



What Sellers Need to Know

SAP[®] HANA[®] and IBM[®]
System x[™]



Table of Contents

What is the SAP HANA Appliance?.....	1
SAP HANA Success Snapshot	1
What Makes SAP HANA Different?.....	2
Real Time Performance	2
Leveraging Compression	2
Three Database Engines in One	2
Choice of Single Server or Scale-Out Cluster.....	2
HANA is an application platform, not just a database	3
SAP HANA Use Cases	3
The Unique Value of SAP HANA from Arrow	4
SAP Product Line through Arrow.....	4
The Unique Value of SAP HANA from IBM System x.....	5
Customer Motivations	6
The Growth and Expanding Application of In-Memory Databases	6
Existing SAP Addressable Market.....	6
Competition.....	7
SAP HANA Prospects.....	7
Quick-Hitting Selling Points	8
Workload Optimized IBM Systems x Solutions for SAP HANA.....	9
Workload Optimized Solutions for SAP HANA Matrix.....	10
Workload Optimized Solutions for SAP Business Suite on HANA Matrix.....	10
Reference Information & Terms	11
SAP HANA T-shirt sizes	11
SAP HANA One	11
SAP HANA One Premium	11
SAP Enterprise Cloud	11
IBM Systems solution with SAP Discovery	11
In-Memory Applications – powered by SAP HANA.....	12
White Papers, Solution Briefs and RedBooks	13
Cost/Benefit Case for SAP HANA Deployment – Comparing Costs and Effectiveness of IBM and Competitive Solutions	13
Blending Transactions and Analytics in a Single In-Memory Platform	13
SAP HANA Database for Next-Generation Business Applications and Real-Time Analytics	13
In-memory Computing with SAP HANA on IBM eX5 Systems	13
SAP HANA – Where does it take us and how to benefit	13
IBM PureFlex Solution for SAP Business Suite (x86) Reference architecture for x86 based IBM PureFlex System and SAP HANA	13
High-end customer landscapes based on SAP HANA	13
Prepare for the Quantum Leap in Real-Time Analytics	14
SAP HANA Performance – Efficient Speed and Scale-Out for Real-Time Business Intelligence	14

What is the SAP HANA Appliance?

SAP High Performance Analytic Appliance (HANA) appliance is a flexible, multi-purpose, data-source-agnostic in-memory appliance that combines SAP software components optimized to run on Intel-based hardware delivered by SAP's leading partners. It includes a number of integrated SAP software components including the SAP HANA database, real-time replication services, data services, data and lifecycle management, support for multiple interfaces based on industry standards and easy to use data modeling tool called SAP HANA studio.

The SAP HANA appliance delivers the following capabilities:

- Single SAP HANA database with native support for row and columnar data stores, providing full ACID (atomicity, consistency, isolation, durability) transactional capabilities.
- Powerful and flexible data calculation engine.
- SQL and MDX interfaces.
- Unified information modeling design environment.
- Data repository to persist views of business information (yes you can pull the power plug and your information is safely stored!)
- Data integration capabilities for accessing SAP (SAP NetWeaver BW, ERP, etc.) and non-SAP data sources.
- Integrated lifecycle management capabilities.
- Low TCO, as it is optimized for commodity hardware from a large number of partners

SAP HANA Success Snapshot

Most successful launch in SAP history – all this done in 2 years.

Snapshot as of October 2013

- 2000+ large enterprise customers
- 200+ customers in production
- 100+ reference able customers
- 50+ customers in-flight at anytime
- 400+ Startups in-flight
- 10+ partners using HANA in production
- 30% are Non-SAP Customers

“SAP HANA is a game changer for Southern California Edison. It allows us to be more agile and solve problems for our analysts”

- Ron Grabyan, Manager of Business Intelligence Services, Southern California Edison”

What Makes SAP HANA Different?

Simply put, SAP HANA is a new generation of multipurpose database that runs in-memory in a columnar format. This new architecture enables converged online transaction processing (OLTP) and online analytics processing (OLAP) within a single in-memory column-based data store while eliminating data redundancy and latency. Transactions, analytics, text analysis, predictive and spatial processing is transformed so business can operate in real-time.

Real Time Performance

HANA's combination of in-memory design, convergence of three technologies and compression methodology, provide the ultra low-latency performance needed to digest and analyze huge amounts of data providing real time performance.

