Get ready for tomorrow with SAP HANA® on IBM® Power®

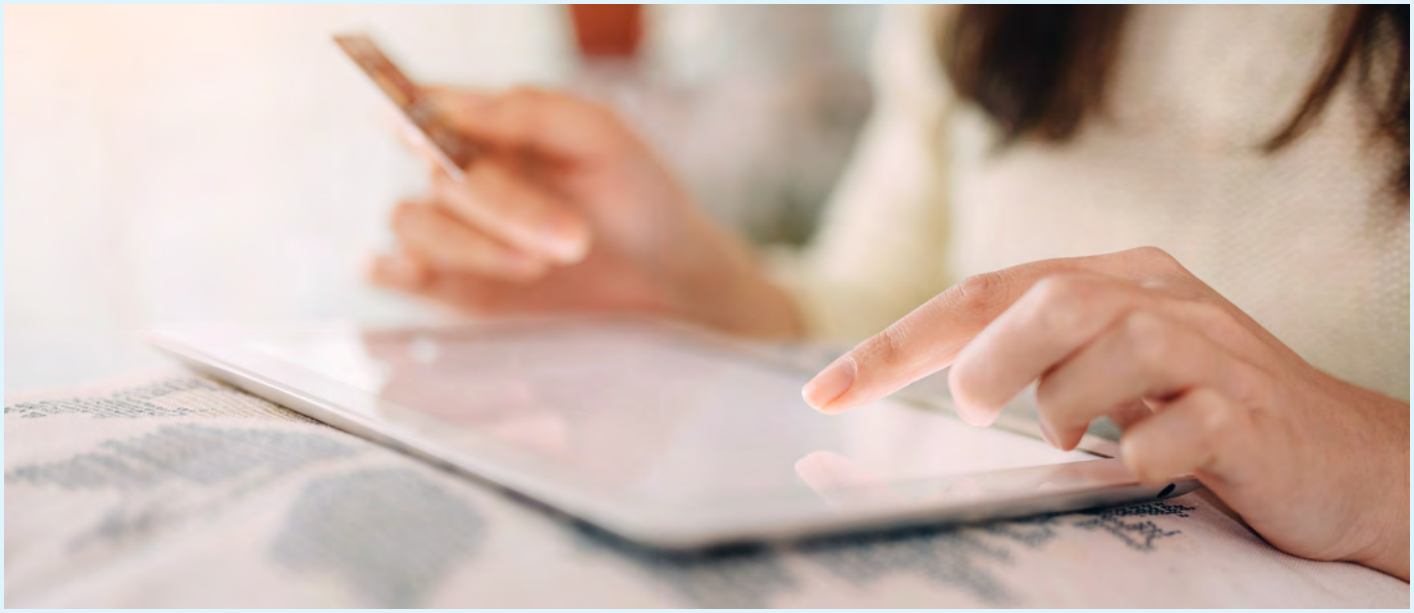
Tap into the transformative power of SAP HANA

By 2025, global data creation is projected to grow to more than 180 zettabytes, and this huge figure is only expected to grow in the years ahead.[1] From banking and retail to healthcare and government, organizations of every kind are joining the race to exploit this vast treasure trove to help drive their services and build innovative products—fueling a technological revolution.

Yet being able to analyze and gain fresh insight from these immense volumes of data is a constant challenge. Flooded with information from multiple sources such as IoT devices, social platforms, internal systems, partner ecosystems, and more, businesses are under immense pressure to find effective ways of managing, processing, and storing critical data.

To meet these challenges, many enterprises have deployed SAP HANA solutions to provide a high-performance, scalable data foundation that delivers both transactional and analytical processing. The SAP HANA in-memory architecture is capable of running many types of workloads faster and with greater efficiency than traditional databases, and built-in analytics tools and machine learning algorithms help organizations transform their systems of record into catalysts for growth and innovation.

For businesses in every industry, SAP HANA is helping to boost the performance of mission-critical applications, unlock operational insight, and achieve significant cost savings. By realizing these benefits, companies running SAP HANA are well-positioned to deliver ultra-responsive services, enable seamless growth, and delight customers.



