I. Configuration 1:

A. ***Specifications:*** Hadoop/Spark Cluster with 160K-cores, 128 TB memory, 24 PB HDD, and 100Gb/s Ethernet Fat-Tree network along with distributed storage of 48 PB.

B. Public Cloud Costs:

We are using d3.8xlarge instances of AWS to satisfy compute server requirements and S3 for storage server requirements of 48 PB.

i. Specifications of d3.8x instance:

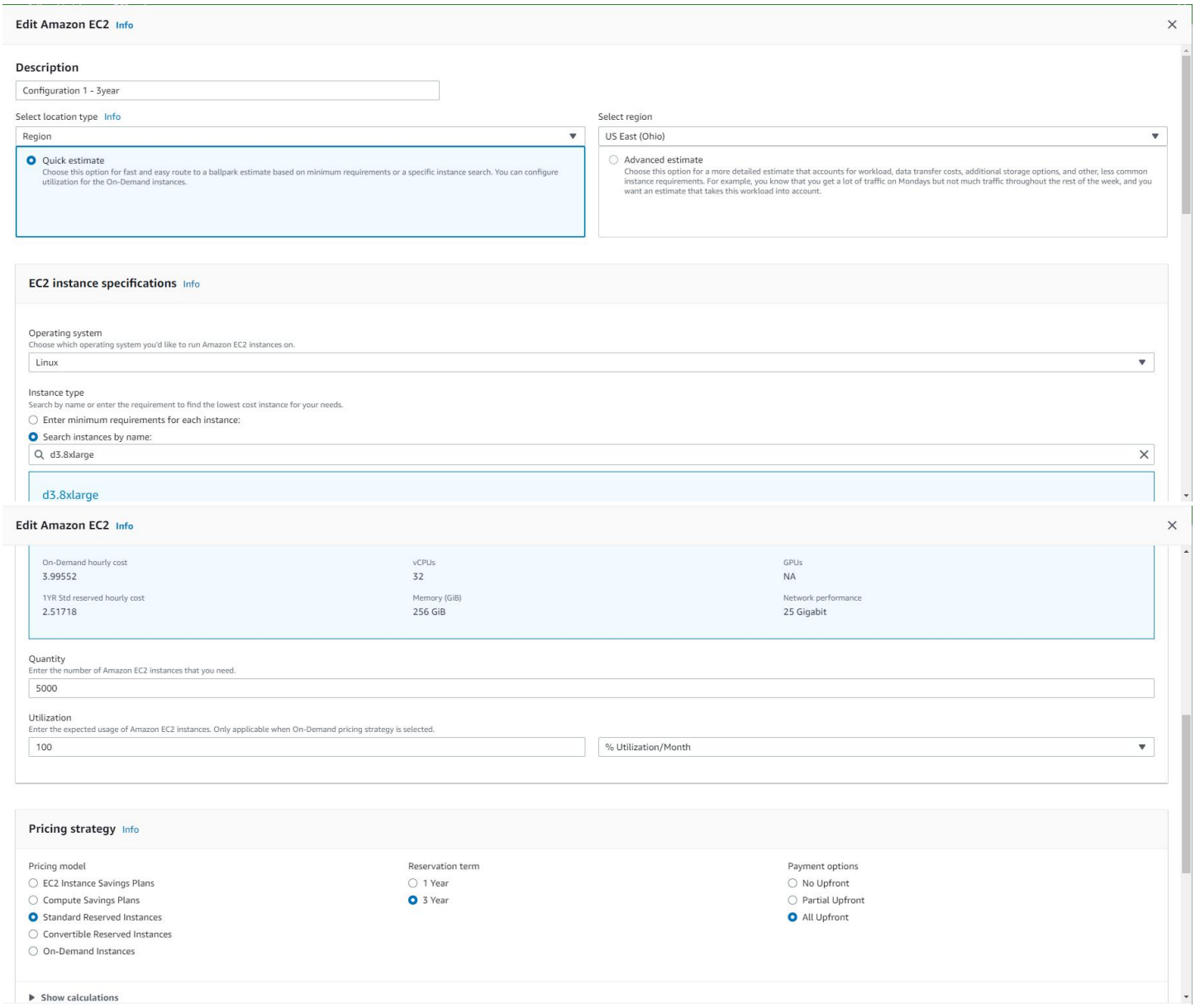
32 vCPU, 256 GB Memory and 48 TB HDD

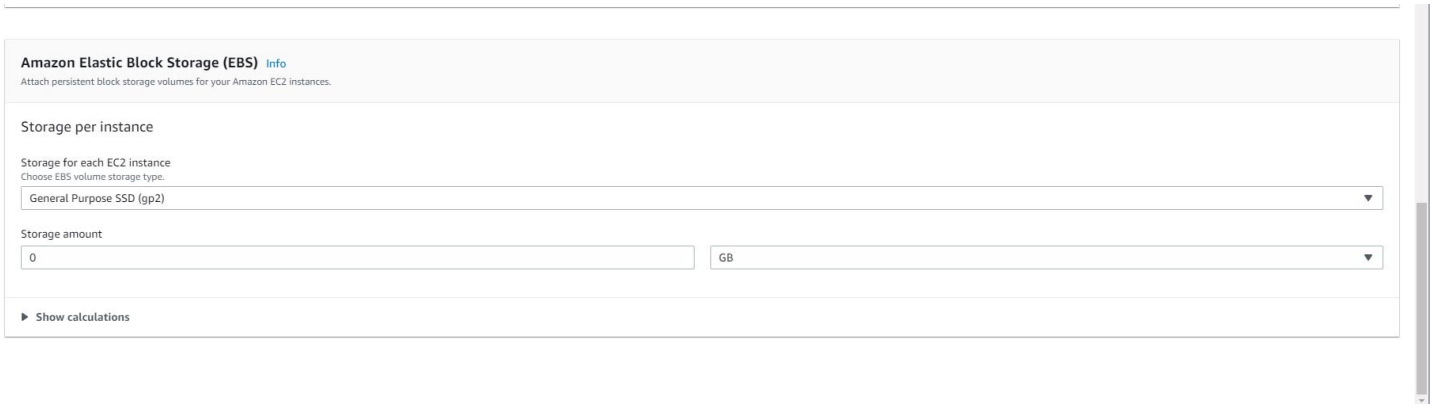
ii. Specifications of S3 instance:

48 PB of distributed storage

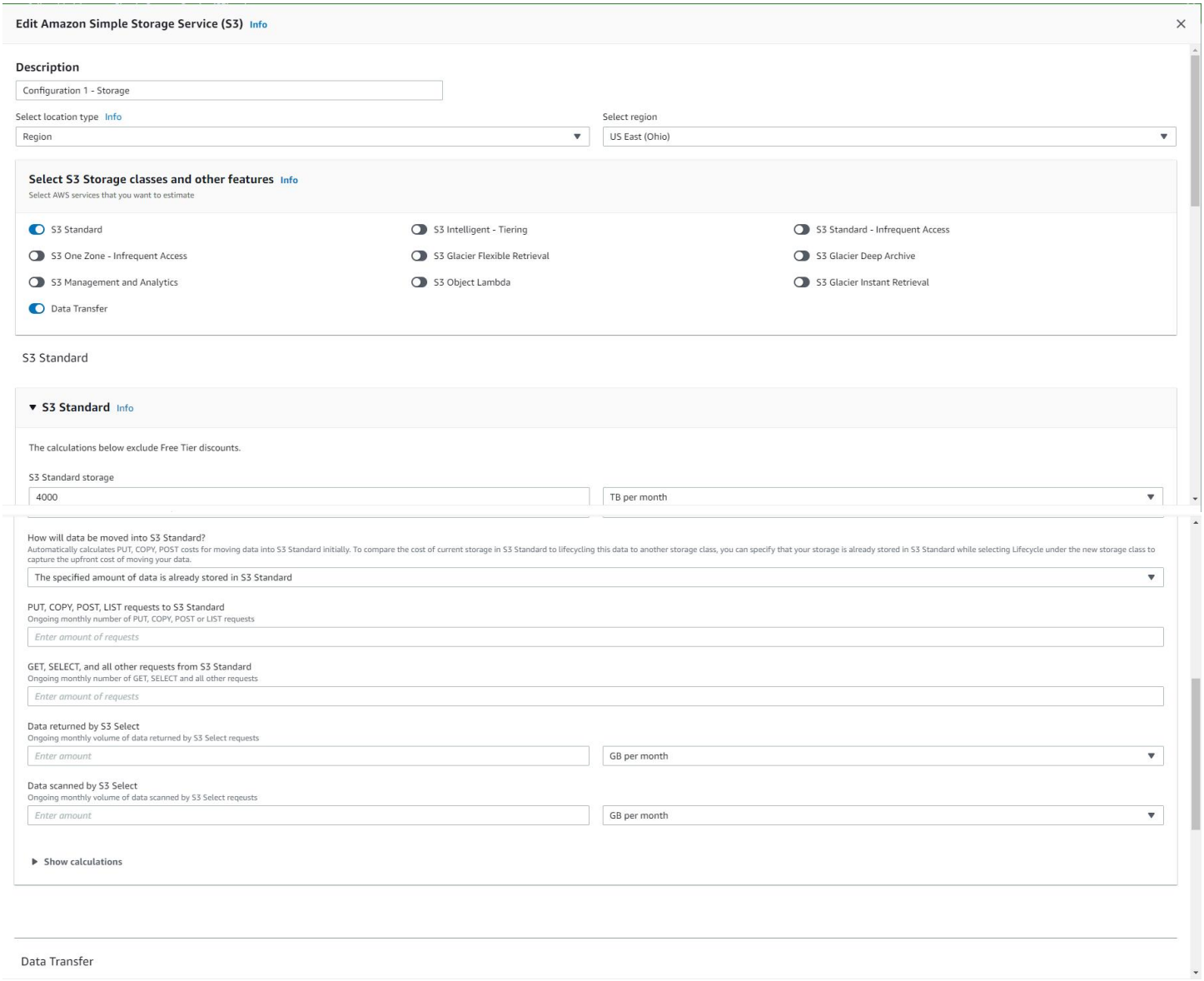
iii. Screenshot showcasing monthly **Linux standard reserved instances** costs of AWS instances:

