

# SAP HANA® – One Platform for All Applications

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The SAP HANA® platform provides groundbreaking innovations, from technology to user experience to extensibility. We will examine how each of these elements drives SAP innovation. On the platform level, we will discuss how SAP HANA is the one platform for SAP® application development. We will explore how the next-generation user experience of SAP Fiori® apps will extend to all SAP applications. Finally, we will discover how decoupling extensions from standard applications will **simplify and accelerate innovation**.

### SAP HANA PLATFORM

The SAP HANA platform has been designed from the ground up for modern computer architectures that have massive parallel processing capabilities and large amounts of main memory. Leveraging these technological advances, the in-memory column store in SAP HANA can greatly accelerate transactional processing and perform real-time analytics on very large data volumes. There is no longer any need for data replication, indexes, or aggregates to overcome the limitations of traditional disk-based databases. This technology can tremendously simplify business applications and enable innovative scenarios and business models that were not even thinkable before.

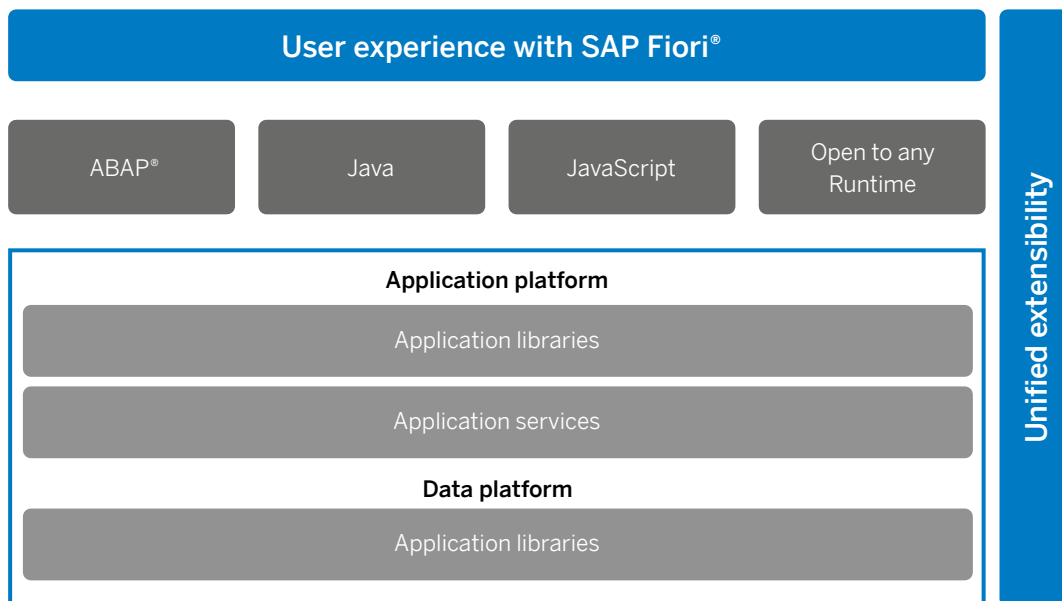
Beyond the core database services, the SAP HANA platform has evolved into a complete application platform following the code-to-data paradigm, in which application logic is pushed

down from the application server to the database server and is executed right where the data is. This effectively eliminates data transport between the database tier and the application tier – enabling the efficient implementation of a new generation of data-intensive applications. As their foundation, SAP HANA provides runtime environments for multiple languages and a rich set of application libraries and services: industry-specific libraries, master data management services, middleware services, statistics services, text processing, geospatial processing, a planning engine, streaming capabilities, user interface libraries, and much more. It also comprises a Web application server, called SAP HANA extended application services. For an overview of the SAP HANA platform, see Figure 1.

SAP HANA has been designed from the ground up for modern computer architectures that have massive parallel processing capabilities and large amounts of main memory.



