

# CS553 Project Report on:

## Understanding the Cost of Computing in the Cloud

### Project Members:

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**Note:** - I have considered Double Precision value while calculating GFlops/TFlops for configurations 1 & 2.

### Configuration 1

**Public Cloud: Computing cost/hr for different combinations of instance & storage utilizations.**

Config. No	Instance Count	Util.	Inst.	Stor. Util(PB)	Stor.	Stor.	Inst.	Total Cost / hour	Cost/hr/Gflop In \$(USD)
		Gflops	Util		Util(%)	Cost/hr in \$(USD)	Cost/hr In \$(USD)	In \$(USD)	(Stor+Inst)
1	1050	13.824	1%	10	10%	291.67	57.96	349.63	25.29152199
2	1050	69.12	5%	15	15%	437.5	289.8	727.3	10.52228009
3	1050	345.6	25%	25	25%	729.17	1449	2178.17	6.302575231
4	1050	691.2	50%	25	25%	729.17	2898	3627.17	5.247641782
5	1050	1036.8	75%	25	25%	729.17	4347	5076.17	4.895997299
6	1050	1382.4	100%	25	25%	729.17	5796	6525.17	4.720175058
7	1050	345.6	25%	50	50%	1458.34	1449	2907.34	8.41244213
8	1050	691.2	50%	50	50%	1458.34	2898	4356.34	6.302575231
9	1050	1036.8	75%	50	50%	1458.34	4347	5805.34	5.599286265
10	1050	1382.4	100%	50	50%	1458.34	5796	7254.34	5.247641782
11	1050	345.6	25%	75	75%	2187.51	1449	3636.51	10.52230903

12	1050	691.2	50%	75	75%	2187.51	2898	5085.51	7.357508681
13	1050	1036.8	75%	75	75%	2187.51	4347	6534.51	6.302575231
14	1050	1382.4	100%	75	75%	2187.51	5796	7983.51	5.775108507
15	1050	345.6	25%	100	100%	2916.68	1449	4365.68	12.63217593
16	1050	691.2	50%	100	100%	2916.68	2898	5814.68	8.41244213
17	1050	1036.8	75%	100	100%	2916.68	4347	7263.68	7.005864198
18	1050	1382.4	100%	100	100%	2916.68	5796	8712.68	6.302575231

**Total cost of 5 years 24/7 utilization: \$381615384**

## Private Cloud

### Hardware and other factors:

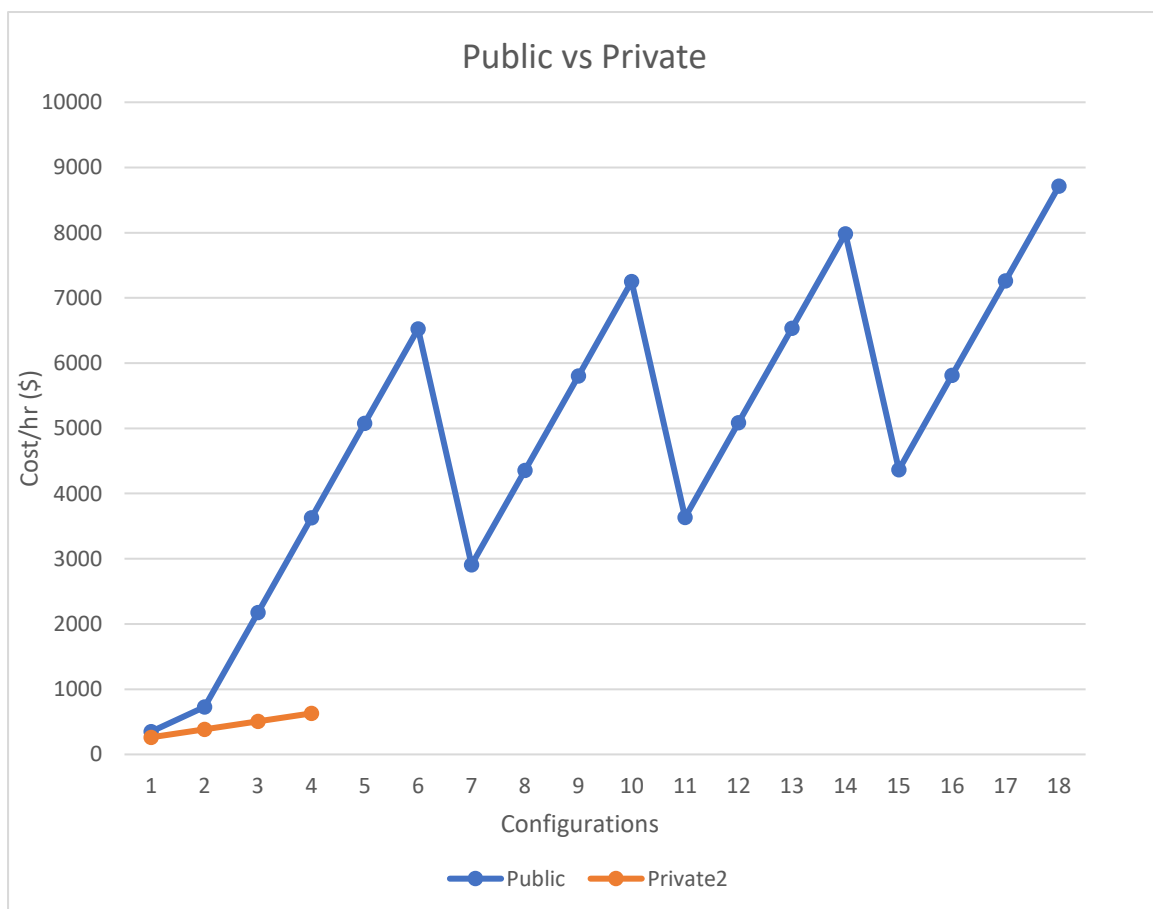
	Description	Price Per Item (\$)	Quantity	Total (\$)
CPU	Intel Xeon e5-2676 v3 @ 2.40ghz	5400	1051	5675400
Memory	DELL 64GB DDR4 PC4-19200 2400MHz ECC REGISTERED RDIMM for Dell PowerEdge T630 Server	798	4200	3351600
Disk	Seagate Enterprise Capacity 3.5" HDD 8TB 7200 RPM 512e SAS 12Gb/s Internal Hard Drive	289	6300	1820700
Motherboard	ASUS Z10PE-D16 SSI EEB Server Motherboard Dual LGA 2011 R3	490	1051	514500

