

A White Paper

**Red Hat Linux vs Windows
Virtual Machine Price Matrix**

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Red Hat Linux vs Windows Virtual Machine Price Matrix

Before delving too deeply into a comparison of Cloud based Virtual Machine pricing, we'll want to start by grounding the matrix below with a few preconditions:

- We're going to price out the virtual machines based fundamentally on CPU and Memory configurations.
- As the hardware evolves (i.e. CPU, Memory, and Network), so does the physical makeup of the virtual machine sizes. The conclusions below are based on matching as closely as possible the VM configurations as of the time of this writing.
- The comparisons are based on four classes of VMs:
 - **Burstable:** provide a baseline level of CPU performance with the ability to burst to 100% of CPU for a period of time (i.e. smaller web server, small databases, and development / test environments).
 - **General Purpose:** provide a balance of CPU and memory for use by many applications
 - **Compute Optimized:** ideal for compute heavy workloads (i.e. batch processing or machine learning), these instances provide more vCPU relative to memory
 - **Memory Optimized:** ideal for memory intensive workloads (i.e. Business Intelligence, in-memory databases, real-time processing of unstructured big data), these instances provide more memory relative to vCPU
- For each class we provide a comparison at both a base (x) level and a twice base (2x) level, understanding full well that there are quite a few more virtual machine instance types. The goal here is to make sure we are working with enough data to draw accurate and valid conclusions.
- Reserved Instance pricing is calculated based on a 1 Year RI commitment.

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Red Hat Linux vs Windows Reserved Instance Pricing

Provider	Instance Type	vCPU	Mem (GIB)	Yearly Red Hat Linux	Yearly Windows	Windows Premium	Premium %
Burstable							
AWS	t2.micro	0.1	1	\$589	\$103	-\$485	-82%
GCP	f1-micro	0.2	0.6	\$572	\$222	-\$350	-61%
Msoft	B1S	0.1	1	\$585	\$94	-\$491	-84%
Burstable							
AWS	t2.small	0.2	2	\$652	\$207	-\$445	-68%
GCP	g1-small	0.5	1.7	\$691	\$341	-\$350	-51%
Msoft	B1MS	0.2	2	\$642	\$153	-\$489	-76%
General Purpose							
AWS	m5.large	2	8	\$1,060	\$1,340	\$280	26%
GCP	n1-standard-2	2	7.5	\$1,108	\$1,283	\$175	16%
Msoft	D2 v3	2	8	\$1,027	\$1,307	\$280	27%
General Purpose							
AWS	m5.xlarge	4	16	\$1,603	\$2,689	\$1,086	68%
GCP	n1-standard-4	4	15	\$1,691	\$2,567	\$876	52%
Msoft	D4 v3	4	16	\$1,529	\$2,615	\$1,086	71%
Compute Optimized							
AWS	c5.large	2	4	\$999	\$1,279	\$280	28%
GCP	n1-highcpu-2	2	1.8	\$960	\$1,136	\$175	18%
Msoft	F2 V2	2	4	\$964	\$1,244	\$280	29%
Compute Optimized							
AWS	c5.xlarge	4	8	\$1,472	\$2,558	\$1,086	74%
GCP	n1-high-cpu-4	4	3.6	\$1,395	\$2,271	\$876	63%
Msoft	F4 v2	4	8	\$1,402	\$2,488	\$1,086	78%
Memory Optimized							
AWS	r4.large	2	15.25	\$1,261	\$1,542	\$280	22%
GCP	n1-high-mem-2	2	13	\$1,252	\$1,427	\$175	14%
Msoft	E2 v3	2	16	\$1,211	\$1,491	\$280	23%
Memory Optimized							
AWS	r4.xlarge	4	30.5	\$1,997	\$3,084	\$1,086	54%
GCP	n1-high-mem-4	4	26	\$1,978	\$2,854	\$876	44%
Msoft	E4 v3	4	32	\$1,896	\$2,982	\$1,086	57%

Assessment of Reserved Instance Pricing

Conclusion

The **price differential** between Red Hat Linux and Windows is especially significant as the number of vCPUs increase.

We can make some generalizations:

Although Google has for the most part the most aggressive published discount pricing for Windows, there are wildcards that will most certainly affect the pricing:

- a. Does your organization already have a close working relationship and Enterprise Agreement with Microsoft? Microsoft can be compelling with its tightly integrated hybrid cloud technology and aggressive Windows licensing with Azure Hybrid Use Benefit.
- b. Do you need to pay month by month or all up-front? This may well be an important part of the equation, as AWS offers multiple purchasing options that not only affect the final price but provide companies the flexibility to pay all up-front, partial up-front, or monthly installments.
- c. Be smart about the quantity and type of RIs you are buying. Whatever you do not over-provision. Ultimately, it is about determining an appropriate commitment level, maximizing your discount, and not committing to resources you'll never use.
- d. The pricing differences can be mitigated if your organization is willing to go multi-cloud and then use it as an anvil to negotiate more favorable pricing.

About Heroix

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