

Deloitte.



#DeloitteInnovation: In-Time

How efficiently do you use your SAP HANA® ?

In-Time Deloitte™

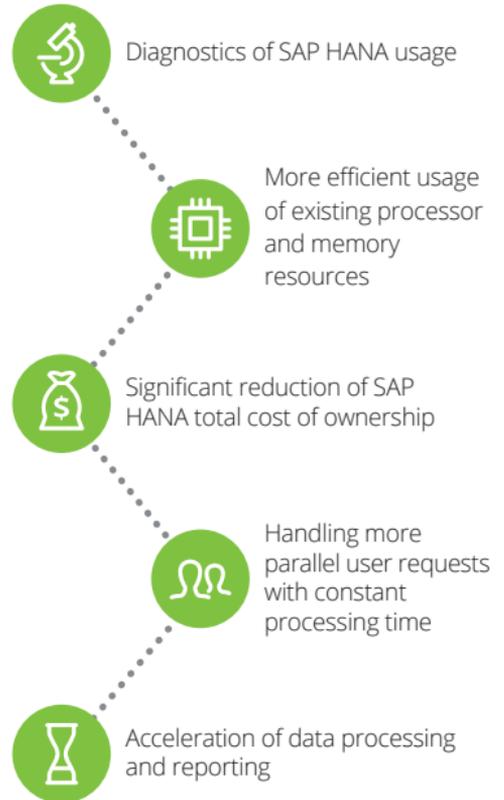
Deloitte In-Time in a Nutshell

In-Time is the first and only SAP HANA optimization software that can analyze the effectiveness of SAP HANA usage and optimize it. The optimization occurs according to business needs for data freshness in dependence on the available computing resources. The data freshness is defined as In-Time service level agreement (SLA) and is guaranteed to be not higher than the defined value. This way, data processing and reaction time of a SAP HANA system also stay within the In-Time SLA.

Besides, the need for scale-up or scale-out decreases as In-Time finds the right balance between processor and memory consumption and data freshness. In short, In-Time sets new computing capacities free within the existing system.

We have developed the In-Time solution because we know and understand the importance of data freshness for modern enterprises. With In-Time, you can use the available hardware more effectively according to your expectations on data age.

The application „Deloitte In-Time for Profit Contribution Report“ which aims at optimizing batch processing was certified by SAP®.



SAP HANA

The SAP HANA platform is a revolutionary in-memory appliance which simultaneously fulfils a wide range of business needs, including big data warehousing, planning and optimization, and predictive analysis. Three parameters determine the processing time of reporting queries and the degree of computing resource consumption in SAP HANA: the complexity of the calculations, the data volume, and the number of users requiring access to this data.

Reporting based on simple calculations utilizes very little processing power and memory resources, even if it involves a large number of users or large amounts of data. Under such conditions, SAP HANA enables real-time data access, efficient data storage, and fast reporting.

High-Load Analytics in SAP HANA

Reporting which is based on very complex calculations requires significant hardware resources to process large amounts of data and to provide the results to a large group of users in real-time. Such cases are referred to as „high-load analytics“.

To identify cases of high-load analytics we perform SAP HANA diagnostics on the main parameters of usage effectiveness, such as CPU/ RAM utilization, throughput and processing time.



Process complexity



Parallel user requests



Big Data

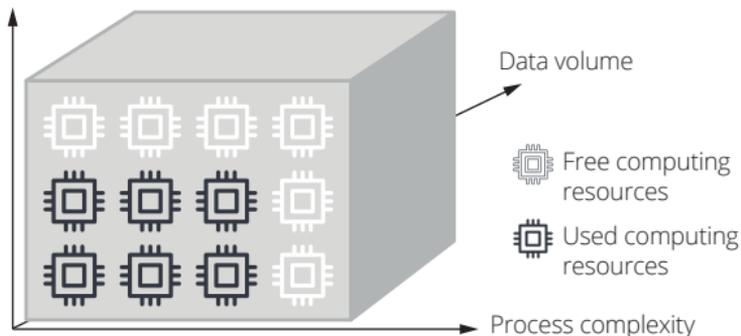
Performance challenges of IT systems on example of SAP HANA

Working closely with customers, we have seen that even well thought out SAP HANA solutions over time result in a slow running SAP HANA system with increased memory and CPU consumption owing to the demands of business coupled with an ever growing data footprint.