Network Switches	Mellanox Switch IB-2™ InfiniBand EDR 100Gb/s Switches	11480.4	32	367372.8
Network Adaptor	Mellanox ConnectX-4 VPI MCX455A-ECAT - Network adapter - PCIe 3.0 x16 - InfiniBand, 100 Gigabit Ethernet	640.99	32	20511.68
Network Cables	Belkin A3L791-14-BLU 14 ft. Cat 5E Blue Network Cable	8	1086	8688
Racks	iStarUSA WD-1045 10U 450mm Depth Simple Server Rack	228	105	23940
Storage Servers	HGST 4U 60 Bay JBOD with 60 * 12TB Helium SAS SSD	44250	139	6150750
Administration	one admin/1000 instances	110000	2	1100000
Electric Power	5year cost 24hr processing. power consumed/cpu: 120 watts/hr Chicago Avg rate: 7.14 cents/kWh			1182127
Cooling	Power Required for 5 years and 24 hrs a day. Illinois charges 7.14 Cents/ 1 kilo-watt			1181099
Total	N/A	N/A	N/A	<b>21396688.48</b>

### Private Cloud: Computing cost/hr for different combinations of utilizations.

Config. No	Instance Count	Util. (32 IPC)	Inst.	Stor. Util(PB)	Stor.	Stor.	Inst.	Total	Cost/hr/Gflop
		Gflops	Util(%)		Util(%)	Cost/hr In \$(USD)	Cost/hr In \$(USD)	Cost/hr In \$(USD)	(Stor+Inst) In \$(USD)
1	1051	345.6	25%	100	100%	140.43	122.1272174	262.557217	0.759714171
2	1051	691.2	50%	100	100%	140.43	244.2544347	384.684435	0.556545768
3	1051	1036.8	75%	100	100%	140.43	366.3816521	506.811652	0.488822967
4	1051	1382.4	100%	100	100%	140.43	488.5088694	628.938869	0.454961566

### Public Vs Private Break-Even Graph:



Above graph represents the break-even between the public and the private clouds in term of different configurations and their respective cost/hr. For public cloud, there are 16 configurations which comprises of combinations of different instance (1%, 5%, 25%, 50%, 75%, 100%) and storage (10%, 15%, 25%, 50%, 75%, 100%) utilizations, while for private cloud there are 4 configurations which comprises of different utilizations (25%, 50%, 75, 100%).

The public cloud has a cost/hr of \$727.3 for 5% instance utilisation and 15% storage utilisation, while the private cloud has a cost.hr of \$628.94 for 100% utilisation. So, if we are using a public cloud for 5 years with more than 5% instance utilisation and 15% storage utilisation that it will cost more than private cloud providing 100% utilisation. Hence, this is the break-even point.

