**Question:** What is the SAP High-Performance Analytic Appliance (SAP HANA)?

SAP HANA is a flexible, multi-purpose, data-source-agonistic in-memory appliance that combines SAP software components optimized on hardware provided, and delivered, by SAP’s leading hardware partners. It includes a number of integrated SAP software components including the SAP in-memory computing engine (see Figure 1 below), real-time replication service, data modeling and data services.

SAP HANA enables organizations to analyze business operations based on large volumes of detailed information in real-time, as it happens. Individuals can create very flexible analytic models based on real-time data without affecting backend enterprise applications or databases.

In addition, SAP HANA allows: accelerated BI scenarios off any data source; better operational planning, simulation and forecasting; fast analysis and better decision making off accelerated SAP ERP transactional data; and better storage, search and ad-hoc analysis off very large data volumes.

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**Figure 1: SAP HANA Landscape**
Question: What are the rationale and history leading up to SAP HANA?

SAP was an early pioneer in the concept of using in-memory technology for improving performance and columnar databases to gain high data compression rates. TREX and SAP Enterprise Search were the first solutions to use these concepts. Building on the strength of these early products, SAP then released the very successful SAP Business Warehouse Accelerator (BWA).

With BWA firmly established in the market, SAP expanded its vision to other purposeful ways to leverage this in-memory technology to further benefit its customers. SAP’s focus on Business Intelligence (BI) led to the decision to combine the BI functionality from SAP BusinessObjects with the in-memory analytical engine of BWA to create an accelerated BI solution called the SAP BusinessObjects Explorer, accelerated version for SAP NetWeaver BW.

With a focus on openness and heterogeneity, SAP then evolved SAP BusinessObjects Explorer by including data integration. This allows the solution to access and accelerate any data, and all information beyond structured data, in SAP BW (BW). This latest wave of SAP BusinessObjects Explorer, accelerated version, was released to market to in Q2 2010.

Building upon the success of this accelerated BI solution, SAP is now embarking on the delivery of a multi-purpose, high-performance analytic appliance (SAP HANA) that will eventually underpin many of SAP’s applications.

The first release of SAP HANA will focus on providing “real real-time” analytical capabilities for SAP Business Suite applications, by directly replicating transactional data via a real-time replication service, and exposing it to BI tools, including SAP BusinessObjects and Microsoft Excel, for real-time analysis and data exploration.

Question: What is the SAP In-Memory Computing Engine (ICE)?

The SAP in-memory computing engine (formerly Business Analytic Engine (BAE)) is the core ‘engine’ for SAP’s next generation high-performance in-memory solutions. It leverages technologies such as in-memory computing, columnar databases, massively parallel processing (MPP), and data compression, to allow organizations to instantly explore and analyze large volumes of transactional and analytical data – from across the enterprise – in “real real-time”.

It will first be delivered as a core component of SAP HANA (see Figure 1) by the end of 2010.
The SAP in-memory computing engine (see figure 2) delivers the following capabilities:

- Single 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.
- Data integration capabilities for accessing SAP (BW, ERP, etc.) and non-SAP data sources.
- Integrated lifecycle management capabilities.

Combined, these capabilities allow the SAP in-memory computing engine to support massive amounts of data from across the enterprise, and apply complex calculations that, in turn, allow decision-makers to explore and analyze vast amounts of information at incredible response times and with a high degree of flexibility, without the need for IT involvement or hand-holding.

**Question:** When will SAP HANA be delivered to the market?

SAP HANA entered ramp-up towards the end of 2010, with general availability (GA) in 1H 2011.

**Question:** What is the relationship between SAP Business Warehouse Accelerator (BWA) and SAP HANA?

The high-performance SAP in-memory computing engine of SAP HANA is the next generation of in-memory computing. It complements today’s BWA, with enhancements and additional functionality, including the replication and acceleration of transactional data for real-time analytics. In short, customers can look forward to SAP HANA as the platform for delivering accelerated analytical solutions.
**Question:** What is the relationship between the SAP BusinessObjects Explorer, accelerated version and SAP HANA?

Explorer, accelerated version, currently uses a data-source-agnostic version of BWA to provide in-memory acceleration of analytic data. The high-performance SAP in-memory computing engine of SAP HANA is the next generation of in-memory computing that complements today’s Explorer accelerated solution with enhancements and additional functionality, including a more complete suite of BI tools, and the replication and acceleration of transactional data for real-time analytics. By substituting HANA in place of the data-source-agnostic version of BWA, customers can gain substantial acceleration, along with additional calculation capabilities. In short, customers can look forward to SAP HANA as the platform for delivering accelerated analytical solutions.

