

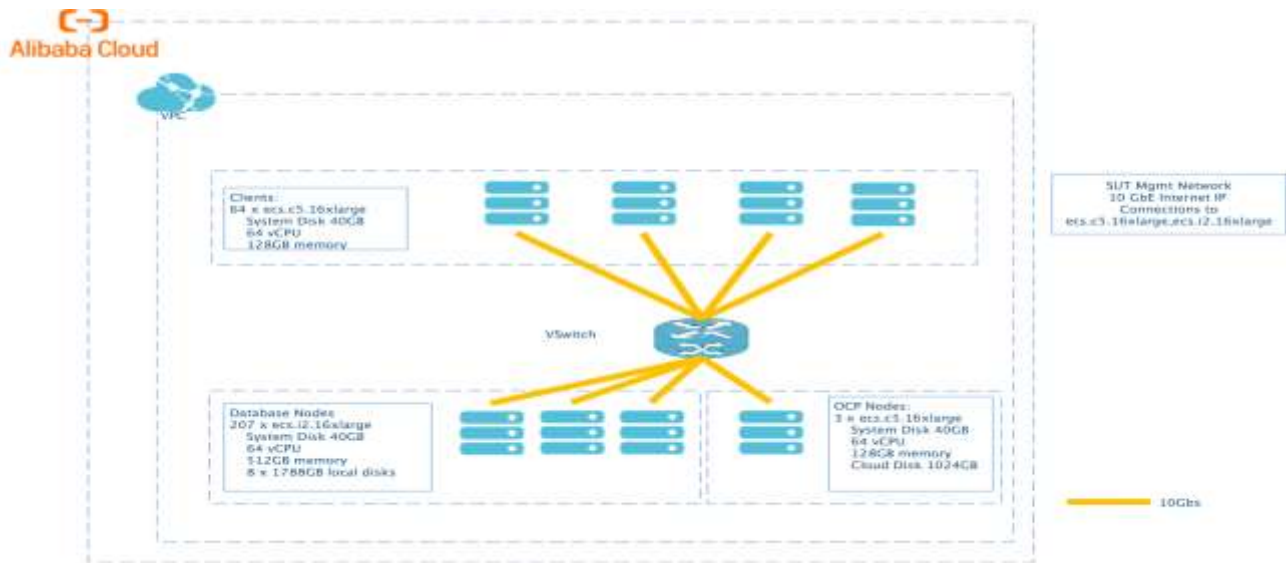


Alibaba Cloud Elastic Compute Service Cluster (with 204 OceanBase Data Nodes)

TPC-C 5.11.0
TPC-Pricing 2.4.0

Report Date
October 2, 2019

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date	
CNY380,452,842	60,880,800 tpmC	CNY6.25/tpmC	October 2, 2019	
Database Server Processors/Cores/Threads	Database Manager	Operating System	Other Software	Number of Users
Intel Xeon Platinum 8163(Skylake) 2.5GHz 13,248 vCPU	OceanBase v2.2 Enterprise Edition with Partitioning, Horizontal Scalability and Advanced Compression	Aliyun Linux 2	Nginx 1.15.8	47,942,400



System Component	207 x Database Nodes (each with)		3 x OCP Nodes (each with)		64 x Clients (each with)		Total
Proc./Core/Thread (Virtual CPU)	2/32/64 (64 vCPU)	Intel Xeon Platinum 8163 (2.5GHz, 33MB)	2/32/64 (64 vCPU)	Intel Xeon Platinum 8163 (2.5GHz, 33MB)	2/32/64 (64 vCPU)	Intel Xeon Platinum 8163 (2.5GHz, 33MB)	548/8,768/17,536 (17,536 vCPU)
Memory		512GB		128GB		128GB	114,560GB
OS Disk	1	40GB Ultra Cloud Disk	1	40GB Ultra Cloud Disk	1	40GB Ultra Cloud Disk	
Local Disk	8	1,788GB NVMe SSD					
Cloud Disk			1	1,024GB Cloud SSD			
Total Storage		2,969,208GB		3,192GB		2,560GB	2,974,960GB



