

WHITE PAPER

Hitachi for Oracle

Accelerate Outcomes with Hitachi Vantara Unified Compute Platform

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Introduction

In addition to cloud adoption, on-premises infrastructure modernization remains an essential element of a successful IT strategy. Essentially, the increase in digital initiatives has fueled the requirement to optimize and modernize *everywhere*. If organizations want to maximize the value of their most critical workloads, they need to modernize their on-premises IT environments.

When it comes to modernization, however, the goal is not simply to leverage the latest available performance, security, and protection advancements. Another major objective of modernization should center on radically simplifying day-to-day operations. The numbers and types of applications, locations to manage, data sets, and systems in use have all increased in recent years. That explosion of technology has added to the cost and complexity of everything related to IT.

To fight that complexity while optimizing for total cost of ownership (TCO), IT leaders need to focus on lowering the cost of operating their IT infrastructure. IT services and infrastructure are now essential for business growth. Even when budgets are tight, organizations still need to accelerate their ability to capitalize on new opportunities.

Consider the situation with Oracle databases, which have long played an essential role in supporting mission-critical business operations. With Oracle in particular, there is a need to modernize while minimizing risk. With its [Unified Compute Platform \(UCP\)](#) and Virtual Storage Platform 5600 (VSP 5600) solution for Oracle, [Hitachi Vantara](#) offers a way for organizations to modernize on premises without incurring the costs and risks of cloud migration—while also providing the performance, experience, scale, security, protection, and cost optimization that enterprise-level, Oracle-based applications require. The Hitachi solution offers the advantages of on-prem solutions and the flexibility of hybrid multicloud for workloads that are cloud ready. Hitachi has leveraged DBaaS on top of the Hitachi Oracle solution to enable workload mobility to OCI, AWS, Azure, and Google Cloud Platform.

Infrastructure Modernization Priorities for Oracle Databases

Research by TechTarget's Enterprise Strategy Group (ESG) sheds light on why organizations must prioritize on-premises modernization, rather than relying on public cloud IT alone.

ESG has found that among organizations with active digital transformation initiatives underway, 74% of them are working on a project in the area of IT transformation, and 65% of organizations identify infrastructure modernization as a top-five priority.¹ And again, although modernization is often now associated with public cloud adoption, there remains a need to modernize everywhere, including on premises. It's a hybrid cloud world; on-premises IT will always exist. According to ESG research:

- The average organization is running 54% of its applications on premises.²
- 50% of organizations plan to increase their 2023 budgets for data center infrastructure relative to 2022, with an additional 42% expecting to keep their data center infrastructure budgets the same.³
- The average number of data center locations is expected to increase over the next five years (see Figure 1).⁴

¹ Source: Enterprise Strategy Group Complete Survey Results, [Distributed Cloud Series: Application Infrastructure Modernization Trends](#), March 2022.

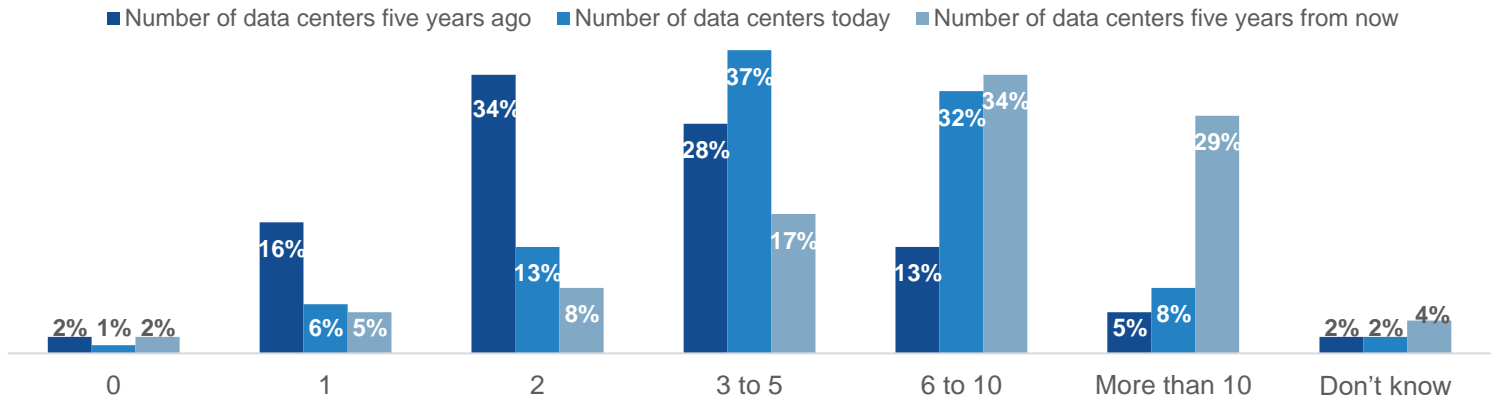
² Ibid.

