New Custom Development Opportunities with ABAP 7.x on SAP HANA and classical databases

Dr. Eric Westenberger, SAP AG
SAP NetWeaver Application Server ABAP is future proof for custom development scenarios

- Learn about SAP Business Suite powered by SAP HANA and ABAP 7.4 as technology foundation
- Get an impression of the new opportunities for Custom Development on SAP HANA including Best Practices from Customer Experiences
- Get an overview of innovations in ABAP 7.03/7.31 and 7.4 independent of SAP HANA
Overview and Product Highlights

CUSTOM ABAP DEVELOPMENT
How can you benefit from SAP NetWeaver AS ABAP?

- **Real-time business**
- **Reduce TCO and TCD**
- **Non disruptive**

**CIO**
- **Ease the daily life:** new SAP user experience on desktops and multiple devices

**End User**
- **New application scenarios** (SAP standard and custom)
- **Flexible business processes** by de-coupling of LoB extensions and IT

**Administrator**
- **Integrated LM and operations**
- **Integrate On-Premise and On-Demand landscape**
- **Lifecycle Management Simplification**

**Developer**
- **Build on existing ABAP skills and knowhow**
- **Integrated developer experience:** SAP HANA, ABAP, SAPUI5, SAP HANA Cloud

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SAP NetWeaver AS ABAP

User Interface Development
- E.g. WDA/FPM, UI5
- E.g. BRFplus/DSM, embedded BW, Search
- E.g. Dictionary, BOPF, ..

Data Modeling and Data Access
- Rules
- Analytics
- ...

Connectivity & Integration
- E.g. Web Services (REST/SOAP), RFC

ABAP Development on SAP HANA

Proven SAP NetWeaver qualities: Development Infrastructure, Lifecycle Management, Security, etc.
**End user experience and development services**
- Floorplan Manager
- NWBC side-panel
- ABAP in Eclipse (including SDK)
- Decision Service Management with BRFplus / NW DSM

**ABAP runs on HANA**
- BW powered by SAP HANA

**ABAP optimized for HANA**
- SAP Business Suite powered by HANA
- Custom ABAP Development on SAP HANA
- Optimized UI components for SAP HANA (ALV, FPM, search helps)

**Platform qualities**
- Gateway/SAPUI5 as part of AS ABAP
- Improved ABAP server and runtime capabilities

**SAP HANA as the real-time data platform**
- Advanced data modeling and view building in ABAP
- Bring transactions and advanced analytics closer together

**SAP NetWeaver as the integration platform**
- Extend On Premise solutions via SAP HANA Cloud (mobile, integration)
- Flexible operation in modern IT environments

**Future Direction**
- ABAP 7.31
- ABAP 7.4
ABAP 7.4 is an enhancement package

- Compatible with 7.03/7.31
- GA since May 2013; underlying application server for SAP Business Suite and SAP NetWeaver BW*
- Supports SAP HANA and other databases
- Contains optimizations for SAP HANA and innovations independent of SAP HANA

Product Availability Matrix

- Dual-stack no longer supported
- 64bit mandatory
- New installations support only Unicode; Unicode for SAP HANA mandatory

ABAP Development Tools for SAP NetWeaver (ABAP in Eclipse)
- Available with 7.31 SP4
- SDK available for extension
- Combined installation with SAP HANA studio possible

ABAP language news in 7.4
- Inline declarations and constructor expressions
- Internal table expressions

Test and Troubleshooting Tools
- ABAP Test Cockpit for efficient quality management
- ABAP Profiler in Eclipse
Product Highlights
User Interface technologies

Theming and UX Design
• Theme designer
• New “Corbu” visual design

Enhancements of NWBC and FPM/WDA
• Tabbed browsing, enhanced search
• GUIBB dynamic configurations
• Model-driven data access in FPM (BOPF, etc.)

Developer Experience in Eclipse
• Web Dynpro ABAP and UI5 tools in Eclipse

Mobile enablement out of the box
• ABAP 7.4 contains SAP NetWeaver Gateway and SAP Development Toolkit for HTML5 (UI5)
Decision service modeling with BRFplus
- Low hardware requirements / benefit from latest NetWeaver innovations
- New and improved design time capabilities
- Improved simulation, new expression types

NW Decision Service Management
- Extension of BRFplus (NW Add-On)
- Managed system does not require upgrades (or Support Packages); Decision Service Manager can be upgraded independently
- Decision services can be deployed without downtime
- Analyze/Optimize/Implement cycle in the hands of domain experts

Explore more in the SAP Community
http://scn.sap.com/docs/DOC-29158
Accelerate, Extend, Innovate using proven SAP NetWeaver qualities