## Configuration 2

**Public Cloud: Computing cost/hr for different combinations of instance & storage utilizations.**

Config . No	Instance. Count	Util.	Inst.	Stor. Util(P B)	Stor.	Stor.	Inst.	Total cost/hr	Cost/hr/Gflop
		Gflops	Util		Util	Cost/hr In \$(USD)	Cost/hr In \$(USD)	In \$(USD)	(Stor+Inst) In \$(USD)
1	10,00,000	5	5%	2.5	25%	72.917	8300	8372.917	1674.5834
2	10,00,000	10	25%	2.5	25%	72.917	41500	41572.917	16607.2917
3	10,00,000	20	50%	2.5	25%	72.917	83000	83072.917	8303.64585
4	10,00,000	30	75%	2.5	25%	72.917	124500	124572.917	5535.7639
5	10,00,000	40	100%	2.5	25%	72.917	166000	166072.917	4151.8229
6	10,00,000	10	25%	5	50%	145.834	41500	41645.834	16614.5834
7	10,00,000	20	50%	5	50%	145.834	83000	83145.834	8307.29
8	10,00,000	30	75%	5	50%	145.834	124500	124645.834	5538.19447
9	10,00,000	40	100%	5	50%	145.834	166000	166145.834	4153.6459
10	10,00,000	10	25%	7.5	75%	218.751	41500	41718.751	16621.8751
11	10,00,000	20	50%	7.5	75%	218.751	83000	83218.751	8310.9376

12	10,00,000	30	75%	7.5	75%	218.751	124500	124718.751	5533.34
13	10,00,000	40	100%	7.5	75%	218.751	166000	166218.751	4155.4688
14	10,00,000	10	25%	10	100%	291.668	41500	41791.668	16629.1668
15	10,00,000	20	50%	10	100%	291.668	83000	83291.668	8314.5834
16	10,00,000	30	75%	10	100%	291.668	124500	124791.668	5543.0556
17	10,00,000	40	100%	10	100%	291.668	166000	166291.668	4157.2917

**Total cost of 5 years 24/7 utilization: \$ 7283575058.4**

## Private Cloud

### Hardware and other factors:

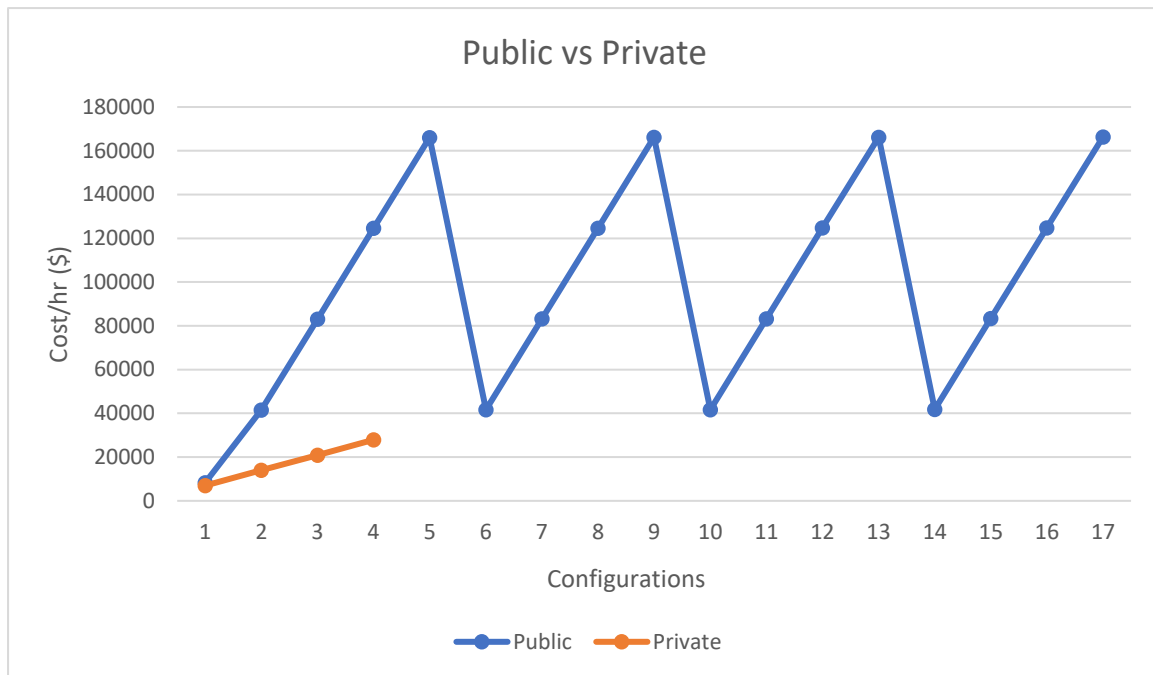
	Description	Price Per Item In \$(USD)	Quantity	Total In \$(USD)
Compute Servers	Intel Xeon E5502 Nehalem 1.86 GHz LGA 1366 80W BX80602E5502 Server Processor	75.99	1000000	75990000
Instance Memory	Samsung DDR4 2133MHz CL15 16GB RegECC 2Rx4 M393A2G40EB1-CPB 1.2V single pack	189.99	1000000	18990000
Chasis	iStarUSA D-118V2-ITX Black Metal / Aluminum 1U Rackmount Compact Server Chassis  Extended Holiday Return Policy	38.68	1000000	38680000
Network Switches	Dell PowerConnect 5548 48 Port	399.99	21741	8696182.59