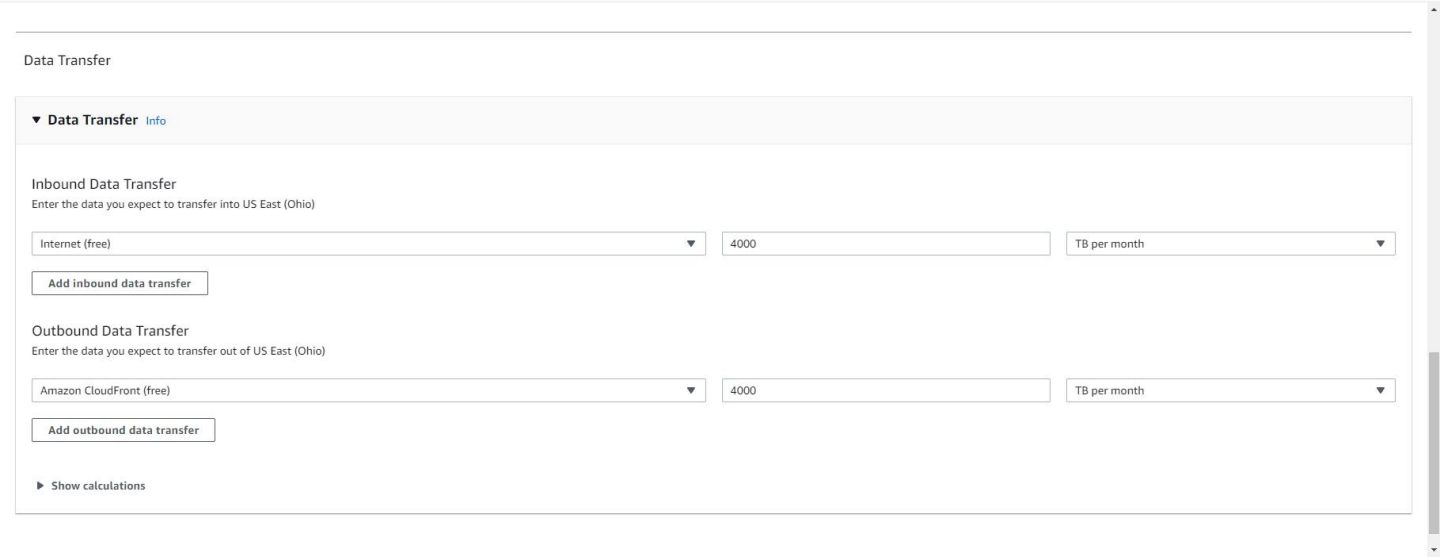
EC2 d3.8x



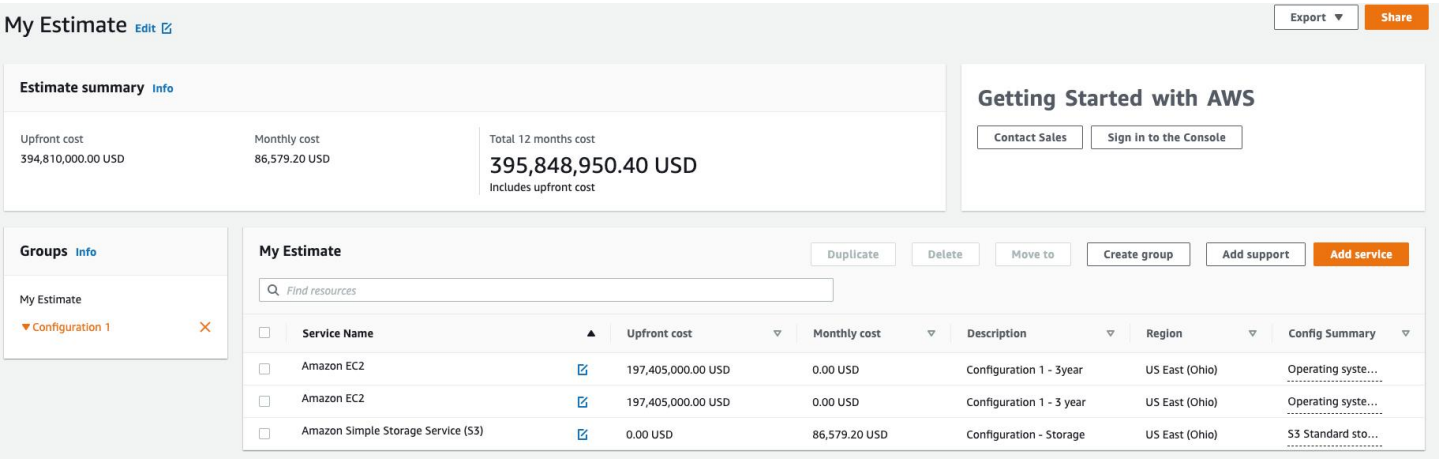

Amazon Elastic Block Storage (EBS) Info
Attach persistent block storage volumes for your Amazon EC2 instances.
Storage per instance
Storage for each EC2 instance
Choose EBS volume storage type.
General Purpose SSD (gp2)
Storage amount
0
GB
Show calculations

S3 Storage:


