Oracle® for SAP® Cloud Update

ORACLE®

March 2019

DEAR SAP CUSTOMER,

The relationship of Oracle Corporation and SAP SE has been based on our long history, a rich heritage of joint developments and a solid future – for the benefit of mutual customers.

SAP and Oracle have agreed to a long-term extension of SAP's global reseller and technical support relationship. For more than twenty years, SAP and Oracle have worked together to provide customers with a supported SAP/Oracle environment, running SAP applications on the Oracle database. During this extension new and existing SAP customers can continue to acquire Oracle licenses from SAP or Oracle to support their SAP business applications, and SAP and Oracle will continue to offer technical support for the combined stack.

Oracle Cloud Infrastructure has been certified on Bare Metal and Virtual Machine shapes as well as for **Exadata Cloud Service**. ExaCS is the most powerful platform to run Oracle Database in the cloud, only available from Oracle. It is offered for SAP Application Server ABAP/Java and SAP Business Objects. Oracle Cloud Infrastructure combines the elasticity and utility of public cloud with the granular control, security, and predictability of on premises infrastructure to deliver high performance, high availability, and cost effective infrastructure services. Oracle Cloud Infrastructure offers a set of core infrastructure capabilities like compute and elastic storage to provide customers the ability to run any workload in the cloud. It offers a comprehensive set of integrated, subscription based infrastructure services that enable businesses to run any workload in an enterprise grade cloud-managed, hosted, and supported by Oracle. The Oracle product strategy provides flexibility and choice across the IT infrastructure. There are several Cloud database migration techniques: R3load (SAP), Brspace (SAP), RMAN, O2O, Triple O or Data Guard physical standby. For further details regarding cloud migration techniques, please see page 6.

The **Oracle Exadata Database Machine** is engineered to consolidate all of your SAP and non-SAP Databases into a private Database Cloud environment. It delivers the highest performance and most available platform for running the private Oracle Database Cloud for all types of database workloads; including both Online Transaction Processing (e.g. SAP ECC 6.0), and Data Warehousing (e.g. SAP BW 7.0 and higher). The Exadata Database Machine is ready to tackle your largest – and most important database workload – and often run them up to 10 times faster or more – deployed by many SAP customers today.

Oracle Private Cloud Appliance is an engineered system that radically simplifies the way customers install, deploy, and manage converged infrastructures, which can be used as virtualization platform for database and application.

The **Oracle Database Appliance** is a new way to take advantage of the world's most popular Oracle Database, in a single, easy-to-deploy and easy-to-manage system. It's a complete package of software, server, storage, HA and networking that's engineered for simplicity; saving time and money by simplifying deployment, maintenance, and support of database workloads.

Oracle Linux 7 is the latest Linux version of Oracle for your SAP infrastructure computing needs. It is fast – delivers best performance for SAP – is up to date – brings the latest innovations to customers; is reliable – provides data integrity, better security, improved application uptime, and is optimized for Oracle Databases underneath SAP.

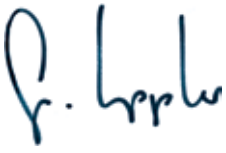
Oracle VM Server for x86 is a free server virtualization solution that makes SAP and other enterprise applications easier to deploy, manage, and support.

The **Oracle development teams** on site at SAP SE in Walldorf, Germany continue to work together with SAP developers to ensure that SAP customers will always have access to the latest optimized Oracle technologies, ensuring performance, reliability and innovation.

The **Oracle for SAP Service & Support** team offers Advanced Customer Services (ACS) that include health checks, workshops, database migrations, performance, tuning, and ACS Oracle Solaris Services for SAP environments, including Assisted Services Engagements (Analysis/Enhancement and SAP Readiness Service for IT Infrastructure).

For more information or to see current and previous editions go to: **www.oracle.com/sap.**
We welcome your comments and questions. Please contact us at: **frontdesk-walldorf_de@oracle.com**

Sincerely,



Gerhard Kuppler

Vice President SAP Alliances
Oracle Corporation

ORACLE CORPORATION: US$40 billion total GAAP revenue in FY 2018 • 430,000 customers in 175 countries • 25,000 partners • 137,000 employees, including: - 38,000 developers and engineers - 14,000 support and services specialists, who speak 29 languages - 19,000 implementation consultants • More than 6.3 million students supported annually in 128 countries • More than 18,000 patents worldwide • #19 of 100 most valuable global brands (Interbrand Best Global Brands 2017 Rankings) • 5 million registered members of the Oracle Developer Community • 484 independent user communities, representing more than 1 million members.

Why Move SAP Applications to Oracle Cloud?