1 Statista, "Volume of data/information created, captured, copied, and consumed worldwide from 2010 to 2025" [web site]

Why run SAP HANA on IBM Power?

Because multi-model, in-memory databases place high demands on underlying infrastructure, running SAP HANA on powerful, reliable servers is essential to achieving optimum performance. Created to support data-intensive workloads, IBM Power® provides an outstanding platform for SAP HANA, is certified by SAP, and offers key business advantages.

For example, IBM Power servers can host up to 16 production logical partitions (LPARs), giving business the opportunity to create multiple partitions for their core applications in secure and easy-to-manage testing, deployment, quality assurance and production environments. With optimal workload distribution, hosting multiple SAP HANA systems on one server can significantly improve processor utilization rates, helping to reduce overall IT infrastructure costs and reduce environmental impact.

Forrester Research revealed that businesses achieved an average saving of $1.4 million by deploying their SAP HANA environments on IBM® Power® servers.[2]

By running SAP HANA on IBM Power servers, enterprises can also significantly strengthen business continuity and protect against downtime. In its latest Server OS Reliability Report, Information Technology Intelligence Consulting (ITIC) discovered that 91 percent of all IBM Power servers they tested delivered 99.999 percent reliability.[3] And in its most recent Server OS Security Report, ITIC found that IBM Power customers reported an average downtime of less than 3.3 minutes over a 12-month period.[4]

This level of rock-solid reliability has made IBM Power a staple for every organization that drives its critical business processes with SAP HANA.

2 D. Davidson & C. McNaire, “The Total Economic Impact Of IBM® Power Systems™ For SAP HANA®”, Forrester Consulting, July 2019, p.6
3 Information Technology Consulting (ITIC), “ITIC 2021 Global Server Hardware, Server OS Reliability Report”, ITIC, July 2021, p.4
4 Information Technology Consulting (ITIC), “ITIC 2021 Global Server Hardware, Server OS Security Report”, ITIC, June 2021, p.10

More than a server

While some businesses choose to build, manage, and operate in-house datacenters, often to meet industry-specific regulations, many others prefer the flexibility and zero capital costs of cloud solutions.

To help each business find the infrastructure model that works best for their unique circumstances, IBM offers a range of deployments for SAP HANA on IBM Power: on-premises; private, public and hybrid cloud; and Infrastructure as a Service (IaaS). Widely respected across the IT sector, IBM Power is also used by many leading managed services providers (MSP) to host mission-critical applications such as SAP HANA for millions of companies around the world. For many MSPs, the reliability and performance of SAP HANA on IBM Power provides critical competitive advantage, and helps to build excellent client relationships.

To unlock the full potential of SAP HANA, companies across multiple sectors often enlist the support of technical experts from IBM Systems Lab Services and IBM Cloud® Migration Services.

Whether the aim is to deploy SAP HANA for the first time, to remove the cost and management burden of commodity hardware, or embrace the benefits of cloud computing, IBM is ready to help you find the optimal SAP HANA environment, from implementation to go-live and beyond.

"With IBM Power servers and PowerVM virtualization, we can provide resources much more efficiently. In the past, if we needed to provision new large SAP HANA systems we would have had to buy, install and configure new physical appliances. Today, we can simply spin up new logical partitions as and when needed, making the process of provisioning new SAP HANA systems up to 20 times faster."

– Christoph Kalt, Lead IT Architect, Coop Group

Standing out from the crowd

Before SAP HANA became available on IBM Power at the request of enterprises across many sectors, organizations had few options other than to build supporting infrastructure with x86 appliances. This approach, often requiring one appliance for each SAP HANA instance, resulted in relatively high cost and maintenance, with very limited scalability.

Today, more than 30,000 organizations run mission-critical workloads on IBM Power servers—and many more are following this trend. So, what truly sets IBM Power apart?