³ Source: Enterprise Strategy Group Research Report, [2023 Technology Spending Intentions Survey](#), November 2022.

⁴ Source: Enterprise Strategy Group Complete Survey Results, [Distributed Cloud Series: Application Infrastructure Modernization Trends](#), March 2022.

Figure 1. The Number of Data Center Locations Is Expected to Increase in the Next Five Years

How many data centers did your organization operate five years ago? How many data centers does your organization operate today? How many data centers do you expect your organization will have in five years? (Percent of respondents, N=372)



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Another factor behind the need to modernize and simplify operations *everywhere* is the increasing pressure on IT hiring budgets, coupled with chronic skills shortages in multiple areas of IT and cloud operations. For example, 54% of organizations surveyed by ESG reported that they are experiencing problematic skill shortages in IT or cloud architecture and planning.⁵ IT simplification will be key to overcoming problems tied to tight budgets and skills shortages.

Why Public Cloud Isn't an Immediate Option Everywhere

Why not just move everything to the cloud? To answer that question, one must weigh “opportunity” versus “opportunity cost.” Along with an increased focus on the cost of IT and the pressures on IT personnel, organizations are also increasing their focus on the risk, cost, and opportunity cost of cloud migration activities. Among IT decision-makers surveyed by Enterprise Strategy Group:

- 68% say that the cost and time related to refactoring/re-platforming applications adds significant cost, complexity, and risk to cloud migrations.
- 65% agree that their organization faces challenges with application and data portability across locations.⁶

With cloud migrations being costly and complex, and hybrid cloud IT continuing to be the standard operating model for the foreseeable future, organizations must be thoughtful regarding their migration strategies.

Cloud IT is transformative in terms of the agility and flexibility it provides and is able to accelerate development and innovation. But the cloud can be expensive. When it comes to low-latency data storage for enterprise applications—and when future scaling needs are relatively simple to predict—the benefits of the cloud can be limited.

The bottom line is that enterprise-critical platforms such as Oracle Database can often be better served by modernizing the infrastructure where the database already resides. The smart move is to focus cloud migration

⁵ Source: Enterprise Strategy Group Research Report, [2023 Technology Spending Intentions Survey](#), November 2022.

⁶ Source: Enterprise Strategy Group Research Report, [Data Infrastructure Trends](#), November 2021.

resources on other applications—for example, container-based applications—that are better able to maximize the benefits of the cloud while minimizing opportunity costs. That approach will minimize operational risks.

Modernize an Oracle Infrastructure with Hitachi Vantara UCP for Oracle

When modernizing an IT infrastructure for an Oracle environment, organizations need to focus on optimizing performance, optimizing utilization, minimizing licensing costs, and simplifying infrastructure operation and management.

The Hitachi Vantara Unified Compute Platform (UCP) for Oracle with [Virtual Storage Platform 5600 \(VSP 5600\)](#) solution can help with this effort. It is a consolidated, validated solution from Hitachi Vantara that includes Hitachi Vantara servers, networking components, and VSP 5600.

The solution enables servers and storage to scale independently, thanks to its flexible CPU and memory configuration options (offering 2-socket to 16-socket servers), as well as its flexible scaling via VSP storage. It is designed to support Oracle Database as a Service (DBaaS), which:

- Allows access to database services in a standard catalog.
- Improves workflow automation when adding, deleting, and modifying databases.
- Reduces database license usage and assists with control-related compliance.
- Monitors resource usage and analyzes usage trends.

The Benefits Stem from a High-performance Design

Hitachi Vantara took fundamental aspects of database performance maximization into consideration when creating this solution. Specifically, Hitachi Vantara focused on optimizing:

- **Transaction processing**, which involves frequently inserting, updating, or deleting small amounts of data (that is, large numbers of small write operations) in a data store to collect, manage, and secure those transactions. For Oracle environments, efficient, high-performance transaction processing is essential. The faster an organization can scale its applications, the faster it can generate revenue for the business—especially regarding transactions that are tied to online banking, shopping, or order entry.
- **The log writer**, which plays an essential role. Oracle sessions typically must wait for redo log writes to complete before they can continue processing. Redo log writer throughput and low-latency performance is crucial for transaction processing and consistency (recovery) in case of failure.
- **The data load**, which determines how quickly data is made available to the Oracle database. With data volumes continuing to increase, the window for loading all of that data shrinks. Data load performance is essential for all database applications, but especially for Oracle.
- **Data analytics performance, for example for Oracle E-Business Suite AI/ML use cases**, with faster analysis of large data sets that offer insight into what is having the greatest business impact, it's possible to make faster and better business decisions.

