MongoDB with Nutanix on IBM Hyperconverged Systems

MongoDB is the industry's leading NoSQL open source database, Widely deployed by developers, it provides rapid access to a constant stream of small reads and writes for millions of records that don't fit into traditional SQL database structures. MongoDB NoSQL can be a better option to relational databases for state-of-the-art applications in that it also preserves the core database capabilities required to build modern applications.

The explosive growth of social applications, big data, mobile access and cloud computing is changing the way applications are developed.

There's less time to build applications than ever before as competition is fierce. Today, apps ship in a few weeks or months, not years.

To support this time scale organizations need an agile IT infrastructure that is quick to start, simple to scale and fully built with the data services fit for the needs of the developer. Reducing complexity, improving data security, and eliminating bottlenecks are top priorities. Traditional IT infrastructure is ill-suited to address the needs of growing MongoDB installations.

FOCUS ON MONGODB DATA, NOT MONGODB INFRASTRUCTURE

A Nutanix Enterprise Cloud takes the complexity out of deploying infrastructure for MongoDB, allowing MongoDB experts to spend more time extracting insight from data.

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 big data and analytics, providing more threads per core, memory bandwidth and cache than other platform options. These benefits translate into superior performance gains for MongoDB running on POWER servers.

ELIMINATE BOTTLENECKS

MongoDB deployments grow rapidly as new data sources are added. By using Nutanix you start small and scale out without worrying about the bottlenecks that occur with traditional architectures:

- Better performance. 84% 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 all MongoDB indexers, DSF eliminates the "I/O Blender" effect that can plague conventional infrastructure.

2.3x Better

Price-performance over commodity processor architectures

NUTANIX™
Your Enterprise Cloud Platform

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 MongoDB deployments can scale without worry. Each additional node delivers predictable performance to support MongoDB search heads, indexers, and other shared 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 MongoDB to take full advantage of server virtualization without the limitations of other solutions.

EASE OF DEVPS

- Life cycle management. With the Nutanix Distributed Storage Fabric (DSF), MongoDB indexers access data locally. MongoDB data is automatically stored on the right media—SSD for hot data, HDD for cold— 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 MongoDB life cycle.
- 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 System purchases, eliminating virtualization licensing costs.
- Self-healing infrastructure. A Nutanix enterprise cloud is resilient by design. If a drive or node fails, workloads are automatically restarted and full resiliency is restored quickly without operator intervention, protecting MongoDB from unplanned downtime.
- Built-in availability. Data protection, disaster recovery, and high availability are integral to the Nutanix environment, delivering higher MongoDB availability with less time and effort.
- One-click management. With Nutanix Prism, MongoDB administrators easily monitor and manage all infrastructure used by MongoDB, 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 MongoDB architects find they have no choice but to deploy dedicated infrastructure for MongoDB. However, MongoDB can be deployed securely on a Nutanix cluster with other workloads, avoiding the need for a separate silo of infrastructure.

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.

NUTANIX™
Your Enterprise Cloud Platform

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68% Faster
Deployment of storage

61% Less
Time to manage

97% Fewer
Occurrences of downtime

- ✓ **Frees you up from managing infrastructure**
- ✓ **Accelerates MongoDB application development**
- ✓ **Delivers superior cloud scale performance**

FOR MORE INFORMATION:

IBM Hyperconverged Systems powered by Nutanix: https://www.ibm.com/us-en/marketplace/hyperconverged-systems/details.

MongoDB on Power Systems: https://www.ibm.com/power/solutions/modern-data-platform-mongodb

Based on IBM internal testing of 4 VM images running pgbench Benchmark at scale factor of 300, 20 Gb buffer size. Results valid as of 9/5/17. 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 with RHEL 7.2 Guests and EDB 9.6. Configurations represent the peak value for specific processor count running 4 VM images: IBM CS822 = 4 vm @ 4 cores and E5-2650 = 4 vm @ 4 cores. HW Pricing is based on: Current market information list pricing, please consult your local Nutanix reseller for more details For information on EDB: http://www.enterprisedb.com/products-services-training/subscriptions-power *Based on IDC study "Nutanix Delivering Strong Value as a Cost-Effective, Efficient, Scalable Platform for Enterprise Applications", August 2017.

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, software-defined 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.