What's New in SAP HANA SPS09
The Modern Platform for All Applications

Balaji Krishna, SAP HANA Product Management
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Key Themes for SAP HANA SPS09
The Platform for All Applications

Accelerate
Hardware, software, and cloud infrastructure flexibility, options, and openness for faster ROI

Innovate
Deliver real-time insights into Big Data & IoT and provide new advanced analytic capabilities

Simplify
Streamline cloud & on-premise deployments, data management, and enhance price performance options

Availability  Flexibility  Reliability
Major Themes – HANA SPS09

- Dynamic Tiering
- Streaming
- Enterprise Information Mgmt

- One Store
- Hadoop User Defined Functions
- Multi-Tenancy

- Machine Data
- Structured Data
- Social Network
- Text Data
- Geospatial Data

Cloud  Big Data & IoT  Next Gen Apps  Openness
SAP HANA
Product road map overview – key themes and capabilities

Business Suite on SAP HANA
SAP BW on SAP HANA
In-memory data fabric platform support
Predictive, text, and spatial application services
Big data & IoT capabilities
Openness for third-party tools, applications, and solutions
Virtualization support
Various flexible cloud and data center delivery models
Complete enterprise-ready deployment capabilities

Today
Release SPS08 - Q2 2014

Planned Innovations
Planned SPS09 - Q4 2014

Multitenancy
Data Tiering
Additional server & cloud deployment capabilities & options
New & enhanced advanced application services
Enhanced Hadoop integration
Native information management services
Enhanced developer, administration, operations, and modeling capabilities

Future Direction
Continued big data & IoT platform enhancements, integration, capabilities and optimization
Continued cloud deployment capabilities & options
New and enhanced advanced analytic capabilities, features, & application services
Continued third-party tool & application support
Continued transformation of SAP Business Suite processes
Continued platform management & administration simplification

This is the current state of planning and may be changed by SAP at any time.
Accelerate Deployment Options

Lower TCO, simplified IT operations, decreased time-to-value for solution development, and increased agility

- **Virtualization Support via Hardware Logical Partitioning**
  - **Hitachi** – Virtualized LPAR for on-premise and cloud deployment (certified)
  - **IBM** – Power LPAR (planned ramp-up with SPS09)

- **Cloud Options**
  - Public Cloud
  - SAP HEC & HCP
  - Partners
    - **IBM** - HEC to be hosted by IBM datacenters (40 worldwide)
    - **Unisys** – OEM of SAP HANA for a partner managed cloud deployment
Extending support for hardware infrastructure platforms and relaxing non-production requirements for faster time-to-value, lower TCO & TCM, and more customer options

- **Hardware Support**
  - **SGI UV** – new single-node, scale-up, 4 & 8 socket, up to 6TB
  - **Cisco** – 8-socket certification & Network TDI support
  - **IBM** – Support for IBM Power 7 & 8 on SUSE Linux (Q12015 ramp-up)

- **Tailored Data Center**
  - Phase 2 – Enterprise networking now GA & documented
  - Phase 3 – Productive Intel E5 support now GA (cert underway)

- **Lower Cost Specifications for Non-Production**
  - **CPU** – Lower cost Intel E7 family of processors
  - **Memory** – Relaxed maximum main memory requirement
  - **Storage** – Any storage including RAID1 or higher on proven file systems
  - **Network** – Any standard networking components

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15 server vendors with ~400 server configurations
Accelerate Multitenant Database Containers (MDC)

Provide simplicity & flexibility and reduce TCO for SAP HANA cloud and on premise deployments

New Features & Capabilities
- Run multiple tenant databases & apps/solutions on one SID
- Strong separation and isolation of data, users, and system resources (CPU & memory)
- Simpler administration by managing all databases together as a unit
- Integration with data center operations

Benefits
- Replaces most MCOS scenarios
- Lower capital expenditure with better utilization of hardware resources (configurable)
- Support for heterogeneous uses in one platform (Suite, BW, Data Marts, Sandbox/Dev/QA/Prod)

