Wipro HANA Private Platform as a Service

The Game Changer for SAP HANA

This paper, second of a two-part series created in delves into the key attributes of the Wipro HANA Private Platform as a Service, offered in partnership with HPE and Intel. We provide an in-depth analysis of its capabilities that rationalize and accelerate HANA adoption and mitigate key HANA challenges around capacity, speed, scalability and uptime.

Click here to view the first paper on SAP HANA deployment challenges and best practices.

In our experience of working with organizations of all sizes, across verticals and geographies and varying technology maturity levels, we see three categories of SAP HANA implementation:

Organizations that primarily leverage out of the box features and application functionalities without getting into SAP HANA infrastructure and database complexities. They mostly opt for **SAP HANA SaaS offering.**

Organizations that need to customize SAP applications per their business requirement and desire more control of the SAP platform but are not willing to take control of the underlying infrastructure. Such organizations generally adopt **SAP HEC offerings.**

Organizations that want complete control on their investment in every aspect of SAP application prefer to have **on-premise and custom-designed solutions.**

„

Hybrid offerings
Many organizations these days prefer customized services but without the headache of maintaining large IT teams. Their strategy combines owning a private cloud, datacenter or hosting of choice, with public cloud options for transient, temporary and dynamic requirements.

Overcoming HANA complexities with the right solution

SAP HANA is a sophisticated application system with its own complexities and requires dedicated manpower and resources for successful implementation and maintenance in order to derive maximized value from investments. SAP HANA implementation projects often see concerns around:

- **Capacity estimation:** As organizational demands are tied to business needs, the initial estimates on capacity can vary widely within a year. Having an underlying platform that provides resources on-demand while adhering to SAP's policies is of great comfort to CIOs.

- **Provisioning for speed:** Limited skills availability, high uptime requirement and lack of specialized tools result in SAP infrastructure being treated as an island in most organizations. CIOs seek faster provisioning and operations in SAP environment, similar to other applications.

- **Cost-effective scaling:** As databases grow, the tail end of data is accessed less frequently and is usually partitioned off to lower tiered storage. But in the case of HANA, all the data still needs to be available in memory. As memory is an expensive component of compute infrastructure, tiering options in the memory architecture is an area of interest for CIOs.

- **Uptime:** Application downtime on HANA has serious implications on business continuity. The memory factor makes typical High Availability solutions for traditional databases relatively expensive for HANA. Also, high HANA restart times (a typical 3TB HANA DB can take 30-40 minutes) contribute to downtime. This makes HANA maintenance and patching a cumbersome task requiring careful planning.
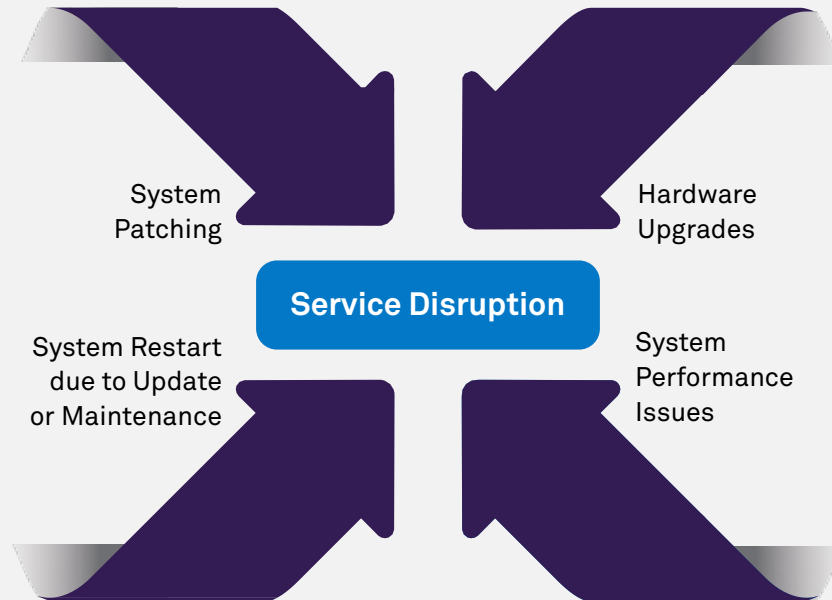
Figure 1: Major causes of HANA service unavailability

Wipro has developed a comprehensive offering to provide organizations better visibility and control of their complete infrastructure. The offering includes three key components:

- SAP Platform-as-a-Service in the customer's own data center
- Bring your own license (BYOL) model
- Option of complete application managed services

Wipro HANA Private Platform as a Service

Wipro partnered with HPE and Intel to create a model of private on-premise HANA Platform as a Service (PPaaS). This offering is ideal for organizations looking for the simplicity of platform-as-a-service mode of consumption along with retaining control of dedicated infrastructure.

