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

Roland Kramer
Solution Architect BW/BI/In-Memory | SAP AG
June 2011
Agenda

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

© SAP AG 2009. All rights reserved. / Page 2
Customer
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) Office Version and OLAP Version (former Voyager) ➔ SAP BusinessObjects Analysis
- SAP BusinessObjects Webl ➔ 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 (BWA) is and will become a MAYOR Driver for the usage of the complete SAP BW/BI Solution.
- HANA is not replacing BW, it will be the foundation for it in the future.
- Sybase Portfolio complements the existing SAP Business Intelligence Architecture.
# New Approved Naming for SAP BusinessObjects BI 4.0 suite

<table>
<thead>
<tr>
<th>Current Name</th>
<th>OFFICIAL APPROVED NAMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP BusinessObjects Enterprise Premium</td>
<td>SAP BusinessObjects Business Intelligence platform</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</td>
<td>SAP BusinessObjects Analysis, edition for OLAP</td>
</tr>
<tr>
<td>SAP BusinessObjects Advanced Analysis (aka Advanced Analysis Office; Pioneer)</td>
<td>SAP BusinessObjects Analysis, edition for Microsoft Office</td>
</tr>
<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>
In-Memory Computing Naming

Technology

SAP In-Memory Computing

Formerly known as in-memory computing

Appliance

SAP In-Memory Appliance
(SAP HANA™)

Formerly known as SAP High-Performance Analytic Appliance (SAP HANA)

Database

SAP In-Memory Database

Formerly known as SAP In-Memory Computing Engine (IMCE)

Applications

Application Name, Advanced by SAP In-Memory Computing

Example: SAP BusinessObjects Strategic Workforce Planning, Advanced by SAP In-Memory Computing

Studio

SAP In-Memory Computing studio

Name remains the same
The New Business Intelligence Platform
Best BI and EIM in an SAP landscape (Version 3.1)
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
Crystal Reports
Web Intelligence
Xcelsius
Live Office
QaaWS

Universes

SQL Access
ODA
Data Federator
ODBO
XMIA
OLAP BAPI

MDX Access

BICS Access

BICS Component

RDBMS

DF Façade*

BWA

Analytic Engine

BW 7.01

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

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

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
So what in there for me?
NetWeaver EhP1 as THE foundation for all new BI Solutions

- The first shown integration improvements between SAP and BusinessObjects Products are realized with the release of NetWeaver EhP1 and further

- NetWeaver EhP1 is the prerequisite for the following SAP BI Solutions:
  - **BPC 7.x** based on NetWeaver 7.0 EhP1
  - Inverse Formulas, contribution of percentage Values and Cell locking for **BW-IP from 7.20**
  - **SAP BusinessObjects Explorer**
    Version 1.0 and 2.0
  - Native access of SAP BusinessObjects **Xcelsius via BICS** without BusinessObjects Enterprise Platform XI 3.1
  - Better Support for WebI via **Universes**
  - Improved **MDX** Interface
  - Direct Access to BW 7.01 via **SAP BusinessObjects Data Federator**
  - Improved/enhanced **CTC** templates for connectivity_INITIALIZATION with BW (Note 1178800)
Even more possible with EhP1 Stack 6
with the delivery of Stack 6 more Possibilities available

- Between EhP1 Stack 5 and 6 a lot of Improvements where implemented with the reflection of Rampup’s and Customer Implementations.
  - Access via **Advanced Analysis 1.0 Office Version** possible with EhP1 SP6 and onwards
  - **BPC 7.5** based on NetWeaver 7.0 EhP1 SP6
  - Full functionality of **BW-IP from 7.20** delivered with SP6
  - **SAP BusinessObjects Explorer 2.0 acc.** complete Backend Functionality with SP6
  - Improved Stability and Performance for **Xcelsius via BICS** with latest SP6 Java Corrections.
  - Improved Stability and Performance for the **MDX** Interface with latest SP6 Abap Corrections.
  - Improved/enhanced **CTC** templates for connectivity-initialization with BW (Note 1178800)
**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
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

Continued investments for enhanced TCO of SAP NetWeaver BW integrated planning
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 real-time 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

**Nearline Storage**
- 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

**BW Accelerator (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)

**Access**
- very frequently
- frequently
- not frequently
- rarely

**InfoProvider (InfoCube)**

**RDBMS**

**Acquisition**

**Archiving**

**Nearline Storage**

**RDBMS**

**InfoProvider (InfoCube)**
With CBW PBS provides an add-on solution for the data retrieval of archived/nearlined BW data.

On the basis of the SAP ADK files, the CBW solution creates aggregates on the archive data and (optionally, if needed) index structures to enable a fast retrieval option for the archived data directly from the end-user's original query.