Use Cases & Scenarios (SPS09)
- Cloud – SAP Cloud
- On-Premise – Primarily MCOS type scenarios
Innovate
Innovate
Turbocharging Advanced Analytics

Powerful advanced analytic capabilities to empower and support the modern day application, tools, third-party, and Big Data solutions

- Full-Text Search
- Text Analysis & Mining
- Predictive Analysis Library (PAL)
- R Interoperability
- Spatial processing
- Graph
- Application Function Library (AFL) SDK*
- Hadoop Interoperability
- Application function modeler (AFM)

* Partner Ramp-up Only
Innovate
Graph Services

Native graph-based data processing for flexible information management, exploration, and analysis supporting many new use cases & scenarios

What is a Graph database?

- A schema-flexible and scalable data store for storage, processing, combination, exploration, and analysis of irregularly structured data with relationships
- Provides a natural and intuitive format for the underlying data, which leads to simpler application designs

Graph Services in SAP HANA

- Tightly integrated graph engine built on in-memory column store for high performance processing
- Allows combination of other advanced analytic engines
- Declarative graph query language and graph operators
- Graph API & full transactional (ACID) properties

Use Cases & Examples

- Initial release – Knowledge Graph scenarios
- Apps – SAP HANA Insight for Healthcare
- Traceability, Track & Trace
- Supply Chain Planning & Optimization

Early adopter status
See SAP note 2069537
Innovate
Native Text Mining

Detect content and patterns in large volumes of documents to determine relevance to other documents

**Native Text Mining**
- Identify related documents
- Identify relevant key terms of a document
- Identify related terms
- Categorize new documents based on a document set

**Capabilities**
- An optional index that is built from the results of the linguistic analysis
- Provides a XS JavaScript API for Text Mining calls
- Full support for English only with SPS09

**Scenarios & Examples**
- Highlight the key terms when viewing a patent, engineering, or R&D document
- Identify similar incidents for faster problem solving
- Categorize new scientific papers along a hierarchy of topics
Innovate Series Data Storage & Services

New native series data storage and processing capabilities to support use cases in utilities, retail, banking, and financial services

Series Data Storage
- Flexible series definition
- Efficient and scalable storage & compression of series data (columns)

Series Core Services
- Full expressive power of SQL
- Built in functions
- Aggregation and disaggregation
- Missing values
- Generation of series

Series Analysis (Future)
- Data preparation & filters
- Auto-correlation, exponential smoothing, regression, etc.
Innovate
Enhanced Hadoop Integration

New and enhanced Hadoop integration for more advanced and feature rich processing of Big Data

- **Virtual UDF (vUDF)**
  - New type of User Defined Function for data federation
  - Direct access to HDFS without need for the package, mapper, and reducer specification
  - Invoke custom Map Reduce jobs
  - vUDF can be embedded in SQL

- **Use Cases & Benefits**
  - Ability to leverage features in a Hadoop cluster other than HIVE & Spark (e.g. HDFS, MapReduce)
  - Ad-hoc query capabilities and processing of unstructured data
  - Utilize vUDF for use cases that don’t fit into the typical HIVE usage patterns via SDA
Create new opportunities with enhanced spatial capabilities, increased performance, third-party integration, and geo-content & services

**New Features & Capabilities**
- Performance optimizations and spatial joins
- New spatial data types & functions support
- Support for CDS & SQLScript, Modeler (Calc View)*
- SQL clustering (grid, k-means)*
- 3D point support*
- OGC compliance (SFS SQL – TF)*

**Geo-content and Services**
- New native content and services from Nokia/HERE
  - OEM of base maps and political boundaries
- Native geocoding trigger

**Third-Party Integration**
- Esri ArcGIS Server support
- Esri Feature Service support*

*SPS09+
Innovate
Predictive Analytics

New and enhanced powerful native predictive analytic capabilities to empower and support the modern day application

