



ESG WHITE PAPER

# The HPE ProLiant DX8000 and Nutanix

Empowering High Performance Compute at the Edge

By Bob Laliberte, ESG Senior Analyst; and Leah Matuson, Research Analyst

June 2020

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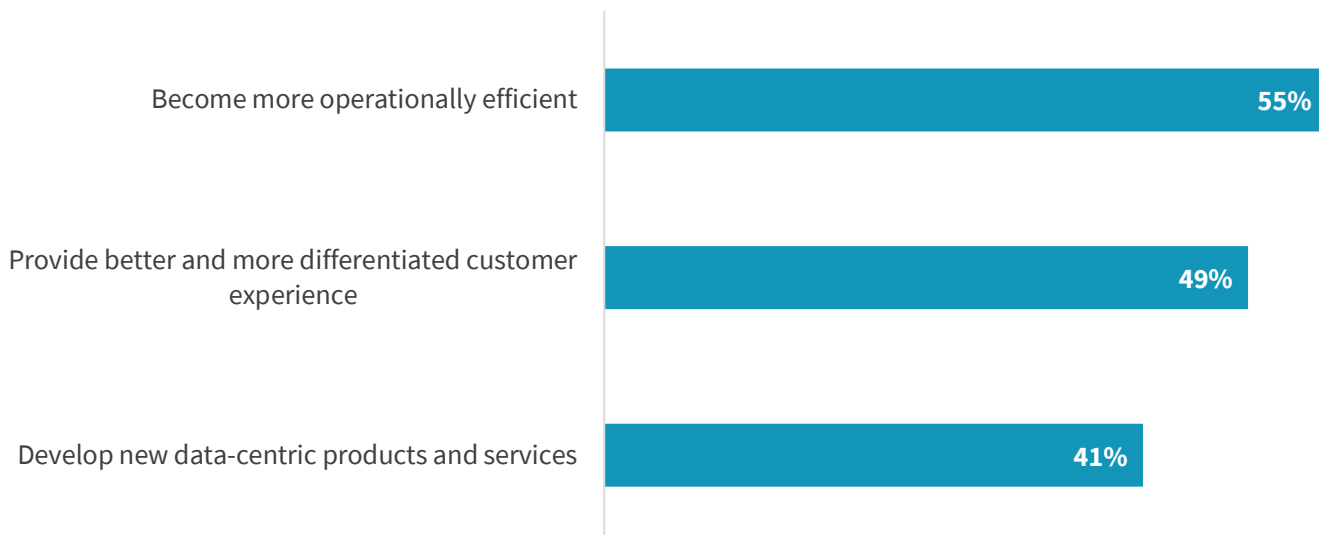
## Introduction

Organizations are rapidly modernizing their IT infrastructure and data centers. This is driven by an IT pendulum that is swinging away from a centralized model toward a highly distributed environment. Indeed, for the last several years, organizations have been shifting their applications from a centralized data center to distributed edge computing and public cloud architectures. Also fueling this shift are organizations embarking on digital transformation initiatives, and the need to leverage distributed computing to enable the business to respond to rapidly changing requirements at the edge.

ESG research shows that 55% of organizations said one of their top goals for digital transformation is to become more operationally efficient, while 49% said providing a better customer experience, and 41% said developing new products and services (see Figure 1).<sup>1</sup> In many cases, and especially for those with real-time compute requirements, distributing applications to public clouds may introduce excessive latency, and restricted bandwidth may delay data processing times, resulting in a poor experience or a delayed response.

**Figure 1. Top Three Objectives for Digital Transformation Initiatives**

**What are your organization's most important objectives for its digital transformation initiatives? (Percent of respondents, N=619, three responses accepted)**



*Source: Enterprise Strategy Group*

Consequently, it is imperative that organizations ensure sufficient computing resources for their edge environments. This requires resources that are capable of streamlining operations to drive efficiency, provide real-time analysis, and accommodate demanding workloads to deliver positive experiences, all while maintaining the ability to easily scale to meet the needs of the business. This sounds simple, but in reality, there are still challenges.