Edit Amazon Simple Storage Service (S3) Info
Description
Configuration 1 - Storage
Select location type Info
Region
Select region
US East (Ohio)
Select S3 Storage classes and other features Info
Select AWS services that you want to estimate
S3 Standard
S3 Intelligent - Tiering
S3 Standard - Infrequent Access
S3 One Zone - Infrequent Access
S3 Glacier Flexible Retrieval
S3 Glacier Deep Archive
S3 Management and Analytics
S3 Object Lambda
S3 Glacier Instant Retrieval
Data Transfer
S3 Standard
S3 Standard Info
The calculations below exclude Free Tier discounts.
S3 Standard storage
4000
TB per month
How will data be moved into S3 Standard?
Automatically calculates PUT, COPY, POST costs for moving data into S3 Standard initially. To compare the cost of current storage in S3 Standard to lifecycling this data to another storage class, you can specify that your storage is already stored in S3 Standard while selecting Lifecycle under the new storage class to capture the upfront cost of moving your data.
The specified amount of data is already stored in S3 Standard
PUT, COPY, POST, LIST requests to S3 Standard
Ongoing monthly number of PUT, COPY, POST or LIST requests
Enter amount of requests
GET, SELECT, and all other requests from S3 Standard
Ongoing monthly number of GET, SELECT and all other requests
Enter amount of requests
Data returned by S3 Select
Ongoing monthly volume of data returned by S3 Select requests
Enter amount
GB per month
Data scanned by S3 Select
Ongoing monthly volume of data scanned by S3 Select reqeusts
Enter amount
GB per month
Show calculations
Data Transfer



Summary:



iv. Price:

Charges	Price
3 Years (EC2)	$ 197,405,000.00
6 Years (EC2)	$ 394,810,000.00
1 month (S3)	$ 86,579.20
60 months (S3)	$ 5,194,740.00
~5 Years	**$ 400,004,740.00**

So Configuration1 cost for ~5 years at 100% utilization for Public cloud is **$ 400,004,740.00**

C. *Private Cloud Costs:*

In order to build private cloud, we have the following components:

i. Compute Servers: For this, we have used a server RAX PT12-12A1 with the configuration of Ampere® Altra® ARM - 2U - 8x 2.5" SATA + 4x U.2 NVMe - 2x M.2 NVMe - Dual 1-Gigabit Ethernet - 800W Redundant.

ii. Storage servers: For this, we have used a JBOD expansion STX-JB JE106-0420-SAS3 with the configuration of Thinkmate® STX-4244 4U Chassis - 106x 3.5" SAS Drives - 2000W Redundant Power.

iii. Networking: To handle networking and to build a Fat-tree topology, we have used ___ as the network switch and Cat7 Ethernet cables to connect them.

iv. Power consumption and cost:

For power costs, charges per kWh are considered as $ 0.13 and used in the calculations. The average power consumption for the above 3 components was calculated individually and total was published in the final table as shown.

Configuration1:

Items	Description	Cost/item (USD)	Required quantity	Total cost(USD)
Compute Server	RAX PT12-12A1 - Ampere® Altra® ARM - 2U - 8x 2.5" SATA + 4x U.2 NVMe - 2x M.2 NVMe - Dual 1-Gigabit Ethernet - 800W Redundant	10,776.00	1250	**13,470,000.00**
Cable costs	Cat7 Ethernet Cable 5FT 5 Pack Multi Color, Intelart Cat-7 Flat RJ45 Computer Internet Lan Network Ethernet Patch Cable Cord - 5 Feet	4.11	1600	**6,576.00**
Network Switches	N8560-64C, 64-Port Ethernet L3 Data Center Switch, 64 x 100Gb QSFP28, Support Stacking, Broadcom Chip, Software Installed	14,199.00	25	**354,975.00**
Rack Cabinet	42u 36"D 4-Post Rack without Doors or Side Panels	821.25	30	**24,637.50**
Air conditions	Tripp Lite Rackmount Cooling Unit Air Conditioner 7K BTU 2.0kW 120V 60Hz - rack air-conditioning cooling system - 8U	914.99	30	**27,449.70**
Storage server	STX-JB JE106-0420-SAS3 - Thinkmate® STX-4244 4U Chassis - 106x 3.5" SAS Drives - 2000W Redundant Power	75,122.40	12	**901,468.80**
Electricity		-	-	**5,915,923.60**
Cooling		11,388.00	30	**341,640.00**
Administration		87,912.00	3	**263,736.00**
Total		-	-	**20,944,855.00**

Power Consumption:

Items	Watt/item	Total item #	Total Hour (in 5 years)	Total KWh	Total $ charged

Compute server	800	1250	43800	43800000	5,694,000.00
Storage server	2000	12	43800	1051200	136,656.00
Network Switch	599	25	43800	655905	85,267.65
Total		-	-		5,915,923.00

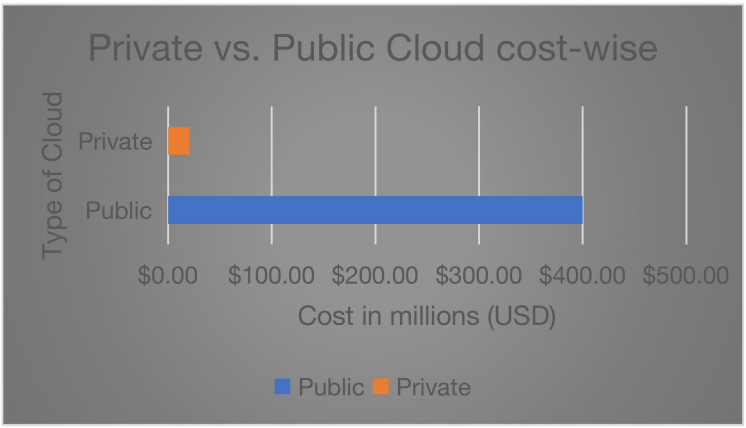
Cooling costs: Considering the electric cost as $0.13 per KW/hr.

