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**Whitepaper:** **Oracle Authorized Cloud Environments**  
Overview of Policy Changes

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An assessment of the main impact and updates to Oracle customers as a result of changes to the Cloud Policy document dated 23 January 2017

# Table of Contents

Executive Summary .....	2
Detailed Discussion .....	2
Policy Changes Compared to Previous Versions .....	3
Additional Policy Changes .....	3
Contractual Considerations .....	4
Existing AWS environments .....	5
Other Cloud Vendors .....	5
Conclusion .....	5



## Executive Summary

Within the last few days, Oracle have produced an updated version of their Oracle Licensing in the Cloud policy document (link [here](#)). This Version 1 briefing provides discussion on the impact of this change. Version 1 are independent Oracle licensing experts with over 15 years' experience.

Oracle's latest Cloud Policy changes, in effect, double the cost of licensing Oracle workloads in AWS EC2, RDS and Azure environments when compared to either Oracle Cloud or comparable on-premise hardware. Although the policy document is non-contractual, it should be borne in mind that dismissal of the entire document has considerations which should be fully understood.

## Detailed Discussion

Oracle's latest cloud policy document clarifies what should be counted by customers using either AWS or Azure – specifically:

Environment	Vendor metric	Quantity	Number of threads	Number of physical cores	Core factor	Oracle Processors
AWS	vCPU (old instance, no hyperthreading)	1 vCPU	1	1	N/A	1
AWS	vCPU (new instance)	2 vCPU	2	1	N/A	1
Azure	Azure CPU Core	1 core	1	1	N/A	1
Oracle Cloud	OCPU	1 OCPU	2	1	0.5	0.5
On-premises	Cores	1 core	2	1	0.5	0.5

The above table shows the specifications of units of processing power provisioned on Intel processors

The critical change to this policy document is the fact that Oracle have now stated that in 'Authorized Cloud Environments' (AWS EC2/RDS and Azure) that you can no longer apply a core factor and therefore, whereas 1 Processor license would previously cover 2 physical cores (with an Intel multi-core core factor of 0.5), there is now a 1:1 ratio between physical cores and Oracle Processor licenses.

You can see in the table above that the number of licenses required for any of these Authorized Cloud Environments is double that required for Oracle Cloud or deployment on-premises.

**This updated policy is therefore doubling license costs for licensing in AWS and Azure environments.**

## Policy Changes Compared to Previous Versions

The previous Licensing in the Cloud Policy document (available [here](#)) was in place since 2010 with little change and had particular ambiguities around the term 'virtual core', something which was often mistaken to mean vCPU. This became more problematic as newer AWS instances introduced hyperthreading but continued to use the number of logical cores as the basis on which instances were sized (a 2 vCPU non-hyperthreaded instance would have twice the number of physical cores as a newer 2 vCPU hyperthreaded instance). To this end, Amazon introduced a virtual core lookup table (link [here](#)) which clearly showed that where hyperthreading is in use, the number of vCPU is twice the number of virtual cores. Using this logic, and following Amazon's reference of a virtual core, customers should have licensed on the effective basis of the underlying number of physical cores. The problem with this lookup table, however, was that it was produced by AWS, not referenced by Oracle and did not explicitly reference its applicability to Oracle workloads.

In many cases, this subtlety was lost and many enterprises licensed by vCPU regardless; however, the impact to these customers was that in effect they were often licensing twice as many hyperthreads as there were physical cores and therefore doubling their licensing compared to on-premises-deployed hardware.

We observed disputes between Oracle and customers as to which metric should be used: logic stated that physical cores only should be of interest, however the lack of a consistent term on the policy document led to ambiguities.

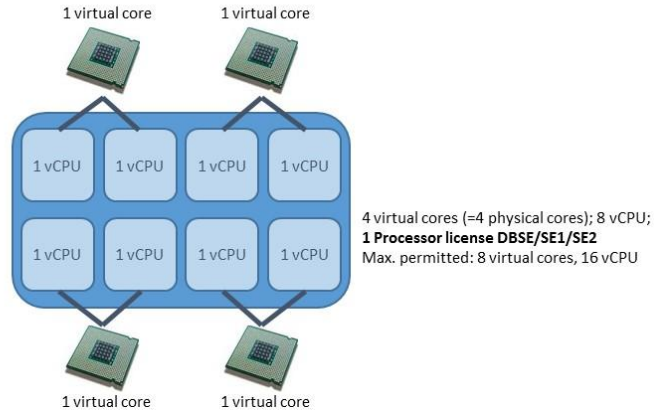
## Additional Policy Changes

Additional changes to the document include the following:

- This updated version of the policy applies to defined products only; i.e. the policy does not allow this recognised method of counting for the following products in these environments (this is not an exhaustive list)
  - Multitenant
  - Real Application Clusters / Real Application Clusters One Node
  - Active Data Guard
  - Database In-Memory
  - Secure Backup
- The above options are often viewed as 'flagship' and/or mission-critical database options
- Standard Edition / One / Two – up to 4 AWS vCPUs / 2 Azure Cores now counted as one occupied socket. Previous versions of the document referred to virtual cores (meaning physical cores. This is shown in the diagram below.

