Executive Overview

Exploring infrastructure best practices for the modern data center

Hewlett Packard Enterprise

HPE ProLiant Gen 9 servers powered by Intel® Xeon® processors.
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Executive Summary

Everyone is looking for a competitive advantage—that unique differentiator that keeps your business a step ahead of the competition. In the Digital Age, that differentiator is often data—how it's, stored, processed, analyzed, protected, and used to drive your business and to create new and unique customer experiences and revenue opportunities.

Expanding the focus on data in the enterprise requires new thinking about how data centers are provisioned and managed. Aging server infrastructure—often based on out-of-date architectures—can put a business at a disadvantage when it comes to managing exponential data growth, analyzing mountains of data, or meeting the always-on demands of a global workforce and a new generation of consumers.

Modernization of server infrastructure for a data center can boost application performance along with reducing complexity and cost, accelerating time-to-market, improving productivity, and reducing the risks and costs associated with business outages—all of which can significantly improve bottom-line performance.

Your modernization journey begins here
Every data center modernization project will be a unique journey—driven by your business challenges and opportunities. Where will your journey start? Here are some trending options:

- **Improve application performance**—refresh your infrastructure to take advantage of faster speeds and lower TCO, to prepare for modern application needs
- **Unleash valuable insights from your Big Data**—generate new revenue streams and increase customer loyalty with breakthrough performance in a small footprint
- **Move to a hybrid cloud infrastructure**—evolve to the right mix of cloud infrastructure for greater flexibility and lower TCO

Improve application performance
Data is created, analyzed, updated, and acted upon by applications. There is often a direct correlation between the performance and cost effectiveness of your applications and the architecture and age of the servers that run them. Refreshing your server infrastructure allows you to take advantage of faster processing speeds and improved economics for a variety of business application scenarios.

HPE Superdome X servers provide exceptional value for Oracle database customers with lower licensing costs, unique reliability features, the largest scale-up capacity currently available, and the fastest benchmarked speed of any x86 platform.

HPE Superdome X servers provide a unique value proposition for SAP HANA and S/4HANA with unique reliability features along with the largest scale-up capacity and fastest benchmarked speed of any SAP certified appliance.

Cutting costs in your Oracle database environment

Oracle databases are mission critical to your business. They are also costly and can be challenging to manage. Many organizations currently run Oracle on aging, proprietary hardware platforms, making it difficult to meet demanding service level agreements. Oracle licensing often consumes more of the IT budget than is desirable or necessary.

Replacing aging or proprietary infrastructure with a more cost-effective scale-up x86 architecture can provide measurable value. The benefits include reduced Oracle licensing and maintenance cost (more efficient hardware requires fewer licenses), reduced complexity and operating costs, and breakout performance to improve productivity and customer experience. Register for the best practices guide at **hpe.com/info/cutcost**.

Modernizing mission-critical SAP applications

For SAP users, the performance of the SAP application environment drives the performance of the business. With the introduction of the HANA in-memory database and S/4HANA software suite, getting the most from your SAP investment requires modernization of your database and hardware environments. A high-density scale-up architecture provides the best performance/cost profile.

SAP's development roadmap includes new functionality across the entire software suite—functionality that will rely heavily on HANA's in-memory database capabilities. With new business functionality, faster decision support and enhanced productivity driven by in-memory computing, the move from a traditional DBMS to HANA provides an attractive ROI. Register for the best practices guide at **hpe.com/info/modernizesap**.

Microsoft Skype for Business is a proven solution that leverages a 30-year HPE/Microsoft Frontline Partnership to deliver the full complement of VOIP, video, web conferencing, instant messaging and application sharing over a tested, high-performance reference architecture.

Utilizing Skype for Business

Today's workforce is often virtual, and increasingly distributed around the world with business running 24x7. The need for collaboration in this environment creates a challenge for the enterprise—while travel for face-to-face meetings can be prohibitively expensive, team members still need "face-to-face" communication to be most effective.

Skype for Business provides a robust toolset including Voice-over-IP (VOIP), video, web conferencing, instant messaging and presence, and application sharing at a fraction of the cost of traditional communication services. This solution easily supports thousands of users across any number of sites, bridges the gap between geographically-dispersed workgroups, and supports collaboration. Register for the best practices guide at **hpe.com/info/betterproductivity**.