Predictive Analysis Library algorithms

- New Algorithms Supported
  - **Classification Analysis** – Neural network
  - **Clustering** - K-medians
  - **Feature selection & dimensionality** – Principal component analysis
  - **Time Series Analysis** – ARIMA-X, 2\textsuperscript{nd} order exp smoothing, forecasting with simple linear regression, seasonal linear regression, Croston’s method, time series comparison, forecast accuracy, Brown’s simple exp smoothing
  - **Top-K Association rule mining** – KORD
- Enhancements to existing algorithms
- **Now over 60 AFL based predictive algorithms available** to be accessed via SQLScript, application function modeler, and SAP predictive tools and to be consumed with analytic/BI tools as well as SAP, partner, and custom applications
Innovate Application Function Modeler

Simple and effective way for the application developer to add advanced capabilities to applications and to manage the resulting data-flow models

- Enhanced graphical dataflow modeling and programming tool in HANA Studio
- Supports multi-step application function rows
- Transportable Flowgraph design-time model (store in HANA repository)
- Integration with PAL, BFL, Custom AFL, R
- Executable via SQLScript
Developer tool enhancements: 100s of enhancements
Primary focus is on improving the developer experience - better/new wizards, code completion, E2E debugging

- Web-based Development Workbench
  - SQLScript Debugging
  - SQLScript Editor
  - Calculation View editor
  - XSOData editor
  - Manual test explorer for XSOData artifacts (app explorer)
  - Web Templates and code completion
  - Application Preview
  - Form based role editor for hdbrole objects
  - Check File Access
  - XSUnit integration
  - CDS/HDBDD Editor with local semantic code completion
  - SAP HANA Answers plug-in

- SAP HANA Studio
  - Project set up – artifact generation
  - Navigation to XS administration tool
  - Run as configuration and execution
  - Inactive testing
  - XSJS/SQLScript Integrated Debugging
  - One click debugging
  - Direct editing from Repository Browser
  - Refactoring services
  - Enhanced artifact templates
  - Improved Code Completion (SQLScript, HDBDD, and XSODATA)
  - Web Bridge (Run WebIDE editors within the Studio)
Modeling enhancements

- Editor usability
- Value help entity reference
- Calculation Views
  - Rank node
  - Table function as data sources
- Script-based CV enhancements
  - Table function support
  - Output column structure import
- History Views support (time travel support)
- Spatial support: spatial joins, spatial expressions in filters
- Harmonize Development- and Modeler-Studio perspectives

- Harmonize object naming
- Supportability
  - Debugging Views with drill-down analysis, join cardinality
  - Logging and tracing for modeler plugins (preferences)
- Productivity / object re-usability
  - Replace node / replace node with a data source / ..
  - Propagate semantics from data sources / extract semantics

- WebIDE
  - Calculation View editor
  - Analytic Privilege editor
Simplify
Provide cost effective data management capabilities with a petascale, deeply integrated, and high performance solution in a single system

**Capabilities**
- Identify entire tables as in-memory (Hot) or on disk (Warm)
- Utilizes disk backed column store technology
- Supports petabyte scale deployment
- Provides integrated security and back-up & recovery

**Benefits**
- Cost effective price performance
- Single SAP HANA instance with no data duplication
- Expand SAP HANA capacity and remove objections
- Big Data scale

**Scenarios & Use Cases**
- SAP BW on HANA – Supported with BW 7.4 SPS08; migrates persistent staging area and corporate memory tables to the disk backed store
- Custom Application – manually load, maintain, and query data between in-memory and disk tables
- Does NOT support SoH or replace BW NLS and SoH ILM

Note – multi-release implementation with additional automation planned. Hybrid tables, automated data movement and aging rules, not available in SPS09
Simplify SAP HANA IM services

Landscape simplification, lower TCO, reduce data latency, common modeling environment and open & extensible framework

- Solution incorporates data management capabilities within SAP HANA platform
- Position primarily for SAP HANA data use cases and app developers who want to build data management processing (DI and DQ) in their HANA solutions
- Pricing & packaging coming soon

