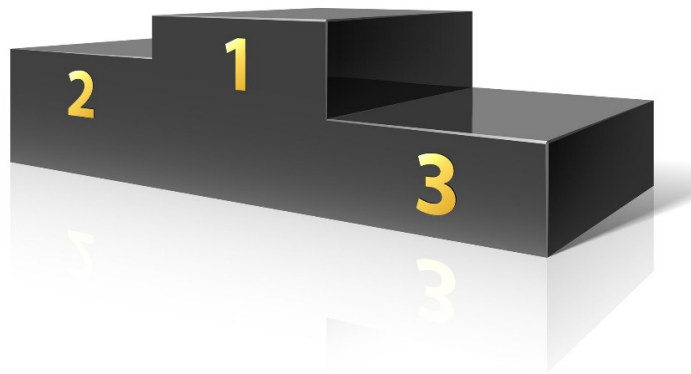


CLOUD BENCHMARK

JDN/CloudScreener/Cedexis U.S. Cloud Benchmark

March 2016

The JDN/CloudScreener/Cedexis U.S. Cloud Benchmark is based on a combination of three indexes: performance, price, and service level.



The JDN/CloudScreener/Cedexis U.S. Cloud Benchmark is based on three sub-rankings: the first is cloud price, the second is cloud performance, and the third is cloud service level. It was built based on data from the cloud monitoring services of CloudScreener (for VM performance, VM prices, and VM level of service) and of Cedexis (for network performance). The data was collected over a one-month period (March 2016).

General Ranking

General ranking		
Ranking	Cloud providers	Index
1	Google Compute Engine	85,28
2	Amazon Web Services	74,28
3	IBM SoftLayer	72,02
4	Microsoft Azure	62,90
5	Rackspace	62,19

The general index is the average of three indexes: the performance index, the price index, and the service level index (the full ranking methodology is available on the JDN/CloudScreener/Cedexis U.S. Cloud Benchmark website: <http://www.journaldunet.com/us-cloud-benchmark/>).

Google scored first place in the JDN/CloudScreener/Cedexis U.S. Cloud Benchmark General ranking. AWS and SoftLayer (very close to each other) complete the podium. Google ranked first in terms of price (due to an aggressive pricing policy), and third in both performance and level of service indexes.

Price Ranking

Price ranking				
Ranking	Index	Linux instance (large)	Windows instance (large)	Use case (cluster project)
1. Google Compute Engine	100,00	\$55	\$114	\$692
2. Amazon Web Services	60,17	\$93	\$185	\$789
3. IBM SoftLayer	59,33	\$116	\$133	\$900
4. Microsoft Azure	41,67	\$107	\$204	\$839
5. Rackspace	26,71	\$157	\$200	\$1 310

The price index is based on three standard configurations: 1 Windows virtual machine (large), 1 Linux virtual machine (large), and a small cluster of virtual machines (the full ranking methodology is available on the JDN/CloudScreener/Cedexis U.S. Cloud Benchmark website: <http://www.journaldunet.com/us-cloud-benchmark/>).

Google scored first place in terms of pricing as a result of its per-minute billing and automatic discounts with increased usage. AWS and SoftLayer are in second and third place of the price ranking. Overall, AWS offers lower prices than SoftLayer. But the Windows instance of SoftLayer is cheaper, and each instance includes free inbound and outbound bandwidth. Microsoft Azure and Rackspace ranked far behind (the Rackspace cloud server includes Manage Services).

Performance Ranking

Performance ranking							
Ranking	Index	Network	Network	Disks	Disks	CPU	RAM
		Response time (ms)*	Availability (%)*	IOPS**	Bandwidth (KB/sec)**	Events /sec**	Transfer speed (MB/sec)**
1. Rackspace	86,52	65	98,74%	2 767	153 409	312	1957
2. IBM Softlayer	83,53	74	98,81%	13 343	348 518	116	1104
3. Google Compute Engine	76,47	62	98,82%	1 500	122 879	115	1176
4. Amazon Web Services	71,83	81	98,70%	2 493	34 643	105	1681
5. Microsoft Azure	56,20	74	98,78%	491	60 595	139	734
Reference		60	99,30%	2 000	200 000	120	1 700

* median

** average

The cloud providers' performances (network and virtual machine) are assessed relative to a reference benchmark value that is considered state of the art by JDN, CloudScreener, and Cedexis (the full ranking methodology is available on the JDN/CloudScreener/Cedexis U.S. Cloud Benchmark website: <http://www.journaldunet.com/us-cloud-benchmark/>).

The level of performance varies considerably for the same cloud provider depending on the data center locations (West coast or East Coast).

Service level Ranking

Service level ranking		
Ranking	Ranking	Index
1	Amazon Web Services	90,83
2	Microsoft Azure	90,83
3	Google Compute Engine	79,38
4	Rackspace	73,33
5	IBM Softlayer	73,21

The service level index is based on a group of qualitative criterion: the geographical coverage (presence in the U.S. and outside of the U.S.), the number of certifications, the SLA, and the range of VM (the full ranking methodology is available on the JDN/CloudScreener/Cedexis U.S. Cloud Benchmark website: <http://www.journaldunet.com/us-cloud-benchmark/>).

Service level ranking criterion						
Criteria	Criteria	AWS	Google	Microsoft	Rackspace	IBM Softlayer
Data centers	2 data centers in the US	✓	✓	✓	✓	✓
	Data center(s) in South America	✓		✓		✓
	Data center(s) in Europe	✓	✓	✓	✓	✓
	Data center(s) in Asia	✓	✓	✓	✓	✓
Certifications	SOC1	✓	✓	✓		✓
	SOC2	✓	✓	✓	✓	✓
	PCI DSS	✓	✓	✓	✓	✓
	ISO 27001	✓	✓	✓	✓	✓
	ISO 27018	✓		✓		✓
	Cloud Security Alliance					
Announced SLA	SLA	99,95%	99,95%	99,95%	99,90%	99,73%
vCPU	max vCPU per instance	40	32	32	32	16
RAM	max RAM per instance (GB)	262	208	448	240	64

About Us:

The JDN/CloudScreener/Cedexis U.S. Cloud Benchmark is published by the JDN in partnership with CloudScreener and Cedexis.

JDN (Journal du Net) is a French news website which specializes in IT and economics. It belongs to Le Figaro Group, —the first web media group in Europe— which receives 23.5 million readers per month.

CloudScreener as a Cloud Decision Engine, allows companies from all around the world to make data-driven decisions to improve their performances and reduce their cloud costs.

Cedexis optimizes the cloud in terms of network performance for companies that want to ensure 100% availability and extend their reach to new global markets.