Figure 1: The SAP HANA® Platform



Going forward, all SAP applications, both on premise and in the cloud, will be tightly integrated on the common foundation of this one platform.





In summary, the SAP HANA platform has been purpose-built to support the needs of modern enterprise applications. Going forward, all SAP applications, both on premise and in the cloud, will be tightly integrated on the common foundation of this one platform.

The following sections describe how SAP is leveraging the unique functionality of SAP HANA to nondisruptively renovate existing applications on the ABAP® and Java application development stack, and to develop innovative new applications on the native SAP HANA extended application services. It is also open for applications on other stacks that use standards like Structured Query Language (SQL), Multidimensional Expressions (MDX), or Open Data Protocol (OData). Customers and partners now have a platform to extend SAP applications or build new applications in their favorite environment – all on the same SAP HANA platform. In short: the SAP HANA platform is the foundation for the accelerated evolution of your business.

## **SAP PRODUCT ROAD MAP**

The SAP product road map is driven by the SAP HANA platform. In addition to building all new applications on the platform, we are renewing our entire product portfolio by moving all existing applications and technologies on both ABAP and Java stacks to SAP HANA. This happens without disruption because the move to the high-performance database services of SAP HANA requires only minimal changes in application code or behavior to provide immediate benefit. In addition, these applications will continuously adopt more functionality from the entire platform, simplifying software, data, and the system landscape, and optimizing performance and productivity. This is explained in the following table.





**Pushing** processing down from the application layer to the SAP HANA® platform by reimplementing data-intensive operations directly in the database (code-to-data paradigm)



**Results in** optimal performance of resource-intensive operations and leverages the capabilities supported by SAP HANA as directly as possible

**Performing** real-time calculations directly on transactional data without previous extraction and transformation



**Relieves** the primary persistence of aggregated data and eliminates secondary persistence for search or analytical processing

**Consolidating** redundant functionality by using common application libraries and services provided by the SAP HANA platform



**Streamlines** the development and extension model to services based on SAP HANA and generally simplifies the platform

**Eliminating** data replication and middleware by running different applications together on the same SAP HANA database



**Simplifies** the system landscape and reduces the number of required system instances

**Providing** clients with direct access to relevant data through open standards for flexible consumption



**Enables** the user experience of SAP Fiori® apps on top of a unified and consistent consumption model across all business applications

**Adding** interfaces for the development of add-on extensions on SAP HANA Cloud Platform, complemented by configurations for built-in extensibility within the applications



**Introduces** a decoupled and modification-free unified extensibility, thus simplifying the software lifecycle and safeguarding customer investments into extensions

The SAP product road map is driven by the SAP HANA platform.