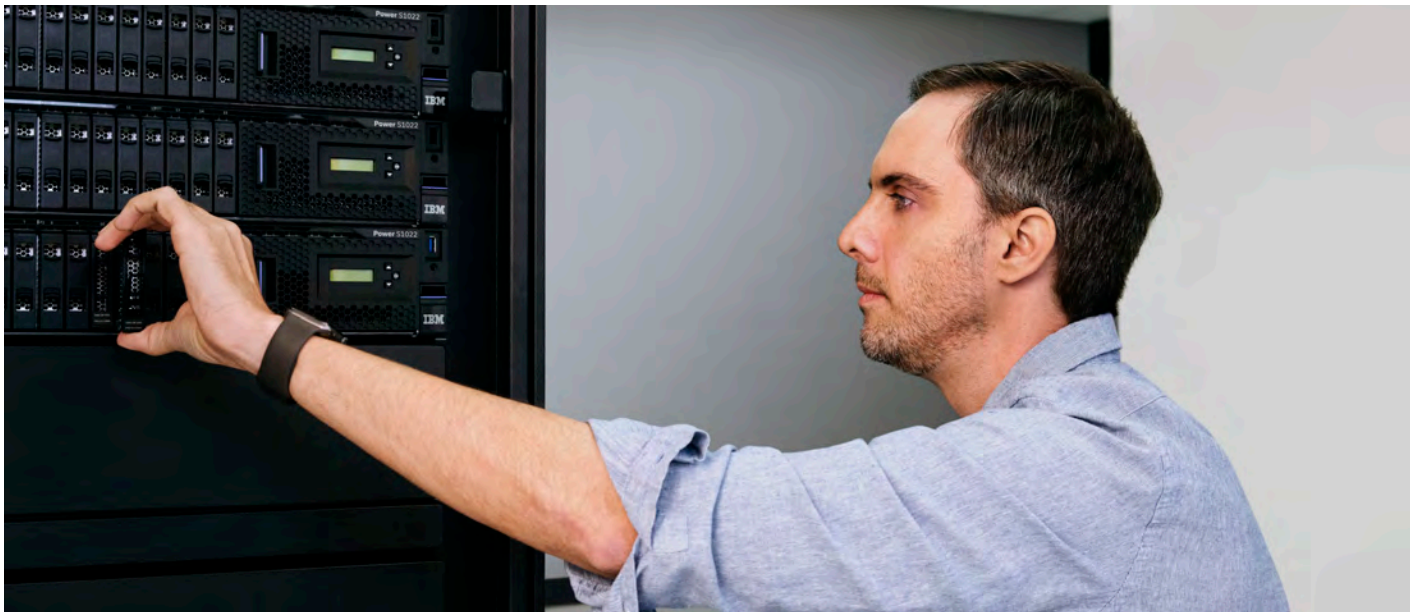
"By being able to provision a new instance three times faster, we can respond in a more flexible way to client requests, improving our business agility and enhancing client satisfaction."
– Benjamin Kaspereit, Head of Data Center Systems Technology, rku.it GmbH

Provision faster

SAP recommends regularly scaling up new SAP HANA environments as demand for data across the business increases. For appliance-based infrastructure, provisioning new environments means installing and configuring new physical systems—a time-consuming, expensive approach.

With IBM PowerVM® virtualization technology built-in at no extra cost, IBM Power enables organizations to create new environments by incrementally allocating as low as 0.01 cores and 1GB. The ability to create virtual servers enables businesses to provision new production, test, and development environments in near real-time without the cost and delay of procuring and deploying additional hardware.

As workload develops, IBM PowerVM gives IT teams the ability to assign additional processor and memory capacity on the fly, and even move virtual machines from one IBM Power server to another without having to power down or reboot operating systems or LPARs—simplifying system management and boosting business agility.



Maximize uptime

Disruption to services caused by downtime is expensive, and can also cause serious reputational damage. Because SAP HANA is often the critical business solution, companies are impelled to run the SAP solutions on highly reliable and resilient infrastructure.

Ranked number one in reliability for 13 years, IBM Power is one of the most stable and resilient solutions on which to run core SAP workloads.[5] As well as delivering 99.999 percent uptime, the best score in the industry, IBM Power has built-in memory protection tools that can spot and resolve potential issues before they cause system failure. With SAP HANA being an in-memory database, the dual in-line memory module (DIMM) plays an important role in the resiliency of the server infrastructure.