BTU per rack	KW/hr consumed	Total Hour in 5 years	Total Cost (USD)
7000	2	43800	11388.00

Administration: Based on recent job postings on ZipRecruiter, the Data Center Administrator job market in both Chicago, IL and the surrounding area is very active. A Data Center Administrator in your area makes on average $87,912 per year, or $1,831 (2%) more than the national average annual salary of $86,081.

Final costs:

Cloud type	Cost in USD
Public	$ 400,004,740.00
Private	$ 20,944,855.00



Comparison:

The graph illustrates how much less expensive it is to establish a private cloud than a public one. Although it could seem that investing the initial seed money is more long-term when creating a private cloud, in reality, it is far less than if one were to rely only on public cloud for these infrastructure requirements.

Other considerations:

1) Even though it is mentioned that we are hired by a startup company, we are paying for the public cloud instances full upfront as the startup company raises seed funding and can invest that money towards the public cloud IaaS.
2) We consider that the outside of amazon organization will read and write to Amazon cloudfront and from cloudfront to S3, the outbound data transfer is free.
3) We consider that 48PB distributed storage is a threshold and not a substantial increase in requirement every year.

II. Configuration 2:

A. ***Specifications:*** Support 1K application developers who are designing MacOS and iPad OS applications.

B. Public Cloud Costs:

We are using mac1.metal instances of AWS to satisfy compute server requirements and S3 for storage server requirements of 1 TB.

i. Specifications of mac1.metal instance:

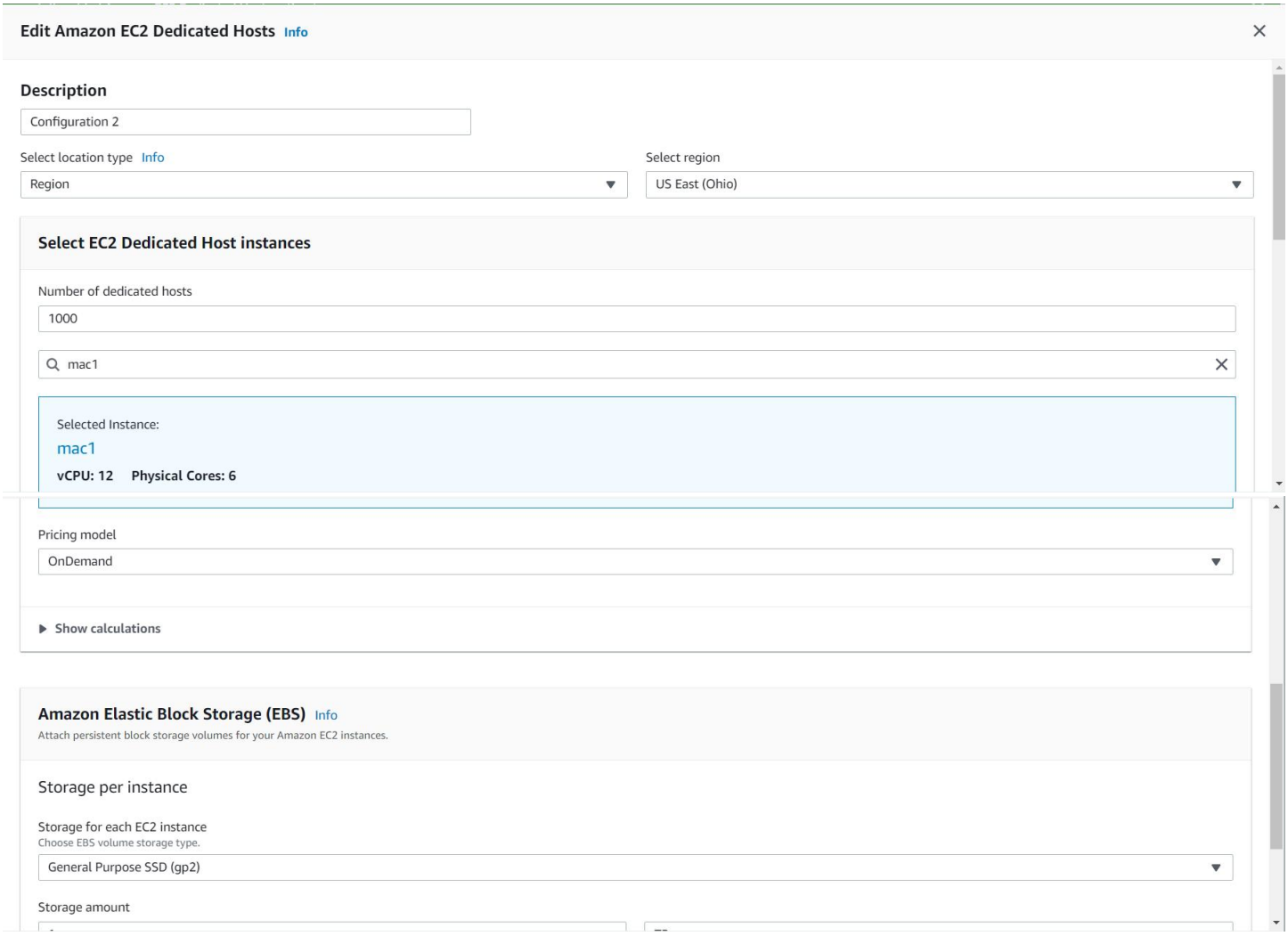
12 vCPU, 32 GB Memory, 10Gbps Network Bandwidth