	Gigabit Ethernet Switch GDTPK			
Network Cables	Belkin A3L791-14-BLU 14 ft. Cat 5E Blue Network Cable	5.99	1000024	5990143.76
Racks	iStarUSA WD-1045 10U 450mm Depth Simple Server Rack	228.99	2 in each rack hdd and 10 cpu in each rack 100000 + 9	22901060.91
Storage Servers	HGST 4U 60 Bay JBOD with 60 x 10TB Helium SAS HDD (Kepler)	38,942.98	17	662030.66
Administration	One admin/1000 Instances	110000	1000	550000000
Electric Power	7.14 cents/kWh	7.14 cents/kWh	850watts/hr	250185600
Cooling	Thermaltake CLP0587 140mm CPU Cooler	71.32	1000000	249967939
Total	N/A	N/A	N/A	<b>1222062956</b>

**Private Cloud: Computing cost/hr for different combinations of utilizations.**

Config. No	Instance Count	Util.	Inst.	Storage Util %	Storage Util (PB)	Storage	Inst.	Total cost/hr	Cost/hr/Gflop
		Gflops	Util			Cost/hr In \$(USD)	Cost/hr In \$(USD)	In \$(USD)	(Instr) In \$(USD)
1	10,00,000	10	25%	100%	10	15.1148	6975.2451	6990.36	699.035
2	10,00,000	20	50%	100%	10	15.1148	13950.49	13965.60	698.280
3	10,00,000	30	75%	100%	10	15.1148	20925.735	20940.850	698.028
4	10,00,000	40	100%	100%	10	15.1148	27900.98	27916.095	697.902

### Public Vs Private Break-Even Graph:



Above graph represents the break-even between the public and the private clouds in term of different configurations and their respective cost/hr. For public cloud, there are 16 configurations which comprises of combinations of different instance (5%, 25%, 50%, 75%, 100%) and storage (25%, 50%, 75%, 100%) utilizations, while for private cloud there are 4 configurations which comprises of different utilizations (25%, 50%, 75%, 100%).

The public cloud has a cost/hr of \$41572.917, \$41645.834, \$41718.751, \$41791.668 for 25% instance utilisation and 25% storage utilisation, while the private cloud has a cost.hr of \$27916.095 for 100% utilisation. So, if we are using a public cloud for 5 years with more than 5% instance utilisation and 25% storage utilisation that it will cost more than private cloud providing 100% utilisation. Hence, this is the break-even point.



## Configuration 3

**Public Cloud: Computing cost/hr for different combinations of instance & storage utilizations.**

Config . No	Instance. Count	Util.	Inst.	Stor. Util(TB )	Stor.	Stor.	Inst.	Total cost/hr	Cost/hr/Tflop
		Tflops	Util		Util	Cost/hr In\$(USD )	Cost/hr In\$(USD )	In \$(USD)	(Stor+Inst) In \$(USD)
1	1000	250	25%	250	25%	7.29	6120	6127.29	100.83668
2	1000	500	50%	250	25%	7.29	12240	12247.29	50.41834
3	1000	750	75%	250	25%	7.29	18360	18367.29	33.6122
4	1000	1000	100%	250	25%	7.29	24480	24487.29	25.2092
5	1000	250	25%	500	50%	14.59	6120	6134.59	103.7534
6	1000	500	50%	500	50%	14.59	12240	12254.59	51.8767
7	1000	750	75%	500	50%	14.59	18360	18374.59	34.5845
8	1000	1000	100%	500	50%	14.59	24480	24494.59	25.9383
9	1000	250	25%	750	75%	21.88	6120	6141.88	106.67
10	1000	500	50%	750	75%	21.88	12240	12261.88	53.335
11	1000	750	75%	750	75%	21.88	18360	18381.88	35.5567
12	1000	1000	100%	750	75%	21.88	24480	24501.88	26.6675
13	1000	250	25%	1000	100%	29.17	6120	6149.17	109.5867
14	1000	500	50%	1000	100%	29.17	12240	12269.17	54.7934
15	1000	750	75%	1000	100%	29.17	18360	18389.17	36.5289
16	1000	1000	100%	1000	100%	29.17	24480	24509.17	27.3967