Hitachi Vantara shared its commissioned benchmarking results of the Hitachi UCP solution with the Enterprise Strategy Group (ESG), showing that it greatly exceeds the performance capabilities of an equivalent legacy Oracle Database infrastructure configuration. For example:

- In transaction processing, Hitachi Vantara used a light transaction benchmarking tool to achieve over 1.2 million transactions per second (tps) with its Hitachi UCP solution. According to Hitachi Vantara, this result surpassed an equivalent competitive solution by 65%.

- In terms of throughput, Hitachi Vantara was able to achieve nearly 87 MBps with its Hitachi UCP solution. According to Hitachi Vantara, this result surpassed an equivalent competitive solution by 129%.
- For database operations, Hitachi Vantara was able to achieve over 4.5 million database operations per second (dbps) with its Hitachi UCP solution. According to Hitachi Vantara, this result surpassed an equivalent competitive solution by 64%.

The performance benefits of the Hitachi UCP solution are likely to be significant, especially when compared with more conventional solutions.

While ESG has not independently verified those results,⁷ based on the architectural innovations identified previously, the performance benefits of the Hitachi UCP solution are likely to be significant, especially when compared with more conventional solutions. Organizations should make sure, however, to always verify the potential performance of any solution in their specific application environment prior to investing in a new solution.

By performance-optimizing multiple aspects of Oracle, Hitachi Vantara further extends incremental benefits to simplicity and TCO. According to Hitachi Vantara, the solution's increased performance has allowed for an increase in the density of the environment, essentially reducing the overall number of components that need to be deployed, managed, and maintained. That, in turn, reduces the number of licenses required for the overall environment, ultimately helping to lower TCO.

Hitachi Database Infrastructure Evaluation Tool and Additional Benefits

Hitachi Vantara has worked hard to ensure this solution is capable of consolidating a database's footprint on less hardware with fewer licenses to optimize TCO. One key to success in this effort is the Hitachi Database Infrastructure Evaluation Tool (DIET). DIET collects information on the organization's specific Oracle Database environment, and then it generates metrics-based insights related to improving resource utilization. The result is an environment with the ideal amount of hardware and software deployed, thereby minimizing costs without impacting the application experience.

Additionally, the overall solution provides database administrators the same visibility and experience they are accustomed to in Oracle environments through its support for Oracle Enterprise Manager, an on-prem management platform that provides a single dashboard to manage Oracle deployments.

Hitachi Vantara has even developed reporting tools to help organizations with their Oracle audits. This enhancement can reduce the burden on administrators and lower an organization's risk of having to make unforeseen cost outlays.

Conclusion

Organizations need to modernize everywhere because it is not practical to "just move everything to the cloud." Oracle environments present an excellent example of the importance and sensibility of pursuing on-premises modernization along with pursuing hybrid cloud IT. A viable—and possibly better—alternative to a traditional Oracle infrastructure configuration might exist.

The Hitachi Vantara solution is differentiated. In addition to impressive performance and cost-control features, Hitachi offers better consolidation and more agility, with its ability for organizations to plug into any of the hyperscalers and manage more database applications (not just Oracle). Smart CIOs should be investigating this

⁷ Independent third-party Peakmarks AG conducted the Oracle benchmark study and analysis.

product: It is faster, more economical, more flexible, and better capable of consolidating more database applications on one hardware solution.

Hitachi Vantara already has broad-based installations across the globe for very large Oracle Database instances. With a range of high-performance, converged infrastructure solutions, Hitachi is well-positioned to help modernize all Oracle environments, from small, to some of the biggest transactional environments we've seen.

With this solution, Hitachi Vantara is providing yet more proof that it can deliver transformational innovations to its customers and prospects to help them maximize performance, simplify their environments, and reduce the risks and costs traditionally associated with using an Oracle database on an enterprise level.

To learn more about how to modernize Oracle infrastructure for performance, availability, and efficiency, see www.hitachivantara.com.

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