PBS CBW NLS IQ for Sybase Analytics Server IQ utilizes the Sybase Analytics Server IQ as a Nearline database and offers extremely fast query response times.
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
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
**SAP NetWeaver BW Accelerator**  
**BW Workspaces with BW 7.30 GA Version**

### BWA Workspaces for individual BWA usage within Departments

- All new BW/BWA features available in one workspace with is governed by IT, 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
An **Workspace** is a dedicated area in a BW system where new models can be created based on central BW and local data (flat files). Workspaces can be maintained and controlled by IT and used by local departments to react quickly to new and changing requirements. Workspaces intend to bridge the gap between central governance requirements and local flexibility needs.

**Central IT Admin: “Workspace Maintenance”**
- Create and monitor a Agile-Workspace (define resource limits, maintain user rights, …),
- Publish BW data for usage in Agile-Workspaces (InfoCubes, Masterdata, QueryProvider),
- Create “complex” AnalyticIndexes using APD or SAP BO DataService.

**Departmental (IT) Admin: “Workspace Designer”**
- Create AnalyticIndexes based on CSV/Excel files or personal Query results,
- Create CompositeProviders based on AnalyticIndexes and assigned BW data,
- Monitor and maintain access right to the data.
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
SAP NetWeaver BW 7.3 / SAP NetWeaver BWA 7.2
Enhanced in-memory scenarios

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 as a HANA based system (with “built-in” BWA)

- 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
SAP NetWeaver BW evolving to a fully In-Memory enabled EDW solution on top of HANA

**BW 7.0 / BWA 7.0**
- Major release
- BW Accelerator
- New features and improvements across all components

**BW 7.0 EhP1 (7.01)**
- Go-to release for integration with SAP Business Objects BI

**BW 7.3 / BWA 7.2**
- Major step on Enterprise Data Warehousing scalability and flexibility
- BW Accelerator: additional performance
- Integration Improvements with SAP BusinessObjects Data Services

**BW 7.3x**
- BW running on HANA as the underlying In-Memory DB Platform
- In-Memory for Enterprise Data Warehousing
- Integrated Planning In-Memory enabled

**HANA V1.0**
- Real-time operational analytics on mass data
- Rapid creation of agile data marts
- Non disruptive deployments of HANA side by side ERP and/or BW

**HANA V1.0 and higher**
- Additional calculation capabilities
- Primary persistence layer under BW; eliminates need for separate database
- Models for SAP business content enabling new applications

This presentation and SAP's strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice. This document is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement.
Introducing the SAP Business Analytic Engine
In-Memory Computing to provide immediate results

Business Modeling

In-Memory Computing
Calculation Engine

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)
In-Memory Computing Product “SAP HANA”
SAP High Performance Analytic Appliance

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
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
- Flexible reporting with SAP BI tools and extreme performance

No change in the application
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)

Create views on data to expose agile marts to clients

HANA modeling

Load data w/ data services

HANA

BI

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

SAP BusinessObjects Intelligence - BI 4.0

Information Access
- Analysis Office/OLAP
- Explorer
- Crystal Reports
- Web Intelligence
- Xcelsius

Data Foundation
- SAP HANA
- Replication
- Data Integrator
- Data Quality Management
- Data Services - DS 4.0

ETL process

ERP
- Financials
- Operations
- Human Resources
- Corporate Services

CRM

SCM

SRM

PLM

SAP Business Suite

MSFT Excel

HANA Studio

© SAP AG 2009. All rights reserved. / Page 33
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
- 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+

© SAP AG 2009. All rights reserved. / Page 34
Customer
### SAP HANA

**In-Memory Row/Column-based Analytic Appliance**

- **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

**Column-based RDBMS**

- **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 AG 2009. All rights reserved. / Page 35
SAP and Sybase In-Memory Analytic Solutions

Ideal Environments

Application Environment

- SAP ERP (Release 4.6c or later)
- SAP NetWeaver BW
- Non-SAP analytics/data

Acceleration Technology

- SAP HANA
- SAP NetWeaver BW Accelerator
- Sybase IQ

Business Intelligence Solution

- SAP BusinessObjects BI
- SAP BusinessObjects Explorer
- SAP BusinessObjects BI
SAP HANA and IQ Synergies
Orchestrating Technology Innovations

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

- 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

FIPS, Kerberos and IPV6 support
Large data loads
Direct loads from client
Multi-node loading
Resource mgmt
Multiplex Grid admin

Communications & Security

Loading System
Query Optimizer

Column Indexing Sub-system

Column Storage Processor

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
Mapping the Right Solution for Your Environment