**Total cost of 5 years 24/7 utilization: \$1073501646**

## Private Cloud

### Hardware and other factors:

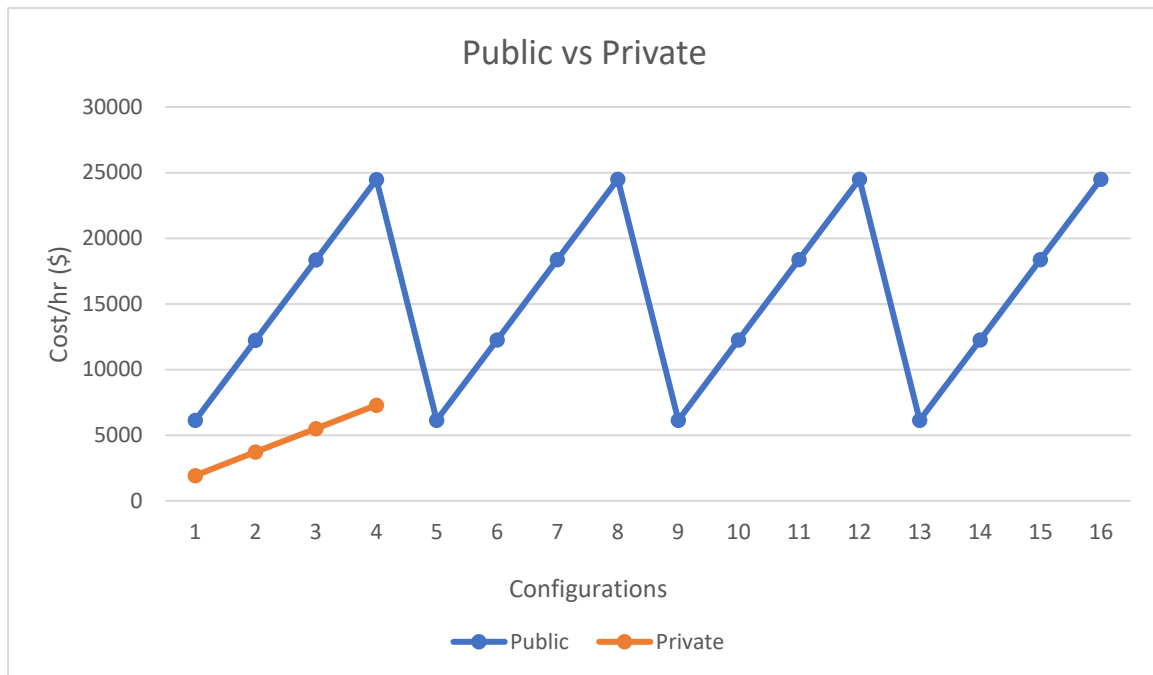
	Description	Price Per Item (\$)	Quantity	Total (\$)
DGX Box	NVIDIA DGX-1 Tesla V100	149000	1042	155258000
Network Switches	Mellanox Switch IB-2™ InfiniBand EDR 100Gb/s Switches	11480.4	31	355892
Network Adaptor	Mellanox ConnectX-4 VPI MCX455A-ECAT - Network adapter - PCIe 3.0 x16 - InfiniBand, 100 Gigabit Ethernet	640.99	31	19870.69
Network Cables	Belkin A3L791-14-BLU 14 ft. Cat 5E Blue Network Cable	8	1078	8624
Racks	iStarUSA WD-1045 10U 450mm Depth Simple Server Rack	228	205	46740
Storage Servers	HGST 4U 60 Bay JBOD with 60 * 6TB SAS HDD	26,099.56	3	78298.68
Administration	one admin/1000 instances	110000	2	1100000
Electric Power	5year cost 24hr processing. power consumed/box: 3200 watts/hr Chicago Avg rate: 7.14 cents/kWh			10427735.81

Cooling	Power Required for 5 years and 24 hrs a day. Illinois charges 7.14 Cents/ 1 killo-watt			145919659
Total	N/A	N/A	N/A	<b>313214820.2</b>

**Private Cloud: Computing cost/hr for different combinations of utilizations.**

Confi g. No	Instance . Count	Util. (32 IPC)	Inst.	Stor. Util(T B)	Stor.	Stor.	Inst.	Total cost/hr	Cost/hr/Gf lop
		Tflo ps	Util( %)		Util( %)	Cost/hr In \$(USD)	Cost/hr In \$(USD)	In \$(USD)	(Stor+Inst) In \$(USD)
1	1042	250	25%	1000	100%	140.43	1787.7558 23	1928.185 82	7.7127432 92
2	1042	500	50%	1000	100%	140.43	3575.5116 46	3715.941 65	7.4318832 92
3	1042	750	75%	1000	100%	140.43	5363.2674 69	5503.697 47	7.3382632 92
4	1042	1000	100%	1000	100%	140.43	7151.0232 92	7291.453 29	7.2914532 92

### Public Vs Private Break-Even Graph:



Above graph represents the break-even between the public and the private clouds in term of different configurations and their respective cost/hr. For public cloud, there are 16 configurations which comprises of combinations of different instance (25%, 50%, 75%, 100%) and storage (25%, 50%, 75%, 100%) utilizations, while for private cloud there are 4 configurations which comprises of different utilizations (25%, 50%, 75%, 100%).