For instance, IBM Power automatically removes failing chips from ongoing processing and then replaces those failed chips with spares from the DIMMs—helping to strengthen business continuity. And with new differential DIMMs built in to IBM Power10, which offer higher data throughput and lower latency, customers can enjoy even greater reliability, availability and security.

In the unlikely event that downtime does occur, IBM's Virtual Persistent Memory feature can help to support up to 17 times faster startup of SAP HANA environments compared with commodity hardware. With faster start-up times, businesses can accelerate recovery from downtime and help to ensure business continuity even in a disaster event.

Created with a design philosophy that aims to achieve the highest reliability, availability, and serviceability, IBM Power delivers impressive results in third-party testing. In ITIC's most recent reliability report, IBM Power infrastructure achieved best-ever uptime scores, with less than 1.49 minutes of unplanned server downtime per server.[6] What's more, Power9 and Power10 models now offer a minimum of five and six nines availability and uptime, respectively.

"We remain extremely happy with IBM Power and IBM FlashSystem. As CIO, I simply do not hear a word about the platform, because there are never any problems."
– Jean-François Desassis, CIO, Barbier Group

5 Information Technology Consulting (ITIC), "ITIC 2021 Global Server Hardware, Server OS Reliability Report", ITIC, July 2021, p.3

6 Information Technology Consulting (ITIC), "ITIC 2021 Global Server Hardware, Server OS Reliability Report", ITIC, July 2021, p.3

IBM secures its reputation as a leader for reliability by subjecting all new designs of IBM Power solutions to rigorous computer simulated testing as well as real world systems tests. And through close engagement with early adopters of new solutions, IBM is dedicated to delivering continuous field reliability improvements.

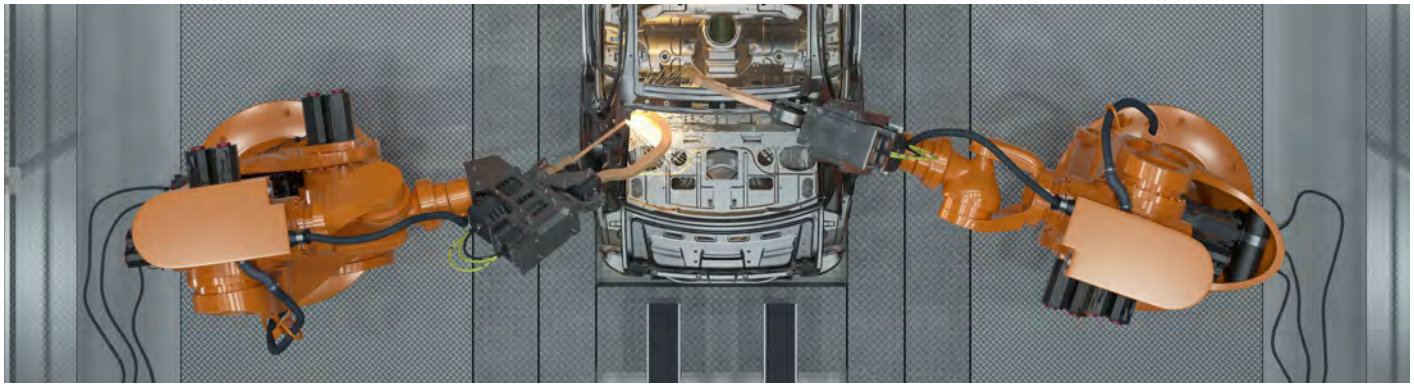
With advanced self-diagnosis tools built-in, IBM Power can help IT specialists spot potential issues and take proactive action fast. And by enabling the call home function, companies can ensure that they receive efficient, informed support from IBM Services.

After seeing a 42 percent Net Promoter Score (NPS) increase in just one year for IBM Power servers, it's clear that IBM customers are delighted with the reliability of IBM infrastructure and associated support packages.