Enterprise Data Warehouse

SAP NetWeaver BW

SAP Data

Real-time, High-performance Operational Insight

SAP HANA

Sybase IQ

Other Data

Sybase IQ

Other Data

*See use cases to make recommendation
SAP HANA / Sybase IQ Deployment Scenarios
Integration Scenarios Based on HANA 1.0

SAP BusinessObjects BI

SAP HANA 1.0
Hi-Value Scenarios

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

SAP BW

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

© SAP AG 2009. All rights reserved. / Page 42
# SAP Integration with BW 7.30 and DS 4.0

## SAP BusinessObjects Information Management (IM)

<table>
<thead>
<tr>
<th>SAP BusinessObjects Data Services</th>
<th>Release:</th>
<th>Next major DS Release/ BW 7.3</th>
</tr>
</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>XI 3.2/ BW 7.0x</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>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SAP BusinessObjects Metadata Management</th>
<th>Release:</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>XI 3.1/ BW 7.0x</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

Enterprise Applications

DATA SERVICES
Open Scalable Reusable

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

Know Your Business

Transform Your Decisions

Achieve Remarkable Results

Shop Floor → Top Floor

Operations HR Finance Sales Marketing

Trusted Information

Know Your Business

Monitor

Tactical

Strategic

Operational

Plan

Services Industries

Financial Services

Explore

Trading Industries

Healthcare

Strategize

Public Service

Manufacturing

Customer
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 turn data into pixel-perfect formatted reports for greater insight?

How do I find immediate answers to business questions?

Details in Session BI100 SAP TechEd 2010 - Berlin
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

SAP BW

Relational source
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
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

Visual

Reporting, Analysis

Other Content

BI Workspace
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
Improved SAP BusinessObjects BI Platform
System Monitoring and Diagnosis

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
Note that Bayer joined the Rampup Phase for Analysis 1.0 Office Version, so introduction and testing is already done.
The Right Tool For The Job
Providing best fit solutions across the range of BI requirements

Professionally Informed
Executives, Managers
Information Consumer
Business Analysts
Technically Capable

Limited Interactive Experience, Responsiveness Full

Reporting
Crystal Reports

Dashboards & Visualization
Dashboards (fka Xcelsius)

Interactive Reporting
Web Intelligence

OLAP Analysis
Analysis
BEx Analyzer, WAD

Data Exploration
Explorer
The Right Tool For The Job
Providing best fit solutions across the range of BI requirements

SAP Business Objects
Analysis Clients

Crystal Reports
Dashboards (fka Xcelsius)
Web Intelligence
Analysis
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**
- Power User to End User

**Voyager**
- Analyst to Analyst

**Analysis OLAP**
- Designer to End User / Analyst

**BEx Web**
- Power User to End User / Analyst

**Analysis Studio**
- End User to End User

**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
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

**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)
Roadmap (BI > 4.0): Analysis Clients

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

Instant Exploration
- 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 ramp-up start)*
- 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)

* This presentation and SAP’s strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice. This document is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement.
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

---

© SAP AG 2009. All rights reserved. / Page 73
Version 1.0 set for General Availability on September 20\textsuperscript{th}, 2010
- Standalone Client/Server tool that can run with SAP BusinessObjects XI 3.1

Version 1.1 will enter Ramp-up in February 2011
- Standalone C/S tool that can run with SAP BusinessObjects XI 3.1 or BI 4.0 and SAP HANA
Start With SAP BusinessObjects BI Now – For Benefits Today and Tomorrow

Innovation with no disruption
- Simpler, more intuitive, powerful
- Better monitoring of the business

Best-of-breed BI expansion
- Google-like
- Self-service
- Pixel-perfect

Trusted insights for all users, all data, on one platform

Solid and safe foundation

Increased speed and agility with cost effective in-memory computing

LOB Benefits

IT Benefits

Increasing user satisfaction and adoption, and more user self-service

© SAP AG 2009. All rights reserved. / Page 75
Recap on the EPM Portfolio
not everything was from former BusinessObjects

- SAP Strategy Management (SSM, ex Pilot)
- SAP Business Planning and Consolidation (SAP BPC, ex Outlooksoft)
- Financial Consolidation (ex BO Cartesis)
- Business Consolidation (SEM-BCS)
- BI-Integrated Planning (BI-IP)
- BO Profitability & Cost Management (PCM)
- BO Intercompany
- Corp. Investment Mgmt by ZetVisions
Enterprise Performance Management (EPM)

- Best of breed and differentiated solution for the Office of the CFO
  
  (especially with Profitability and Cost Management, Strategy Management, Spend Analytics and Integration with GRC)