PRESERVE EXISTING INVESTMENTS AND FREE UP RESOURCES FOR INNOVATION

Same SAP Application, Same Oracle Database

No business disruption; Retain all your customizations

Reduce Costs

Transform Capex to Opex; Pay only for what you use

Improve Agility and Accelerate Innovation

Focus on your SAP software deployments, not infrastructure management

RELY ON THE ONLY CLOUD ARCHITECTED FOR ENTERPRISE WORKLOADS

High and Predictable Performance

Run your SAP applications and Oracle databases on bare metal and virtual machine instances; leverage high performance and network storage resources

Optimized for Oracle Database

Oracle database runs up to 7.8x faster on Oracle Cloud Infrastructure vs leading cloud provider[1]

[1] Accenture White Paper: "Enterprise Workloads Meet Cloud"

Security and Control

Compute and network isolation help ensure data security; Compartement capabilities coupled with identity and access management and audit allow visibility and control for your SAP software deployments

Best Price Performance and Transparency

Get 34% lower infrastructure costs for your SAP/enterprise software data workloads vs leading cloud provider[1]. Benefit from simple, predictable and flexible pricing with universal credits

[1] Accenture White Paper: "Enterprise Workloads Meet Cloud"

Exadata Cloud Service

Most powerful platform to run Oracle Database in the cloud, only available from Oracle. Customers running SAP applications on Exadata on-premises can move their SAP solution data workloads to Oracle Cloud with 100% compatibility and benefit from Oracle's BYOL to PaaS program

Complete and Integrated Cloud

Leverage Oracle's most comprehensive PaaS & SaaS offering: Connect your existing SAP applications to SaaS modules from any provider; Extend your SAP applications with mobile interfaces or chatbots

WHY MOVE SAP APPLICATIONS TO THE ORACLE CLOUD?

SAP NetWeaver-based applications are certified to run on the Oracle Cloud Infrastructure. NetWeaver-based applications represent most of the deployed SAP applications, and the majority of them are powered by Oracle databases. Indeed, while SAP is encouraging customers to move to S/4HANA, a Rimini Street* survey shows that 65% of them have no plans to do so. They're unable to build a business case, deem the ROI unclear, consider S/4HANA to be an unproven, early stage product, and face significant migration & implementation costs. Most customers want instead to keep running their existing proven SAP applications that they spent years customizing to their needs. At the same time, however, they face pressure to reduce costs and improve agility to better support the business. Digital disruption is hard at work in all industries and organizations are looking for ways to shift resources from maintenance to innovation. Up to 80% of IT budgets can be spent on "keeping the lights on", and moving core enterprises applications to the cloud represents an attractive way to reduce costs, free up resources, and focus on higher value activities than infrastructure management.

Moving SAP applications & Oracle Databases to Oracle Cloud enables customers to preserve existing investments while accelerating innovation, relying on the only cloud architected for enterprise workloads and optimized for Oracle Database.

Key benefits include:

- High and predictable performance for SAP/enterprise applications with dedicated bare metal instances as well as high performance network and storage resources.

- Best Oracle Database performance: As demonstrated in a recent Accenture report focused on running enterprise workloads in the cloud, Oracle databases run up to 7.8x faster on Oracle Cloud Infrastructure (OCI) vs leading cloud provider.

- Lower costs & transparency: The aforementioned Accenture report also demonstrates that customers can benefit from up to 34% lower infrastructure costs for their SAP/enterprise workloads relying on OCI vs leading cloud provider. Additionally, there are no hidden costs with Oracle Cloud, and Universal Credits allow you to benefit from simple, flexible and predictable pricing.

- Security and governance: Compute and network isolation help ensure data security; Compartment capabilities coupled with identity and access management and audit allow visibility and control for your SAP deployments.

- Exadata Cloud Service: Most powerful platform to run Oracle Database in the cloud, only available from Oracle. Customers running SAP applications on Exadata on-premises can move their SAP workloads to Oracle Cloud with 100% compatibility and benefit from Oracle's BYOL to PaaS program.

- Complete & integrated cloud, enabling you to leverage Oracle's most comprehensive PaaS & SaaS offering to for example connect your existing SAP applications to SaaS modules from any provider, or to extend your SAP applications with mobile interfaces or chatbots. According to the Rimini Street survey mentioned earlier, 30% of customers also look to augment their existing platforms with cloud applications for innovation.

Various resources to learn more are at your disposal, discover how you can ensure business continuity, reduce costs and accelerate innovation! And let us know if you have any question or comment.

*** https://www.riministreet.com/Documents/Collateral/Rimini-Street-Executive-Brief-2017-SAP-Applications-Strategy.pdf**

Several options available for SAP-Oracle user companies to reap the benefits of the Oracle Cloud Infrastructure

DATABASE MIGRATION TO THE ORACLE CLOUD MADE EASY

Oracle Cloud Infrastructure Services enable companies to enjoy significant benefits. Like all Oracle Cloud Services, the use of Oracle Cloud Infrastructure Services is increasing at a rapid pace.

Oracle's Cloud Infrastructure Services offer comprehensive control and the versatility to run both traditional and cloud-native workloads, with predictable savings. Oracle Cloud Infrastructure, which is managed, hosted, and supported by Oracle, provides organizations with the tools needed to migrate, build, and run production, business-critical applications in the cloud.