As SAP HANA system resources start reaching capacity limits, real-time data processing begins to start taking toll, and business users start getting negatively impacted as they begin to see degraded system performance. Suddenly, much vaunted sub-second query performance and response time start to appear as distant memory.

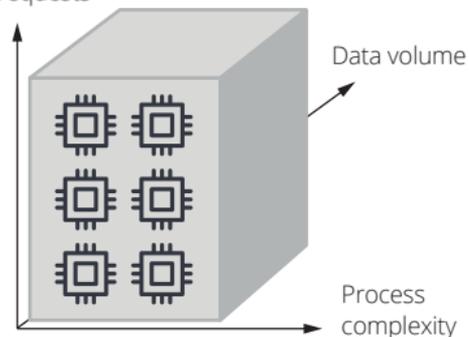
Scale-out/scale-up scenario

Parallel user requests



Full use of SAP HANA system capacity

Parallel user requests



SAP HANA scale-up and scale-out

To keep the system performance on a stable level and response times within the scope of real-time delivery, SAP HANA system owners are usually left with two options:

- **Scale-out** (i.e. adding more servers to the system) and
- **Scale-up** (i.e. adding additional CPU or RAM to the existing server).

Both solutions are costly.

Our solution: Deloitte In-Time

With In-Time, Deloitte offers a cost-saving alternative to system scale-out or scale-up for high-load analytic applications. The solution is based on parallel pre-calculation and update so that the data age does not exceed the defined SLA. The semantic partitions for pre-calculation and update are chosen dynamically in accordance to the optimal usage of existing system resources. In this way, In-Time ensures a stable and reliable SAP HANA performance level and simultaneously optimizes high-load analytic applications through a reduction of processor and memory resource consumption.

In-Time leads to a significant reduction in resource consumption and reveals the true potential of existing hardware in high-load analytic scenarios. It has an undeniably positive impact on SAP HANA total costs of ownership.

Software components include

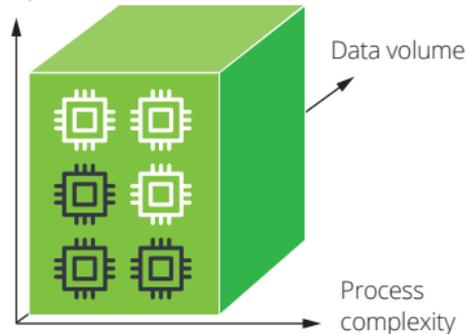
- the In-Time server which manages pre-calculations and maintains an optimal load on the SAP HANA server
- the In-Time Workbench which includes the Administration Console, Application Manager and System Explorer to configure, monitor and customize In-Time applications.

The Deloitte In-Time supports such SAP HANA functionalities as Multi-tenant databases, Smart data access, Workload classes and history tables