Leveraging Compression

HANA's compressibility is the beneficiary of its columnar database design. Because HANA stores information in a single column, instead of the conventional relational database format of rows and columns, it is able to efficiently compress data. Columnar databases achieve compression ratios of 8x, 15x or greater when compared to relations databases. This allows a typically larger dataset to be processed inside a smaller memory footprint.

Three Database Engines in One

HANA combines three database engines in one to create a dynamic multipurpose database platform. These engines include: an in-memory relational database that scales out in a massively parallel processing configuration (MPP), a Not only SQL (NoSQL) database similar to HBase for Hadoop, that is optimized for semi-structured and text analytics and a graphics library which can be utilized for network and relationship analysis and other analytic operations.

Choice of Single Server or Scale-Out Cluster

Single Server offerings range from a 2 CPU, 128GB configuration to 8 CPU, 1TB configuration.

Scale-Out Clusters have 2 to n servers per cluster. Each server in the cluster is either a 4 CPU, 512GB or 8 CPU/1TB configuration.

The largest certified configuration is 56 servers; the largest tested configuration is 100 servers.

When SAP Ag wanted to put together an in-memory system for its own use, the project team turned to IBM. As a result, SAP itself now has the world's largest in-memory system ever assembled, powered by SAP HANA platform - 100 terabytes of main memory. Since deployment, the database has been extended to 150 terabytes.

HANA is an application platform, not just a database

The HANA platform contains the following capabilities:

- SAP HANA XS Application Server: Integrated in-memory and transactional web apps which search text indexes on big data, do high-volume analytics and transactions
- SAP HANA Predictive Analytics Library – The PAL is integrated in HANA and allows running predictive analytics against real-time data. This is used for correlation analysis among other things.
- Event Stream Processing: This allows streams of data into HANA in real-time from sources like Point of Sale.
- Smart Data Access: HANA can build a logical model which accesses and aggregates information in Hadoop, Sybase or Teradata databases into one application
- To do what you can do with one HANA appliance, you would need IBM DB2 BLU, IBM SPSS, IBM WebSphere ESB, IBM WebSphere Application Server, IBM WebSphere Portal and IBM Streams or WebSphere MQ.

SAP HANA Use Cases

Four differing usage scenarios for SAP HANA can be identified:

- 1) Big Data – HANA is the engine that drives huge performance improvements over traditional technologies in analyzing big data. HANA can be extended to include SAP BI suite for analysis tools, Sybase IQ for petabytes scale, and Hadoop for unstructured data.
- 2) Side by Side – One example is the use of SAP HANA to support a SAP BW. This uses HANA as a BW accelerator to improve the performance of the existing BW. Another example is using a bolt-on type software solution like SAP CO-PA Accelerator to speed profitability analysis for existing SAP business suite customers. Additional applications are available for this type of use case.
- 3) Replace need for a relational database – In this use case SAP HANA acts as the primary database for SAP BW or for analytical applications such as smart meter analytics. In this case, a traditional relational database is not necessary
- 4) Serve as Platform – SAP HANA can be used as the primary database for the SAP Business Suite. Relational databases are not needed for analytical or transactional tasks.

The Unique Value of SAP HANA from Arrow

Arrow offers business partners a simplified sales process. IBM and SAP authorized Arrow partners can source both the HANA hardware and the software licensing from one source – Arrow. Arrow leverages our distributor relationship with both IBM and SAP to streamline the sales process allowing more focus on fulfilling customer needs. The Arrow value proposition to its partners also include:

- Solutions Lab with SAP HANA device available for demonstrations, proof of concepts and hands on access.
- Specially trained pre-sale technical support versed in both SAP HANA and System x hardware
- Sales assistance for pre sale including linkage with the SAP and IBM field teams
- Sales and Technical resource roadmaps
- Education assistance

SAP Product Line through Arrow

SAP's Authorized Reseller Program empowers Partners to resell SAP solutions to their customers. Separate reseller authorization is required for each of SAP's three product lines.

The following is a list of SAP Products available to the channel for resale through Arrow. Software licensing for products outside this list must be purchased directly from SAP.

Database & Technology products include:

- SAP HANA
- SAP Sybase IQ Server- an open, highly optimized analytics RDBMS.
- SAP Sybase Adaptive Server Enterprise (ASE)- A RDBMS optimized for mission critical environments and extreme transaction processing.
- SAP Sybase SQL Anywhere- Data management and enterprise synchronization solution
- SAP Sybase PowerDesigner- Powerful impact analysis, design-time change management and meta-data management facilitating business agility.
- SAP Enterprise Information Management – Provides integration, cleansing, management and governance of structured and unstructured data .