The use of the SAP NetWeaver Application Server ABAP/Java on Oracle Cloud Infrastructure is the start of a new chapter in the long-standing partnership between Oracle and SAP. The focus here is on operating Oracle SAP databases on the basis of powerful computing, network, and storage infrastructure workload services on a secure, stable, predictable and extendable platform.

Database migration to the Oracle Cloud lies at the heart of this collaboration. Usually, this takes place after planning, preparatory work, and various definitions, such as setting up an Oracle Infrastructure account, determining an appropriate workload sizing, choosing the appropriate bare metal shape, use of Oracle Cloud Infrastructure Object Storage, and much more.

More information about database migration for Oracle-SAP customers can be found in the whitepaper „SAP NetWeaver Application Server ABAP/Java on Oracle Cloud Infrastructure". Please download the whitepaper: **http://www.oracle.com/us/solutions/sap/sap-netweaver-on-oracle-cloud-wp-3931430.pdf** and in the appropriate SAP Notes (for example 2474949 „SAP on Oracle Cloud Infrastructure" or 2520061 „SAP on Oracle Cloud Infrastructure: Support Requisites").

RMAN and/or BR*Tools

There are also several options, procedures, and methods available to SAP-Oracle customers for migrating databases or for what is known as "Lift and Shift into the Cloud" combined with the Oracle Cloud Infrastructure when using or operating source and target platforms with Linux (Linux x86_64).

The focus here is on five methods or procedures. The tools used will be very familiar to all Oracle-SAP customers, especially when it comes to backing up, recovery, and restoration (both on the source and target host).

- Firstly, the RMAN (Oracle Recovery Manager) Oracle Backup/Recovery Toolset is used, and secondly, BR*Tools (previously sapdba) for administration and management of Oracle databases in the SAP environment.

Procedure 1: With the first option, the database is migrated to the Oracle Cloud using Oracle Recovery Manager via Oracle Cloud Infrastructure Object Storage. Object Storage is configured on the source host and backup/recovery is undertaken. The same procedure is followed on the target host, including recovery and restoration.

Procedure 2: With the second option, the database is migrated using BR*Tools via the brbackup tool. The procedure is the same as above but also includes integration/use of BR*Tools and the corresponding specifications of command functions on the source and target host.

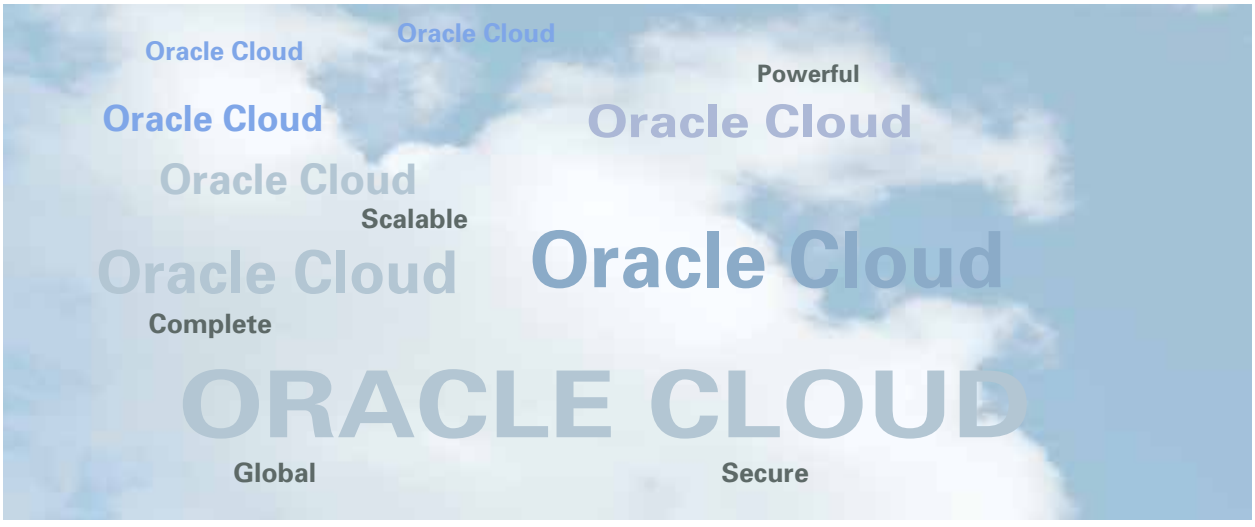
Procedure 3: If the source platform is a Linux X86-64 and/or if the process involves a permitted combination from MOS Note 1079563.1, the RMAN command „duplicate database from active database" can be used to produce an exact copy of the source database on the target in the cloud. If desired, the database is made available in the cloud as a Data Guard standby database so that Data Guard can be used to apply all further changes to the source database on the target database. Migration can therefore be almost free of interruptions. The RMAN „duplicate" process can run with an active source database to restrict the migration „downtime" for the database to a Data Guard role switch and/or failover. Release changes, upgrades or other changes to the configuration or database content are not possible here. One benefit of this procedure is that there is no need for a temporary buffer for backups, exports or data.

