

Simplify and accelerate SAP HANA deployments

Provision faster | Scale affordably | Maximize uptime

Introduction

Organizations are deploying SAP HANA to get faster insights from their data. As more applications migrate to the platform, the demands on SAP HANA environments will continue to change. Therefore, it is critical to choose a server infrastructure that can easily adapt to these changes while providing the scalability and reliability required by SAP applications.



What should you look for when choosing SAP HANA infrastructure?

How easily and quickly can it absorb changes in business needs?

As your business needs change, so do the demands on SAP HANA and its underlying infrastructure. While you may have an estimated capacity for the coming year, your actual capacity could vary.

Your infrastructure needs to easily accommodate these possible fluctuations without having to invest in additional systems.

How much can it scale while keeping costs down?

SAP HANA infrastructure scales using a scale up or a scale out approach. To maximize performance and throughput, SAP recommends scaling up as far as possible.¹ It is critical to evaluate the memory scalability in scale up and scale out approaches. You should also consider the following options provided by the infrastructure to keep costs in check:

- *Granular capacity allocations:* More granular allocations help you scale gradually rather than requiring you to allocate more capacity than you need. This enables you to avoid overpaying for capacity.
- *Performance per core:* Executing more throughput per core lowers the number of cores necessary to reach processing capacity, further reducing costs.
- *Sharing processor capacity:* Efficiently utilize processing capacity across SAP HANA instances to further reduce Total Cost of Ownership (TCO).

Can it deliver mission critical resilience?

According to ITIC’s 2018 Hourly cost of Downtime Survey, 33% of enterprises say hourly downtime costs their firms from \$1 million to over \$5 million per year.² With SAP HANA becoming the one data platform to run all SAP applications, your infrastructure will have to quickly adapt to planned or unplanned events and continue running 24x7 with minimal business impact.

Can it enable your move to the cloud?

As you move your workloads to a hybrid cloud environment, the on-premises infrastructure for SAP HANA should not only easily integrate with rest of your IT, but it should also offer the flexibility to match workloads to the cloud environment of your choice (i.e., private, public or hybrid multicloud).

How does IBM® Power Systems™ simplify and accelerate SAP HANA deployments?

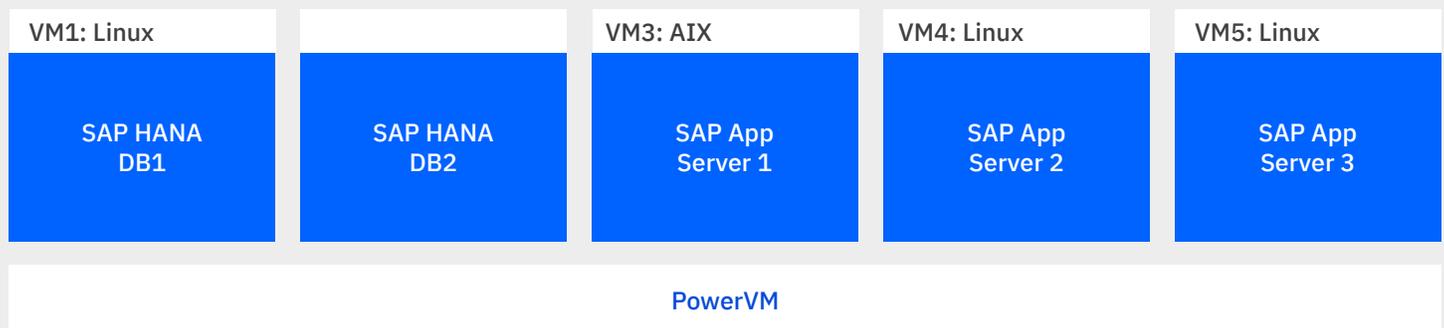
IBM Power Systems is designed for data intensive and mission critical workloads like SAP HANA. Power Systems simplifies and accelerates SAP HANA deployments by providing three key capabilities:

1. Provision faster

Get faster access to SAP HANA instances with simplified capacity allocation. Power Systems comes with built-in, firmware-based virtualization with negligible overhead. This lets you easily increase or decrease capacity and consolidate multiple production/dev/test environments.