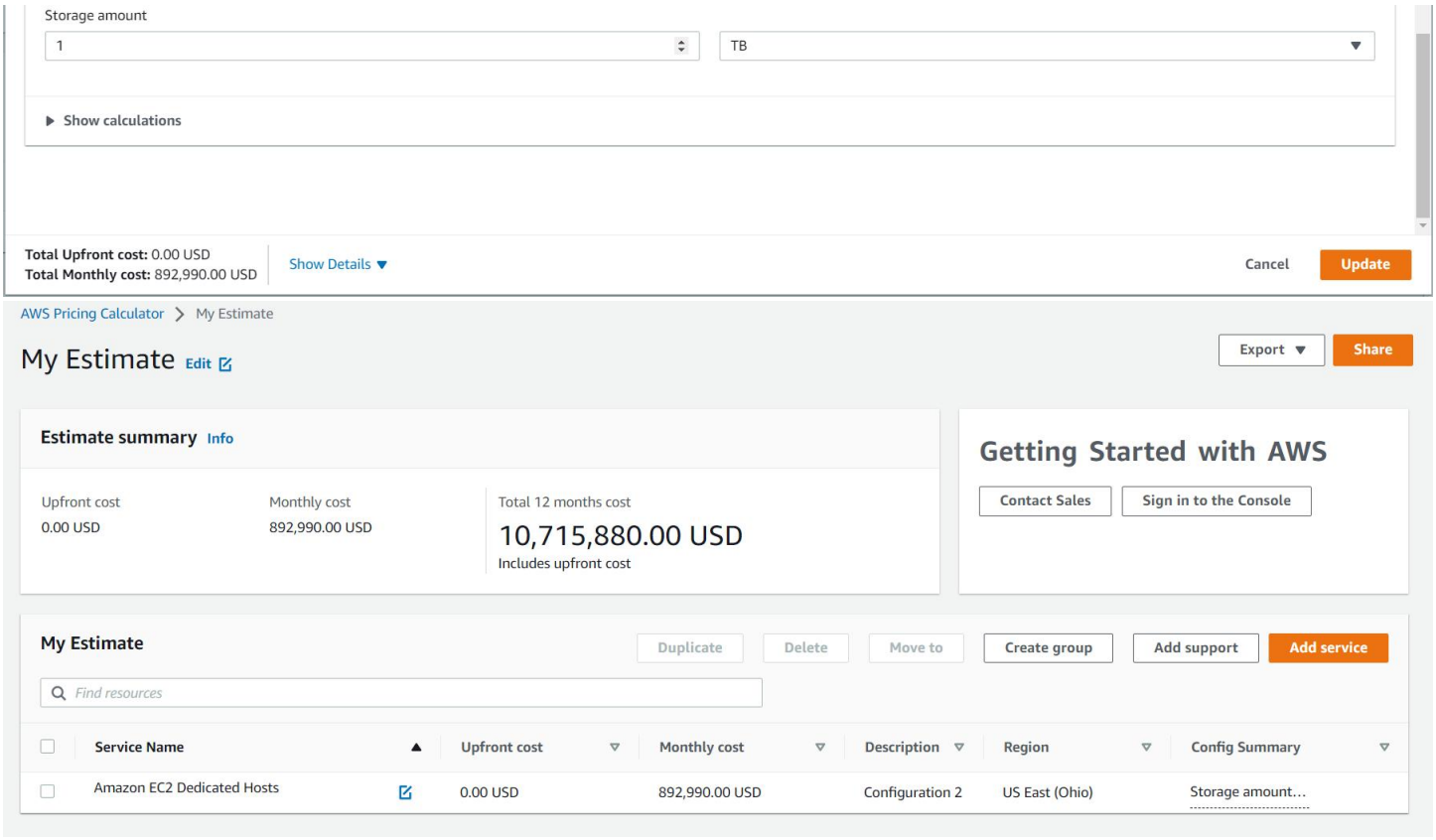
ii. Specifications of EBS for memory:

1 TB of dedicated storage

iii. Screenshots showcasing monthly **Linux on-demand** costs of AWS instances:

mac1.metal instance





iv. Price:

Charges	Price
1 Month (Full time costs) 720 hours/month	$892,990.00
1 Month (Costs as per the demand) 40hours/week i.e. 160hours/month	$198,442.22
1 Year (Full time costs) 52weeks with 168hours/week	$10,715,880.00
1 Year (Costs as per the demand) 48weeks/year with 40hours/week	$2,381,306.67
5 Years = 1 Year cost per demand * 5	**$11,906,533.33**

So, Configuration 2 costs for 5 years at 100% utilization as per the demand for public cloud using Amazon's mac1.metal on-demand instance is **$11,906,533.33**

C. *Private Cloud Costs:*

In order to build private cloud, we have the following components:

v. Compute unit: For this, we have used a mac mini system with configuration of 3.0GHz 6-core 8th-generation Intel Core i5 (Turbo Boost up to 4.1GHz), 32GB 2666MHz DDR4, Intel UHD Graphics 630, 1TB SSD storage, 10 Gigabit Ethernet from apple.com site.

vi. Networking: To handle networking we use standard Cat8 ethernet cables.

vii. Power consumption and cost: For power costs, charges per kWh are considered as $ 0.13 and used in the calculations. The average power consumption for the above components was calculated individually and the total was published in the final table as shown.