HANA IM Services first introduced in SP09 and will be enhanced in subsequent releases.
Simplify
SAP HANA smart data integration

Landscape simplification, open & extensible framework, accelerates performance, and supports various deployment options

Option for Data Provisioning for SAP HANA

- Supports real-time replication, physical bulk/batch movement, and federation in a unified framework
- Integrates ETL-type transformations natively
- Supports both on-premise and cloud sources
- Built-in adapters for common sources
- Open and extensible SDK with custom adapters
- Integrated modeling environment with SAP HANA studio and SAP HANA WebIDE
- Integrated IM-specific monitoring within monitoring infrastructure

Benefits

- **Simplified** – One common modelling environment to provision and consume
- **Real-time** – lower latency due to real time replication and in-memory performance
- **Open & Extensible** – supports data of any shape and size; open framework for new data sources
Simplify SAP HANA smart data quality

Simplify the landscape with new data cleansing and geocoding capabilities with real-time performance natively in SAP HANA

Integrating data quality natively into platform
- Cleanse person and address data
- Geocoding to enrich address data with latitude and longitude information

Simple user interface for data quality
- Parse, standardize, validate, correct and enhance person, firm, address in ONE transformation in SAP HANA

Other SDQ capabilities such as matching, best record, enrichment etc. will be implemented in subsequent releases
Extract insight from real-time information streams and respond immediately

Immediately react to new information
- Process the data as fast as it arrives
- Enrich, transform, filter before loading into the SAP HANA database

Alerts, Notifications, Actions
- Monitor incoming data
- Watch for trends, correlations, patterns, missing data
- Stream live updates to dashboards

Complex event processing
- Situation detection based on multiple inputs and temporal relationships
- Combine raw events into actionable information

Internet of Things: collect and monitor data from smart devices; immediately respond to new opportunities or imminent problems.
New and enhanced SAP HANA data center capabilities for improved system availability and business continuity

**Back-up & recovery enhancements**
- Database copy using 3rd party tools
- Integrated back-up recovery for new Dynamic Tiering capability
- Support for full system or tenant database back-ups

**Disaster Recovery & System Replication enhancements**
- Optimization of row store handling during takeover
- Support for MDC installation using system replication
- Data/log compression for system replication
- HA/DR provider
- Improved alerting & monitoring for system replication

**High Availability scale-out enhancements**
- New online configuration capabilities
New and enhanced SAP HANA system management and security for an enterprise-ready deployment, simplified operations, and lower TCO

- **System Administration & Monitoring**
  - SAP HANA Cockpit
    - Web-based tool for administration and monitoring (single SAP HANA database)
  - SAP Database Control Center
    - Web-based tool for administration and monitoring (landscape of SAP HANA databases)
  - Enhanced SQL performance analysis in SAP HANA Studio

- **Security Enhancements**
  - New GUI editor for creating repository roles
  - Web-based user self services for password reset, request new user, etc.
  - Encryption service for XS applications
  - Support for isolation with multitenant database containers (MDC)
  - Data Tiering inherits SAP HANA security
Summary
Key Takeaways for SAP HANA SPS09
One Platform for All Applications

Accelerate

SAP HANA accelerates ROI on-premise or in the cloud
- Deployment options, flexibility, and openness
- Lowering TCO

Innovate

SAP HANA delivers actionable insight on Big Data
- Supporting the next generation of Big Data & IoT solutions
- Advanced analytics ecosystem in one platform

Simplify

SAP HANA simplifies landscape and streamlines deployment
- Provide cost effective data storage and processing
- Streamlined data management, development, and administration
Additional Resources for SAP HANA SPS09

- **SAP HANA SPS09 Blog and Live Expert Sessions**
  

- **SAP HANA What’s New for SPS09**
  

- **HANA Academy videos**
  
  [https://www.youtube.com/user/saphanaacademy](https://www.youtube.com/user/saphanaacademy)
THANK YOU!

balaji.krishna@sap.com