Procedure 4: If the source platform is different from the target platform in the cloud, e.g. as a result of a different endian type, and if the database is able to accept a slightly longer „downtime“, migration across all platforms can be undertaken using the RMAN „cross platform transportable tablespaces“ command. This procedure requires a new minimal database to be created in the cloud. The application data is then migrated by transferring the application tablespaces. This can be done on the basis of RMAN backups where incremental online backups can also be used to transfer subsequent changes made to the source database. Only the last backup and a meta data export have to be undertaken with the application and/or SAP stopped. With this procedure, the data (backups) have to be buffered to a filesystem that can be accessed from both the source and cloud.

Procedure 5: The most flexible procedure is called O2O and is a service provided by Oracle ACS. All supported platform combinations are possible here. There are two steps to the procedure. Firstly, a set of scripts is generated, which then creates the database and transfers all data. Large tables are transferred using database links and smaller ones using export/import. A high degree of parallelism is possible if the hardware (compute and network) involved permit it. A new database is created in the cloud, which means a database upgrade is possible to implement transparently as part of the migration. Changes to tablespacesand schedule as well as activation or deactivation of features, such as compression, partitioning, encryption, RAC or Database Vault, are all possible as well. The only thing which cannot be done is the SAP-based unicode conversion because this has to be done by the SAP server. A buffer, which can be accessed from both sides, is needed for the scripts and export files. The application, i.e. SAP, has to be stopped for the duration of the migration process.

If using GoldenGate, the O2O procedure becomes the OOO procedure, and the changes made since the start of the O2O migration are recorded by GoldenGate and applied to the new database in the cloud. OOO is therefore the online variant of O2O with which SAP can remain active with the exception of a short „downtime“ during the switchover.

More information about database migration for Oracle-SAP customers can be found in the whitepaper „SAP NetWeaver Application Server ABAP/Java on Oracle Cloud Infrastructure“. Please download the whitepaper: **http://www.oracle.com/us/solutions/sap/sap-netweaver-on-oracle-cloud-wp-3931430.pdf** and in the appropriate SAP Notes (for example 2474949 „SAP on Oracle Cloud Infrastructure“ or 2520061 „SAP on Oracle Cloud Infrastructure: Support Requisites“).



Free White Paper available for your download:

SAP NETWEAVER APPLICATION SERVER ABAP/JAVA ON ORACLE CLOUD INFRASTRUCTURE AND SAP NETWEAVER® APPLICATION SERVER ABAP/JAVA ON ORACLE DATABASE EXADATA CLOUD SERVICE–IMPLEMENTATION GUIDES

Please download the whitepaper: http://www.oracle.com/us/solutions/sap/sap-netweaver-on-oracle-cloud-wp-3931430.pdf and http://www.oracle.com/us/solutions/sap/sap-netweaver-on-exadata-cloud-wp-4428540.pdf

Abstract:

These two technical white papers are reference guides for deploying SAP NetWeaver® Application Server ABAP/Java onto the Oracle Cloud Infrastructure utilizing BareMetal shapes and Exadata as a Service. The guides provide suggested platform best practices while providing details about the individual components of the Oracle Cloud Infrastructure, Oracle Linux, Oracle Database instances, and SAP application instances necessary to run software products based on SAP NetWeaver Application Server ABAP/Java in the Oracle Cloud Infrastructure.

This white paper assumes the following knowledge:

- You are familiar with the fundamentals of Oracle Cloud Infrastructure.
- You have a background in SAP NetWeaver Application Server ABAP/Java using Oracle Database and Oracle Linux. For more information, see the following resources:
  - http:/go.sap.com/solution.html
  - https://www.sap.com/community/topic/oracle.html
  - http://docs.oracle.com/en/operating-systems/linux.html
- You're familiar with the product documentation for:
  - Oracle Cloud Infrastructure
  - Oracle Database 11*g* and 12*c*
  - Oracle Linux 6 and 7
  - SAP NetWeaver 7.x

Most of the steps described here are the same as in a traditional SAP deployment in a customer data center. The document also includes details about how to develop a backup and high-availability plan for your SAP installation in Oracle Cloud Infrastructure. With this background and this Implementation Guide it should be no problem for you to install SAP applications on Oracle Cloud Infrastructure (OCI).