## The Increasing Demand for Edge Computing

Organizations across industries continue to deal with IT complexity. ESG research shows that almost two-thirds (64%) of organizations believe their IT environments are more complex than they were just two years ago, and those organizations

<sup>1</sup> Source: ESG Research Report, [2020 Technology Spending Intentions Survey](#), February 2020. All ESG research references and charts in this white paper have been taken from this research report.

with more mature digital transformation initiatives are more than three times as likely to say their IT environments are significantly more complex.

But what is driving this complexity? Proliferating data growth; a swiftly evolving cybersecurity landscape; and rapidly increasing numbers of new applications, devices, and endpoints. For many industries, the ability to take advantage of data created at the edge by these new devices is driving more compute at the edge.

However, most organizations are not looking to create additional data centers. Instead, they are focused on delivering the minimal amount of compute required to handle their organization's application requirements. They need compute and analytic solutions within a minimal footprint. This approach is prevalent in certain segments/industries that operate in environmentally challenging settings where space, weight, and power sources are limited but high powered compute resources are essential—think defense/military, telecom, energy/oil and gas, manufacturing, transportation, and retail. For example:

- Military bases, and forward operating sites (FOS) or forward operating locations (FOL) (i.e., a scalable, “warm” facility)<sup>2</sup> require rugged, yet simple compute sources, and must support sustained operations with only a small permanent presence of support or contractor personnel.
- Telecom organizations must move compute closer to users (situating this activity at their radio access network (RAN) base station) to ensure that low latency applications can efficiently function in real time.
- Oil and gas rigs require the power to analyze data onsite in real time to measure performance, implement predictive maintenance, reduce drilling time, improve occupational safety, and address potential issues before they become dangerous.
- Manufacturing plants in remote and edge locations continually gather enormous amounts of data for QA testing to improve processes and systems, quickly identify and resolve potential issues, and eliminate bottlenecks. They must possess compute resources that can be easily administered without the assistance of an onsite IT team.
- Retail (think brick and mortar) is constantly investigating methods for differentiating the customer shopping experience. Targeted marketing by location is becoming increasingly important, hence retailers are finding a growing need to employ compute to analyze data at specific locations in real time—enabling merchants to immediately provide customers with new and exciting products and offers targeted exclusively for them.

But how can organizations provide customers (working in environmentally challenging settings) with the right technologies and services they need to be operationally efficient, grow the business, and achieve success?

### HCI Can Mitigate IT Complexity

Fortunately, technology can help. Organizations are looking to hyperconverged infrastructure (HCI) to enable operationally efficient compute platforms at the edge, which includes a complete, software-defined stack that integrates compute, virtualization, storage, networking, and security to run any application, at any scale. HCI is rapidly gaining traction because it is easy to deploy, manage, and scale over its full lifecycle. In fact, ESG research highlights that deploying HCI infrastructure is among the top three most often cited areas of investment for data center modernizations efforts in 2020, along with an increasing use of IT infrastructure orchestration and automation tools.

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<sup>2</sup> See Wikipedia page, [Forward Operating Site](#) for more details.

Organizations need to understand how a small, ruggedized platform with a simple-to-use yet powerful HCI solution can dramatically improve their efficiency as well as productivity at the edge.

The edge isn't a singular location, but usually a number of locations, some of them fixed, others temporary. Yet what virtually all edges have in common is a lack of skilled IT resources. Organizations require a standardized solution that can be rapidly and easily deployed as well as facilitate remote management from anywhere around the globe.

Enter HPE and Nutanix.