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Description	Part Number	Src	Unit Price (CNY)	Qty	Ext. Price (CNY)	3-Y Maintenance (CNY)
Licensed Compute Services						
<u>Virtual cloud server</u>						
ECS Instance ecs.i2.16xlarge (3-year price) - NVMe SSD Local Disk (8 x 1788 GB) - vCPU (64) - Memory (512GB)	ecs.i2.16xlarge (East China 2)	2	287,343.00	207	59,480,001.00	
ECS System Disk (Ultra Cloud Disk 40GB)	Included	2	0.00	207	0.00	
Aliyun Linux 2	Included	2	0.00	207	0.00	
<u>Virtual cloud server</u>						
ECS Instance ecs.c5.16xlarge (3-year price) - vCPU (64) - Memory (128GB)	ecs.c5.16xlarge (East China 2)	2	114,370.20	64	7,319,692.80	
ECS System Disk (Ultra Cloud Disk 40GB)	Included	2	0.00	64	0.00	
Aliyun Linux 2	Included	2	0.00	64	0.00	
<u>Virtual cloud server</u>						
ECS Instance ecs.c5.16xlarge (3-year price) - vCPU (64) - Memory (128GB)	ecs.c5.16xlarge (East China 2)	2	132,802.20	3	398,406.60	
ECS System Disk (Ultra Cloud Disk 40GB)	Included	2	0.00	3	0.00	
ECS Cloud Disk (Standard SSD 1024GB)	Included	2	0.00	3	0.00	
Aliyun Linux 2	Included	2	0.00	3	0.00	
				Sub-Total	67,198,100.40	
Licensed Software Services						
OceanBase v2.2 Enterprise Edition, per vCPU for 3 years		1	16,500.00	13,440	221,760,000.00	
OceanBase v2.2 Partitioning, per vCPU for 3 years		1	3437.50	13,440	46,200,000.00	
OceanBase v2.2 Horizontal Scalability, per vCPU for 3 years		1	3437.50	13,440	46,200,000.00	
OceanBase v2.2 Advanced Compression, per vCPU for 3 years		1	3437.50	13,440	46,200,000.00	
OceanBase v2.2 Support Service (Partitioning, Horizontal Scalability and Advanced Compression and included), per vCPU for 3 years		1	29,250.00	13,440		393,120,000.00
				Sub-Total	360,360,000.00	393,120,000.00
Other Components						
Lenovo ThinkPad X1 Carbon 2019 14" Laptop (includes 2 spares)	20QDA009CD	3	16,999.00	3	50,997.00	
				Sub-Total	50,997.00	

Other Services								
Alibaba Cloud Enterprise Support Service for 3 years 7*24*4hours - ECS support included - Aliyun Linux 2 support included	2	300,000.00	3	900,000.00				
OpenResty Professional Edition Support Service for 3 years 7*24*4hrs - Nginx support included	4	6,600.00	192	1,267,200.00				
			Sub-Total	0.00				
				2,167,200.00				
Discounts*								
OceanBase v2.2 Enterprise Edition Discount	1	-9,688.80	13,440	-130,217,472.00				
OceanBase v2.2 Partition Discount	1	-2,018.50	13,440	-27,128,640.00				
OceanBase v2.2 Horizontal Discount	1	-2,018.50	13,440	-27,128,640.00				
OceanBase v2.2 Advanced Compression Discount	1	-2,018.50	13,440	-27,128,640.00				
OceanBase v2.2 Support Service (Partitioning, Horizontal Scalability and Advanced Compression included) Discount	1	-17,175.60	13,440	-230,840,064.00				
			Sub-Total	-211,603,392.00				
				-230,840,064.00				
			Total	216,005,705.40				
				164,447,136.00				
			3-Y Cost of Ownership (CNY):	380,452,842				
			tpmC	60,880,800				
			CNY/tpmC	6.25				
<table border="1"> <tr> <td>1 Ant Financial</td> </tr> <tr> <td>2 Alibaba Cloud</td> </tr> <tr> <td>3 thinkpad.lenovo.com.cn</td> </tr> <tr> <td>4 OpenResty Inc.</td> </tr> </table>					1 Ant Financial	2 Alibaba Cloud	3 thinkpad.lenovo.com.cn	4 OpenResty Inc.
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Audited by Francois Raab and Doug Johnson of InfoSizing								
<p>Prices used in TPC Benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing policies for the listed components. For complete details, see the pricing section of the TPC benchmark specifications. If you find that stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.</p>								



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Numerical Quantities Summary:

MQTh (Maximum Qualified Throughput)

60,880,800 tpmC

Response Time (sec.)	Min	Average	90 th	Max
New-Order	0.103	0.114	0.123	5.754
Payment	0.103	0.112	0.121	5.761
Order-Status	0.102	0.106	0.11	5.793
Delivery (Interactive)	0.101	0.101	0.103	3.926
Delivery (Deferred)	0.006	0.019	0.024	2.483
Stock-Level	0.102	0.109	0.115	5.312
Menu	0.101	0.101	0.103	20.547

Emulated Display Delay: 0.1 sec.

Transaction Mix	Percent	Number
New-Order	44.960%	29,222,784,280
Payment	43.010%	27,955,489,832
Order-Status	4.010%	2,606,386,247
Delivery	4.010%	2,606,365,527
Stock-Level	4.010%	2,606,426,679

Keying Times (sec.)	Min	Average	Max
New-Order	18.002	18.025	22.435
Payment	3.002	3.025	7.465
Order-Status	2.002	2.024	6.447
Delivery	2.002	2.024	6.441
Stock-Level	2.002	2.024	6.451

Think Times (sec.)	Min	Average	Max
New-Order	0.002	12.024	123.886
Payment	0.002	12.024	124.165
Order-Status	0.002	10.024	101.219
Delivery	0.002	5.024	51.263
Stock-Level	0.002	5.024	51.617

Test Duration

Ramp-up Time	35 min.
Measurement Interval (MI)	480 min.
Checkpoints in MI per Node (Min/Avg/Max)	26/26.6/28
Maximum Checkpoint Interval (All Nodes)	19:17
Number of transactions (all types) completed in Measurement Interval	64,997,452,565