



1.7x Better

Price-performance over
commodity processor
architectures

IBM WebSphere Application Server with IBM Hyperconverged Systems powered by Nutanix

IBM® WebSphere® Application Server platform, a next-generation application infrastructure provides advanced infrastructure and tooling for Java™ applications across a range of workloads. WebSphere Application Server delivers a standards-compliant Java Platform, Enterprise Edition 7 (Java EE 7) server runtime and tools. Using WebSphere Application Server, businesses can improve and accelerate their time to market by simplifying the creation of application programming interfaces (APIs) and microservices, and reducing costs by moving all or part of their applications —quickly, securely and reliably.

WebSphere Application Server is an industry leader for transactional workloads and hosts some of the world's most demanding Java applications. But for delivering modern workloads, IT organizations need an agile IT infrastructure that is quick to start, easy to scale out and fit for needs of developers. Furthermore, reducing complexity, improving data security, and eliminating bottlenecks are top priorities. Traditional IT infrastructure is ill-suited to address the needs of growing WebSphere Application Server installations. Enter IBM Hyperconverged Systems powered by Nutanix.

Focus on Websphere Services, not Websphere Infrastructure

IBM Hyperconverged Systems powered by Nutanix takes the complexity out of deploying infrastructure for application serving, allowing more time for deploying new applications.

Throughput and ease with a difference. Simplicity meets performance with the combination of Nutanix and IBM POWER.

IBM® Power Systems™ and the POWER® microprocessor are designed for data-intensive applications, providing more threads per core, memory bandwidth and cache than other platform options. These benefits translate into superior performance gains and better economics for WebSphere running on POWER servers.



Eliminate Bottlenecks

WebSphere Application Server deployments grow rapidly as new applications are added. By using IBM Hyperconverged Systems powered by Nutanix you start small and scale out without worrying about the bottlenecks that occur with traditional architectures:

- **Better performance.** 30% more throughput per server.
- **Lower acquisition cost.** 75% of the price of comparable x86 processor-based appliances.
- **Scale incrementally.** Start small and grow linearly by adding nodes one at a time.

Traditional storage systems can experience significant I/O bottlenecks, particularly in virtual environments. By ensuring data is accessed locally by WebSphere Application Servers, this eliminates the “I/O Blender” effect that can plague conventional infrastructure.

Administrators can scale existing Nutanix clusters or deploy new clusters in minutes, with less concern for storage and network bottlenecks. A Nutanix enterprise cloud provides linear scaling, so application server deployments can scale without worry. Each additional node delivers predictable performance to support WebSphere Application Server workloads. Because of its distributed architecture, a Nutanix enterprise cloud prevents one workload from starving another, allowing the infrastructure to be shared, if desired.

In concert with POWER performance, Nutanix allows WebSphere Application Server to take full advantage of server virtualization without the limitations of other solutions.

Ease of DevOps

- **Lifecycle management.** With the Nutanix Distributed Storage Fabric (DSF), WebSphere Application Servers can access data locally. Application data is automatically stored on the right media and the resources allocated to each indexer can be changed effortlessly.

- **Data locality.** Nutanix continuously monitors data access patterns and places data in the most appropriate location, complementing the WebSphere Application Server lifecycle.
- **Next generation virtualization.** Designed for the era of unstructured data, Nutanix AHV is a hypervisor that accelerates deployment and eases management. It is included at no extra cost with IBM Hyperconverged Systems powered by Nutanix purchases, eliminating virtualization licensing costs.
- **Self-healing infrastructure.** A Nutanix enterprise cloud environment is resilient by design. If a drive or node fails, workloads are automatically restarted and full resiliency is restored quickly without operator intervention, protecting the application server from unplanned downtime.
- **Built-in availability.** Data protection, disaster recovery, and high availability are integral to the Nutanix environment, delivering higher application server availability with less time and effort.
- **One-click management.** With Nutanix Prism, application server administrators easily monitor and manage all infrastructure used by WebSphere Application Server, gaining full visibility of storage, CPU, and memory runway. One-click software, hypervisor, and firmware upgrades and one-click problem remediation take the pain out of day-to-day operations.

Increase Security without Adding Silos

To ensure the security of sensitive data, many application server architects find they have no choice but to deploy dedicated infrastructure for the application server. However, WebSphere Application Server can be deployed securely on an IBM Hyperconverged Systems powered by Nutanix cluster with other workloads, avoiding the need for a separate silo of infrastructure.

Furthermore, Nutanix combines features such as two-factor authentication and data-at-rest encryption with a security development lifecycle. Nutanix systems are certified across a broad set of evaluation programs to ensure compliance with the strictest standards.

68% Faster

Deployment of storage

61% Less

Time to manage

97% Fewer

Occurrences of downtime

- ✓ Frees you up from managing infrastructure
- ✓ Delivers superior performance
- ✓ Simplifies Dev/Ops

For More Information:

IBM Hyperconverged Systems powered by Nutanix:

<https://www.ibm.com/us-en/marketplace/hyperconverged-systems/details>

WebSphere Application Server on Power Systems:

<https://www-03.ibm.com/software/products/en/appserv-was>



Based on IBM internal testing of single node running replication factor 2 on a private network with 4 virtual machines running the DayTrader 7 workload (<https://github.com/WASdev/sample.daytrader7>) using DB2 11.1 ESE, Websphere Application Server Liberty 16.0.0.3, Ubuntu 16.04 and Jmeter 3.0. Results valid as of 9/13/17. Conducted under laboratory condition, individual result can vary based on workload size, use of storage subsystems & other conditions.

Pricing based on single node of 3-node cluster of IBM Hyperconverged System CS822 with 22 cores (2 x 11c chips) / 176 threads, POWER8; 2.89 GHz, 512 GB memory, 8x1.92TB SSD. Competitive stack: Single node of 3-node cluster Dell XC630-10, 24 cores (2 x 12c chips) / 48 threads; Intel E5-2650 v4; 2.2 GHz; 512 GB memory, 10 x 460GB SSD. Both servers running favor performance mode. Configurations represent the peak value for specific processor count running 4 WAS VM images: IBM CS822 = 4 vm @ 4 cores and E5-2650 = 4 vm @ 5 cores. HW Pricing is based on: Current market information list pricing, please consult your local Nutanix reseller for more details. For Websphere information: https://www-01.ibm.com/software/passportadvantage/about_software_licensing.html

Nutanix makes infrastructure invisible, elevating IT to focus on the applications and services that power their business. The Nutanix enterprise cloud platform leverages web-scale engineering and consumer-grade design to natively converge compute, virtualization and storage into a resilient, softwaredefined solution with rich machine intelligence. The result is predictable performance, cloud-like infrastructure consumption, robust security, and seamless application mobility for a broad range of enterprise applications. Learn more at www.nutanix.com or follow us on [Twitter @nutanix](https://twitter.com/nutanix).

© Copyright IBM Corporation 2018

IBM Corporation, IBM Systems, Route 100 Somers, NY 10589

Produced in the United States of America July 2017 IBM

The IBM logo, ibm.com, Power Systems, and POWER8 are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both. The performance data discussed herein is presented as derived under specific operating conditions. Actual results may vary.

THE INFORMATION IN THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY OR CONDITION OF NONINFRINGEMENT. IBM products are warranted according to the terms and conditions of the agreements under which they are provided.