SAP HANA PLATFORM

SAP HANA: Rethink the possible

KEY BENEFITS

Uncover More Business Value
- **Increased efficiency** with automated business processes.
- **Faster execution** to adjust to changes in the business.
- **Deeper insights** into customer needs and wants.

Enable Breakthrough Transformation
- **Game-changing innovation** with new applications and business models.
- **Immediate analysis** of data in minutes, rather than days.
- **Real-time visibility** into the in-the-moment business situations.

Realize Data-center Simplicity
- **One source of the truth,** with easy integration of all data.
- **Consumer-grade usability**, accessible on any device.
- **Performance at the speed of thought to** match the demands of the mobile user.

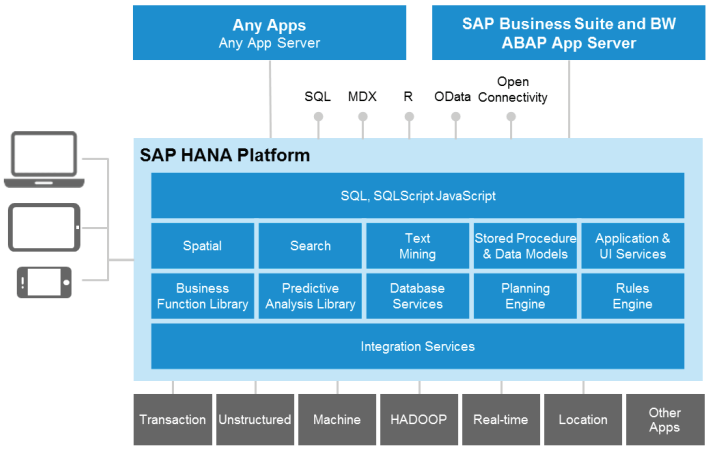
SAP HANA PLATFORM

SAP HANA platform converges database and application platform capabilities in-memory to transform transactions, analytics, text analysis, predictive, and spatial processing so businesses can operate in real-time. It is the breakthrough technology that will accelerate the Digital Economy.

SAP HANA is built on the next generation, massively parallel, in-memory data processing design paradigm to enable faster information processing. This new architecture enables converged OLTP and OLAP data processing within a single in-memory column-based data store with ACID compliance, while eliminating data redundancy and latency. By providing advanced capabilities, such as predictive, text analytics, spatial processing, data virtualization, on the same architecture, it further simplifies application development and processing across big data sources and structures. This makes SAP HANA the most suitable platform for building and deploying next-generation, real-time, applications and analytics.

IN-MEMORY COMPUTING ARCHITECTURE: THE WORLD'S MOST INNOVATIVE ARCHITECTURE TO SUPPORT ALL APPLICATIONS

SAP HANA is for all applications. It is also the platform for all SAP applications. It's a complete platform, offering data processing acceleration, as well as OLAP and OLTP convergence for operational intelligence, while simplifying application development for next-generation of smart applications.



The Best-Run Businesses Run SAP™

SAP HANA PLATFORM CAPABILITIES

Features	Description/Function
In-memory, columnar, massively parallel processing database platform	• SAP HANA permits OLTP and OLAP workloads on the same platform by storing data in high-speed memory, organizing it in columns, and partitioning and distributing it among multiple servers. This delivers faster queries that aggregate data more efficiently, yet avoid costly full-table scans and single column indexes.
Full ACID compliance	• Atomicity is ensured by a two-phase commit protocol, while multi-version concurrency control and distributed transactions guarantee consistency. SAP HANA transaction manager safeguards isolation and the SAP HANA logger provides durability by writing commit log entries to disk whenever a commit is requested.
Real-time data integration via replication, ETL, and streaming	• SAP HANA supports diverse data integration techniques, ranging from trigger-based data to longer-running batch jobs that extract and transform data prior to loading into the database. Replication techniques include trigger-based, ETL-based, and log-based, SAP HANA uses extractor-based data acquisition (DXC).
In-memory stored procedures	• SAP HANA offers the SQLScript language that lets developers create algorithms that are applied to data during query time, prior to returning results to the invoker.
Data virtualization – smart data access	• Data federation using smart data access (SDA) makes it possible to transparently access information from SAP HANA, SAP Sybase IQ, and Hadoop directly from SAP HANA queries.
Scale up and scale out	• SAP HANA scales beyond a single server by implementing a "shared nothing" architecture across multiple servers in one cluster. Large tables can be distributed across these servers using round robin, hash, or range partitioning.
Spatial processing	• SAP HANA stores, manages, and analyzes all types of geospatial data based on open standards such as OGC, ISO SQL/MM, and GeoJSON. This makes it possible to build next generation location-aware business applications that seamlessly interact with SQL.
Planning	• By executing planning commands and expressions using the SAP BI Fox code directly inside the database, SAP HANA planning engine removes the need to transfer masses of low-level information to the application layer. Caching adds to these performance improvements.
Calculation	• The SAP HANA calculation engine makes it easy to develop algorithms that work with large amounts of database information, which are then returned in a relational format. The calculation engine executes SQL and R statements, as well Application Function Library (AFL) operations by speedily partitioning input data, invoking parallel processing, and then joining the results.
PAL/BFL/AFL predictive analytics and business function libraries	• The SAP HANA database kernel supports high-performance Application Function Library (AFL) functions that can be called during query execution directly from SQLScript. The Predictive Analysis Library (PAL) and Business Function Library (BFL) are just two examples of these types of libraries.
Rules	• SAP HANA decision tables let non-programmers create powerful business rules that perform complex expressions and interact with multiple tables.

