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

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Solution Architect BW/BI/In-Memory | SAP AG
September 2011
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 (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>No Equivalent Name</td>
<td>SAP BusinessObjects Business Intelligence suite</td>
</tr>
<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 (aka Advanced Analysis Web; Pioneer)</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>
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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)

SAP NetWeaver Portal
Any Portal, Any Destination

Analysis
Explorer
Crystal Reports
Web Intelligence
Xcelsius

SAP BusinessObjects Enterprise

Information Access

SAP BEx

NetWeaver BW Accelerator

SAP NetWeaver BW

Data Federator
Master Data Management

Data Integrator
Data Quality Management

Text Analysis

Data Services

3rd-Party Databases and Applications

Data Foundation

ERP
Financials
Operations
Human Resources
Corporate Services

CRM
SCM
SRM
PLM

SAP Business Suite

Metadata Management
The New Business Intelligence Platform
Best BI and EIM in an SAP landscape (Version 4.0)
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

ODA
ODBO
OLAP BAPI
XMLA

MDX Access

Data Federator

SQL Access

RDBMS

DF Façade*

BWA

Analytic Engine

BICS Access

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

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

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

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

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

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
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
Enterprise Data Warehousing
Real-Time Business Intelligence

Implement operational reporting scenarios leveraging new modeling objects

HybridProvider
- Consists of a DataStore object and a 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

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

Access - very frequently                        frequently                                        not frequently             rarely
With CBW PBS provides an add-on solution for the data retrieval of archived/nearligned 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 database 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
Introduction of Analytical Index and QueryProvider with SAP BW

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
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
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 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
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
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 (RTC) starts 7th of November 2011 with HANA 1.0 SP03

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
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

BW 7.0 DB + BWA 7.0

First calculation scenarios in BWA

BW 7.3 DB + BWA 7.2

MultiProvider handling and flexible joins

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

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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)**
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 change in the application

SAP Business Application

Database

Data replication near real-time

Flexible reporting with SAP BI tools and extreme performance

HANA

No more query workload from reports on the database
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)

HANA

Create views on data to expose agile marts to clients

HANA modeling

Load data w/ data services
Business Intelligence Platform with HANA
Showing all components in the solution overview

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

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

SAP BusinessObjects Intelligence - BI 4.0

ERP
- Financials
- Operations
- Human Resources
- Corporate Services

SAP Business Suite
- CRM
- SCM
- SRM
- PLM

MSFT Excel
HANA Studio

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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

Q4 2010 “Renovation”
HANA 1.0

2011-12 “Innovation”
HANA 1.0 SP03 ff.

2012+ “Transformation”
HANA 2+

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
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

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

SAP HANA

In-Memory Row/Column-based Analytic Appliance

Column-based RDBMS

Solution Highlights

SAP and Sybase Analytic Acceleration Solutions

Customer
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
### Business Analytics Tools + Platform

**SAP+Sybase Solutions**

<table>
<thead>
<tr>
<th>Business Intelligence</th>
<th>SAP BusinessObjects BI Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise Information Management</td>
<td>MDM</td>
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<tr>
<td></td>
<td>Data Services</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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</table>
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
- Loading System
- Query Optimizer
- 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

FIPS, Kerberos and IPV6 support
- Large data loads
- Direct loads from client
- Multi-node loading

Resource mgmt
- Multiplex Grid admin

Sybase ETL 4.8 – Optimized for Sybase IQ 15
- 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
Mapping the Right Solution for Your Environment

Enterprise Data Warehouse

Real-time, High-performance Operational Insight

SAP Data

- SAP NetWeaver BW
- SAP HANA

Other Data

- Sybase IQ
- Sybase IQ

*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
- 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
  Traditional DB
  ASE, Oracle, DB2, SQL Server
- Non-SAP
  Trans 2
  Traditional DB
  ASE, Oracle, DB2, SQL Server
Hybrid Analytical Solution SAP BW(A)/HANA und Sybase IQ

SAP BusinessObjects BI

SAP HANA 1.0
Hi-Value Scenarios

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

SAP BW

PBS NLS-IQ

RAYQ on IQ (Datamining)

Sybase IQ

SAP ECC

Traditional DB
ASE, Oracle, DB2, SQL Server

Traditional DB
ASE, Oracle, DB2, SQL Server
## 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</th>
<th>Next major DS Release/BW 7.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tighter integration of BusinessObjects Data Services into extended SAP</td>
<td>XI 3.2/BW 7.0x</td>
<td>Next major XI Release/BW 7.3</td>
</tr>
<tr>
<td>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</td>
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<tr>
<td>Stores and generation of Data Services data flows (i.e. simple dataflow</td>
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<tr>
<td>from DataStore to BW DataSource)</td>
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<tr>
<td>Execute and control process chains from SAP BusinessObjects Data</td>
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<td></td>
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<tr>
<td>Services to extract data via Open Hub Service</td>
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<tr>
<td>SAP BusinessObjects Data Services to schedule loading processes of SAP</td>
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<td></td>
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<tr>
<td>NetWeaver BW</td>
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</table>