**Question:** How does Sybase IQ fit into SAP’s overall in-memory strategy, especially SAP HANA?

SAP HANA and Sybase IQ are intended for different uses and will continue as independent products into the foreseeable future. SAP HANA is the key foundational component for SAP’s next-generation application platform for delivering analytics, planning, and transactional applications. Sybase IQ will be a foundational component of SAP’s data management platform. Over time, Sybase IQ will be powered by in-memory computing technology from SAP, and be used to provide extreme-performance data management solutions.

Sybase IQ is the preferred solution for customers who are building a data warehouse or data mart solutions, and who are not already running the SAP Business Suite or SAP Business Warehouse. SAP HANA, on the other hand, is the preferred solution for customers with the SAP Business Suite and SAP Business Warehouse.
**Question:** What is the benefit of SAP HANA for organizations today?

Information is an asset companies can use to make better decisions. The ability to capitalize on this asset remains one of the highest priorities for organizations of all descriptions. However, delivering on that need – for everyone in the organization – remains elusive. In-memory computing is a disruptive force that provides the speed and agility to power analytics at unprecedented performance levels, while remaining cost-effective. In summary, the SAP High-Performance Analytic Appliance delivers:

- **Speed and agility:** The business imperative for rapid change is driving new demands for business and technology. The need to get all the right information to business users, without the delay of typical enterprise data warehouses, is critical to using data as a competitive differentiator.
- **Performance and cost:** New hardware technologies and advances in software have dramatically improved performance, with similar reduction in costs, making new computing paradigms possible.
- **Harmonize Business and IT:** Business requirements demand that business analysts have the flexibility to define their view of the information and the application. Efficient IT organizations strive for low redundancy and high re-use of systems, information, and human resources.
- **More efficient data processing:** Traditional disk-based data warehouses have limits in terms their ability to benefit from major technology trends such as multi-core CPUs, in-memory processing, and columnar storage. The move to SAP in-memory computing engine is a move to a future-proof foundation that can truly fulfill the promise of real-time business.
- **Powering business analytic applications:** In every vertical solution and functional area of business there are common themes of information needs. At the same time, every organization is unique in the way it can use data to drive their business in new ways. Customers need the ability to use powerful technology to easily leverage all their data, so they can flexibly model their business in a rapidly changing, competitive environment.

**Question:** I am an ERP and non-SAP DW customer. How can I leverage SAP HANA?

For customers who do not want to disrupt their existing landscape, SAP HANA can be deployed as a high-performance data mart appliance that resides side-by-side with their ERP or non-SAP DW. Large volumes of transactional data from the ERP system can be directly replicated into SAP HANA via the real-time replication service within SAP HANA. In addition, data from other data sources can be loaded into SAP HANA via the SAP HANA data services component. Customers can use the SAP HANA modeling environment to create the required calculation models/objects and expose them to BI tools such as SAP BusinessObjects Analysis, Xcelsius and Explorer and Microsoft Excel, for reporting and analysis in real-time (see figure 3).
Alternatively, customers can deploy SAP HANA as a high-performance data mart appliance to provide real-time reporting and analytics on the large volumes of transactions in their ERP systems. Selected data from the backend applications (e.g., an ERP system) can be replicated in real-time into SAP HANA via the real-time replication services. Customers can leverage the SAP HANA modeling environment to extend pre-delivered data models, or build new data models to suit their needs. Once these data models are built and populated, they can be exposed to the SAP BusinessObjects BI tools. This setup will allow customers to bypass the traditional data warehouse and directly leverage HANA for all reporting purposes. Since the ERP data is replicated to SAP HANA in real-time, all the standard ERP reporting can now be done at high speed, and in real-time, by leveraging the capabilities of SAP HANA (see figure 4).
Question: What non-SAP front end tools can I use with SAP HANA?

SAP HANA will provide MDX and SQL interfaces. This will, for example, enable customers to use Microsoft Excel as a client tool directly off of SAP HANA, as well as to employ other third party tools that leverage MDX and SQL. However, there are currently no plans to offer third-party client tool certification for integration with SAP HANA, other than for Microsoft Excel.

Question: How will SAP HANA be delivered to the market?

