the strategic platform for all SAP BusinessObjects Clients!

BOE XI 3.1
- Central provisioning of BW connections
- Client-side Single-Sign On
- Saving and sharing workbooks centrally (common xls / ppt info object)

BI 4.0 (as of GA September 2011)
- Support system-type connection
- Server-side and client-side Single-Sign On
- Saving and sharing workbooks centrally (common xls(x) / ppt(x) InfoObject)
- Integration into standard SAP lifecycle management procedures (transports, Solution Mgt.)
- Interoperability with other clients: WebI, Crystal Reports and SAP BusinessObjects Advanced Analysis, Web edition based on Analysis View

Future direction after BI 4.0*
- Precalculation/Batch Processing and BOE Publishing/Broadcasting

Note:
Although technically possible, e.g. for testing purposes, a direct connection to BW without BOE is not recommended for productive usage (main services like central repository, interoperability, etc. are not supported)
Analysis, Edition for MS Office:
High Level Architecture

- **Client PCs**
  - BO Analysis, edition for MS Office is a regular MS Office add-in (for Excel & Powerpoint)

- **Connectivity**
  - Connection selection either via local saplogon.ini entries or via connection management of BOE
  - Connection in both above cases on BW query level (i.e. BEx Query Designer investments are protected) or to regular BW Info Providers
  - Multiple BW backends within one workbook
  - BW InfoAreas / roles supported, history of recently opened queries available

- **Backend**
  - BW 7.x and respective BWA releases
  - BOE repository services for workbooks and PPT files (no BW storage possible)
  - If no BOE is used: storage, lifecycle mgmt., distribution, … via 3rd party repository

---

**Client PCs**
(XLS/PPT add-in)

**Without BOE**

**With BOE**

- **BW 7.x** (BEx Queries, views, InfoProviders)
- **BW Accelerator** (optional)
- **3rd party XLS/PPT repository** (file share, MOSS, EP webdav…)

**BW Connections**

**BOE Repository/InfoView**

**BI platform**
Key Differences BPC and BI-IP
Complementary Positioning

The Alignment, Extension & Augmentation of two leading, complementary Planning solutions

SAP Business Planning and Consolidation 7.0

- Application-based approach
- Unified planning and consolidation capabilities
- Agile planning processes driven by end users
- Self-service reporting and analysis with complete Microsoft Office Integration
- Owned and managed by the Business

SAP NetWeaver BW-Integrated Planning

- Engine-based approach
- Data warehouse-centric
- Standardized hierarchical planning processes governed by IT
- Web/Excel based analysis capabilities
- Owned and managed by IT
On Demand Services

- Self Service
- Accelerated Innovation
- Channel of Choice
- Time to Value
- Low TCO
- No Hidden Costs
SAP On-Demand Solutions for User Productivity

- SAP workspaces
- SAP StreamWork
- SAP BI On Demand
- SAP Social intelligence

On Demand
The SAP On Demand Portfolio

Business ByDesign

BusinessObjects On Demand

Line of Business On Demand

*Note: 1. Partnership with Northgate Arinso™
BI On Demand: A Detailed View

SAP BusinessObjects OnDemand

Business Intelligence Services:
- Operational Reports
- Dashboards
- Query & Analysis Reporting
- Search and Navigate
- Content Management

Administration
- Folders, Documents, Users

Security
- Document permissions, User Access Rights, Row Level Security

Data Management
- Data Schema, ETL Process, Universes

SAP BusinessObjects OnDemand Hosted Data Warehouse Services

Subscribed Users:
- Consumers
- Administrator(s)
- Content Creators

Source Data

Browser Based Subscriber Experience
Next-Generation OnDemand BI Offering by End of 2010

Intuitive, self-service insight

- Easily create and monitor dashboards and business operations
- Explore and drill to better understand root causes
- Securely share insight with colleagues, customers, and partners

Easy data access with powerful analysis

- Connect to internal and external sources
- Combine and integrate currently siloed data
- Employ powerful ad-hoc query and analysis when needed

Embeddable with hybrid deployability and flexible pricing

- Hybrid deployability
- OEM friendly embedability
- Flexible, convenient pricing

Try it: http://www.ondemand.com/businessintelligence

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Targeted, personalized information wherever you are

Targeted BI Content

Search & Exploration

In-Memory Accelerated Exploration of Any Data Source
Explorer Mobile Demo and Access
Best Mobile Ad-Hoc Analysis & Exploration

Now Available On The Apple App Store!
SAP BusinessObjects Explorer on iPad/iPhone

- **Search across all data sources** - Simply enter a few search keywords to find the most relevant information instantly from across all data sources
- **Contextual exploration** - Gain additional contextually relevant details when searching - no data model or data knowledge required
- **Automated relevancy and chart generation** - Work with a solution that presents the most relevant keyword search results first and automatically generates the chart that best represents the information
- **High performance and scalability** - Take advantage of the high performance and scalability you need for immediate answers across very large data sets
- **Share your results** instantly with others right from your iPhone and iPAD

Available on for download on the Apple App Store:


Video: http://vimeo.com/5798663

More details: Innovation Center Page
SAP BusinessObjects BI Mobile on iPad/iPhone

Key features:

- Access your existing business intelligence content from your iPad instantly
- Interact with stunning new visualizations
- Analyze key metrics and discover data trends
- Work seamlessly while connected and disconnected
- Share insights instantly with others

Available on for download on the Apple App Store:

Thank you!

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