Modernize your enterprise with IBM Power Systems

By Joe Cropper

See why IBM Power Systems is the trusted foundation for modernization

Application modernization comes in many shapes and sizes, and it's not always easy to know where to start. So, over the next few minutes, we'll showcase the strengths and benefits that IBM Power Systems™ brings to your modernization efforts. Sure, there are many more benefits than we'll cover here. For more in-depth analysis tips and recommendations to help you determine the complexity of your applications and a modernization path forward, you can check out our Field Guide to Application Modernization on IBM Power Systems.

Power Systems is built for core enterprise applications and for the next wave of digital transformation fueled by application modernization. **Here are the major benefits of modernizing with IBM Power Systems:**

1 Flexible, efficient utilization

You can manage spikes in demand and support more cloud workloads per server with IBM PowerVM® hypervisor on-demand CPU capacity. It manages demand by sharing pools of CPU cores across Red Hat® OpenShift® CoreOS nodes. These differentiating hypervisor constructs such as uncapped processors and shared processor pools provide the ability to guarantee performance SLAs while donating unused processor cycles to worker nodes in need of additional capacity. All this flexibility guarantees an 80 percent utilization on an IBM Power Systems E980 server.[1]

2 More performance from software with fewer servers

You can buy fewer Power Systems servers to run an equivalent set of applications at comparable throughput levels than on competing platforms. That's because it enables you to use 3.2X more containers per core with more CPU threads, achieve 2.6X better price performance[2] (based on the number of containers), and collocate cloud-native apps with AIX, IBM i and Linux® virtual machine-based apps and enterprise data to exploit low-latency API connections to business-critical data. Plus, you can leverage sub-capacity licensing to greatly reduce containerized software license costs (IBM Cloud Pak Solutions, for example) using PowerVM shared processor pools, allowing CPU cores to be autonomously shared across Red Hat OpenShift worker nodes without sacrificing app performance.

3 Superior performance for your enterprise data

Running Red Hat OpenShift in a virtual machine adjacent to your AIX, IBM i or Linux virtual machines provides low-latency secure communication to your enterprise data with PowerVM Virtual I/O Server. This provides superior performance due to fewer network hops. It also allows for highly secure communication between your new cloud-native apps and your enterprise data stores as network traffic never has to leave the physical server.

Read: Six key aspects to protect your IT infrastructure

4 Proven security and resiliency

To meet today's security challenges, it's essential that every layer of your company's IT hardware and software stack remains secured. IBM Power Systems customers utilize the most reliable mainstream server platform to innovate and get to market faster without compromising security. Power Systems' multi-layered approach to security gives you full visibility of your hardware and software. It protects the stack with comprehensive end-to-end security at every layer — including functionality that allows containers to remain secure, during and after deployment — all with a simple web-based UI.

5 Trusted and proven foundation

Kubernetes provides the core foundation for modernizing your enterprise applications. As the premier open-source container orchestration platform, it benefits both developers and IT administrators. Your developers have access to the latest software innovations to build software faster while your IT administrators can easily observe, operate and manage the platform and infrastructure. This helps you deliver high-value, high-quality software faster to end users. All of this is enabled through Red Hat OpenShift Container Platform.

6 Red Hat OpenShift Container Platform

Red Hat OpenShift is an enterprise-ready Kubernetes container platform with full-stack automated operations to manage hybrid multicloud deployments. Red Hat OpenShift is optimized to improve developer productivity and promote innovation; it is fully supported on all IBM Power Systems servers (IBM POWER8® processors or later).

7 IBM Cloud Pak solutions

Power Systems provides superior performance and economics for containerized workloads like IBM Cloud Pak enterprise-ready containerized software solutions for modernizing existing applications and developing new cloud-native apps that run on Red Hat OpenShift.

There are three main benefits: They are comprehensive and easy to use, they are supported by Red Hat and IBM, and they run anywhere Red Hat OpenShift runs. IBM Cloud Pak Solutions take a bundled approach that allows you to accelerate your modernization journey by packaging everything you need to get started — including Red Hat OpenShift and the apps that run on top of it. The IBM Cloud Pak solutions available on IBM Power Systems include IBM Cloud Pak for Applications, IBM Cloud Pak for Data and IBM Cloud Pak for Multicloud Management.

Watch on-demand webinar: Innovate Faster with Red Hat OpenShift and IBM

8 Innovate with an extensive container software ecosystem

At the heart of any application modernization effort is a strong software ecosystem that allows teams to innovate using the latest technologies. Now more than ever, open-source communities are playing a significant role in organizations' modernization journeys. IBM Power Systems not only runs your core business applications, but also a wide range of popular open-source and commercial container software.

When you choose Power Systems to modernize, you choose industry-leading reliability, performance and security, as well as superior compute performance for data-intense and mission-critical applications. It is a foundation for modern container-based applications.

>> See all the ways IBM Power Systems can help you push your modernization efforts forward with our Field Guide to Application Modernization on IBM Power Systems.

[1] 80% utilization guaranteed on POWER E980 Systems: 5x throughput based on VM to VM transfer rate for Linux of 50 Gbit/sec vs. local area network attached server transfer to VM on same local area network of 5 Gbit/sec. When a Client acquires a POWER9 E980 Enterprise Server and the Client runs eligible workloads, IBM guarantees that the system will perform as warranted with a System Utilization Rate of up to 80%. Should the Client not be able to achieve 80% system utilization rate, assuming there is sufficient work to drive the machine to 80% utilization, IBM will assist with the attainment of 80% system utilization rate, at no additional cost. [2] Based on IBM internal testing running MongoDB on Red Hat OpenShift Container Platform. Each container uses MongoDB 4.0.2 & Node.js v8.14.1 (REST APIs) with socket bound containers. Testing added containers to each server until servers reached response time limit of 99% of transactions completing in under 1 second. Results valid as of 7/16/19. Conducted under laboratory condition with speculative execution controls to mitigate user-to-kernel and user-to-user side-channel attacks on both systems, Individual result can vary based on workload size, use of storage subsystems & other conditions. Details about MongoDB workload: https://docs.mongodb.com/manual/tutorial/geospatial-tutorial/ 3.2X greater containers/core is based on 174 containers/20 cores for Power L922 and 98 containers/36 cores for Intel Xeon. – (2,531/20)/(2,290/36) = 3.2

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