## **HPE and Nutanix**

### **Nutanix Enterprise Cloud Platform**

The Nutanix Enterprise Cloud Platform delivers a complete IT infrastructure with the agility, scalability, and simplicity of the cloud and the security, performance, and cost predictability of a traditional on-premises infrastructure. The architecture is a scale-out virtual computing platform leveraging web-scale engineering principles innovated by leading cloud companies such as Google, Facebook, and Amazon.

For more than a decade, organizations have trusted Nutanix to support their application workloads—from end-user computing environments with VDI to mission-critical database applications that serve as the backbone of the business. The highly distributed architecture creates a fully integrated compute, virtualization, and storage environment that is 100% software-defined. This integration eliminates the complexity of traditional SAN and NAS environments, as well as their reliance on costly, special-purpose hardware that commonly requires IT personnel with specialized skill sets.

With its fully distributed approach, Nutanix spreads all data and processes across the entire cluster, improving resource utilization, scalability, and performance predictability. Active data tiering automatically places frequently requested data in the highest performance storage tier. In addition, data locality ensures that data is always near to the application—serving data directly from direct-attached storage and minimizing expensive network latency.

### **Partnering with HPE for a Ruggedized, Open Platform for the Edge**

Choice is a key differentiator for Nutanix—choice of hypervisors, hardware platforms, and consumption models. Nutanix prides itself on giving its customers freedom of choice. As a well-known leader in hyperconverged infrastructure solutions and cloud computing, Nutanix has long supported leading hypervisor brands (including Nutanix AHV, of course) and partnered with recognized names in servers, though one of the world's largest server vendors (HPE) had not been among them—until 2019.

Nutanix and HPE responded to repeated customer requests and recognized the value of and the need for working together to assist enterprises in transforming organizations across three key areas: first, a portfolio of appliances consisting of HPE servers running the Nutanix software stack, providing software-defined compute and storage resources in the data center; second, expanding HPE GreenLake to run the Nutanix Enterprise Cloud as a service to support enterprise demands; and third, the ability to extend high performance compute to the edge.

These two global leaders are focused on prioritizing organizational agility, and providing customers with flexibility and reliability as they continue to distribute applications across the cloud and edge—whether leveraging a turnkey solution or an as-a-service solution, or embracing modern applications technologies, such as AI and IoT at the edge.

## The HPE ProLiant DX8000 and Nutanix Enterprise Cloud: Data Center Performance in a Box at the Edge

To attain and maintain a competitive edge in today's frenetic marketplace, organizations must be able to easily manage their complex, highly distributed environments, ensuring consistent business continuity, enhancing flexibility, garnering valuable business insights, and offering a positive customer experience.

Building on their partnership, HPE and Nutanix now offer organizations the HPE ProLiant DX8000 and Nutanix Enterprise Cloud, a combined solution that provides a viable, cost effective means for organizations to employ high performance computing at the edge, particularly in harsh environments (think defense/military, telcos, energy/oil and gas, industrial/manufacturing, transportation, and retail). The two partners have essentially taken data center performance and packaged it in a small, ruggedized box for use at the edge.

### Simplified Turnkey Edge Infrastructure Provides a Resource Pool at the Edge

The HPE ProLiant DX8000 and Nutanix Enterprise Cloud solution is a simplified, turnkey edge infrastructure providing an innovative compute, networking, and storage solution in a single integrated box—offering secure, high performance servers optimized for Nutanix users. The solution is versatile, and its modular architecture can easily scale to meet changing use case requirements.

By joining operational technologies with enterprise IT, the HPE ProLiant DX8000 provides organizations with a low latency, high performance solution designed for ease of use (no specialized IT skills are required). The solution offers optimized experiences throughout industries to gain insights from the edge across the enterprise and supply chain; perform high volume measurement processing with real-time local control; and turn data at the edge into insights for real-time action—all without being hindered by underlying technology. As a preconfigured solution (jointly prequalified by both HPE and Nutanix), the HPE ProLiant DX8000 enjoys deep integration with the Nutanix HCI software platform (i.e., Nutanix software is preinstalled).