**SAP BusinessObjects Metadata Management**

<table>
<thead>
<tr>
<th>Feature</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</td>
<td>XI 3.1/BW 7.0x</td>
<td></td>
</tr>
<tr>
<td>mapping information from source to target</td>
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<tr>
<td>Change impact analysis between SAP NetWeaver BW objects such as Data</td>
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</tr>
<tr>
<td>Store objects, InfoSets, BEx Queries, and InfoCubes</td>
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<tr>
<td>End-to-end capabilities for all data sources through SAP BusinessObjects Data Services</td>
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<tr>
<td>End-user access to data lineage information for trusted SAP NetWeaver BW deployment</td>
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</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.

MOVE
IMPROVE
GOVERN
UNLOCK

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.

Discover & understand enterprise data
- Data profiling
- Metadata management

Define business terms, validation rules, cleansing rules, models

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

Surface data quality score in business user applications

Workflows to resolve data quality issues

Monitor & Remediate

Catalog data assets

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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

Operations  HR  Finance  Sales  Marketing

Shop Floor  Top Floor

Tactical

Operational  Strategic

Know Your Business

Monitor

Transform Your Decisions

Achieve Remarkable Results

Services Industries  Consumer Products  Manufacturing

Financial Services  Healthcare  Strategize

Explore  Compete

Trusted Information

Trading Industries  Public Service
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?

Details in Session BI100 SAP Teched 2010 - Berlin
SAP BusinessObjects Enterprise Accelerated
Source Agnostic High Performance In-Memory Analytics

SAP Business Analytic Engine (BWA)/HANA
In-Memory Accelerated Business Intelligence

Key Benefits
- Acceleration of all BI Solutions
- High Performance
- Truly Scalable BI
- Rapid ROI & Low TCO
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:
- Customer
  - Contactname
  - Companyname
  - Country
- Orders
  - Orderid
  - Freight
  - Region
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
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
## Analysis, Edition for MS Office
MS Excel Add-In with Query Panel

### Sales Volume EUR EUR

<table>
<thead>
<tr>
<th>Division</th>
<th>Sales Volume EUR</th>
<th>Incoming Orders EUR</th>
<th>Sales Order Item</th>
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<td>Cross-division</td>
<td>4.780.57</td>
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</tr>
</tbody>
</table>

**Overall Result:** 263.607.286.69 EUR, 284.155.082.31 EUR, 6.768 EUR

---

**Sales Volume EUR EUR**

- Cross-division
- Pumps
- Motorcycles
- Lighting
- Service

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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

- **Crystal Reports**
  - Dashboards (fka Xcelsius)
  - Web Intelligence
  - Analysis
  - Explorer

- **Full**
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

Limited
Interactive Experience, Responsiveness
Full

Professionally Informed
Executives, Managers
Information Consumer
Business Analysts
Technically Capable

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Analysis Clients for Web
User Groups and Tool vs. Application

**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

- Power User to End User
- End User to End User
- Analyst to Analyst
- 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

**Instant Exploration**
- Custom OLAP & Planning Apps
- Analysis Clients
- Web
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

**Diagram:**
- Client PCs (XLS/PPT add-in)
- BW 7.x (BEx Queries, views, InfoProviders)
- BW Accelerator (optional)
- BW/BWA
- BOE Repository/InfoView
- BI platform

**Without BOE**

**With BOE**

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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

LOB Benefits
- Solid and safe foundation

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

Increased speed and agility with cost effective in-memory computing

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

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

- Web Intelligence with the full BI suite
  - Trusted insights for all users, all data, on one platform

- BEx Queries
- Analysis for Office
- Analysis for OLAP
- Crystal Reports

- Queries
- Explorer
- Analysis for OLAP
- Crystal Reports

- Office
- Explorer
- Analysis for OLAP
- Crystal Reports

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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

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

Excellence in Finance
Governance, Risk and Compliance (GRC)
ERP Financials (ERP FIN)
Enterprise Performance Management (EPM)
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
SAP Business Planning and Consolidation

- **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

---

**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

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- **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 **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

The Alignment, Extension & Augmentation of two leading, complementary Planning solutions
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™*
BI On Demand: A Detailed View

SAP BusinessObjects OnDemand

Browser Based Subscriber Experience

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

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

Source Data

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
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>
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<tr>
<th>Milestones</th>
<th>Q3 2010</th>
<th>Q4 2010</th>
<th>Q1 2011</th>
<th>Q2 2011</th>
<th>H2 2011</th>
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<td>Explorer 3.1/4.x</td>
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<td>HANA Release Plan</td>
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- HANA: GA v 1.0: 30.11.10
- Explorer: XI 3.1 SP2: Q3 2010
- RTC v 4.0: 15.09.11
- GA v 4.0: Q2/2012
- GA v 7.3: SP5 v 7.3: 07.11.11
Thank you!

Roland Kramer
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