Analytics products include:

- SAP Business Objects Business Intelligence Suite- provides components for performance management, planning, reporting, query and analysis, and enterprise information management, as well as centrally stored toolkits and report.
- SAP Crystal Reports- Powerful, user friendly and dynamic reporting tool.
- SAP Lumira- Drag and drop interface for engaging visualizations allowing quick analyzing of data for rapid time to insight and business agility.

Mobility products include:

- SAP Afaria Mobile Device Management Solution- SAP's centralized mobile device management software product. Enterprise-grade software, uniquely designed to address the rapid growth and complexity of today's mobility environment.

The Unique Value of SAP HANA from IBM System x

The IBM System x based SAP HANA systems have very several distinct advantages over its SAP HANA platform vendor completion. These advantages leverage the unique design of the IBM eX5 technology and integration of the General Parallel File System (GPFS) in combination that allows for a solution that is simple, seamless, and scalable.

The four distinct advantages of IBM SAP HANA based upon System x include:

- 1) Scale – IBM solutions can scale to 56 nodes. All the competitors' solutions only scale to 16 nodes. This is due to the integration of IBM GPFS and provides both investment protection but the ability to handle massive amounts of data.
- 2) Simplification – IBM is the only vendor to provide a HANA solution that does not require storage area network (SAN) or network attached storage (NAS) subsystems for scale out growth.
- 3) Memory Capacity - IBM MAX5 provides eX5 systems with expanded memory. They are the only x86 solutions that allow memory to scale independent of processors. This provides exceptional value for customers by providing extra memory while running SAP Business Suite on HANA.

"We have seen massive system speed improvements and increased ability to analyze the most detailed levels of customers and products"

-Colgate Palmolive

Customer Motivations

[The Growth and Expanding Application of In-Memory Databases](#)

This paper written by Elliot King, Research Fellow, Lattanze Center for Information Value, Loyola University Maryland in June 2011 studies the current role on of in-memory database technology within IT infrastructure. It includes a look at customer motivations for adopting an in-memory database.

Key findings:

- Primary drivers of expansion of in-memory databases are: 56% Deploying more applications 56%, lower latency requirements 56%
- Most important limitations to in-memory data base systems: Size of database 63%, High availability 57%
- Most important criteria for vendor selection of in-memory database technology: Customer Support 65%, Commitment to road map 60%
- Cost is seen as the most significant barrier to adopting in-memory database technology by 65% of respondents familiar with in-memory database technology but not yet using it. The next most significant impediment is lack of experience.

"Reports are now running up to 1,000 times faster than before"

- Hilti Corporation

Existing SAP Addressable Market

- 45,000+ SAP Business suite installations
- 15,000+ SAP Business Warehouse Installations
- Average HANA HW deal size \$200K
- Total HW potential \$6B,
- IBM target >50% Market share = \$3B potential HW only
- Additional revenue opportunity from SAP SW licensing and Services = +\$
- As of July 2013

Competition

- Other SAP HANA - A total of seven vendors provide appliance offerings: IBM, HP, Fujitsu, CISCO, Dell, NEC, Hitachi
- Other in-memory database solutions
- Oracle DB 12c
- Other Analytics appliances
- Oracle Exalytics IN-Memory Machine
- Microsoft
- Teradata

SAP HANA Prospects

Prospects for SAP HANA include the following prospect categories:

- Current SAP Customer Business Suite and BW prospects
- Competitive ERP Business Suite and BW prospects
- New prospects for SAP Business Suite and NetWeaver BW

SAP HANA addresses the following customer pain points:

- Need to analyze business in real time
- Need to combine online analytical processing and predictive and text data analysis for complete data exploration.
- Customers unhappy with the level of detail data available for reporting in their current BW.
- Performance issues with queries
- SAP Business Suite customers running the following databases: Microsoft SQL Server, Oracle, IBM DB2, SAP Sybase.
- SAP Customers upgrading, developing or implementing new SAP applications
- Prospects evaluating data warehouse and data mart projects.
- Analytics projects for operational reporting, budgeting/planning and predictive analysis
- Current SAP Business Suite customers needing real-time access to analyze operational data and information.
- Need for processing of massive quantities of real time data to provide immediate results from analyses and transactions
- Customers using Oracle Exadata, Teradata or Greenplum who are not satisfied with their current environment.

"We can now create timelier and more accurate key reports on shipping across all our plants. This is the kind of capability we need to drive operational excellence and become number one."