The public cloud has a cost/hr of \$6127.29, \$6134.59, \$6141.88, \$6149.17 for 25% instance utilisation, while the private cloud has a cost.hr of \$7291.45for 100% utilisation. So, if we are using a public cloud for 5 years with more than 25% instance utilisation then it will cost more than private cloud providing 100% utilisation. Hence, this is the break-even point.

## Summary Table:

	Configuration 1	Configuration 2	Configuration 3
<b>Public Cloud (including EC2 and S3) Cost over 5 years, 24/7 operation, with 100% usage</b>	\$381,615,384	\$7,283,575,058	\$1,073,501,646
<b>Private Cloud cost over 5 years, 24/7 operation, with 100% usage</b>	<b>\$21396688.48</b>	<b>\$6036498917</b>	<b>\$313214820.2</b>
<b>What utilization must be achieved with the private cloud to make the private cloud option more attractive than the public cloud?</b>	The public cloud has a cost/hr of \$727.3 for 5% instance utilisation and 15% storage utilisation, while the private cloud achieves 100% instance utilisation at \$628.94 cost/hr which makes the private cloud option more attractive than public cloud.	The public cloud has a cost/hr of \$41572.917, \$41645.834, \$41718.751, \$41791.668 for 25% instance utilisation and 25% storage utilisation, while the private cloud achieves 100% instance utilisation at \$137834.725 cost/hr which makes the private cloud option more attractive than public cloud.	The public cloud has a cost/hr of \$6127.29, \$6134.59, \$6141.88, \$6149.17 for 25% instance utilisation and 25% storage utilisation, while the private cloud achieves 100% instance utilisation at \$7291.45 cost/hr which makes the private cloud option more attractive than public cloud.

## **Conclusion:**

Through this project experiment, we came across various challenges while designing the cloud infrastructure, starting from choosing the CPU to the various cost of different components.

Through the analysis of designing private cloud as compared to AWS public cloud, we conclude that when the utilization of cloud service is low, it is cheaper to rent a public cloud, but when the cloud service utilization increases, the cost of owning a cloud will get amortized such that its better to own a cloud than to rent a public one.

Also, we know that cost is considered as one of the driving factor to decide between public and private cloud, as we know that for startup companies, cost is a major criterion. As we compared the cost for public and private cloud for different configurations, we analysed that 5-year amortization cost for private cloud was quite low as compared to the public cloud. Therefore, considering for a 5-year amortization cost, it is better for a startup company to opt for a private cloud.

# Screenshots of Shopping Cart for Hardware

The image displays two screenshots of the Newegg shopping cart interface, showing different hardware items. Both screenshots include a sidebar with 'SHOPPING SATISFACTION', 'PRIVACY PROTECTED', and 'SECURITY SAFEGUARDS' sections. The top screenshot shows a Dell server with a price of \$798.00, and the bottom screenshot shows an ASUS motherboard with a price of \$490.99. Both carts show shipping options and a subtotal.

**Shopping Cart 1: Dell Server**

1 Item(s) in your shopping cart: \$798.00

Select All Remove Selected Move Selected to Wish List Update Qty's

**Newegg Marketplace Direct Delivery Service** Important Shipping Information

**DELL 64GB DDR4 PC4-19200 2400MHz ECC REGISTERED RDIMM for Dell PowerEdge T630 Server** 1 IN STOCK ~~\$1,295.00~~ **\$798.00** Save: 38.38% **REMIER** JOIN TODAY

Sold by NEMIX RAM

Subtotal: \$798.00 Shipping: \$0.00

**Shipping Options**

Please enter your Zip Code so we can show you the most relevant shipping options for your location.

Zip/Postal Code: [ ] Update

Choose a delivery method

- ☒ Standard Shipping (5-7 business days)
- ☐ Expedited Shipping (3-5 business days)
- ☐ Two-Day Shipping (2 business days)
- ☐ Next Day Shipping (One business day)

**Shopping Cart 2: ASUS Motherboard**

Select All Remove Selected Move Selected to Wish List Update Qty's

**Newegg Standard Shipping Service** Important Shipping Information

**ASUS Z10PE-D16 SSI EEB Server Motherboard Dual LGA 2011 R3** 1 IN STOCK ~~\$599.99~~ **\$490.99** **REMIER** JOIN TODAY

Extended Holiday Return Policy

**SquareTrade Protection Plan**

- ☐ 3 year: \$59.99
- ☐ 4 year: \$84.99

Subtotal: \$490.99 Shipping: \$0.00

**Shipping Options**

Please enter your Zip Code so we can show you the most relevant shipping options for your location.