Through its new Cognitive Support Platform, an AI-powered service that provides guidance and solutions around-the-clock, IBM has helped over 60,000 clients resolve issues. As a result, the support program itself has seen a 7.5 point NPS improvement. The combination of built-in technical excellence and responsive support services enables customers to rest assured that their critical SAP HANA applications will always run smoothly on IBM Power servers.

"By building an integrated solution with IBM FlashSystem and IBM Power servers, we improved the performance of the technology stack by 40 percent. Built-in reliability features enable maintenance without customer impact. We have not experienced any unplanned downtime in 24 months."
– Martin Stratman, CEO, OEDIV

"With IBM Power Systems, we're building on proven technology. To maximize continuous manufacturing output, a stable platform is crucial for our business."
– Audi Spokesperson



Scale affordably

With data volumes and workloads increasing year-on-year, being able to scale mission-critical applications such as SAP HANA is key to future success.

With the IBM pay-per-use model, businesses can grow quickly and scale their operations affordably without being forced to purchase additional hardware. In its Total Economic Impact survey, Forrester found that companies running SAP HANA on IBM Power typically achieved a 137 percent return on investment and started seeing the economic benefits of the solution in just seven months.[7]

"With SAP S/4HANA on IBM Power and IBM Storage, we can start with the right-size solutions for our needs and then scale cost-effectively as the business develops."
– Pierre-François Isabel, Director of Information Services, Familiprix

"Running SAP S/4HANA on IBM Power provides our clients with a simplified IT landscape and a future-proof solution that we can adapt and scale to meet business requirements."
– Volker Schulz, CIO, PROMOS

Through IBM's pay-per-use model, companies can enjoy cloud-like economics on physical hardware by only paying for the capacity that they use, unlocking huge savings and reducing the risk of overprovisioning. And by allowing IT teams to share processing power between virtual machines, organizations can achieve additional savings by reducing the number of cores utilized for vital workloads.

As well as optimizing per-core utilization and maximizing savings with flexible virtualization tools, IBM Power servers are designed to deliver excellent energy efficiency. Compared with x86 servers, IBM Power E1080 offers 52 percent lower energy consumption for the same workloads—saving costs while reducing environmental impact.[8]

For example, leading IT service provider NTT Data Business Solutions Nordics achieved a 30 percent reduction in operating costs, enabling the company to tempt clients with superb value for money. To read the case study, click here.

7 D. Davidson & C. McNaire, "The Total Economic Impact Of IBM® Power Systems™ For SAP HANA®", Forrester Consulting, July 2019, p.11

8 Standard Performance Evaluation Corporation (SPEC), "All SPEC CPU2017 Results Published by SPEC," Spec.org [website], 2017. *Based on IBM internal measurements of CPU integer rates on IBM Power E1080 compared to SPEC's published results for x86 solutions.

Achieve net zero emissions

As the world becomes increasingly aware of the challenges posed by climate change, more companies and organizations are taking active steps to cut greenhouse gas emissions and reduce waste. In a recent sustainability report, IBM found that 39 percent of CEOs surveyed said that increasing sustainability is a top priority.[9]

With a heavy reliance on energy-intensive datacenters to power mission-critical operations, it's no surprise that the information and communication technology sector is responsible for up to 3.9 percent of global greenhouse gas emissions.[10] Any reduction in power consumption, cooling, datacenter footprint, therefore, can go a long way to help organizations improve their environmental impact and support a more sustainable tomorrow.

To reduce carbon footprint and join the fight against climate change, IBM Power offers an excellent way for companies to keep core systems running smoothly while boosting environmental sustainability.