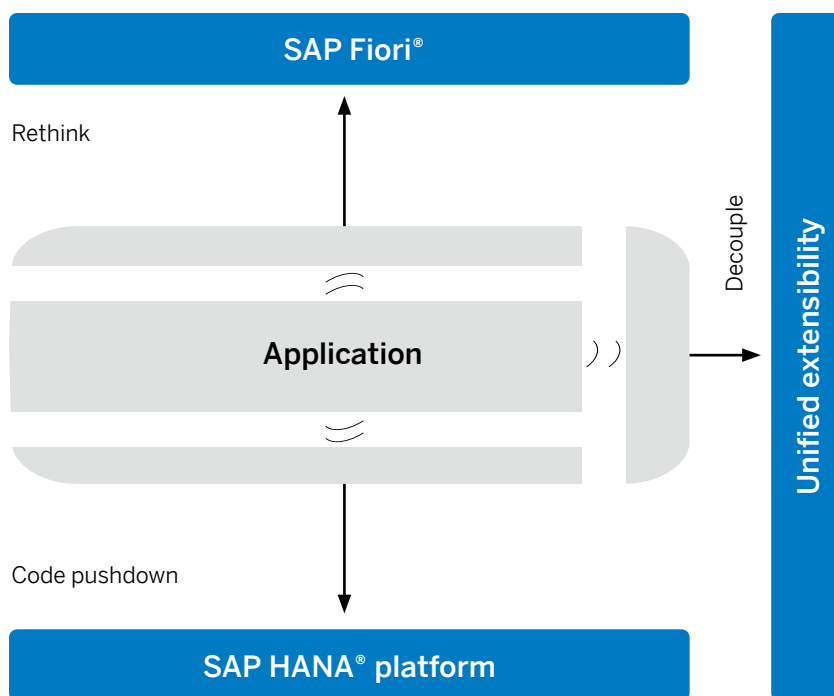




This nondisruptive renewal approach has been successfully demonstrated in core applications such as SAP ERP, SAP Customer Relationship Management, and SAP Business Warehouse, as well as for line-of-business solutions in the SAP Cloud for Human Resources portfolio and the SAP Cloud for Customer solution. These ABAP and Java applications have been adapted to run on the SAP HANA database and are already benefiting from the in-memory, columnar data-

base's performance in areas such as real-time reporting and analytics. SAP has also begun to further enhance these applications to unleash the full power of the SAP HANA platform by removing redundant code and aggregates, pushing code down closer to the data, leveraging the industry-specific libraries built into SAP HANA, and running analytics directly on the transactional data (see Figure 2).

Figure 2: Simplification with the SAP HANA Platform







For our customers, these simplifications lead to a system landscape with less complexity, less heterogeneity, and lower operational cost. They also enable the additional provisioning of all SAP products in the cloud, so customers can choose to take advantage of a subscription-based consumption model and all its benefits.

For SAP and its partners, the product renewal based on the SAP HANA platform is the foundation for increased efficiency. It enables us to innovate faster on one platform that provides all the functionality to address the current and future needs of our customers as their businesses evolve. It is also the basis for a series of new applications that are designed from the ground up for the strengths of this platform – in particular, real-time and predictive applications that can operate on massive amounts of live data. Examples of new software built on SAP HANA are our applications for sales and operations planning, predictive maintenance, and remote asset tracking.

## **USER EXPERIENCE WITH SAP FIORI**

SAP Fiori is about rethinking and redesigning the user experience (see Figure 2) based on what business users need to accomplish. It offers a simplified, user-friendly experience to various business roles, and its responsive design works smoothly on a desktop, tablet, or smartphone. The paradigm created with SAP Fiori will extend this next-generation user experience to all of our applications.

While user-interface rendering in SAP Fiori takes place on the client, the SAP HANA platform provides direct access through OData to application data and to logic pushed down to the database. Therefore, the middle tier of previous application architectures can be eliminated, resulting in a simpler architecture and higher performance. This opens the door for a new kind of highly interactive user interface, providing real-time simulations based on live data. Users can now rapidly gain the deep insights that lead to making informed decisions and taking the right actions.

SAP Fiori is about rethinking and redesigning the user experience based on what business users need to accomplish.





Existing applications will follow the same approach of adopting the user experience of SAP Fiori in a nondisruptive way. The introduction of fire lanes in the application code separates reusable business functionality from the server-side rendering code that is no longer needed. This essential business functionality is then made available through OData, either natively or, in case of applications based on ABAP, via the SAP Gateway technology. Additionally, the business functionality of existing applications can be pushed down to the SAP HANA database to combine an improved user experience based on SAP Fiori with the performance benefits of SAP HANA.

Besides HTML5-based user interfaces, other applications can also leverage the data access channel provided by OData introduced into all SAP applications in support of the user experience of SAP Fiori. Examples include consumer-facing user interfaces, native mobile applications, and connectors for sensors, meters, and other machine-to-machine integration, as well as extensions built and provisioned on SAP HANA Cloud Platform.

## UNIFIED EXTENSIBILITY

No application is ever complete, and every application needs to be extended. While standard applications support industry-specific best practices, every customer has its own needs to differentiate for a competitive advantage, and these cannot always be covered by the standard functionality delivered by SAP.