Zip/Postal Code: [ ] Update

Choose a delivery method

- ☐ APO/FPO-Military ONLY
- ☐ Newegg Economy (2-3 Bus. Days)
- ☒ Super Eggsaver (4-7 Business Days)
- ☐ Newegg 3 Business Days
- ☐ Newegg 2 Business Days

Walmart

Departments All Search

Pickup Discount

Shop Grocery Pickup Weekly Ads Gift Cards Credit Card Store Finder Track Order Help

**Save \$35!\***  
Save \$35 when you open an account online & spend \$35 on your first online purchase today.

Purchase amount \$7.99  
Credit on billing statement \$0.00  
Cost after statement credit \$7.99

\*Can't be combined with other offers. Subject to credit approval. Savings paid as statement credit.

Open Account Learn More

**Subtotal (1 item) \$7.99**  
**Shipping FREE**  
**Est. Taxes & Fees (Based on 60616) \$0.00**  
**Est. Total \$7.99**

**CHECK OUT**

**Your Cart: 1 Item**

**Reduced Price**

Mediabridge Cat7 Ethernet Patch Cable (10 Feet) - 10Gbps / 1000Mhz - Dual-Shielded RJ45 Computer Networking Cord - Low-Smoke Zero Halogen Jacket - Black - (Part# 33-699-10B)  
Sold by: Mediabridge

List \$8.99 Save \$1.00  
**\$7.99**

SHIPPING

Qty 1

Save for later Remove

Feedback

Amazon EC2 Instance Ty X Xeon E5-2686 v4 - Intel X Your eBay Shopping Cart Intel Xeon E5-2686 v4 B...

Secure | https://cart.payments.ebay.com/sc/view?sr=01000200000050fe9fe6a1c48520427035398428099d1bcb654851d138771285c155c46e9efaa5ed7fe...

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Sell | My eBay

Shop by category Search for anything All Categories Search Advanced

Send us your comments

**Your eBay Shopping Cart**

You're not currently signed in. Sign in to save these items or see your saved items.

Seller **jess2189** (1388★) Request total from seller

Intel Xeon E5-2686 V4 2.3GHz 18-Core 36M Processor LGA2011-3 145W CPU  
Condition: Used

Quantity 1 **\$1,300.00**

Standard Int'l Shipping (10-22 business days) FREE  
Standard Shipping from China/Hong Kong/Taiwan to worldwide

Remove Save for later

Subtotal (1 item): \$1,300.00  
Shipping to US: FREE  
**Total: \$1,300.00**

Continue shopping Proceed to checkout

**Cart summary (1 item)**  
**Total: \$1,300.00**  
**Proceed to checkout**

**ebay MONEY BACK GUARANTEE**  
Covers your purchase price plus original shipping on virtually all items. Get the item you ordered or get your money back. Learn more

**About your cart**

☐ Are items in my cart reserved for me?

☐ Why are auction or best offer items in my cart?

☐ Where can I see the items I'm bidding on?

☐ If I buy from different sellers, will I need to pay separately?



## Your Shopping Cart

Continue Shopping

Checkout



**MELLANOX SWITCH-IB -2 BASED EDR INFINIBAND 1U SWITCH, 36 QSFP28 PORTS, 2 POWER SUPPLIES (**

Part Number: MSB7890-ES2R, Item #: 2464620

**\$11,180.40**

1

Remove

\$1,229.84/unit for Hot Swap Warranty

Select a Destination Country: United States  
(Including Guam, US Territory)

US\$ Sub-Total:

**\$11,180.40**

Continue Shopping

Update

Checkout

Sales tax will be collected for CA,MA,MD,TN,DC customers.

We Accept PO and Wire.

Please Select Your Service Level: Show Shipping Options for AK/HI/PR/VI and APO/FPO

### Service Level

☐ Free 6-10 Business Days (Free Ground Shipping)

☒ **VLP: Expedited 3-6 Business Days -- \$49.66 (You earn more back than you pay! You will get \$161.46 NextRewards, see details)**

☐ **VLP: Expedited 3 Business Days -- \$202.84**

☐ **VLP: Expedited 2 Business Days -- \$215.82**

☐ **VLP: Expedited Overnight (Afternoon/ before 8:00PM) -- \$275.75**

☐ **VLP: Expedited Overnight (Morning/ before 12:00 noon) -- \$431.57**

Home > My Shopping Cart

### SHOPPING SATISFACTION

Nearly all of Newegg.com's offerings are covered by a full 30-day refund policy.

### PRIVACY PROTECTED

Our Privacy Policy states that we will only share your personal information with third parties working on our behalf to complete your order such as UPS and FedEx.

### SECURITY SAFEGUARDS

Security is a top priority at Newegg. When you submit sensitive information via the website, your information is protected both online and offline.