Enterprise-grade Business Continuity Solutions are uniquely designed for industries that never stop with the very highest level of availability, system-wide security, massive scalability, and the lowest TCO in its class.

Providing business continuity for vital applications

What does it cost your business when customer facing systems are unavailable? Ninety-five percent of enterprises have experienced at least one unplanned datacenter-wide outage in the past 24 months.[1] The average cost per outage is roughly $2.5M,[2] but the real cost of downtime is far greater, including damaged reputation, lost customer confidence, and legal compliance exposure.

A business continuity solution architected for continuous disaster tolerance for your vital applications can minimize the risk of downtime. A best practices approach to business continuity includes evaluating the proper level of availability and fault tolerance for all applications, and architecting infrastructure to keep mission critical applications available 24x7. Register for the best practices guide at **hpe.com/info/alwayson**.

Unleash valuable insights from your Big Data

Creating actionable insights from Big Data assets is dependent on having the right infrastructure in place to efficiently run analytics and cost-effectively store data at petabyte scale and beyond. A new generation of servers, optimized for the processing and storage needs of Big Data, reduces the complexity and cost of managing and analyzing data at scale.

Density-optimized server platforms like the **HPE Apollo 4200 and HPE Apollo 4530** provide the most cost-effective solution for terabyte scale deployments with a clear pathway to future petabyte scale.

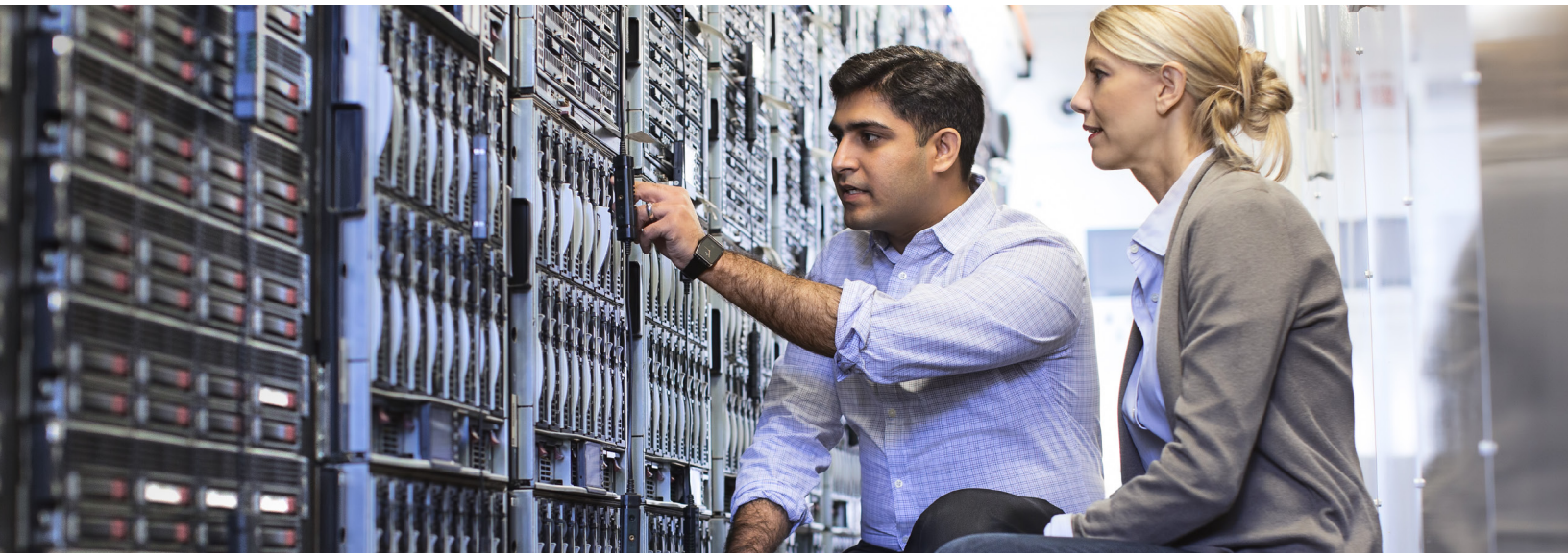
Harnessing Big Data with high-performance compute (HPC)

The growth in volume, variety, and velocity of data in the enterprise is making it increasingly difficult to derive timely and actionable insights from your data assets.