-XiaoYu Liu, Vice President, GM Global Applications Development, Lenovo

Quick-Hitting Selling Points

- IBM built the world's largest system for SAP HANA with over 100 terabytes of main memory (expanded to 150 terabytes since installation) using System x systems and GPFS.
- SAP HANA runs using SUSE Enterprise Linux for SAP environment. It is currently not supported in the Microsoft operating environment.
- [What "In-Memory" Truly Means](#) In this article by Stephen Swoyer at tdwi.com some competing databases claim they are "in-memory" while not meeting the technical definition. Oracle Times Ten is in-memory while their Oracle Exadata uses flash cache. Teradata uses a memory optimized approach with their Teradata Intelligent Memory product. SAP HANA is a truly in-memory database.
- IBM's HANA solution can scale out to 56 nodes. Dell, HP, Fujitsu, Cisco can scale out to only 16 nodes. [SAP Product Availability Matrix](#)
- SAP HANA can run real-time OLTP and OLAP on a single copy of data. There is no need for an OLTP and an OLAP copy or separate system. This significantly cuts down the cost of permanent storage and the time, cost and effort to extract, transform and load a separate data warehouse

Bigpoint, an online free -to-play gaming company uses SAP HANA to monitor more than 5,000 customer gaming events every second, tracking and analyzing online behavior click by click. Real-time predictive modeling and in-memory processing enable Bigpoint to make targeted offers to each gamer.

Workload Optimized IBM Systems x Solutions for SAP HANA

IBM offers several Workload Optimized Solution models for SAP HANA. These Workload Optimized Solutions are server models, based on the 2-socket x3690 X5 and 4-socket x3950 X5, are optimally designed and certified by SAP. They are delivered preconfigured with key software components pre-installed to help speed delivery and deployment of the solution.

IBM also offers VMware™ virtualization support for select single node SAP HANA workload optimized models for non-production environments. This virtualization support helps you optimize your investment for development and test environments. In addition, synchronous disaster recovery support is available so SAP HANA systems can failover to a second site enabling and ensuring maximum data availability.

Seamless Scalability

Using the workload optimized solution models you can combine multiple models together to create multi-node scale-out configurations. These multi-node scale-out configurations enable you to achieve larger SAP HANA memory sizes for SAP NetWeaver™ Business Warehouse and data mart workloads simply by adding compute nodes.

IBM currently has 16 node x3690 X5 and 56 node x3950 X5 with high availability solutions validated and is the only SAP HANA appliance vendor that scales beyond 16 nodes.

In addition, only IBM has a High Availability concept which allows customers to seamlessly extend their installation to enable High Availability using GPFS replication and an additional stand-by node. IBM Intelligent Cluster integrated packaging and assembly can help speed installation and deployment of multi-node scale-out HA configurations as well as reduce implementation risk.

Animal nutrition leader Provimi can make more profitable, real-time material purchasing decisions by leveraging profitability analysis reporting that is 15,000 times faster.

Integrated data protection

IBM Tivoli Storage Manager for Enterprise Resource Planning (TSM for ERP) is a simple, scalable data protection solution for SAP HANA and SAP ERP. SAP HANA's memory-to-disk backups create export files that need to be preserved in case recovery is required. TSM for ERP includes a one-step command that automates SAP HANA backup and TSM data protection—a simple process that preserves SAP HANA data safely in TSM. TSM for ERP reduces complexity by enabling all files associated with a SAP HANA backup to be restored as a single unit.

Workload Optimized Solutions for SAP HANA Matrix

SAP Shirt Size	XS	S	S+	M	L
HANA Compressed Data in memory	64 GB	128GB	128GB	256GB	512GB
System x Building Block	x3690 X5	x3690 X5	x3950 X5	x3950 X5	x3950 X5
Model	7147-HA1U	7147-HB2U	7143-HAU	7143-HBU	7143-HCU + 7143-HBU
Processor	2 x Intel® Xeon® Processor E7-2870 10C 2.40 GHz	2 x Intel® Xeon® Processor E7-2870 10C 2.40 GHz	2 x Intel® Xeon® Processor E7-8870 10C 2.40 GHz	4 x Intel® Xeon® Processor E7-8870 10C 2.40 GHz	8 x Intel® Xeon® Processor E7-8870 10C 2.40 GHz
Memory	128 GB	256 GB	256 GB	512 GB	1024 GB
Solid State Disk	10x 200 GB eXFlash	10x 200 GB eXFlash	1.2 TB High IOPS MLC Mono Adapter	1.2 TB High IOPS MLC Mono Adapter	2 x 1.2 TB High IOPS MLC Mono Adapter
Hard Disk	None	None	8x 900 GB 10K 6Gbps SAS 2.5" SFF HS HDD	8x 900 GB 10K 6Gbps SAS 2.5" SFF HS HDD	16x 900 GB 10K 6Gbps SAS 2.5" SFF HS HDD
Networking Ports	4x 10 GbE 6x 1 GigE	8x 10 GbE 12x 1 GigE			
Software	SUSE Linux for SAP IBM GPFS and SAP HANA	SUSE Linux for SAP IBM GPFS and SAP HANA	SUSE Linux for SAP IBM GPFS and SAP HANA	SUSE Linux for SAP IBM GPFS ⁹ and SAP HANA	SUSE Linux for SAP IBM GPFS and SAP HANA