End to end visibility and control, with comprehensive compliance and security

Leverage existing investments

Tighter integration with existing operational processes

Consumption-based pricing

A partner who can take care of the complete IT ecosystem-SAP and non-SAP
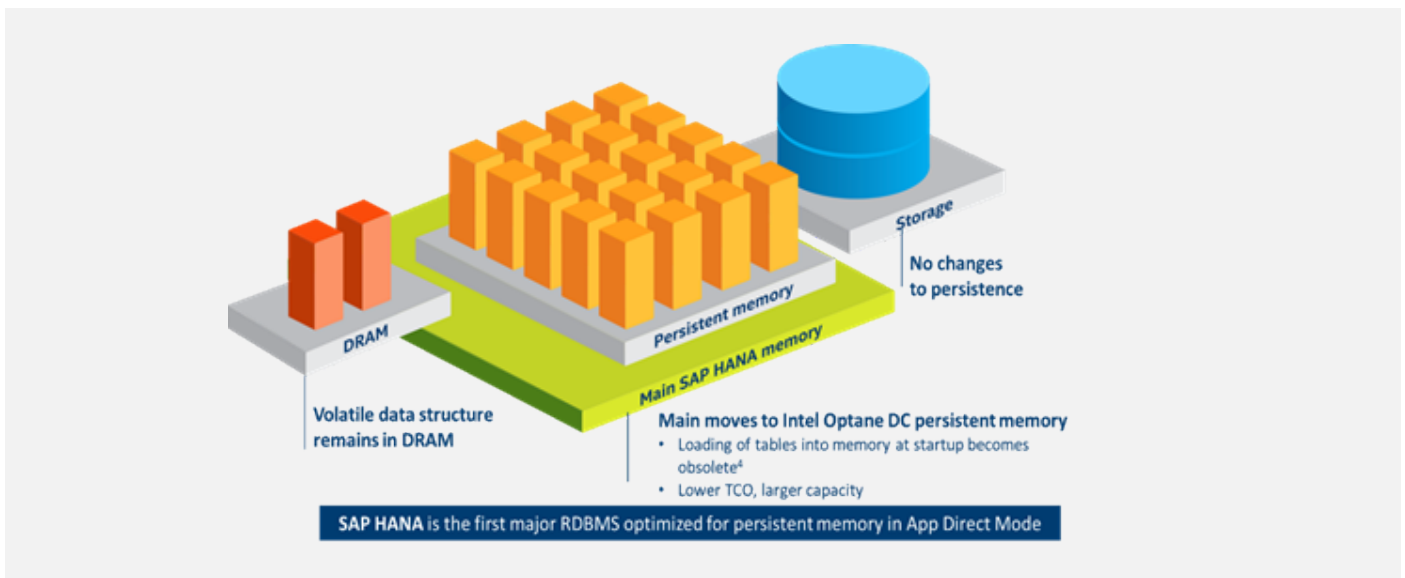
Figure 2: Wipro HANA PPaaS - What to expect

"

Intel's Optane DC Persistent Memory
(Referred as DCPM henceforth) is a new technology that introduces a new flexible tier within the memory / storage hierarchy. DCPM will move larger amount of data closer to the CPU, so it can be accessed, processed, and analyzed in real-time (without first being retrieved from storage). DCPM is comparable to DDR4 DRAM in form factor and performance. They are byte-addressable, like memory, meaning programs can access data structures in-place. This allows for memory like performance with the capacity benefits of NAND. Additionally, it has data persistence features typically found in NAND SSDs. This means that customers can keep more data, closer to the CPU for faster processing, and that data will remain in memory when the system is power cycled.

