IBM

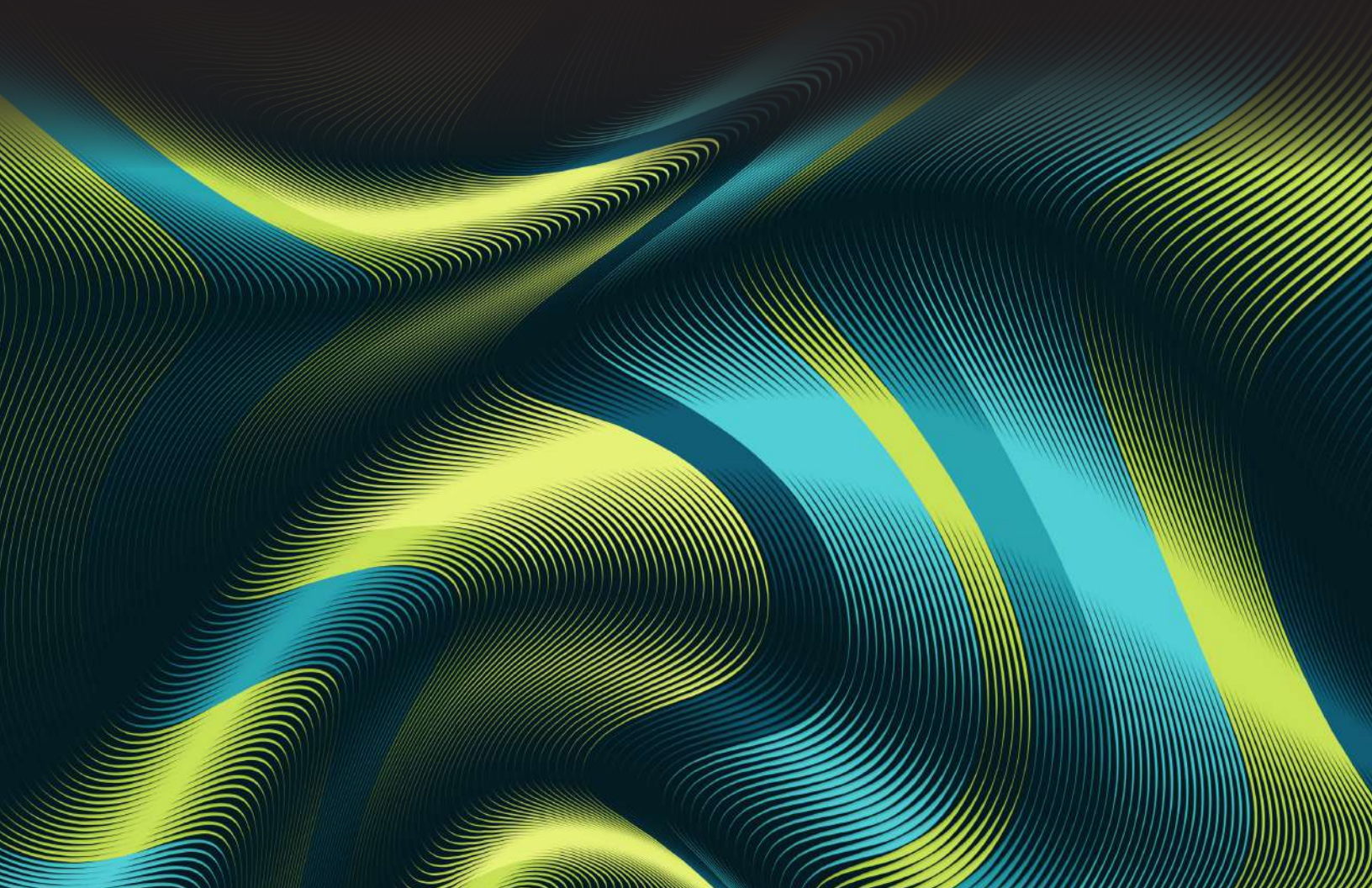# Boost infrastructure performance and flexibility while cutting costs

A buyer's guide to achieving your full business potential with IBM® POWER8®

In this data-driven world, your organization needs the ability to quickly identity and act on new opportunities. This means having an open, fast, flexible and scalable infrastructure that can tackle whatever the world throws at you, faster than your competitors.

Designed for high-performance data and transactional workloads, the latest IBM Power Systems™ servers, with IBM POWER8 processors, provide a flexible, efficient and secure platform in both scale-up and scale-out scenarios.

With optimized support for the latest open-source databases and cloud-based applications, POWER8 enables you to work faster and at lower cost.

Whether your priorities are performance, flexibility, scalability, openness, security or cost-efficiency, IBM POWER8 covers every base. This buyer's guide explains how upgrading to the latest IBM Power Systems servers can empower you to take advantage of every opportunity and achieve profitable growth.