"The total cost of ownership of running our SAP S/4HANA on IBM Power servers versus an x86 architecture was much lower. Additionally, to run our workload required 40 IBM Power9 CPUs compared with 540 CPUs on other processing platforms. We also calculated that the IBM infrastructure would consume 15 times less energy than other platforms and architectures."
– Frank Werdermann, CIO, Hoffmann Neopac

For example, IBM is ensuring that each new generation of IBM Power infrastructure is more energy efficient than its predecessor: a Power10 processor offers a threefold improvement in energy efficiency when measured against Power9,[11] and Power10 delivers over 50 percent more performance per watt.[12]

Awarded the Best Environmental Excellence Award in The Global CSR Awards 2021, IBM is continuing to lead the way in sustainable IT, and aims to achieve net zero carbon emissions by 2030.[13] As well as developing convention-defying semiconductors that hold the potential to reduce energy consumption by 85 percent, IBM supports the full spectrum of cutting-edge green computing initiatives.[14]

Whether through prioritizing the use of sustainably sourced materials, diverting 90 percent of its nonhazardous waste from landfills by 2025, or supporting the development of renewable energy technologies, IBM is working hard to make net zero a reality for its clients, too.[15]

"We appreciate sustainable partners who think in a similar way to us, and that is precisely the relationship we enjoy with IBM. By moving our global business to SAP S/4HANA on IBM Power servers and IBM FlashSystem storage, we will gain the data-driven insights we need to realize our sustainability goals."
– Rainer Steffl, CIO, Mondi Group

9 IBM Institute for Business Value, "Own your impact: Practical pathways to transformational sustainability", Global C-suite Series 25th Edition, The CEO Study, May 2022, p.7
10 IBM Cloud Education, "What Is Green Computing?" ibm.com [website], 2022
11 G. Anselmi et al, "IBM Power E1080 Technical Overview and Introduction", IBM Redbooks, October 2021, p.50
12 G. Anselmi et al, "IBM Power E1080 Technical Overview and Introduction", IBM Redbooks, October 2021, p.56
13 IBM Newsroom, "IBM receives a Best Environmental Excellence Award in The Global CSR Awards 2021", ibm.com [website], 2021
14 IBM Newsroom, "IBM and Samsung Unveil Semiconductor Breakthrough That Defies Conventional Design", ibm.com [website], 2021
15 IBM, 2021 ESG Report, p.9

Strengthen security

As technologies evolve, so do opportunities for criminals to harness innovations for illicit activities. In recent years, ransomware, phishing, business email compromise and other cyberattacks have become much more common. In response, many companies are actively strengthening their IT security policies.

Recognized by ITIC as one of the server platforms that has seen the fewest successful data breaches, IBM Power can provide an excellent foundation for strong data security, and help to protect critical data and applications from getting into the hands of hackers. In a recent security report, ITIC found that IBM Power servers were 58 times more secure than unbranded commodity servers, and discovered that 92 percent of IBM Power customers said their IT teams could detect and prevent an attack immediately.[16]

Through transparent memory encryption, even large SAP HANA instances remain protected on IBM Power while maintaining excellent performance. And with workloads on Power10 benefiting from full memory encryption at scale, and with cryptographic algorithm acceleration, companies can leverage military-grade encryption algorithms like AES faster than on previous Power servers—all without slowing critical applications.

With cybersecurity threats constantly evolving, IBM is looking ahead to the security challenges of tomorrow, too. Already, Power10 servers are ready for the quantum computing era and can support cutting-edge techniques such as Fully Homomorphic Encryption (FHE). And when large-scale quantum computers become the norm, the quantum-safe cryptography features in Power10 servers will help security experts to prepare for a changing threat landscape and overcome more complex cybersecurity challenges.

With IBM Power, companies can protect customer data and sensitive material from even the most sophisticated cyberattacks, both now and in the future, helping businesses to reduce risk and deepen customer trust.

"IBM Spectrum Virtualize and IBM PowerVM give us the powerful, versatile tools that we need to create, update, and manage a large and growing application infrastructure. With IBM Power servers and IBM Storage we can enjoy the added security and resiliency of an on-premises architecture without taking on an additional administrative burden."
– Alexandre Prudente, SAP Infrastructure Manager, Della Volpe

16 Information Technology Consulting (ITIC), "ITIC 2021 Global Server Hardware, Server OS Security Report", ITIC, June 2021, p.10-11

Faster insights

In a world where customers expect the near-instant gratification of same-day and next-day services, it is more important than ever before to ensure that the systems supporting core business activities keep pace with demand. For many companies, delivering responsive services depends, to a large extent, on how fast they can extract insights from their data and use these insights to drive strategic decision-making.