- Superior user experience for EPM Applications

- Integrated data model that provides flexibility to change

- Superior solution for financial and management reporting

- Superior EIM layer for access to SAP and non-SAP systems

* EIM = Enterprise Information Management
SAP Strategy Management (SSM)

- **Acquisition of PILOT**, February 2007 (Product: Pilotworks)
- **Replacement of SEM-BSC** (Balanced Scorecard)
- **NetWeaver Integration**: February 2008
  - Supports **multiple strategy** management methods
  - Successful **operationalization** of the companies strategy

Enterprise Performance Management
World-class applications supporting all financial processes enabling closed loop financial performance management

- **Strategy Management**
  Define strategy and prioritize accordingly to help ensure alignment with corporate goals

- **Planning, Forecast and Budget**
  Gain insight to manage and measure business plans and enable proactive, rather than reactive, business tactics

- **Financial Consolidation**
  Meet all legal and management reporting requirements with automated, robust consolidation processes

- **Profitability and Cost Management**
  Drive enterprise profitability through a real-time understanding of cost, capacity, and revenue
Acquisition of Outlooksoft, Mai 2007

Focus: Planning application; Coexistence with BI IP (BI-Integrated Planning)

NetWeaver Integration: June 2008

→ More flexible support of planning and reporting processes

→ Supports very well typical requirements of finance departments
Financial Consolidation

- **Acquisition of BusinessObjects** in January 2008 (relevant product BO Finance, fka. Cartesis: Magnitude/Finance)

- Legal and Management Consolidation; **coexistence with SEM-BCS** (Business Consolidation)

- **NetWeaver Integration:** End of 2008
  - User Friendliness
  - Supports very well typical requirements of finance departments

**Enterprise Performance Management**
World-class applications supporting all financial processes enabling closed loop financial performance management

**Strategy Management**
Define strategy and prioritize accordingly to help ensure alignment with corporate goals

**Planning, Forecast and Budget**
Gain insight to manage and measure business plans and enable proactive, rather than reactive, business tactics

**Financial Consolidation**
Meet all legal and management reporting requirements with automated, robust consolidation processes

**Profitability and Cost Management**
Drive enterprise profitability through a real-time understanding of cost, capacity, and revenue
Profitability and Cost Management

- **Acquisition of BusinessObjects** in January 2008 (relevant product Armstrong-Laing, ALG: EPO Suite)

- **Profitability Analysis**

- **NetWeaver Integration: End of 2008**
  - **Comprehensive Analysis** incorporating all relevant data
  - **time-driven Activity Based Costing**

**Enterprise Performance Management**
World-class applications supporting all financial processes enabling closed loop financial performance management

**Strategy Management**
Define strategy and prioritize accordingly to help ensure alignment with corporate goals

**Planning, Forecast and Budget**
Gain insight to manage and measure business plans and enable proactive, rather than reactive, business tactics

**Financial Consolidation**
Meet all legal and management reporting requirements with automated, robust consolidation processes

**Profitability and Cost Management**
Drive enterprise profitability through a real-time understanding of cost, capacity, and revenue
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

Web-based subscription service Benefits

- 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 Social intelligence
- SAP BI On Demand
- SAP StreamWork
The SAP On Demand Portfolio

Business ByDesign

BusinessObjects On Demand

- BI OnDemand
- Address Cleansing OnDemand

Line of Business On Demand

- CRM on-demand
- E-Sourcing on-demand
- HCM On Demand
- Carbon Impact on-demand

*Note: 1. Partnership with Northgate Arinso™

© SAP AG 2009. All rights reserved. / Page 85
BI On Demand: A Detailed View

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

Source Data

Browser Based Subscriber Experience

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

BI OnDemand Hosted Data Warehouse Services
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

This presentation and SAP’s strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice. This document is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement.
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:

## Important Milestones

**HANA, Explorer, DS, BWA and BW**

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Q3 2010</th>
<th>Q4 2010</th>
<th>Q1 2011</th>
<th>Q2 2011</th>
<th>H2 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP BusinessObjects BI 4.x</td>
<td></td>
<td></td>
<td>GA v 4.0</td>
<td></td>
<td>RTC v 4.1</td>
</tr>
<tr>
<td>(Aurora)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explorer 3.1/4.x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAP BusinessObjects DS 4.x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BW 7.3 (for use against BWA 7.2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HANA Release Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **HANA Release Plan**: 30.11.10
- **Pilot Delivery**: 30.11.10
- **RTC v 7.3**: 31.05.11
- **RTC v 1.0**: 07.11.11
- **RTC v 1.0 SP2**: 27.07.11
- **RTC v 1.0 SP3**: 07.11.11
- **RTC v 4.0**: 15.06.11
- **GA 4.0 SP1**: 07.11.11
- **GA v 7.3**: 07.11.11