Seize new opportunities

The digital economy brings countless new opportunities to organizations in practically every industry and every country. Using data as the new natural resource, established businesses and disruptive start-ups are finding innovative ways to deliver existing products and services—or inventing entirely new ones.

To capitalize on opportunities, your organization needs the ability to understand vast quantities of unstructured information and use it to drive smarter, faster decision-making. Having high-performance analytical systems is therefore a critical element of success today. At the same time, your organization needs to ensure that existing transactional systems are as fast and reliable as possible to support always-on business.

Beat the deadlines

Built for a world of open innovation and cloud, Power Systems delivers exceptional performance. With **4X the threads, 4X the memory bandwidth** and **4X the cache** of x86 processors, the latest POWER8 processors also offer significant advantages over their predecessors.

POWER8 processor-based systems can deliver the **same performance in less than half the footprint** of systems based on POWER7®, with up to **40% better price/performance**. In scale-out environments, this implies dramatic simplification and shrinking of the IT infrastructure, cutting cost and complexity. With improved per-core performance through superior architecture, threading and cache structure, **POWER8 can cut per-core software licenses by up to 50%**, in addition to reducing energy costs.

Zato Health uses Linux on Power Systems to tackle big data problems for the healthcare industry, accelerating information processes that once took 1000s of hours down to just 30 minutes

Databases that leverage open source technology to support high transactional volumes, such as EnterpriseDB, MongoDB, neo4j and Redis, are optimized to run best at an optimal cost on Power Systems servers. The technical superiority of the POWER8 processor enables it to deliver:

- **2X the per-core performance** of equivalent x86 processors for EnterpriseDB

- **2X the per-core performance** of POWER7

- Up to **2X the performance/watt** of POWER7

- **200% higher throughput** at 70% lower cost per transaction for Redis versus x86

- Up to a **24-to-1 server consolidation ratio** for Redis versus x86.

Always open for business

As a true enterprise platform, Power Systems offers class-leading availability and security features across the entire stack of hardware, hypervisor and operating systems. If your organization needs to achieve six nines availability—or higher—Power Systems is ready for you.

The renowned robustness and availability of Power Systems is further enhanced in the latest generation of servers. IBM PowerVM® provides a secure and scalable virtualization environment for IBM AIX®, IBM i and Linux operating systems, and is **the only hypervisor with no documented vulnerability exposures**. Rather than building out large and inefficient x86 server farms for virtualized landscapes, you can pack large numbers of virtual servers onto highly reliable and secure enterprise-grade Power Systems servers.
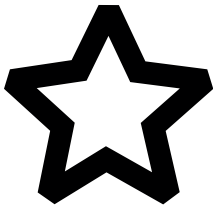
Highest Server Reliability
IBM Power Systems achieved the highest levels of reliability: 61% of Power Systems server users reported 99.999% uptime (5.25 minutes of per server/per annum downtime) compared to 46% of HP Server users and 40% of Oracle Hardware users.

Lowest Maintenance
IBM Power Systems server administrators continue to spend the least time rebooting the server OS, including planned reboots. 77% of IBM administrators "rarely or never" reboot, compared with 65% of HP managers, 52% of Dell administrators, 47% of Oracle administrators and 41% of Windows administrators.

Running on Linux on POWER8 rather than x86, Allegiant Travel shrunk core count by 75%, saved USD1.2 million, and enabled advanced analytics that have boosted revenues by 40%

Fransabank, a leading Middle Eastern financial services company, deployed its new core banking system on IBM Power Systems servers, achieving a 40% boost in performance for start-of-day processing, cutting three hours from overnight batch processing, and reducing the time required for end-of-month financial consolidations by more than five hours.

Flexible and cloud-ready

The POWER8 architecture supports both big-endian and little-endian Linux distributions, making it easier than ever to migrate applications from x86 to take advantage of enhanced availability and security. With Integrated Facility for Linux on POWER8, your organization can co-locate more Linux environments on to each Power Systems server, and achieve up to **35% higher per-core performance versus POWER7** running at the same clock speed. All of this means that Power Systems can help you build a smaller, more efficient and more reliable infrastructure for both core enterprise applications and newer workloads.

With IBM Power Cloud Connect, your organization can more easily extend core systems to the cloud to drive higher efficiency, greater flexibility and business innovation, without compromising security. Power Cloud Connect enables the seamless connection of mission-critical on-premises data and systems with mobile and cloud-native applications, leveraging standard REST APIs for easy development and management. With secure API connectors to core business data, developers can build new mobile and cloud applications on flexible external platforms without risking security breaches.

A set of new Power Cloud offerings—Power E850C, E870C and E880C—offers up to **50% savings on current operational costs**. The new offering includes built-in OpenStack-based cloud management and free access to IBM's Cloud with a SoftLayer® starter pack. And with the enhanced PowerCare rewards program you can accelerate the transformation of your IT infrastructure for the cloud by taking advantage of enhanced Capacity Reset, Trade-in offers, and free cloud services.