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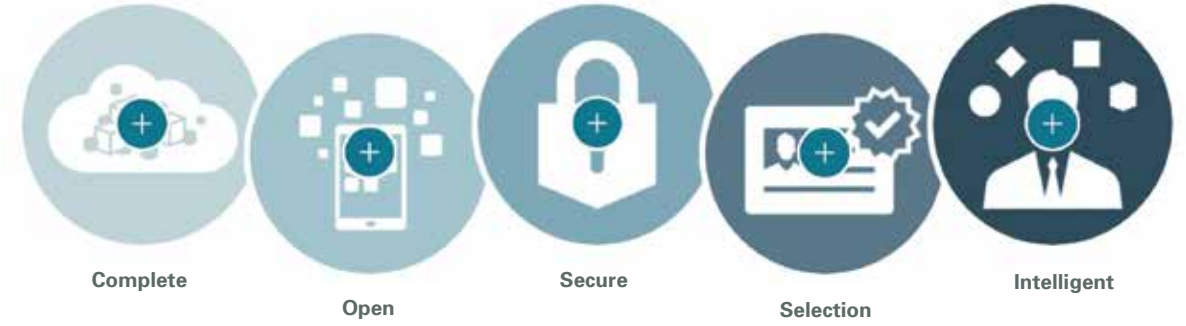


Additional Training available:

For those who are working hands-on implementing SAP NetWeaver Applications on the Oracle Cloud Infrastructure, the SAPCC and Oracle Solution Center team in Walldorf have developed a Technical Training, which will be available on special request. Additional video tutorials are available with the following topics:

1. Introduction OCI4SAP
2. Typical reference architecture for OCI4SAP
3. Terraform core setup
4. OCI4SAP Ref Arch based & deployment process
5. OCI4SAP customer prerequisites
6. OCI4SAP OCI Tenant + Virtual Cloud Network (VCN)
7. OCI4SAP Bastion Host
8. OCI4SAP Central Services Installation
9. OCI4SAP DB installation
10. CI4SAP Application server installation
11. OCI4SAP DMZ component installation: Web Dispatcher
12. OCI4SAP DMZ component installation: SAPRouter
13. OCI4SAP Final summary including checklist
14. Additional OCI key features

Please download the whitepaper: **http://www.oracle.com/us/solutions/sap/sap-netweaver-on-oracle-cloud-wp-3931430.pdf**

DETAILED COMPARISON: ORACLE VS. LEADING CLOUD PROVIDER FASTER & CHEAPER

While Accenture's previous research focused on highly transactional databases to test infrastructure performance, it did not address large databases for complex systems relying on complex data. To determine whether databases in the cloud can support critical applications, Accenture conducted another round of cloud research, this time examining Oracle Database, and associated applications and networking, in the cloud. These tests compared Oracle's cloud offerings with those of another leading cloud vendor.

> **"The test results were very positive for Oracle. Using Oracle's Cloud Infrastructure, Accenture was able to execute OLTP transactions up to 7.8 times faster, compared to the other cloud provider."**

The results demonstrated that Oracle Cloud technology is ready to handle the large, high-powered database workloads that are fundamental to critical enterprise applications.

"Accenture researchers found that Oracle Cloud Infrastructure provided much lower latency than the other cloud when connecting between zones or different data centers within a single region. In fact, Oracle's peak latency levels were up to nearly five times less than those of the other cloud. The Oracle technology can provide better network performance between data centers than many organizations find within a single data center."

Detailed Comparison: Oracle vs. Leading Cloud Provider Faster & Cheaper

Accenture White Paper:"Enterprise Workloads Meet the Cloud"

Figure 1: Test Results

	Leading Cloud Provider	Oracle Cloud Infrastructure Classic	Oracle Cloud Infrastructure
vCPU	4	4	4
SGA	6GB	6GB	6GB
Disk Type	General Disk	Latency Optimized	NVMe Attached
Disk Size	612 GB	612 GB	612 GB
Total Transactions	1,397,270	4,837,067	10,916, 571
Transactions / Second	383.13	1,343.63	3,032.38
Total List Price / Month	$345.88	$200.00	$228.12

Figure 2: Oracle Cloud Infrastructure Latency Averages

	Minimum	Average	Maximum
OCI	0.152ms	0.168ms	0.201ms
Other	0.722ms	0.962ms	8.779ms

https://www.accenture.com/t20171003T083750Z_w_/us-en/_acnmedia/PDF-62/Accenture-Enterprise-Workloads-Meet-Cloud.pdf

CLOUD ACCELERATION
A PERFORMANCE COMPARISON OF CLOUD PROVIDERS

Introduction

There is a large number of manufacturers on the market with portfolios containing IaaS products. In this product family, most providers also offer a number of features relating to the guaranteed performance and redundancy of stored data. Given the huge breadth of products available, it is difficult for users to find the right product to operate their database, application or other solution in the cloud.

In this manuscript, I hope to explore the capabilities of the various performance classes of cloud providers. Both synthetic and practical methods are used to collect this data.

For the analysis of IaaS product capability, the following manufacturers are used because they currently have such a dominating presence on the market:

- Microsoft Azure
- Amazon Web Services (AWS)
- Oracle Cloud

Test environments

In order to ultimately be able to compare the test results, it is necessary to produce a target environment with a structure that can be reproduced by all cloud providers. The manufacturers offer various combinations of CPU and memory resources in what are known as *shapes*. When considering the performance pattern, users must ensure that these environments are ultimately able to deliver a respectable performance. If the environment is too small, implicit queuing situations may arise, which could significantly distort the final result.