The HPE ProLiant DX8000 solution delivers data center-like performance at the edge by packing the following technology into a ruggedized solution:

#### Power and performance to support Nutanix HCI

- 4 servers per DX8000 system.
- 112 CPU cores.
- 6TB memory capacity.
- 61TB NVMe storage capacity.

**Optimized for the edge (think size, weight, and power).** Because organizations cannot predict the type or number of resources available at their edge locations, the solution is optimized for size, weight, and power (half rack 5U)—supporting high performance. With a space-saving form factor, two boxes can be easily mounted in a 19" rack, side by side.

**Operates across wide temperature ranges.** Since any number of edge sites may be located in environmentally harsh locales, the solution is built to operate across a wide temperature operating range (0-55 degrees Celsius), providing organizations with the flexibility to transact business where traditional data center technology would most likely fail.

**Tolerates high shock and vibration.** The solution offers high shock and vibration tolerance, enabling business continuity even at the edge under harsh conditions, as well as the potential for mobile location use (i.e., out in the field).

**NEBS compliant.** The solution is Network Equipment Business System (NEBS) compliant (i.e., conforms to telco industry safety, spatial, and environmental guidelines), allowing communication service providers and telcos to easily deploy the

solution in telco environments (think co-location offices and base stations) to support 5G networks as well as applications leveraging 5G.

**Remote management capable.** HPE and Nutanix enable organizations to remotely manage sites via HPE iLO5 (HPE integrated lights out) and Nutanix Prism without the need for onsite IT expertise—thus eliminating the time, resources, and expense of transporting physical resources to edge locations for deployments.

### HPE and Nutanix: Accelerating Deployments and Providing Full Lifecycle Support

Accelerating initial deployments is essential, especially in remote and edge locations. In defense/military, it's vital to spin up a base and turn on compute processing in a relatively short amount of time; or consider turning on compute power on an oil rig in just minutes.

There is no need for specialized IT personnel to implement this solution—simply power on and provide connectivity to enable remote implementation, typically in less than 60 minutes. By leveraging an easy-to-use interface to manage all elements of the infrastructure, staff can also easily create day-2 operational efficiencies.

The ability to scale these edge environments is also simple: Just add an HPE ProLiant DX8000 box and plug in the power and connectivity. Multiple boxes can be connected together for an ever-growing cluster of resources, as needed.

With regards to lifecycle support, both HPE and Nutanix have joined together to provide coordinated hardware and software lifecycle support for the solution. Customers receive software support from Nutanix and hardware support from HPE (3-year, next-business day coverage). Both ProLiant DX and Nutanix provide phone-home capabilities for automated support. HPE and Nutanix coordinate resources as needed to identify, troubleshoot, and resolve software or hardware support issues.

### The Bigger Truth

Organizations continue to distribute computing resources and applications to the edge, so it is vital that IT possess complete, packaged solutions that are easy to use, deploy, and operate. Across industries, organizations require powerful, yet compact solutions to deliver requisite compute and analytics solutions within a minimal footprint. Ruggedized, purpose-built, edge computing platforms will be needed to manage the demanding application requirements of telco 5G environments; defense; military and government agencies; manufacturing QA; oil and gas; and transportation-specific applications, as well as retail customer real-time offers and services.

By joining operational technologies with enterprise IT, the HPE ProLiant DX8000 provides organizations with a scalable, low latency, high performance solution requiring no specialized IT skills to deploy or manage. The solution offers organizations optimized experiences, with the ability to quickly act on vast amounts of data—without being hindered by underlying technology.

With HPE and Nutanix partnering to extend the power of HPE ProLiant DX servers and Nutanix software to the edge, organizations will benefit from a simple, seamless, ruggedized solution capable of withstanding challenging carrier and environmentally extreme locations.

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[contact@esg-global.com](mailto:contact@esg-global.com)



508.482.0188