

# HPE and Red Hat: Standard, scalable, mission-critical x86 Linux

## HPE Integrity Superdome X with Red Hat Enterprise Linux

Modernize your data center with standard, mission-critical x86 servers that grow with your business and are built on the foundation of reliability, availability, and serviceability (RAS)—powered by HPE and Red Hat®.

### HPE Integrity Superdome X

- Breakthrough scalability of up to 16 sockets and 24 TB of memory
- 20X more reliability than other x86 platforms<sup>1</sup>
- Five nines (99.999%) single-system availability<sup>2</sup> 41 percent lower TCO than competitive UNIX<sup>3</sup>

### Red Hat and Enterprise Linux

- RHEL is the most-used Enterprise Linux distribution today
- 90 percent of Fortune 500 companies use Red Hat products and solutions

### HPE and Red Hat

- Building on their Linux and x86 market leadership, HPE and Red Hat collaborate closely to deliver alternatives to costly proprietary operating environments. Their joint solutions represent superior price and performance on high-performing cloud, virtualization, storage, Linux, and middleware technologies.
- Close technical collaboration during the Superdome X design phase means that RHEL is engineered to take advantage of its RAS features for superior, mission-critical resilience.

“Migration to x86 and Linux went smoothly. We had very high expectations and Superdome X delivered on those expectations.”

– Jim Thomas, Director of IT Operations, Pella

### HPE and Red Hat: Taking enterprise Linux to the next level

Mission-critical application support has traditionally been the domain of proprietary UNIX® systems or expensive mainframes. But with IT managers under pressure to reduce costs and improve efficiencies, today's economy demands more in terms of highly available platforms that are standard and cost-effective.

Building on a 16-year proven partnership of collaborative innovation, HPE and Red Hat are setting new standards for x86 availability, scalability, and performance for your mission-critical Linux® workloads—at a price you can't afford to ignore.

Designed to deliver the highest levels of reliability, availability, and serviceability, Superdome X with Red Hat Enterprise Linux is the ideal solution for enterprises to power their most-demanding and critical business processing and analytics workloads. It's the optimal platform for UNIX enterprise workload migration, or large-scale physical or virtual consolidation of Linux workloads.

### Transform your mission-critical environments

HPE Superdome X with Red Hat Enterprise Linux (RHEL) delivers a new level of x86 availability, scalability, and performance allowing you to:

- Standardize, consolidate, and reduce costs
- Migrate from costly proprietary systems
- Provide extra scalability, performance, and uptime
- Grow seamlessly without the complexity of a scale-out deployment

### Run your most demanding, mission-critical workloads

Superdome X grows from one to eight blades, two to 16 sockets (up to 384 cores), and supports up to 3 TB per blade for a total memory capacity of 24 TB to power your largest in-memory databases. High-throughput is delivered by 16 FlexLOMs providing LAN on motherboard configuration flexibility.

Superior RAS is achieved by leveraging the most advanced error recovery the industry has to offer to boost server reliability and minimize downtime. Joint engineering ensures that RHEL takes full advantage of and

<sup>1</sup> HPE Labs. HPE, California. August 2015.

<sup>2</sup> HPE Labs. June 2015.

<sup>3</sup> Based on HPE internal analysis results using publicly available competitive data, May 2016. Compares a 12-socket Superdome X server running RHEL, Oracle database and IBM Power System E880 2-Node server running AIX, Oracle database

## Solution brief

builds on the RAS features of Superdome X, providing full integration of error recovery, containment, and reporting at hardware, firmware, and software levels.

HPE's collaboration with Red Hat to develop the RHEL kernel has resulted in a secure, highly available operating system, thoroughly tested and optimized for scale-up computing or virtualization consolidation.

### If you're considering SAP HANA, the **HPE ConvergedSystem 900 for SAP HANA**

scale-up configurations are easy-to-deploy, workload-optimized systems that are simple to manage and support. These pre-built, factory-integrated systems are designed for high performance, built-in high availability, and unmatched scalability in a single in-memory pool.