Features	Description/Function
Text search	• SAP HANA is proficient at using SQL to locate text across multiple columns and binary files such as Adobe PDF and Microsoft Office. It can automatically detect 31 languages, and conduct advanced fuzzy searches.
Text analytics	• SAP HANA text analytics extract meaningful information from unstructured data written in numerous languages. Advanced natural language processing capabilities such as segmentation, stemming, tagging, and sentiment analysis all serve to help derive added value.
Extended application services	• The "Extended Application Services (XS)" application server, contained within SAP HANA, facilitates setting up Web-based applications that efficiently process large amounts of data. The application server is able to render assorted formats such as HTML/CSS, OData (XML, JSON), and HTML5-based UI libraries.
User interface integration	• The SAP HANA user interface integration services are a set of Eclipse-based tools and client-side APIs that permit integration of standalone SAP HANA client applications (known as widgets) into Web user interfaces (known as application sites).
Unified administration, development, and modeling	• The SAP HANA studio is an Eclipse-based development and administration tool. It delivers an all-in-one support environment for system monitoring, backup and recovery, and user provisioning. • SAP HANA modeler provides a state-of-the-art modeling environment that allows for team-ready development of all artifacts that are used in SAP HANA, such as SQL, views, SQLScript, and the Application Function Library. SAP HANA information composer is a tool for business users.
Platform lifecycle	• The SAP HANA lifecycle manager can be called directly from the SAP HANA studio. Administrators use it to perform all aspects of system management, from adding new hosts to applying support packages with Software Update Manager.
High availability/disaster recovery	• SAP HANA supports high availability (HA) and disaster recovery (DR) through an array of techniques such as backup, storage replication, system replication, auto restart, and auto failover.
Security	• SAP HANA safeguards its information via strategies such as authorization, secure communications, encryption, auditing, and application service security.
Multiple deployment options	• SAP HANA can be deployed in the cloud or on-premise. For on-premise installations, SAP HANA supports performance-optimized bare metal deployment, or virtualization by VMware, thus enabling multi-tenancy-optimized administration.
Hadoop/R integration	• SAP HANA uses its smart data access virtualization functionality to effortlessly integrate data from a wide variety of disparate siloes such as Hadoop and R.

www.sap.com/contactsap

CHOICE OF ON-PREMISE OR CLOUD PROVIDES SECURITY, PRIVACY, AND AVAILABILITY.

SAP HANA is a modern in-memory platform that is deployable as an on-premise appliance or in the cloud. As an appliance, SAP HANA combines software components from SAP optimized on proven hardware provided by SAP hardware partners. In the cloud, SAP HANA is offered as a comprehensive infrastructure combined with managed services. SAP HANA can be consumed through the following cloud offerings: SAP HANA One, SAP HANA Cloud and SAP HANA Enterprise Cloud.

Build SAP HANA apps in the cloud with the SAP HANA Cloud Platform.			On-Premise SAP HANA hardware appliance.
SAP HANA One	**SAP HANA One Premium**	**SAP HANA Enterprise Cloud**	**SAP HANA Appliance**
For inventing new, break-through applications on SAP HANA.	For analytics and SAP HANA applications accessing data from SAP applications.	For SAP Business Suite and SAP NetWeaver BW powered by SAP HANA.	For any SAP HANA application.
$.99 / hour metered license.	$75,000 / year annual subscription.	Priced per customer scenario.	Priced per hardware sizing.

The Best-Run Businesses Run SAP™