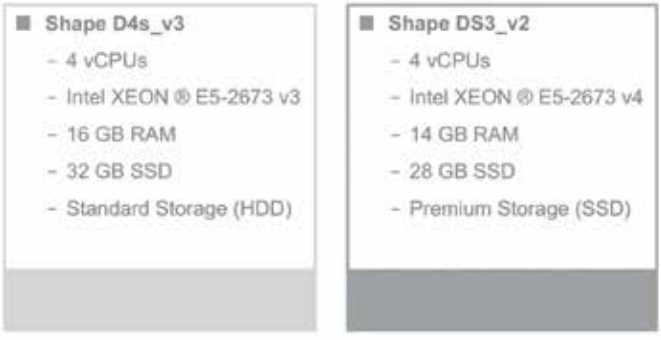
Following analysis of the manufacturers' product ranges, the following pattern was selected:

- CPU: 4 threads
- Memory: 15 GB
- Mount points: 3

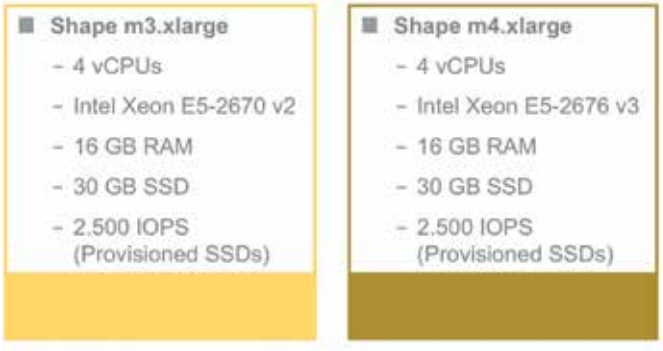
It should also be noted that there is a fundamental difference among the manufacturers in how the technical capability of the CPU resource is depicted. Microsoft Azure and Amazon Web Services use the term "*vCPU*", which from a technical standpoint is the same as a thread for an Intel processor. In contrast, Oracle uses the OCPU unit, which is comparable with an Intel CPU core. One benefit of Oracle is that, according to their documentation, only you can use the resources you have purchased. This is not the case with other manufacturers, so it can be assumed that CPU over-provisioning applies to them.

In the array of various manufacturers, the following performance patterns were used for the performance comparison:

Microsoft Azure

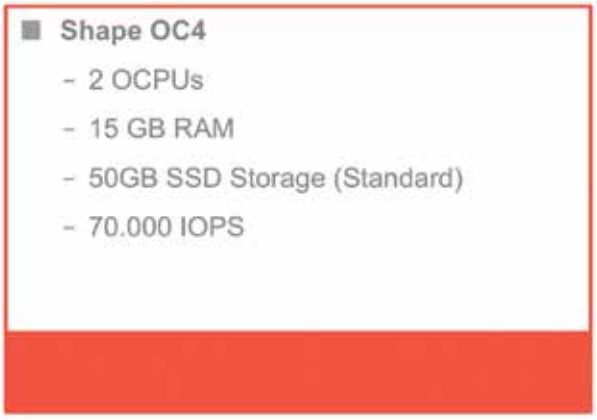


Amazon Web Services (AWS)



Keywords: Cloud, IaaS, Infrastructure as a Service, Performance

Oracle Cloud



As you can see, with the exception of minor deviations, it was possible to reproduce the previously defined target environment with all manufacturers. In addition to the variation in CPU, different storage classes have also been included in the comparison if they were provided by the manufacturers.

Tools for measuring performance

Since it is able to undertake detailed analysis and mapping of complex load situations, the Oracle database was selected as the central tool for the load tests.

Here are the details of the setup and configuration of the database environment:

- Oracle Database Enterprise Edition 12.2.0.1
- SGA_TARGET = 9GB
- PGA_AGGREGATE_TARGET = 1GB
- FILESYSTEMIO_OPTIONS = SETALL
- 30 GB SMALLFILE Tablespace

In order to measure the capability of the CPU resource, one of Trivadis' own benchmarks was used. This simulates a CPU's huge range of load types, including PL/SQL calculation, SQL joins, and SUM operations. The strengths and weaknesses of a processor model can thereby be established.
The result of the Trivadis CPU benchmark is a CPU speed factor.

Alongside the processor performance, the performance of the connected storage sub-system must also be tested and evaluated. Two test methods are used to do this. A synthetic test was carried out to establish and compare the physical framework conditions and maximum capability. Furthermore, a reality-based and transactional I/O test is performed to be able to assess how many transactions the environment can attain and/or how the latencies of the storage system would behave under circumstances replicating reality.
To perform the synthetic I/O test, the Oracle package DBMS_RESOURCE_MANAGER.CALIBRATE_IO was selected. This is installed with an Oracle database as standard. Once this package is opened, random I/O access is used to an attempt to determine the theoretical maximum of the storage sub-system.