ABAP FOR SAP HANA
# Innovation without Disruption

## SAP Business Suite powered by HANA

### User-Driven Experience

<table>
<thead>
<tr>
<th>SAP UI</th>
<th>HTML5</th>
<th>Mobile</th>
<th>SAP BI 4</th>
</tr>
</thead>
</table>

### SAP Business Suite

- **SAP ERP**
- **SAP CRM**
- **SAP SCM**
- **SAP PLM**
- **SAP SRM***

### Industry Solutions *

### SAP NetWeaver BW

### New Apps

### SAP HANA Analytics Foundation

- **SAP HANA**
  - OLTP
  - Relational
  - Columnar
  - OLAP

### Available mobile apps

### New UIs

### +30 Available SAP HANA apps

### + Partner Applications

### 24 business scenarios and 500+ Reports optimized

### + planned to be delivered

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Custom ABAP Development on SAP HANA
Accelerate, Extend, Innovate

Benefits for customers and partners

- **Proven** – Built on mature NetWeaver qualities
- **Efficient** – Leverage existing investments and skills
- **Non-disruptive** – Step-wise approach possible

Opportunities

- Guided performance optimizations
- Real-time access to any data
- From batch to interactive
- Advanced view building
- Text search
- Predictive Analysis

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Options for Customer and Partners

1) Accelerators for Add-Ons
   - accelerate existing Z-coding, develop application-specific accelerators
   - possible also with ABAP 7.x

2) Add-Ons for SoH or SAP NetWeaver BW
   - customer-specific developments in SoH or BW context
   - enable existing Add-Ons to run on SoH or BW
   - optimize them for SAP HANA technology
   - develop completely new Add-Ons for SoH or BW

3) New applications (side-by-side with Business Suite)
   - develop new applications running side-by-side with Business Suite (similar HPAs)
   - specifically designed and implemented for SAP HANA technology

4) New applications (no direct link to Business Suite)
   - develop new applications (no direct link to SAP Business Suite)
   - along the lines of 3)

CD / PD = customer development / partner development
SoH = SAP Business Suite powered by HANA
Q: Is the data on SAP HANA stored only In-Memory?
  • No, the data resides also on disk allowing e.g. full backup and recovery.

Q: Do I have to classify my ABAP data so that it is stored In-Memory?
  • No, this is handled by SAP HANA internally.

Q: SAP HANA uses a column-based storage with an insert-only approach. Do I have to adapt my existing solutions for this?
  • No, this works under the hood with immediate benefits. But it can be also exploited in new applications designs.

Q: Does ABAP code written on SAP HANA run also on other databases?
  • Yes, standard ABAP code still runs on all databases unless SAP HANA specific features are used.

Q: Do I have to rewrite my ABAP code on SAP HANA?
  • No, existing ABAP code works without modifications.

Q: Is existing ABAP code always much faster on SAP HANA?
  • No, e.g. a badly written ABAP program is still a badly written program on SAP HANA.
Impact on existing custom ABAP developments

- Existing ABAP Code runs without disruption, but needs to be re-tested after activation of SAP standard code optimizations.
- Pool / Cluster Tables are transformed into transparent tables.
- Exclusions are generated for existing secondary indices (as they are not needed in most cases on SAP HANA).

Performance Aspects

- Several scenarios immediately benefit w/o adjustments (e.g. aggregations, scan on non-indexed table fields, high physical I/O, etc.).
- Existing “golden rules” for Open SQL remain valid as general recommendations.
- There are some shifts of priorities (e.g. index definition (lower) and avoidance of nested selects (higher)).
Guided Performance Optimization (available with ABAP 7.4)

**Static code analysis**

- Improved /new code inspector checks, e.g.
  - Nested SELECT statements across call stack
  - Used columns vs. selected columns

**Runtime data**

- New SQL monitor (SQLM)
  - Can run in production; also before migration
  - Captures aggregated runtime data (# of executions, runtimes, tables, transaction)

**Performance Tuning Worklist (SWLT)**

- Correlate and Optimize
  - Define context from business perspective (entry point, transaction, involved data)
  - Detect places with best cost/benefit ratio
  - Fix performance bugs and “unexpected” database accesses
  - Find places where “code pushdown” on SAP HANA can be applied (e.g. via a procedure)

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**SAP HANA** as platform

- Full-fledged relational database management system optimized for OLTP and OLAP
- Specialized engines and business libraries for data mining, text analysis and predictive analysis

“**Code Pushdown**” as paradigm

- Push data-intensive calculations to SAP HANA leading to less data transfer
- Exploit advanced SAP HANA capabilities from ABAP

**Eclipse** as integrated development environment

- Homogeneous SAP development experience possible across ABAP, HANA, Mobile, and Cloud
SAP HANA offers a powerful development platform for expressing data intensive calculations including:

- Advanced view modeling
- Writing database procedures (SQLScript)

These artifacts can be easily integrated into ABAP:

- SAP HANA views can be exposed as dictionary views and accessed via Open SQL
- SQLScript procedures can be called from ABAP
- Access to all advanced functions and libraries in SAP HANA possible (predictive analysis, text search, etc.)