Notes:

- Shirt size S+ delivers capacity equivalent to Shirt size S but the hardware is upgradable to an M Shirt size capabilities
- Shirt size M+ deliver capacity equivalent to Shirt size S but the hardware is upgradable to an L Shirt size capabilities
- Model 7143-HCU has identical specifications to Model 7143-HBU and is a building block for the Shirt size L (8 processor) configuration. It can also be used to expand the S+ shirt size configuration of model 7143-HAU if that configuration has previously been upgraded to 4 processors and 512GB of memory

Workload Optimized Solutions for SAP Business Suite on HANA Matrix

SAP Shirt Size	XM	XL	XXL
HANA Compressed Data in memory	256GB	512GB	512GB
System x Building Block	x3950 X5	x3950 X5	x3950 X5
Model	7143-HDU	7143-HDU + 7143-HEU	7143-HDU + 7143-HEU
Processor	4 x Intel® Xeon® Processor E7-8870 10C 2.40 GHz	8 x Intel® Xeon® Processor E7-8870 10C 2.40 GHz	8 x Intel® Xeon® Processor E7-8870 10C 2.40 GHz
Memory	1024 GB	2048 GB	4096 GB
Solid State Disk	1.2 TB High IOPS MLC Mono Adapter	2 x 1.2 TB High IOPS MLC Mono Adapter	4 x 1.2 TB High IOPS MLC Mono Adapter
Hard Disk	8 x 900 GB 10K 6Gbps SAS 2.5" SFF HS HDD	16x 900 GB 10K 6Gbps SAS 2.5" SFF HS HDD	24x 900 GB 10K 6Gbps SAS 2.5" SFF HS HDD
Networking Ports	4x 10 GbE 6x 1 GigE	4x 10 GbE 6x 1 GigE	4x 10 GbE 6x 1 GigE
Software	SUSE Linux for SAP, IBM GPFS and SAP HANA	SUSE Linux for SAP, IBM GPFS and SAP HANA	SUSE Linux for SAP, IBM GPFS and SAP HANA

Notes:

- These models (single node, not available for scale-out)
- Model 7143-HEU had identical specifications to Model 7143-HDU and is used as a building block for the Shirt size XXL (8 processor) configuration.

Reference Information & Terms

SAP HANA T-shirt sizes

ConAgra Foods Inc. now enjoys better insight with fast financial processes, including transfer of material ledger data – from 9 hours down to 20 minutes.

SAP defined so-called T-shirt sizes for SAP HANA to both simplify the sizing and to limit the number of hardware configurations to support, thus reducing complexity. The SAP hardware partners provide configurations for SAP HANA according to one or more of these T-shirt sizes.

Note: Ask SAP technical support for the necessary main memory, which determines the appropriate T-Shirt size (single node or scale out) and the corresponding SAP license)

SAP HANA One

This is a Platform as a Service (PAS) cloud offering of HANA available for non-production uses including product evaluations, trials, student, data exploration projects etc. It is available from Amazon Web services on a utility-based pricing model at 99 cents per hour (plus cloud server charges).

SAP HANA One Premium

SAP HANA One Premium is a single HANA instance hosted by Amazon Web Services. It is offered at a fixed yearly subscription and includes a HANA Platform edition license (same as HANA One) as well as the Data Services component of HANA Cloud Integration (HCI), a cloud-based ETL tool to help extract, transform and load data from SAP Business Suite and other sources (e.g. 3rd party databases) into SAP HANA One Premium.

SAP Enterprise Cloud

SAP HANA Cloud Platform as a foundation to run applications and analytics, and the ability to run mission critical applications such as SAP Business Suite and Business Warehouse along with several big data applications delivered as a managed service.