This produces the following KPIs:
- MAX_IOPS
- LATENCY
- MAX_MBPS

SLOB, developed and maintained by Kevin Closson, is used to perform a test replicating reality in order to evaluate the mount points available. This command line tool starts transactional processing of data, which is then measured with database tools. This process can also be performed in parallel with changes to one input parameter and the scalability of environments therefore also tested. The following test uses this tool's default settings, only the parallelism parameter is successively increased from 1 to 8.

Results of the performance measurements

The benchmarks described in the above sections were performed on the environments of the various IaaS manufacturers and their results compared. In order to depict these comparisons in the most comprehensible manner possible, graphs and matrices were produced, and I will go into these in detail on the next pages.

First, I would like to look at the results of the Trivadis CPU benchmark. The following graph shows the price/performance ratio of the CPU resource of the environments available. The resultant CPU speed factor (Y-axis) is shown here in correlation to the hourly operating costs of the resource (X-axis). An appropriate color scheme is superimposed on the graph to make it easier to understand.

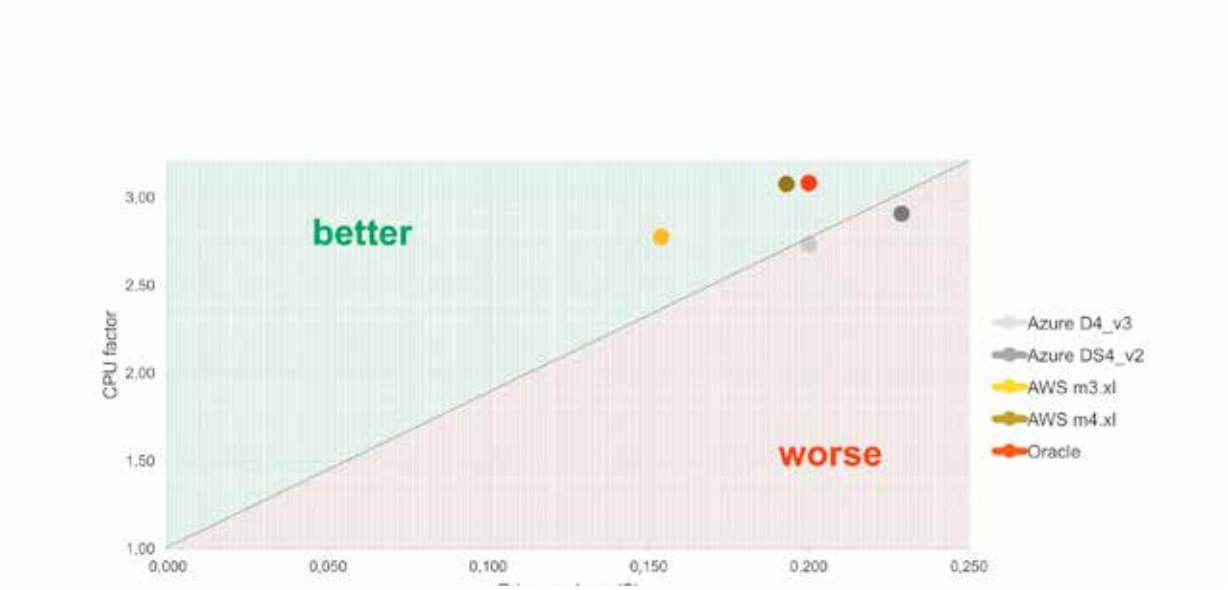


Fig. 1: Illustration of CPU price/performance ratio

I would now like to consider the capability of the storage sub-system. A priori we will start with the results of the synthetic I/O test. Given that the various storage classes of the manufacturers also differ in terms of guaranteed IOPS values, initially we will not concern ourselves with this. A better means of comparison is the latency of the I/O operations undertaken because this is a more meaningful measure of the technical setup of the storage infrastructure. The following test uses this tool's default settings, only the parallelism parameter is successively increased from 1 to 8.