1 Item(s) in your shopping cart: \$289.99

Select All Remove Selected Move Selected to Wish List Update Qty's

### Newegg Standard Shipping Service Important Shipping Information



**Seagate Enterprise Capacity 3.5" HDD 8TB  
7200 RPM 512e SAS 12Gb/s 256MB Cache  
Internal Hard Drive ST8000NM0075**

Extended Holiday Return Policy

SquareTrade Protection Plan

3 year: \$29.99 (remove)

Recover Your Data

View Details

1

IN STOCK  
LIMIT 10

\$559.99

**\$289.99**

Save: 48.22%

PREMIER  
JOIN TODAY

Subtotal: \$289.99

Extended Warranty: \$29.99

Shipping: \$0.00


Shipping Options

Will Call Service

www.nextwarehouse.com/cart.cfm?action=ADD&itm\_id=2782569&qty=1

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**HP HPE NVIDIA TESLA V100 PCIE 16GB MODULE**  
Part Number: Q2N68A, Item #: 2782569

\$2,051.53/unit for Hot Swap Warranty


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- ☐ VLP Expedited Overnight and Sat. Delivery -- \$281.75

www.pogolinux.com/quotes/editsys?sys\_id=1067268

**Pogo Linux System Configurator** Need help? Chat with us. Price as configured.


View Specs Save to Wishlist Add to Cart Submit for Review Request a Quote \$26,099.56

#### STORAGE OPTIONS

 Storage Options

1x HGST 4U 60 Bay JBOD with 60 x 6TB SAS HDD (Kepler) \$0.00

#### SPARE PARTS AND ACCESSORIES


 1 Meter SAS Cable

0 Patch Cable SFF-8644 to SFF-8644 External JBOD 1M \$63.53

3 Meter SAS Cable

2 Patch Cable SFF-8644 to SFF-8644 External JBOD 3M \$75.29

#### SUPPORT OPTIONS

 Warranty and Support

1x Return to Depot Warranty (5 Year Hardware Warranty with Standard Advance Parts Re

**SUBTOTAL AS CONFIGURED:**

**\$26,099.56**

System Name:

System Notes:

**Request a Quote**

Obtain a formal quote for this configuration by clicking the "REQUEST A QUOTE" button. Then, enter your email address and provide any pertinent configuration notes. You will then receive an email with a link to a pdf of the quote. The Pogo Linux sales engineering team will review your configuration and respond via email with any comments or suggestions.

**Add to Cart**

Adding a system to the webcart makes it possible to purchase a system or save it for later review if you have set up a web account on pogolinux.com. To save a configuration for an extended period, or to access it from a different computer, it is

**Submit for Review**

Do you have questions about this configuration? Click "SUBMIT FOR REVIEW" then enter your email address and questions and/or comments. A Pogo Linux sales engineer will personally review your configuration and respond to you directly.

**Save to Wishlist**

By saving a system to your wishlist you can access the configuration later from any computer. It will be saved even if your browser session changes. If you do not currently have a web account, you will be prompted to create one.

[Leave a Message](#)

# THE NVIDIA DGX-1 IS AVAILABLE FOR PURCHASE IN SELECT COUNTRIES

The NVIDIA DGX is available for purchase in select countries and is priced at:

- DGX with P100 at \$129,000\*
- DGX with V100 at \$149,000\*

When ordering DGX with V100, you can choose between getting DGX-1 with P100 now and receiving an upgrade to V100 as soon it's available, or getting a DGX with V100 when it starts shipping. DGX **support** plan is required and must be purchased separately.

The screenshot shows an eBay product page for a Matched PAIR INTEL XEON E5-2676 V3 2.40GHz SR1Y5 30Mb 12 Cores 24 Thread E5-2670. The page layout includes a top navigation bar with the eBay logo, a search bar, and a 'Shop by category' dropdown. The main content area features a large image of the CPU, a price of US \$1,800.00, and buttons for 'Buy It Now', 'Add to cart', and 'Make Offer'. A '60-day returns' guarantee is prominently displayed. The seller's information, 'plainmetal' (1386 positive feedback), is shown on the right. The bottom of the page includes shipping and payment details, as well as an 'EBAY GIFT CARDS' advertisement.

Matched PAIR INTEL XEON E5-2676 V3 2.40GHz SR1Y5 30Mb 12 Cores 24 Thread E5-2670

Price: **US \$1,800.00** [Buy It Now](#) [Add to cart](#)

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**60-day returns** Free shipping Longtime member

Shipping: **FREE** Standard Intl Shipping | [See details](#)  
See details about international shipping here.  
Item location: Ayer Keroh, Melaka, Malaysia  
Ships to: Worldwide [See exclusions](#)

Delivery: Varies for items shipped from an international location  
Seller ships within 1 day after receiving cleared payment.

Payments: [PayPal](#) [VISA](#) [MasterCard](#) [Discover](#) [AMERICAN EXPRESS](#)  
Credit Cards processed by PayPal

Seller information: **plainmetal** (1386 ★)  
100% Positive feedback  
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