Deloitte In-Time solution

for an optimized usage of available CPU and RAM resources

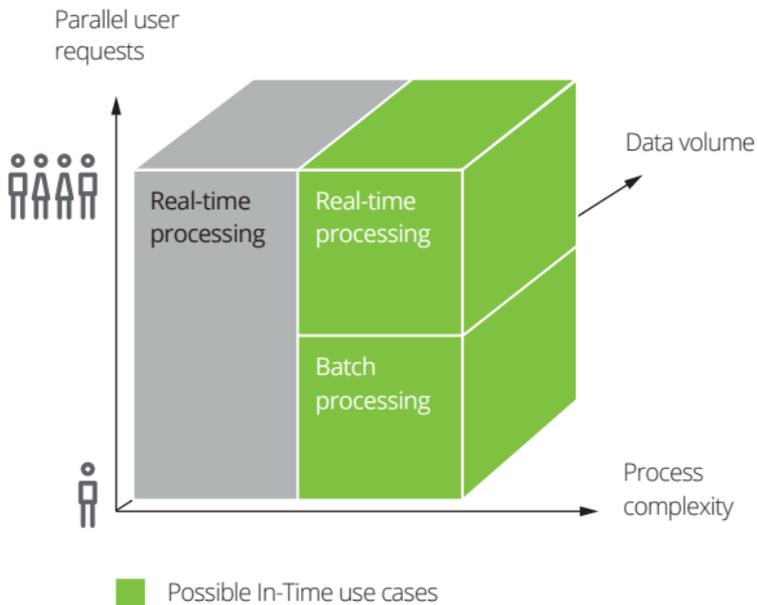
Parallel user requests



Free computing resources



Used computing resources



Use cases for the In-Time solution

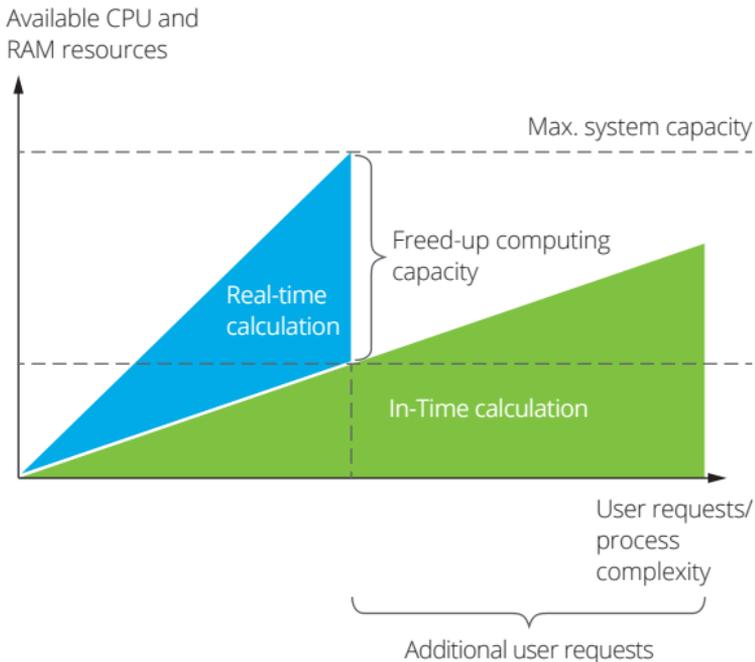
Under computationally intensive conditions, reports are typically calculated in batch processing. Calculations in real-time usually demand especially high CPU and RAM capacities to keep response and processing times sufficiently short.

The Deloitte In-Time solution for SAP HANA can prove beneficial in a very broad range of use cases.

At one end of the spectrum is batch processing, with complex calculations and large data volumes. At the other end is real-time processing, characterized by a dependency between processing time and data volumes and/or the amount of concurrent user requests.

Whether In-Time is applicable for a specific client situation is assessed prior to the implementation.

Comparison between real-time and In-Time calculations



In-Time Facts & Figures



The In-Time methodology and its adaptation to business requirements as well as the In-Time software toolkits can reduce the **SAP HANA total cost of ownership by up to 60%**.



Our experience has shown that the resource and energy consumption of SAP HANA systems which are optimized with In-Time solution is **up to 70% lower than without the In-Time solution**. Accordingly, In-Time is not only cost-efficient but also environmentally sustainable.



With In-Time, **response time remains constant** and **data processing times get shorter**. At the same time, SAP HANA hardware capacities are set free and can therefore be used by other applications.



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For further information, please visit our website
<http://www.deloitte.com/de/in-time>

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