HANA will be delivered as an “appliance” in a manner similar to the way SAP BWA and SAP Business Objects Explorer, accelerated version are delivered. Customers will purchase the software licenses from SAP and hardware from our hardware partners. The hardware partners will pre-load the SAP HANA software on the appliances before shipping to customers.

In the immediate future, Fujitsu, HP and IBM are the only partners providing the hardware for SAP HANA. We are constantly evaluating opportunities for other deployment options, including additional hardware partners as well as virtualized and cloud deployments.

Question: How do I decide whether SAP HANA or Sybase IQ is best suited for a project?

SAP HANA is the SAP High-Performance Analytic Appliance powered by SAP in-memory computing technology, with industry standard data access interfaces (SQL and MDX), and will be delivered with integrated SAP content. SAP HANA is designed to provide real-time analytics, integrated data management, calculation and simulation capabilities. It is designed to act as the platform for next generation analytical business applications involving simulation and write-back capabilities.

Sybase IQ is an analytics server that uses a disk-based columnar data store that is highly optimized for analytics and runs on any standard hardware and operating system.

Sybase IQ provides best price/performance in data warehousing and data mart solutions that involve:

- Real-world reporting and analytics, e.g., for banks and financial institutions.
- Analytical platform for data aggregators, e.g., information providers.
- Optimized to process streaming and/or time-series data for Financial Services and Telco industries.

Sybase IQ is therefore the choice for customers who need:

- An operational decision support system using EDW or Data Mart focused on data from non-SAP applications.
- Ability to spot trends and anomalies immediately.
- Better predictions about future business.
**Question:** What is the roadmap for SAP HANA and Sybase IQ? Will these products converge?

As mentioned above, SAP HANA and Sybase IQ are intended for different uses and will continue as independent products into the foreseeable future. SAP HANA is the key foundational component for SAP’s next-generation application platform for delivering analytics, planning, and transactional applications. Along the same lines, Sybase IQ is a key foundational component of SAP’s data management.

**Question:** What is SAP’s recommendation for customers for new projects?

Sybase IQ is the preferred solution for customers that are building a data warehouse or data mart solution and don’t already have SAP Business Suite or SAP Business Warehouse. SAP HANA is the preferred solution for customers with SAP Business Suite and SAP Business Warehouse. For those customers who have a mixed environment of data marts or data warehouses with SAP BusinessObjects, in addition to SAP ERP and BW, SAP HANA is a good fit to accelerate the SAP/BW environment and Sybase IQ is a good fit as a data mart or data warehouse solution (see figure 5).

**Analytics Environment**

<table>
<thead>
<tr>
<th>Product Fit</th>
<th>SAP ERP/BW</th>
<th>Non-SAP Applications or Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP HANA</td>
<td></td>
<td>Sybase IQ</td>
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</table>

*Figure 5: Choosing between SAP HANA and Sybase IQ*

**Question:** Sybase also has in-memory technology in Sybase ASE. How does that fit with SAP’s in-memory computing efforts and specifically SAP HANA?

SAP believes in-memory computing will revolutionize data processing. As such, Sybase ASE in-memory functionality is in line with SAP’s vision. Sybase ASE in-memory technology is row-store based. In addition to this, we will carefully consider leveraging SAP’s column-store based in-memory technology into Sybase ASE.

**Question:** Can I upgrade my BWA licenses to SAP HANA?

SAP currently markets and licenses BWA and SAP HANA as separate products. If and when SAP adopts a generally available standard migration policy for BWA, SAP will extend such migration policy to SAP HANA to qualified BWA customers.

**Question:** Can I upgrade my existing SAP BusinessObjects Explorer, accelerated version license to “SAP HANA-powered” SAP BusinessObjects Explorer, accelerated version licenses?

SAP currently markets and licenses Explorer Accelerated and SAP HANA as separate products. If and when SAP adopts a generally available standard migration policy for Explorer Accelerated, SAP will extend such migration policy to SAP HANA to qualified Explorer Accelerated customers.

**Question:** How can I get started with SAP HANA?

SAP, with the help of its hardware partners, is currently signing up select customers for the ramp-up program. Customers that plan to use SAP BusinessObjects 4.0 and/or data services with SAP HANA also need to enroll into the SAP BusinessObjects 4.0 ramp-up program. Please contact your SAP account executive for more details on how to participate in these programs.
For More Information
If you have additional questions not addressed on this FAQ, please contact your SAP representative or visit us at:
http://www.sap.com/platform/in-memory-computing