Most of today's big data workloads are still running on traditional commodity servers which are not designed for processing massive quantities of data. Innovation in high-performance, density-optimized computing platforms can make big data processing faster and more efficient, allowing enterprises to better optimize big data deployments and make more intelligent business decisions faster. Register for the best practices guide at **hpe.com/info/bigdatainfra**.

[1] Fingers Crossed? Or What is Your Business Continuity Plan for the Inevitable, Gravic, Inc., 2015

[2] An average outage last 90 minutes and costs $1.7M/hour across all industries. High-Value Applications on x86: The Need for True Fault Tolerant Systems, Peter Rutten, IDC Analyst Report, May 2015



High-density **HPE Apollo** servers paired with **Scality Ring** technology easily scale from terabytes to hundreds of petabytes and support millions of users—with 100 percent data reliability and a lower TCO than public cloud storage offerings. **HPE Helion Content Depot Reference Architecture** provides the framework for an in-house private cloud storage solution.

Trade and Match Server Solution is fine-tuned to push the hardware to its limits in order to drive down latency for trading operations.

Trader Workstation delivers the superior computing and graphics performance that high-volume traders need at a TCO that meets the budget constraints of cost-conscious IT departments.

Risk Compliant Archiving is a cost-effective data archival solution that scales to multiple petabytes and can accommodate the entire enterprise.

Building a content depot for object storage

Traditional storage approaches are inadequate to meet the needs of today's terabyte and petabyte scale data assets. Unstructured data types like social media, audio/video, or Internet-of-things data that make up the majority of new enterprise data, do not fit traditional block and file storage schemes.

New object storage solutions that leverage server-based, software-defined capabilities offer on-premises storage alternatives that are simple, flexible, and easily scalable to hundreds of petabytes at a lower TCO and higher ROI that public cloud storage offerings like Amazon S3. Register for the best practices guide at **hpe.com/info/objectstorage-solution**.

Considering New Financial Trading Infrastructure

In today's financial services trading environments, high-performance compute infrastructure is not optional, it's a prerequisite for survival. Few industries face the combination of exponential data growth, predatory competition, and regulatory challenges that define this industry. With a never-ending appetite for real time analytics and faster transaction times, modernization of infrastructure in three strategic areas can help to:

- Fulfill stringent data retention and reporting requirements
- Accelerate high-frequency trading, where fractions of a second in performance can translate into millions of dollars, and
- Achieve the superior computing and graphics performance required by high-volume traders

Register for the best practices guide at **hpe.com/info/fastertrading**.

Move to a hybrid cloud infrastructure

Optimizing the use of cloud technology is a matter of finding the right mix of public and private cloud environments and matching applications and workloads to the right cloud platform. A hybrid approach, providing a mix of public, private, virtualized, and traditional services allows IT to provide faster time-to-value and improved efficiency from the enterprise data center.

The **HPE Cloud Workload Portability** methodology offers an all-inclusive set of five connected services that leverage expertise and proven best practices to help you deliver the best cloud for your business.

Application migration to private cloud

By the end of 2016, over half of enterprise application workloads will be deployed in private or hybrid clouds.[3] Migrating the right workloads to private cloud empowers IT to reduce costs by as much as 40 percent,[4] while accelerating service delivery, exceeding SLAs, and ensuring a better experience for line of business users.

Application migration to private cloud involves many complex tasks, from determining the right cloud for each workload to performing and validating the actual migration. An experienced partner with a proven end-to-end methodology for cloud migration can be a critical factor in delivering the right outcome for the business and the right operational efficiencies for IT. Register for the best practices guide at **hpe.com/info/apptocloud**.

HPE stands ready to better power your modern data center

Wherever you are in your modernization journey—whatever your current state and budget, and whatever track you choose—HPE stands ready to help, with end-to-end solutions including consulting, servers, storage, networking, deployment, training, and support. Through proven expertise and partnerships with vendors like Intel, Microsoft, Hadoop and Scality, HPE can help you enable the right compute at the right time with the right consumption model to boost application performance and get the most out of your data across the enterprise.

Download all best practices guides and customer stories at **hpe.com/info/dcm**.

[3] "Voice of the Enterprise Cloud Computing Customer Insight Survey, 451 Research, Q4 2014

[4] The Key Benefits of Deploying Private Clouds, Aberdeen Group, 2014

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