Developers benefit from powerful ABAP Development Infrastructure:

- Integrated development experience in Eclipse
- Proven test and troubleshooting tools
- SAP HANA content can be transported via ABAP
The most important benefit of SAP HANA is to support customers to make **smarter** and **faster** decisions. The power of SAP HANA has to “reach the end-user” by **simplifying** concrete business processes.

**ABAP 7.4 supports this through existing UI technologies**

- ALV variant supporting fast navigation through large data sets
- Fault-tolerant value helps using SAP HANA text search
- Analytical side-panels for non-disruptive enrichment of transactions
- Combine transactional and analytical data through NetWeaver Gateway / SAPUI5
- Full suite of SAP BI clients based on embedded BW
Small demo example
Accelerate / Extend / Innovate

Fault-tolerant value helps (using SAP HANA text search)

Navigate through large data sets (using ALV with integrated data access)

Analytical side-panel using advanced SAP HANA capabilities

Accelerate data access by pushing operations to SAP HANA

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Customer Engagements

Phase 1: 3 prototypes
Project “Trailblazer” (2011/2012)

Phase 2: 15-20 prototypes
Project “Implementing customer applications based on SAP NetWeaver AS ABAP 7.4 and SAP HANA” (2012/2013)

Phase 3: 100+ customer / partner developments
SAP NetWeaver AS ABAP 7.4 generally available (GA since May 2013)

Continuous engagements with SAP Mentors

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Customer Engagement Initiative „Implementing customer applications based on ABAP 7.4 and SAP HANA” based on the beta shipment of SAP NetWeaver ABAP 7.4

Examples

on-premise prototype (http://www.five1.de/)

cloud prototype (http://www.smartshift.de/)

Over 40 customers / partners currently collaborate with SAP to learn how to best leverage the new possibilities of ABAP 7.4
SAP Service Portfolio for SAP HANA

**Plan**
- SAP HANA Assessment
- SAP Rapid Prototyping, etc.

**Build**
- SAP HANA Installation
- SAP NetWeaver Business Warehouse powered by SAP HANA
- Implementation of SAP HANA specific Rapid Deployment Solutions
  - SAP CRM rapid deployment solution with SAP HANA
  - SAP ERP rapid deployment solution with SAP HANA (planned)
- Custom Application Development, etc.

**Run**
- SAP Safeguarding
- SAP MaxAttention, SAP ActiveEmbedded
- Support for Custom Developed Solutions, etc.

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Getting started

1. Try

2. Test

3. Explore

Developer Edition on Amazon

• Get access to a preconfigured ABAP 7.4 on SAP HANA in a matter of minutes via the SAP Cloud Appliance Library

• Benefit from sample scenarios, tutorials and best practices

• Experience the integrated development environment in Eclipse


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SUMMARY AND OUTLOOK
SAP NetWeaver Application Server ABAP is future proof for custom development scenarios and extends into Mobility, Cloud and HANA.

SAP NetWeaver Application Server ABAP, A Strong Pillar In SAP’s Product Strategy.

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ABAP 7.4 is the to-go release for all ABAP applications running on SAP HANA

- It is available now and the underlying ABAP technology of SAP Business Suite powered by SAP HANA.
- Developer Edition on Amazon available based on SAP Cloud Appliance Library (On Premise trial version planned for Q3)

With SAP HANA, there are new Custom Development opportunities for accelerating, extending and innovating

ABAP 7.31 and ABAP 7.4 contain a broad range of innovations beyond optimizations for SAP HANA with focus on developer and user experience

You can rely on existing ABAP skills and easily extend to emerging technologies like In-Memory, Cloud and Mobile
Further information

- **ABAP @ SCN**
  
  [Developer Center, ABAP Development Tools for SAP NetWeaver](#)
  
  [Business Rules Management](#)

- **ABAP on SAP HANA**
  
  Central email address: [ABAP.On.HANA@sap.com](mailto:ABAP.On.HANA@sap.com)
  
  SCN Community: [http://scn.sap.com/community/abap-for-hana](http://scn.sap.com/community/abap-for-hana)

- **Related sessions @ ASUG 2013**
  
  “Run SAP Business Suite on SAP HANA”
  
  “SAP HANA SQLScript Basics”
  
  “UI without Coding using WDA Floorplan Manager”
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