To thrive in the digital economy, you need the ability to ramp IT capabilities up and down in line with changing needs—so that you can both seamlessly manage dramatic peaks in demand and run as lean as possible in cost terms. For high-transaction workloads, IBM Power Systems uses Elastic Capacity on Demand to provide cloud-like consumption models. Organizations can activate additional processors to handle the highest peaks in transactional processes, then deactivate them when the workload returns to normal levels, ensuring the optimal balance over time between cost and performance.

IBM Cloud Manager for PowerVC enables developers to leverage automated delivery and management of workloads running on Power Systems in the cloud (private or public) for their most data- and compute-intensive applications.

Disrupt the disruptors

If your organization aims to out-perform disruptive start-ups by tapping into years of valuable data in enterprise systems, Power Systems offers compelling advantages. Innovations such as CAPI, which bring accelerators closer to the processor so they spend less time waiting for data, can provide order-of-magnitude improvements for big data workloads like machine learning.

Customer Satisfaction

82% rated their satisfaction with IBM Power Systems server setup, configuration and provisioning "excellent" or "very good" – six percentage points up from the 2015 survey.
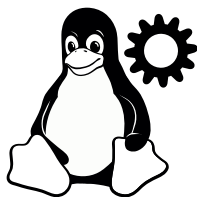
Robust Linux

Linux running on IBM Power Systems scored highest reliability among Linux distributions: 3.5 minutes of unplanned per server/per annum downtime.

Step into the future today

Upgrading to POWER8 will give you greater performance, significant cost savings, increased capacity, flexibility and scalability, and seamless integration with cloud-based infrastructure.

Designed for big data, Power Systems will help your organization transform data into actionable insight. The platform is also ready for the cognitive computing era, providing the required performance and data bandwidth to analyze unstructured data and natural language—an incredibly demanding processing task.

The latest Power Systems offerings make it easier to take on new big data and analytics workloads and connect to new services in the cloud, while maintaining the ability to support mission-critical, high-security and high-transaction workloads. You also have more options than ever before to integrate social and mobile technologies into core systems using open-source databases and open development models that offer increased speed, agility and optimization.

Flexible, cloud-based offerings with Power Systems support open standards and technologies for maximum flexibility while delivering price/performance advantages. And with the open server ecosystem around POWER8, organizations benefit from continuous innovations and access to cutting-edge software and services.

Manufacturing group Friedhelm Loh standardized on Power Systems running IBM i for its SAP applications, increasing order throughput by 10% and accelerating scheduling and planning tasks by up to 90%

Migrate to POWER8: a buyer's checklist

By working through this checklist, you can confirm that your infrastructure strategy is correctly tuned to your needs, avoiding potential cost overruns or capability shortfalls.

☐ **Determine current and future capacity requirements.** Bring your team together, assess your current application workload requirements and three- to five-year outlook. You'll then have a good picture of when and where application growth will take place, enabling you to secure capacity at the appropriate time on an as-needed basis.

☐ **Assess operational efficiencies and identify opportunities to improve service levels while decreasing exposure to security and compliancy issues/problems.** With new technologies that allow you to easily adjust capacity, you will be in a much better position to lower costs, improve service levels, and increase efficiency.

☐ **Create a detailed inventory of servers across your entire IT infrastructure.** It is highly likely that your organization has single-application/single-purpose or very under-utilized servers in the data center. These can easily be consolidated onto a single new server that can save your organization money and resources.

☐ **Test your HA/DR strategy and determine whether it meets all corporate and government regulations.** Many clients only find out there's a problem with their HA/DR plan the hard way: after the fact. Be prepared to implement a system failover strategy when it counts.

☐ **Identify all dependencies for major database platforms, including Oracle, DB2, SAP HANA, and open-source databases like EnterpriseDB, MongoDB, neo4j, and Redis.** You're likely running major databases on the Power Systems platform; co-locating your current servers may be a way to reduce expenditure and increase flexibility.

☐ **Understand current and future data center environmental requirements.** You may be unnecessarily overspending on power, cooling and space. Savings here will help your organization avoid costs associated with data center expansion.

☐ **Identify the requirements of your strategy for on- and off-premises cloud infrastructure.** As you move to the cloud, ensure you have a strong strategy to determine which applications can be moved off-premises. Choose the core platform that offers the most choice, flexibility, and fastest route to the cloud at the lowest cost.

☐ **Determine and show how proposed investments align with moving to the cloud.** Choose a platform that offers compelling cost advantages with built-in cloud capabilities, industry-leading performance and resiliency for mission-critical workloads.

☐ **Determine your future application requirements, especially around Big Data and Analytics.** As more cognitive applications become available, ensure you have an infrastructure that can support them.

For more information

Visit **ibm.com**/systems/power/hardware/power8 for more information on how Power Systems can accelerate insight, cut complexity and costs, and empower your organization to seize new opportunities faster.