IBM Systems solution with SAP Discovery

The IBM SAP Discovery System is designed as an application development and training platform that helps lower application development costs, speeds application deployment and assists with training. It includes an x3650 M4 workload optimized server, preload SAP Discovery system software, IBM DB2 database along with SAP's most current application technologies including Mobility (Sybase Unwired Platform, Afaria), HANA integration, CRM, SAP ERP EhP5, SAP NetWeaver, SAP Business Objects and more.

In-Memory Applications – powered by SAP HANA

- SAP BusinessSuite
- SAP NetWeaver Business Warehouse
- Custom SAP HANA applications
- SAP Business One (designed for small business and offered as a reference architecture with standard configurations and no standard software installation)
- Sales & Operations Planning
- SAP Smart Meter Analytics
- SAP Dynamic Cash Management
- SAP Trade Promotion Management
- SAP BusinessObjects Strategic Workforce Planning
- SAP BusinessObjects Planning and Consolidation
- Profitability Analysis Accelerator for ERP (CO-PA) – Profitability data is replicated onto SAP HANA after CO-PA processing in the SAP ERP application. Speeds multidimensional controlling and profitability (CO-PA) analysis.

IBM is an ideal services provider for any SAP customer seeking to leverage SAP HANA.

Through extensive collaboration with SAP, IBM provides a powerful combination of research, infrastructure, consulting, and integration capabilities for SAP HANA and in-memory computing that helps accelerate the innovation process.

White Papers, Solution Briefs and RedBooks

[Cost/Benefit Case for SAP HANA Deployment – Comparing Costs and Effectiveness of IBM and Competitive Solutions](#)

This management brief looks at the 3 year total cost of ownership of IBM, Cisco and HP appliances in both single node and scale-out configurations. It also discusses high availability and disaster recovery features. International Technology Group, February 2013.

[Blending Transactions and Analytics in a Single In-Memory Platform](#)

This white paper discusses the issues involved in the traditional practice of deploying transactional and analytic applications on separate platforms using separate databases. It analyzes the results from a user survey, conducted on SAP's behalf by IDC that explores these issues. IDC, February 2013.

[SAP HANA Database for Next-Generation Business Applications and Real-Time Analytics](#)

This paper provides a SAP HANA platform overview along with presenting the technical foundation of HANA along with HANA benefits for business applications. SAP, 2012.

[In-memory Computing with SAP HANA on IBM eX5 Systems](#)

This IBM® Redbooks® publication describes in-memory computing appliances from IBM and SAP that are based on IBM eX5 flagship systems and SAP HANA. We cover the history and basic principles of in-memory computing and describe the SAP HANA solution with its use cases and the corresponding IBM eX5 hardware offerings. IBM, August 2013.

[SAP HANA – Where does it take us and how to benefit](#)

This white paper uses current survey data to illustrate specific SAP HANA uses and suggests things organizations should consider when deploying SAP HANA . Pierre Audoin Consultants, November 2012.

[IBM PureFlex Solution for SAP Business Suite \(x86\) Reference architecture for x86 based IBM PureFlex System and SAP HANA](#)

This paper provides an overview on how modern SAP ecosystems consisting of the SAP NetWeaver technology layer, SAP Business Suite applications, and complementary SAP modules can be deployed on an IBM® PureFlex™ System. This reference architecture paper is aimed at informing the IBM Sales force and IBM Business Partners of IBM PureSystems Solutions for SAP, especially for technical sales and architects. IBM, August 2013.

[High-end customer landscapes based on SAP HANA](#)

The white paper is intended as a basis for the design of a technical architecture for a solution based on SAP HANA and state-of-the-art IBM technology. It provides SAP application scenarios with SAP HANA along with technical SAP application architecture and IBM Solution

implementations. It also describes IBM and SAP service and support offerings for HANA. IBM, January 2013.

[Prepare for the Quantum Leap in Real-Time Analytics](#)

This paper describes how in-memory analytics can change everything about your enterprise by removing latency in data and enabling real-time use of operational or transactional information. IBM, October 2011.

[SAP HANA Performance – Efficient Speed and Scale-Out for Real-Time Business Intelligence](#)

This white paper that describes a 100 TB performance test developed to represent a sales and distribution BI query environment that supports a broad range of SQL queries and business user using the NetWeaver® Business Warehouse (SAP NetWeaver BW) component. A 16-node cluster of IBM 3950 X5 servers with 8TB of total RAM is used as the test platform. SAP, 2012.