The primary asks from HANA clients are lower TCO, operational efficiency and infrastructure agility. Wipro HANA private PaaS architecture blueprint, based on its **software defined infrastructure framework – FluidIT,** which in turn draws from the strength of HPE infrastructure, Intel Scalable Processor, Optane Persistent Memory and Optane SSD, is designed to address common concerns of SAP HANA enterprises.

DRAM

Storage

No changes to persistence

Persistent memory

Main SAP HANA memory

Volatile data structure remains in DRAM

Main moves to Intel Optane DC persistent memory
- Loading of tables into memory at startup becomes obsolete[4]
- Lower TCO, larger capacity

SAP HANA is the first major RDBMS optimized for persistent memory in App Direct Mode

The Wipro HANA platform rationalizes and accelerates HANA adoption by building four key capabilities:

1) Elastic capacity
The on-premise, private, and dedicated infrastructure can scale-up, scale-out or scale-down based on business demand. Customers can add capacity incrementally without paying for future capacity requirements. The consumption units are flexibly defined during the design phase to best suit the client's growth strategy.

FluidIT architecture seamlessly integrates with both public cloud infrastructure and SAP Cloud, enabling clients to leverage the best-fit option. The FluidIT **AppAnywhere** framework provides a distributed data fabric to enable application movement between cloud and on-premise.
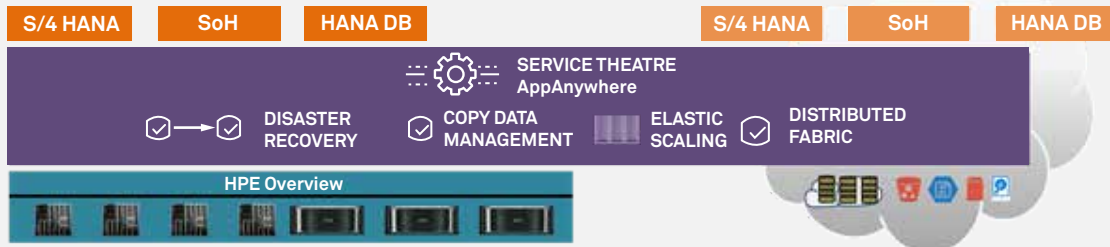
Figure 3: On-premise private cloud – On-demand scale-up and scale-down

2) Automation

FluidIT is highly automated with programmable architecture based on software defined infrastructure components. **Wipro ServiceTheatre** automates infrastructure-heavy HANA application tasks and places control directly into the hands of the application team. For instance, the application team can schedule a QA refresh at the click of a button without worrying about the underlying infrastructure tasks associated with it. While the application team is empowered, the IT team is still in full control of the solution and can influence and affect the final outcome based on defined policies and budget.