### **Respond rapidly to business demands with groundbreaking x86 performance and scalability**

Extreme performance is achieved with the crossbar fabric that connects Superdome X's 16 sockets, 384 DIMMs, and I/O. It provides up to 100 Gbps of I/O bandwidth for each server blade and is boosted by RHEL's optimized memory allocation and access across large numbers of processing cores—ensuring enough throughput for your large workloads. And despite the large number of PCIe devices compared to other Linux platforms, I/O errors that might cause data corruption on other systems are safely isolated.

<sup>4</sup> HPE internal testing. Performance results with HPE-ATX (patent pending) on the Superdome X with Gen9 were achieved with one tenant totaling 144 users (4P), two tenants totaling 288 users (8P) and four tenants totaling 576 users (16P) for a 1-to-1 mapping of users to logical CPUs. Configurations that are over-subscribed may show less performance gain. HPE internal testing results as of April 6, 2016.

#### Our solution partner



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**Hewlett Packard  
Enterprise**

The HPE Application Tuner Express (ATX)<sup>4</sup> software utility boosts performance by making non-NUMA applications NUMA-aware. It is a launch policy controller that facilitates application processes and threads for a NUMA environment with policies such as fill first and round robin. Its primary goal is to increase performance for multi-process or multi-threaded applications. **Tests reveal** Superdome X can achieve up to 58% performance gains with the HPE-ATX software utility. An 8P performance with ATX is almost the same as a 16P performance without ATX. **Download** HPE-ATX and try it today.

### **Increase competitive differentiation and reduce business risk with a superior x86 Linux availability experience**

Superdome X builds on decades of HPE's mission-critical engineering experience, providing reliability from the component up to the solution level to enable continuous services.

A unique feature of the Superdome X is support for hard partitions, HPE nPars, that add reliability and provide electrical isolation. These physical partitions may contain one, two, three, four, six or eight blades, each with its own CPUs, memory, I/O, and operating environment. Eventual problems are limited to a single partition, and each partition can be serviced in isolation.

### **Redefine IT economics with industry-standard efficiencies on a large scale-up platform**

Superdome X with RHEL allows you to:

- Consolidate your mission-critical x86 workloads on a single platform with new levels of x86 availability, scalability, and performance, for significant cost savings.
- Replace proprietary UNIX servers with a standards based, open platform with increased cost efficiencies and lower TCO.
- Start small and grow as your business expands, without the complexity, costs, or server sprawl associated with typical x86 scale-out environments.

### **Extensive third-party ISV support**

With over 2,200 vendors and over 3,000 applications certified on Red Hat technologies you don't have to worry about your application not being supported on Superdome X with RHEL.

### **Deploy a complete solution with confidence**

The HPE/Red Hat partnership offers 16 years of industry leadership, a reliable technology roadmap, and certified solutions delivering the highest level of support for our joint customers. From the point-of-purchase to post-deployment support, we offer a complete solution experience, including one-stop purchasing and one-call support.

To learn about how Pella, a joint HPE and Red Hat customer, reduced their Oracle licensing and migrated from Unix to Linux, read the case study [here](#). Also, [click here](#) to see a demo on scaling-up RHEV on Superdome X.

## **Superdome X and Red Hat Enterprise Linux—the platform for the future**

Superdome X with RHEL is designed to handle your most demanding, mission-critical workloads with the performance and availability your business demands. As a scale-up solution, it eliminates the complexity and incremental OPEX generally associated with x86 server sprawl. And it delivers the TCO efficiencies that you demand.

The close collaboration and support from HPE and Red Hat sets Superdome X with Red Hat Enterprise Linux as the new standard for mission-critical x86 computing. Act now. Get what your business demands.

Learn more at  
[\*\*hpe.com/servers/superdomex\*\*](http://hpe.com/servers/superdomex)

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