Building a Seamless Hybrid Cloud for Critical Workloads

Explore IBM Power with Red Hat and IBM Cloud Paks

Highlights

Rapidly launch new composable services

Drive insights with data

Streamline operations and business processes

The pandemic and rapidly changing business, economic, and geopolitical environments have accelerated ten years of digital transformation into one. In this fast-moving climate, your organization must secure sensitive data and workloads, support new applications, and deliver consistency and simplicity across the enterprise. Red Hat® OpenShift® and IBM Cloud® Paks on IBM® Power® can help you achieve these goals. With this combination of IT infrastructure and modern cloud-native solutions, you can develop, run, and manage applications and workloads consistently across hybrid cloud. As business and workload demands change, you can move critical services and optimize them in the environment of your choice.

With IBM Power and Red Hat, you don't need to change your existing hardware to take advantage of next-generation capabilities. Power runs containers more efficiently and delivers better price performance compared to x86 processor-based servers. IBM tests show that the same multi-tier online transaction processing (OLTP) workload on Red Hat OpenShift, running IBM® WebSphere® Hybrid Edition on an IBM Power S1022 server, can process 3.6X more transactions per second per core and can reduce the cost per transaction in a three-year TCO model by 69% versus compared x86 servers[1]. The Power S1022 configuration resulted in a 45% lower total cost of ownership than the x86 configuration[2].
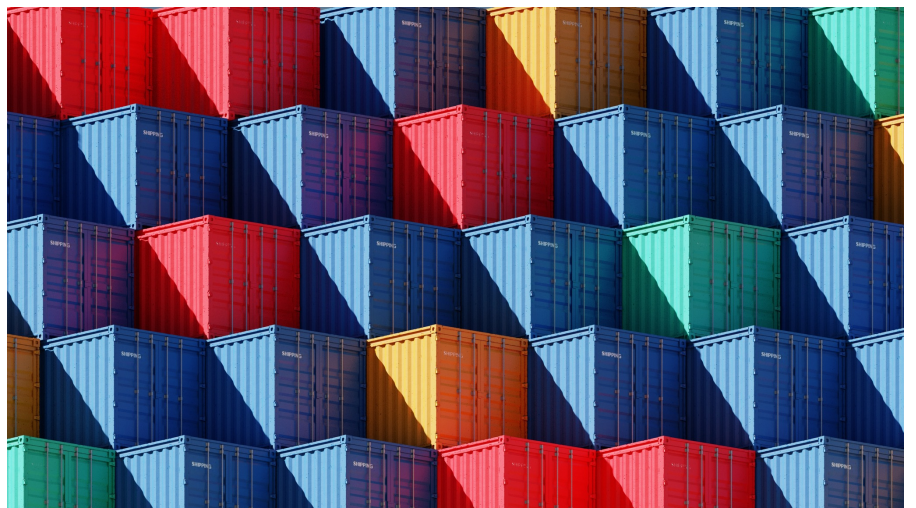
IBM Power Modernization Entry Points

Rapidly launch new composable services

With Red Hat OpenShift on IBM Power, you can incrementally modernize applications by surrounding them with containers. Gain many benefits of app modernization with much less complexity and cost. As your application modernization journey advances further, you can refactor applications into containerized microservices. This paves a path to more portable applications across your hybrid cloud and more frequent software updates through DevOps practices.

Drive insights with data

High volumes of mission-critical data are often left untapped for AI projects and opportunities. This mission-critical data is also often stored on IBM Power servers. Infer and embed AI-driven insights directly on Power10 processor-based servers into applications and databases using watsonx.ai™. Deploy end-to-end MLOps workflows adjacent to mission-critical data on Power10 with on-processor acceleration and no GPUs required. This reduces security risks, lowers latency and complexity, and improves governance and throughput for big data.

Streamline operations and business processes

IT teams embracing hybrid cloud and new cloud-native technologies are challenged by specialist skills shortages for managing and administrating infrastructure and applications. IBM addresses these resource and and skills challenges with a suite of AI-driven tools that help IT organizations overcome these obstacles. Red Hat Ansible Automation Platform components now run natively on IBM Power. Monitor your entire infrastructure environment from a single dashboard and user interface with Instana Observability for Power. Leverage Turbonomic with Power to avoid over-provisioning and increase the number of workloads through utilization per server with AI-driven optimization. Proactively prevent issues before they occur with IBM Cloud Pak for AIOps for Power.

Conclusion

Resiliency has never been more important. Your business relies on IT infrastructure, both hardware and software. Together, IBM Power and Red Hat OpenShift help you maximize systems availability and respond quickly to rapidly changing customer needs. With IBM Cloud Paks, you can deploy IBM software on-premises with IBM Power and across public and private clouds. And with Red Hat OpenShift you can scale quickly from pilot to production environments, bringing innovation and modernization to hybrid cloud operations.

1. This is an IBM internal study designed to replicate multi-tier OLTP workload with IBM WebSphere Hybrid Edition on a 40-core IBM Power S1022 server (Model 9105-22A) with 1 TB memory running PowerVM hypervisor and compare it to 80-core x86 Ice Lake server with 1 TB of memory and KVM hypervisor. The OpenShift cluster consisted of four worker nodes using OpenShift version 4.9.18 and Red Hat Enterprise Linux CoreOS (RHCOS). For IBM Power server, SMT8 mode was enabled across all LPARs and for x86 server, hyperthreading was enabled. Each worker node guest had access to all vCPUs on the physical server on which it was running. Both environments used JMeter to drive maximum throughput using a total of 1600 users. All results were obtained using IBM internal testing. Prices, where applicable, are based on U.S. prices as of 07/19/2023 from our website and x86 hardware pricing is based on IBM analysis of U.S. prices as of 07/19/2023 from IDC. Price comparison is based on a three-year total cost of ownership including HW, SW, networking, floor space, people, energy/cooling costs and three years of service and support for production and non-production (dev/test and high availability) environments.
2. Cost savings from running Red Hat OpenShift on IBM Power servers (https://www.ibm.com/downloads/cas/26A6ONYL), page 4, figure 3