To help organizations boost business agility, the latest generation of IBM Power was designed with automation and innovation in mind.

With Power10, for instance, customers can expect to see five times faster artificial intelligence (AI) and machine learning inferencing, helping to process vast data volumes quickly and accurately. And with support for a wide library of AI frameworks as well as ONNX runtime—a leading open source and cross-platform machine learning model accelerator—IBM Power can help data analysts build, test, and deploy next-generation AI solutions to support business development goals.

"By using our SAP HANA cloud service running on IBM Power Systems, organizations in any industry can achieve faster insight into their performance."
– Jérôme Marchal, Offering and Solution leader, D.FI

"We saw that we could achieve the same levels of performance with just three IBM Power System H922 servers, compared to six physical servers in an equivalent x86 infrastructure. "
– Muhammad Ali, General Manager IT, Honda Pakistan

Taking a hybrid approach

With cloud solutions able to provide companies with greater flexibility, lower costs, and reduced IT administration, it is no surprise that over 62 percent of IBM Power customers are considering a hybrid cloud approach.

To help enterprises make the next steps in their cloud journey, IBM developed a fully cloud-enabled service called IBM Power Virtual Server, which allows businesses to scale out their on-premises architecture to a dedicated cloud environment, on-demand.

Certified for deployments of SAP HANA, the IBM Power Virtual Server is available in 15 datacenters located around the world, supporting compliance with a wide range of regulations, including GDPR and HIPAA.

"IBM is one of our most trusted IT partners. Based on the results of our proof of concept with IBM Power Systems Virtual Server and the close strategic alliance between IBM and SAP, we were left with no doubt that IBM Power10 is the optimal platform for our new SAP HANA 2 solution."
– Oscar Sobrero, Information Technology Leader, Ecogas

Capable of hosting mission-critical production as well as development and testing workloads, IBM Power Virtual Server offers the superior performance of IBM Power servers on a subscription basis. With IBM Power Virtual Server you can grow at your own pace by extending workloads on a pay-as-you go basis, on-demand, within minutes to enhance flexibility and agility.

Accelerate SAP S/4HANA cloud deployments

In response to increasing pace of digitalization across many sectors, SAP recently launched its RISE with SAP solution: a cloud subscription service that empowers customers to achieve their digital transformation goals by simplifying the move to cloud-based SAP S/4HANA solutions.

The all-in-one RISE with SAP subscription service is designed to reduce the administration and complexity traditionally associated with cloud transformations. RISE with SAP simplifies the process of managing software licenses and orchestrating the activities of the client's chosen cloud providers and systems integrators, while customers focus on running their businesses.

Deepening its long-standing partnership with SAP, IBM is currently leveraging the RISE with SAP solution to enhance its own core business processes. Involving more than 120 countries, 1,000 legal entities and supported by 38,000 specialist SAP consultants, the project will see more than 375 terabytes of IBM data moved to IBM Power on Red Hat Enterprise Linux on IBM Cloud. Once the transformation is complete, over $58 billion in revenue will be managed by SAP software.[17]

To help clients enhance flexibility, boost scalability and unlock more computing power quickly and at low cost, IBM is making the same cloud computing power at the heart of its own SAP S/4HANA migration available as an integrated service. Through the Expanded Premium Supplier Option for RISE with SAP on IBM Power on Red Hat Enterprise Linux on IBM Cloud, businesses will be able to enjoy the excellent resiliency, performance, security, scalability, and environmental sustainability provided by IBM Power servers while also reaping the rewards of a fully managed service.

Whether through an on-premises, private, public, hybrid cloud, IaaS deployment, or RISE with SAP, IBM Power can help enterprises across all sectors maximize the potential of their SAP HANA environments.

To learn more about how your business can benefit from hybrid cloud environments, contact your IBM Business Partner:

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17 IBM Newsroom , "IBM Transforms Business Operations with the RISE with SAP Solution in Expanded Partnership with SAP", ibm.com [website], May 11, 2022

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