Configuration 2:

Item	Description	Cost/item (USD)	Required quantity	Total cost (USD)

Compute unit	Mac mini 3.0GHz 6-core 8th-generation Intel Core i5 (Turbo Boost up to 4.1GHz) 32GB 2666MHz DDR4 Intel UHD Graphics 630 1TB SSD storage 10 Gigabit Ethernet	1859.00	1000	**1,859,000.00**
Cable costs	Cat8 Ethernet Cable 10FT 5 Pack Multi Color, BUSOHE Cat-8 Flat RJ45 Computer Internet LAN Network Ethernet Patch Cable Cord, 40Gbps 2000MHz Faster Than Cat7/Cat6/Cat5, for Router,Modem,Xbox - 10-Feet	4.11	999	**4105.89**
Electricity		-	-	**152,256.00**
Cooling	In built active cooling	-	-	**0.00**
Administration		87912.00	2	**175,824.00**
Total		-	-	**2,191,185.89**

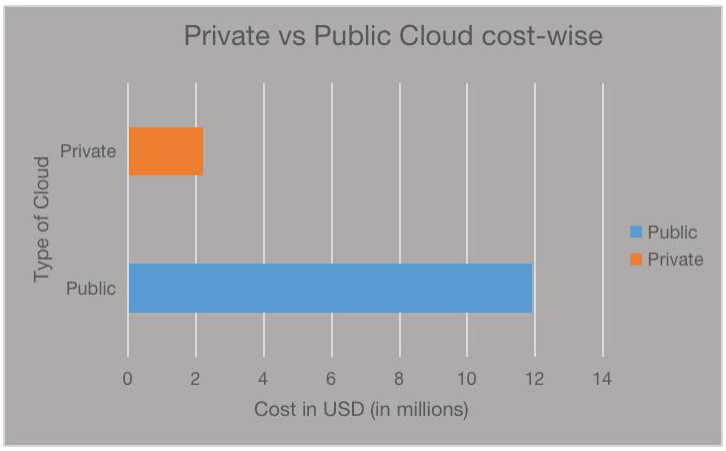
Power Consumption: Using https://support.apple.com/en-us/HT201897, we can see the power consumption per unit. Considering the electric cost as $0.13 per KW/hr.
No. of hours per week (required) = 40.
No. of weeks per year (required) = 48.
No. of hours per year (required) = 40*48 = 1920.
No. of years in 5 years = No. of hours per year * 5 = 1920 * 5 = 9600.

Items	Watt/item	Total item#	Total Hour (in 5 years)	Total KWh	Total $ charged
Compute unit	122	1000	9600	1171200	152,256.00
Total					152,256.00

Cooling costs: The Mac mini system has in-built active cooling and hence there is no need for any additional cooling systems.

Final costs:

Cloud type	Cost in USD
Public	11,906,533.33
Private	2,191,185.89



Comparison:

The graph illustrates how much less expensive it is to establish a private cloud than a public one. Although it could seem that investing the initial seed money is more long-term when creating a private cloud, it is far less than if one were to rely only on public cloud for these infrastructure requirements.

III. Configuration 3:

A. *Specifications:*

Ethereum crypto currency mining; you have an investor who has $10M to buy hardware to mine Raven Coin RVN (and pay for maintance / sys admin, power, and cooling), or rent resources from Amazon EC2 to mine Raven Coin.
Other requirement: 4-cores, 8GB RAM, 100GB HDD, and 1Gb/sec network

B. *Public Cloud Costs:*

We are using **g4dn.xlarge** instances of AWS to satisfy compute server and GPU requirements. This instance has **NVIDIA T4 Tensor Core GPUs.** Based on KawPow algorithm, its hashrate is **4.07 MH/s,** monthly income is **1.00 USD**.
We use **spot instance.** The price model is spot instance that price is **$0.1578 per hour.** g4dn.xlarge is the cheapest cost per GPU instances of all same hardware.
Note: We tried to use other types of instance, but the hashrate per unit price is most lowest under all of instance of AWS EC2.

Instance	GPUs	vCPU	Memory (GiB)	GPU Memory (GiB)	Instance Storage (GB)	Network Performance (Gbps)***	EBS Bandwidth (Gbps)
g4dn.xlarge	1	4	16	16	1 x 125 NVMe SSD	Up to 25	Up to 3.5
g4dn.2xlarge	1	8	32	16	1 x 225 NVMe SSD	Up to 25	Up to 3.5

How profitable is mining with NVIDIA Tesla T4?

NVIDIA Tesla T4 can generate more than 2.28 USD monthly income with a 29.65 H/s hashrate on the BTG - ZHash (EWBF) algorithm.