Power Systems also simplifies IT management by enabling consolidation of up to 16 production SAP HANA databases in a single E980 server³ along with other associated or complementary workloads. This reduces your physical server footprint, network complexity and energy consumption.

IBM® Power Systems™



Key benefits

Faster provisioning of the new VMs

Easily change capacity allocations

Live migration of SAP HANA instances across systems to minimized planned downtimes

Get capacity on demand with “cloud-like” consumption models



both OLTP (S/4H) and OLAP (BWH) environments.⁵ This scalability also allows customers to run large SAP-certified, scale-out SAP HANA configurations. Power Systems also delivers 2X faster core performance versus compared x86 platforms.⁴ The higher throughput helps in reducing the number of cores needed, further reducing the cost.

When customers deploy SAP HANA on Power Systems, they can share their processor capacity across HANA VMs in a server with “Shared Processor Pools” feature. With this capability, customers only need to purchase capacity that can meet the total demand across all SAP HANA instances in a server instead of maximum capacity needed in each instance. Customers can further couple this capability with the “Capacity on Demand” offering where they can activate and deactivate cores on demand and only pay for the capacity they actually use, thereby reducing the TCO.

2. Scale affordably

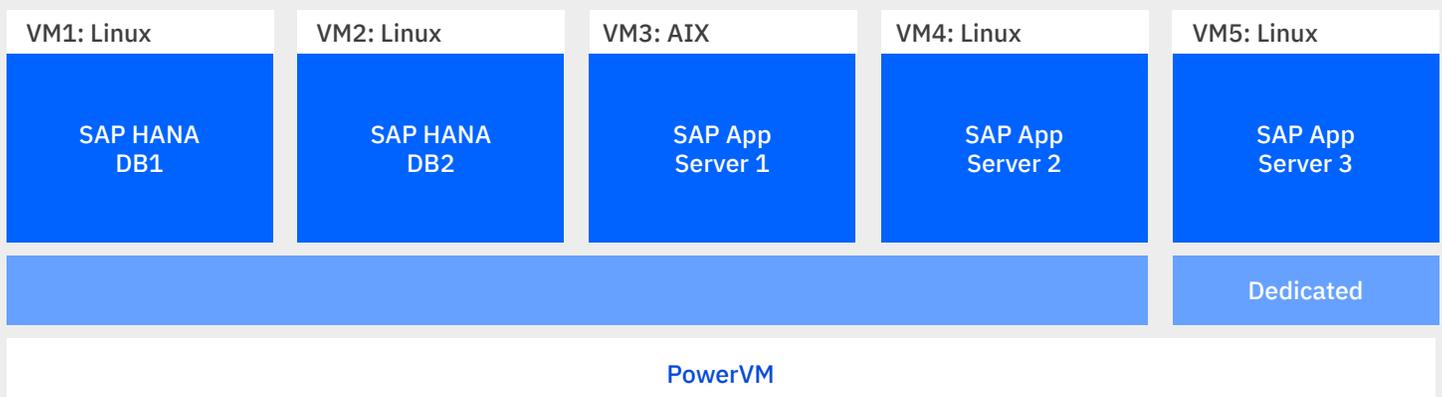
Power Systems supports large SAP HANA environments while providing options to scale affordably. With built-in virtualization, Power Systems can run the largest SAP HANA virtual machines with almost zero overhead. SAP has certified 24TB in scale-up configuration for

Optimize processor utilization with shared processor pool support for HANA DB

Power Systems also allows customers to scale gradually by allowing granular capacity allocations. With finer capacity allocations in Power Systems, you have the flexibility to incrementally allocate as low as 0.01 cores and 1 GB. This enables you to allocate capacity that you really need instead of being forced to overpay for capacity that you do not need.