SAP core applications have always been capable of extension at various levels for customers and partners, from customization to add-ins to options for deep modifications of ABAP systems, and this will continue. However, innovation cycles are growing shorter, and more applications are moving to the cloud. Thus, development and maintenance of customer-specific extensions must be decoupled from the lifecycles and deployment models of standard applications (see Figure 2). This decoupling simplifies lifecycle management and enables instant adoption of business innovations as they are delivered by SAP or flexibly extended by customers and partners. It is also the foundation for secure, reliable, and scalable extensibility of cloud applications. The consolidation of SAP applications on the SAP HANA platform provides an exciting and differentiating opportunity for SAP to deliver unified extensibility for both on-premise and cloud applications through SAP HANA Cloud Platform.

No application is ever complete, and every application needs to be extended.





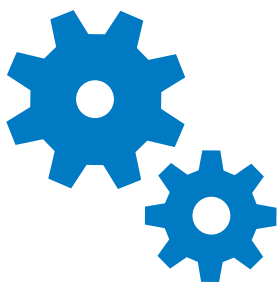


SAP HANA Cloud Platform is an integration and extension platform-as-a-service (PaaS) offering, and as such it provides a secure sandbox execution container for extensions, complemented with the required tools and environments to build, test, distribute, deploy, and operate them in the cloud. Extensions can add custom SAP Fiori apps, enhance business logic, and even introduce completely new business processes – going beyond preconceived and built-in configuration options like business process variants or extension fields.

Customers and partners alike now have the unique ability to build and run all extensions for both on-premise and cloud applications on one single platform, using the same tools, libraries, and runtime environments that SAP uses, thereby greatly increasing development efficiency and reducing cost. The common foundation SAP HANA offers is also ideal for co-innovation with partners, which will lead to new products integrated with SAP standard applications – all running on the SAP HANA platform.

## SAP HANA® PLATFORM AT PACIFIC DRILLING

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“SAP has been critical to our success thus far, and SAP Business Suite on SAP HANA will be even more important to our success going forward, as we move from a transactional-based business to a much more real-time, performance-driven business.”

Coy Wright, VP IT, Pacific Drilling

To manage the targeted doubling of its business, Pacific Drilling migrated to SAP® Business Suite powered by SAP HANA – within only 60 days. Moving from a reactive to a proactive management style, the company now runs transactions and analytics on one single platform. The simplified landscape greatly reduces the database size, data footprint, and, most of all, the company's costs.

SAP Business Suite powered by SAP HANA accelerates Pacific Drilling's time-to-value cycles, providing real-time operational reporting and faster key processes for material requirements planning and payroll. It also adds a new enterprise dashboard for C-level executives, and new possibilities such as predictive maintenance.

SAP HANA is an innovation platform that equips Pacific Drilling well for the ever-quicken pace of business and the expected doubling of its size within the next five years.





## SUMMARY

### SUPERIOR CUSTOMER VALUE

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As our one platform for all SAP applications, SAP HANA drives the evolution of the SAP product road map to deliver superior customer value. The key points to remember are:

- **SAP HANA** is more than a high-performance column-based in-memory database. It is a complete application platform with a Web application server, application services, and libraries.
- In the SAP **product road map**, all applications are moving to the SAP HANA platform without disruption. This simplifies our entire portfolio and makes all products available for cloud consumption.
- The **next-generation user experience** provided by SAP Fiori will extend to all SAP applications. It is designed to be simple and easy to use on a desktop, tablet, or smartphone.
- SAP HANA Cloud Platform provides **unified extensibility** for all SAP applications, on premise and in the cloud. It enables extensions without modifications, simplifying software lifecycle management.

### TO LEARN MORE

To find out more about how the SAP HANA platform can help your business evolve and run better, please contact your SAP representative or visit us at [www.saphana.com](http://www.saphana.com).



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The Best-Run Businesses Run SAP®