3) Dynamic resource management

Almost every data center has multiple functionality-based clusters, divisional boundaries, security requirements and different flavors of virtualization. As every cluster is an island of resources, organizations end up with excessive buffer resources to cater to high availability and frequent spikes or future growth. FluidIT enables a data center wide buffer pool of resources integrated at the API level with AIOPS toolset to determine the location of resource crunch, and dynamically allocates resources to respective clusters. It can also pull out resources from an idle cluster, and reallocate it to a busy cluster. This type of dynamic resource management enables huge efficiency gains, doing more with less. FluidIT optimizes HANA sizing with this dynamic resource management. The sizing can be optimized to a great extent with Disaster recovery (DR) or high availability (HA) hardware for non-production usage. DR or HA environment can be configured to accommodate otherwise idle instances, and most of the DRAM can be used by non-production instances. In case of a failover, **ServiceTheatre** DRM workflow automatically reassigns the resources to active instances, re-optimizing non-production workload.
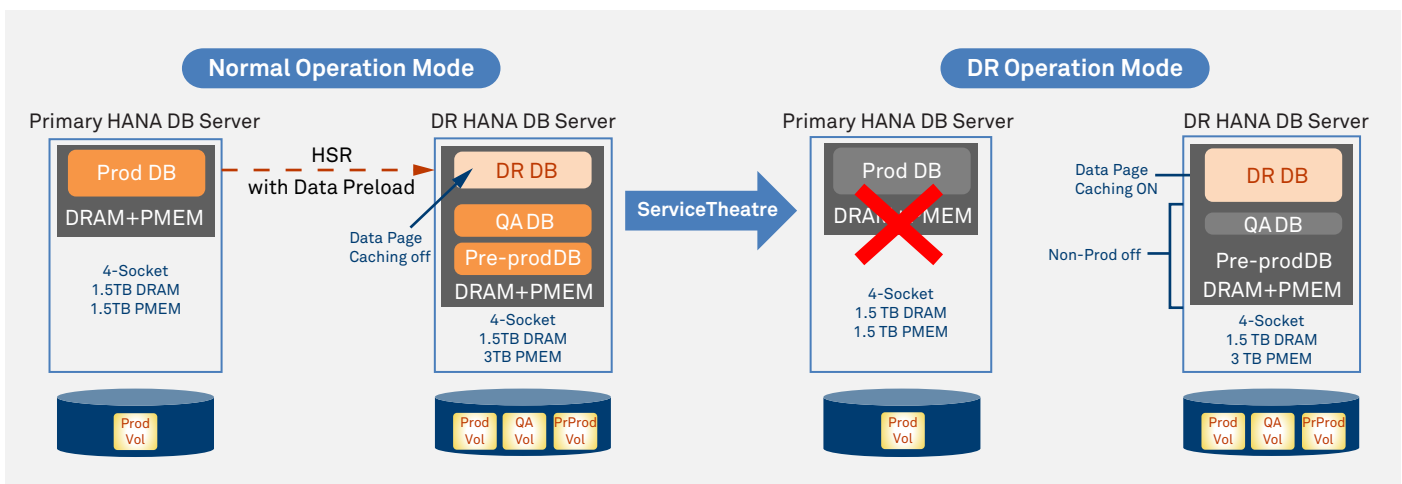

Figure 4: Dynamic use of DR for Non-prod using PMEM

4) Maximized availability

FluidIT architecture is designed with the key goal of minimizing services downtime, and not just maintaining server uptime. SAP HANA FluidIT reference architecture extensively uses Intel Optane Persistent Memory to reduce HANA startup time by more than 90%. Persistent Memory, as the name suggests, persists across reboot and power recycles, ensuring all the tables are still available in memory during the next system startup with only the Delta fragment needing uploading from the disks. The FluidIT AIOPS toolset proactively monitors system performance and acts autonomously through the ServiceTheatre, in case of system uptime being impacted. For e.g., auto-scaling a load balanced application cluster with additional nodes to take care of additional loads. FluidIT architecture allows for independent patching of different components like operating system, application binaries or hardware firmware. ServiceTheatre leverages this feature to patch systems using snapshots and minimizes downtime on running applications.

Get the full power of SAP HANA with Wipro PPaaS

Wipro PPaaS drives organizations into the future of technology, offering the complete visibility & control of the platform architecture without the responsibility of managing it. Customers can dictate their unique business requirements without getting involved in the technical intricacies of infrastructure and SAP basics. They can leverage the advantage of customized KPIs defined for the SAP platform services, and can consume the platform at their own pace without worrying about capacity planning and procurement. The underlying platform provides API integration with clients' existing DevOps tool chain or ITSM toolset.

The Wipro offering built around SAP's next gen HANA platform is a step into the future as it supports key organizational initiatives, helping businesses stay simple, secure, and strong in the digital economy.

To learn more about **Wipro PPaaS, and to know its short and long-term benefits, connect with us here.**

Also **read a complimentary research from Gartner,** How to Select SAP HANA Cloud Systems, 20 June 2019, Philip Dawson, David Groombridge, Tony Harvey.

Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.

Wipro Limited
Doddakannelli, Sarjapur
Road,
Bangalore-560 035, India
Tel: +91 (80) 2844 0011
Fax: +91 (80) 2844 0256
wipro.com

Wipro Limited (NYSE: WIT, BSE: 507685, NSE: WIPRO) is a leading global information technology, consulting and business process services company. We harness the power of cognitive computing, hyper-automation, robotics, cloud, analytics and emerging technologies to help our clients adapt to the digital world and make them successful. A company recognized globally for its comprehensive portfolio of services,

strong commitment to sustainability and good corporate citizenship, we have over 180,000 dedicated employees serving clients across six continents. Together, we discover ideas and connect the dots to build a better and a bold new future.

For more information,
please write to us at **info@wipro.com**