**Previous policy for DBSE/SE1/SE2**

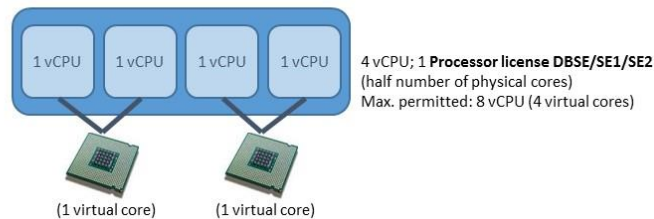
Based on AWS with Hyperthreading



Core 5

**Updated policy for DBSE/SE1/SE2**

Based on AWS with Hyperthreading



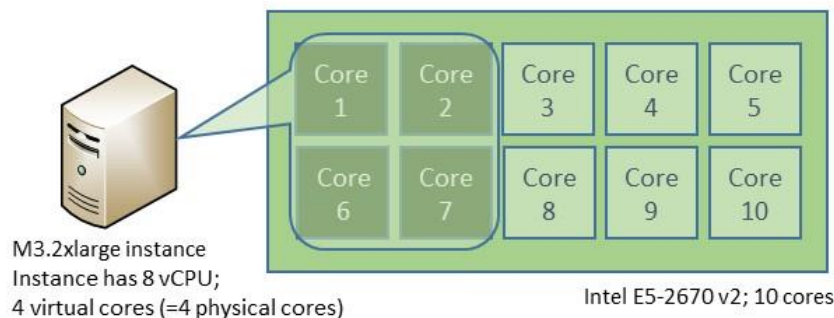
Core 10

**Contractual Considerations**

Needless to say there has been a large amount of online discussion already about this change since it was issued; many citing the fact that this document is non-contractual (this is stated on the footer of the document) and therefore doesn't create any change to the agreement between licensee and Oracle Corporation. In principle, this is correct, and indeed the core factor calculation and associated table is referenced from many contractual Processor definitions.

Unfortunately, there is a glitch with this approach: by disregarding the policy document, you will also be disregarding an overlooked, implicit hard partitioning policy which this (and previous versions of this) document allow. When AWS provision virtual CPUs for an AWS instance which you run, they are in fact providing a particular subset of physical cores on what can be much larger processors to that instance. This can be seen in the example instance shown in the following diagram:

**Example AWS instance**



This updated policy is permitting counting of only a subset of the physical processing cores available on that processor, regardless of the mechanism in use by AWS to achieve this.

Should you choose to disregard the whole document, due to its non-contractual nature, you should also consider the impact of disregarding the wider 'benefits' as well as implicit hard partitioning, you also are unable to know or count the number of processing cores in the wider server, cluster, data centre etc.

It could be argued that you disregard all such policy documents, such as the hard partitioning and disaster recovery policy documents (these are for reference only / non-contractual) as well, in which case you are left with the Processor definition only. A typical processor definition is below (Version 1's emphasis):

***Processor:*** shall be defined as all processors where the Oracle programs are installed and/or running. Programs licensed on a Processor basis may be accessed by your internal users (including agents and contractors) and by third party users. For the purposes of counting the number of processors which require licensing, a multicore chip with "n" processor cores shall be counted as "n" processors

Should you choose to base your licensing on this definition only it is important you seek expert licensing advice from Version 1 as well as appropriate legal advice.

## Existing AWS environments

Should you already have Oracle deployed in AWS and were using virtual core (not vCPU) as the basis for counting, it could be argued by Oracle that your license requirements have now doubled in line with this policy change. To that end, it is recommended that an old copy of the policy document is used and referenced for your existing environments and licenses. Consideration should be given to any future license purchases / environments you may deploy in AWS and how you approach these.

## Other Cloud Vendors

It is worth noting that Oracle's own cloud solution is not covered by this document but instead has separate arrangements via the contractually-referenced core factor table; two OCPU equates to two physical cores with 4 vCPU (i.e. hyperthreads) and requires 1 Processor license.

For all other cloud vendors, there is no such allowance either in a policy document or in the core factor table. In effect therefore, you must treat other cloud environments as you would do for on-premise deployment. This is a larger topic of conversation; it is worth ensuring that you engage with Version 1 if you are moving to or already in a different cloud environment.

## Conclusion

Unsurprisingly, Oracle have provided no reason for this change to the policy document. It seems unlikely that this change is due to a reflection in the amount of processing power available in AWS Intel processors compared to Oracle's equivalent offering or on-premises kit. The policy change has no mutually agreed implementation or effective date and so it is recommended that any customers affected by this change put in place their own policy to understand how Authorized Cloud Environments will be considered in the future. Version 1's independent Oracle licensing experts are ideally placed to provide advice, commentary, impact assessments and commercial advice as necessary to help customers understand these changes and plan for the future.

## About Version 1

Established in 1996, Version 1 is a trusted technology partner to major domestic and international customers across all industry sectors in Ireland and the UK. Version 1 has accumulated in-depth expertise in the all sectors and helps leading commercial retailers to deliver solutions which achieve competitive advantage in this highly competitive and constantly shifting market. Our 900 strong team, based in offices in the UK and Ireland, are focused on proving that IT can deliver real benefits to our customers' businesses. We provide independent Oracle licensing advice to enterprises globally.



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