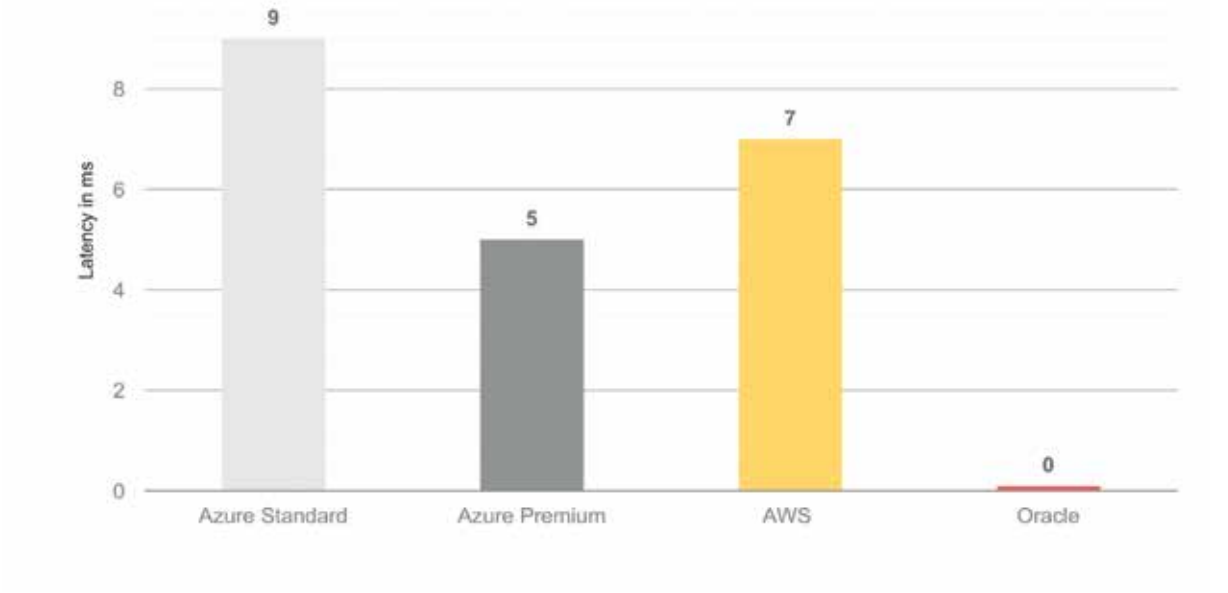


Fig. 2: Results of the synthetic I/O test

The synthetic I/O performance tests on the Oracle environment have been able to demonstrate an average response time of less than one millisecond.

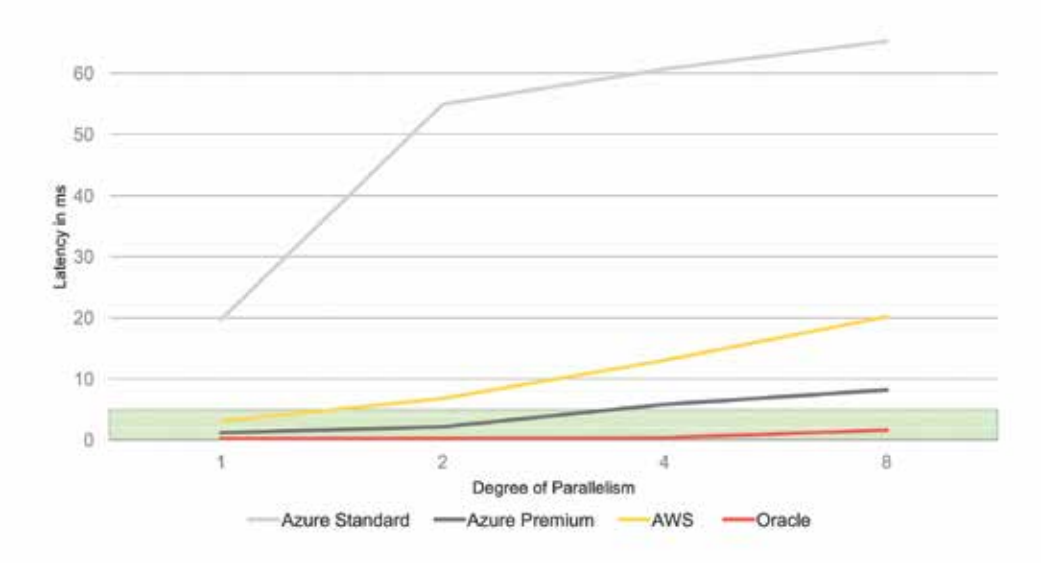


Fig. 3: Results of the I/O test replicating reality with SLOB

Now we will discuss the results of the SLOB benchmark. As previously described in the first part of this manuscript, this test was undertaken several times with various parallelism parameters. The graph below shows the results of the different environments in the various degrees of parallelism. The latency of one single block access was used as the KPI for evaluation.

Summary

Let us now sum up the situation.
The various manufacturers offer a huge range of products in the IaaS segment. In order to find the right environment for their requirements, users have to get to grips with the terminology and documentation associated with the solutions available. For example, the difference between the terms vCPU and OCPU is important.

In terms of CPU resource, the manufacturers don't differ a great deal with respect to price/performance ratio. In contrast, when considering the various storage solutions available, there are huge and far-reaching differences, which can even determine whether a solution will operate or not in the cloud.
The key to successful cloud migration lies in testing and evaluating the solutions.

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Best Manageability & Self-Management

Best Integration of Hardware & Software

... on Premise:

Best Performance & Scalability

Best Deployment Flexibility

Best Availability & Reliability

Best Support for DB Consolidation

Best Support for Very Large Databases

Best Database Security

Best Manageability & Self-Management

Best Integration of Hardware & Software

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