Other hardware platforms — due to their limitations in HW technology and virtualization — make customers over configure the environment. However, Power Systems provides multiple options to not only scale large SAP HANA environments at smaller granular levels, but also scale them affordably.

IBM® Power Systems™



3. Maximize uptime

Power Systems is ranked the most reliable server for the past 10 years by ITIC². It has consistently delivered more than 99.999% uptime and has built-in intelligent memory protection to detect and fix potential faults before they lead to system failure. In commodity architecture, comparable technology is optional and affects performance when used.

Migrating SAP HANA from x86 to Power Systems is simple. If you are on SAP HANA 2.0, you can easily migrate, setting up SAP HANA Systems Replication between the two platforms. The version of SAP HANA for the Power Systems platform is no different than the x86 platform. Working closely with SAP, IBM provides the enterprise-grade infrastructure, service and support to simplify and accelerate your SAP HANA deployments.

This resulted in a significant number of customers migrating their existing SAP HANA deployments to Power Systems and also benefited customers building new SAP HANA environments.

How does the open ecosystem of Power Systems deliver easier data center management?

The open software ecosystem of Power Systems lets you easily integrate and manage the infrastructure along with the rest of your IT. Power Systems seamlessly integrates with orchestration tools such as SAP Landscape Manager and VMware vRealize, allowing you to easily manage both Power and x86 infrastructure with a single, pane-of-glass interface.

Power Systems also enables your transition to a hybrid multicloud environment by offering the flexibility to match your workloads to the cloud of your choice. IBM is a systems solution provider and also a tier one cloud provider — enabling you to easily move workloads across private, public and hybrid multicloud environments.

Why IBM and SAP?

IBM and SAP make digital reinventions a reality, and securely bring intelligence to the enterprise with IBM’s unrivaled SAP experience. For over 45 years, IBM and SAP have partnered to deliver superior solutions to our enterprise customers, further attested by 35 SAP Pinnacle Awards. The differentiated capabilities of Power Systems enabled it to achieve one of the highest adoption rates for SAP HANA infrastructure, with thousands of customers in a span of just three years.



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1 <https://help.sap.com/viewer/6b94445c94ae495c83a19646e7c3fd56/2.0.03/en-US/da1285c7bb57101482d4a67b48598345.html>

2 <https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=23015323USEN>

3 Refer SAP Note 2230704 for details on support for 16 SAP HANA production instances on IBM Power System E980. Register or log in to <https://support.sap.com/home.html> to retrieve the note <https://launchpad.support.sap.com/#/notes/2230704/E>.

4 2X performance per core is based on IBM Internal measurements as of 2/28/18 on various system configuration and workload environments including (1) Enterprise Database (2.22X per core): 20c L922 (2x10-core/2.9 GHz/256 GB memory): 1,039,365 Ops/sec versus 2-socket Intel Xeon Skylake Gold 6148 (2x20-core/2.4 GHz/256 GB memory): 932,273 Ops/sec. (2) DB2 Warehouse (2.43X per core): 20c S922 (2x10-core/2.9 GHz/512 GB memory): 3242 QpH versus 2-socket Intel Xeon Skylake Platinum 8168 (2x24-core/2.7 GHz/512 GB memory): 3203 QpH. (3) DayTrader 7 (3.19X per core): 24c S924 (2x12-core/3.4 GHz/512 GB memory): 32221.4 tps versus 2-socket Intel Xeon Skylake Platinum 8180 (2x28-core/2.5 GHz/512 GB memory): 23497.4 tps.

5. Refer SAP Note 2188482 for details on the memory certified for OLTP and OLAP. Register or log in to <https://support.sap.com/home.html> to retrieve the note <https://launchpad.support.sap.com/#/notes/2188482>.