Algorithm	Hashrate	Monthly Income	Monthly BTC Income	Monthly USD Income
BTG - ZHash (EWBF)	≈29.65 H/s	≈0.12717911 BTG	≈0.00011904 BTC	≈2.28 USD
ETC - Ethash (Phoenix)	≈16.33 MH/s	≈0.05690125 ETC	≈0.00006839 BTC	≈1.31 USD
RVN - KawPow (NBMiner)	≈4.07 MH/s	≈32.47960729 RVN	≈0.00005197 BTC	≈1.00 USD
ETH - Ethash (Phoenix)	24.17 MH/s	~~0.01122929 ETH~~	~~0.00089514 BTC~~	~~18.02 USD~~

g4dn.xlarge	$0.1578 per Hour	$0.3418 per Hour
g4dn.2xlarge	$0.2256 per Hour	$0.5936 per Hour
g4dn.4xlarge	$0.3612 per Hour	$1.0972 per Hour
g4dn.8xlarge	$0.6528 per Hour	$2.1248 per Hour
g4dn.12xlarge	$1.1736 per Hour	$3.3816 per Hour
g4dn.16xlarge	$1.3056 per Hour	$4.2496 per Hour
g4dn.metal	$2.3472 per Hour	$6.7632 per Hour

Price:

Charges	Formula	Price or Result
1 instance for 5 years	1 * 0.1578 * 43800	$6,911.64
# 10 million can buy instances	10,000,000 / 6911.64	1446(instance or GPU)
1 Month income(All of instances)	1,446 * 1	$1,446.00
5 years income	1,446 * 5 * 12	$86760.00
No Profit, Loss	10,000,000 - 86,760	**-$9913240.00**

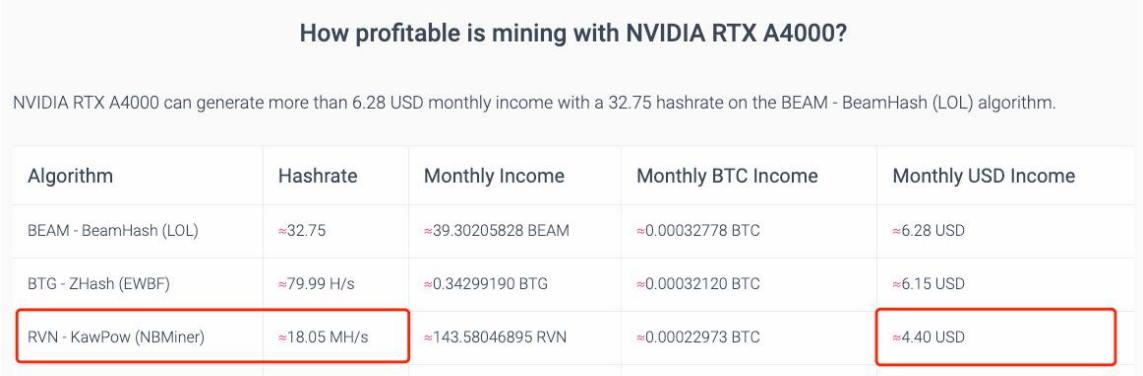
C. *Private Cloud Costs:*

Scheme 1(NVIDIA® RTX A4000):

On `thinkmate` website, the most best choice is following components assemble.

The **NVIDIA® RTX A4000** under the KawPow algorithm has a hashrate of **18.05 MH/s** and monthly income is **$4.40**. The power is **140kw/h per GPU.**

Power: Based on hourly electricity price. We can get the price as of 2022-10-14 03:00:00 was: **$0.042/kWh**



How profitable is mining with NVIDIA RTX A4000?

NVIDIA RTX A4000 can generate more than 6.28 USD monthly income with a 32.75 hashrate on the BEAM - BeamHash (LOL) algorithm.

Algorithm	Hashrate	Monthly Income	Monthly BTC Income	Monthly USD Income
BEAM - BeamHash (LOL)	≈32.75	≈39.30205828 BEAM	≈0.00032778 BTC	≈6.28 USD
BTG - ZHash (EWBF)	≈79.99 H/s	≈0.34299190 BTG	≈0.00032120 BTC	≈6.15 USD
RVN - KawPow (NBMiner)	≈18.05 MH/s	≈143.58046895 RVN	≈0.00022973 BTC	≈4.40 USD

1 racks:

Item	Description	Cost/item
Compute Server	AMD EPYC™ 7003 Series - 2U GPU Server - 6x 2.5" SATA/SAS3 - 2x U.2 NVMe - 10GbE SFP+ - 2+0 2200W AMD EPYC™ 7313P Processor 16-core 3.00GHz 128MB Cache (155W)	$6,472.00
GPU	8*NVIDIA® RTX A4000 - 16GB GDDR6 - PCIe 4.0 x16 - Active Cooling (4xDP)	$10,392.00
Network	Broadcom NetXtreme 1-Gigabit Ethernet Network Adapter - PCIe 2.0 x1 - 2x RJ45	$99.00
Cable	IEC320 C19 to NEMA L6-20P Locking Power Cable, 12AWG, 250V/20A, Black - 6ft	$38.72
Storage server	256GB Kioxia XG6 M.2 PCIe 3.1 x4 NVMe Solid State Drive	$99.00
Cooling	In built active cooling	-
Total		$ 17044.94

Power Consumption Per Server(Rack with 8 GPU) - $0.042/kWh

Items	Watt/item	Total Hour(in 5 years)	Total KWh	Total $ charged
Compute server(1 rack)	1369.6	43800	59988480	$ 2,519,516.16

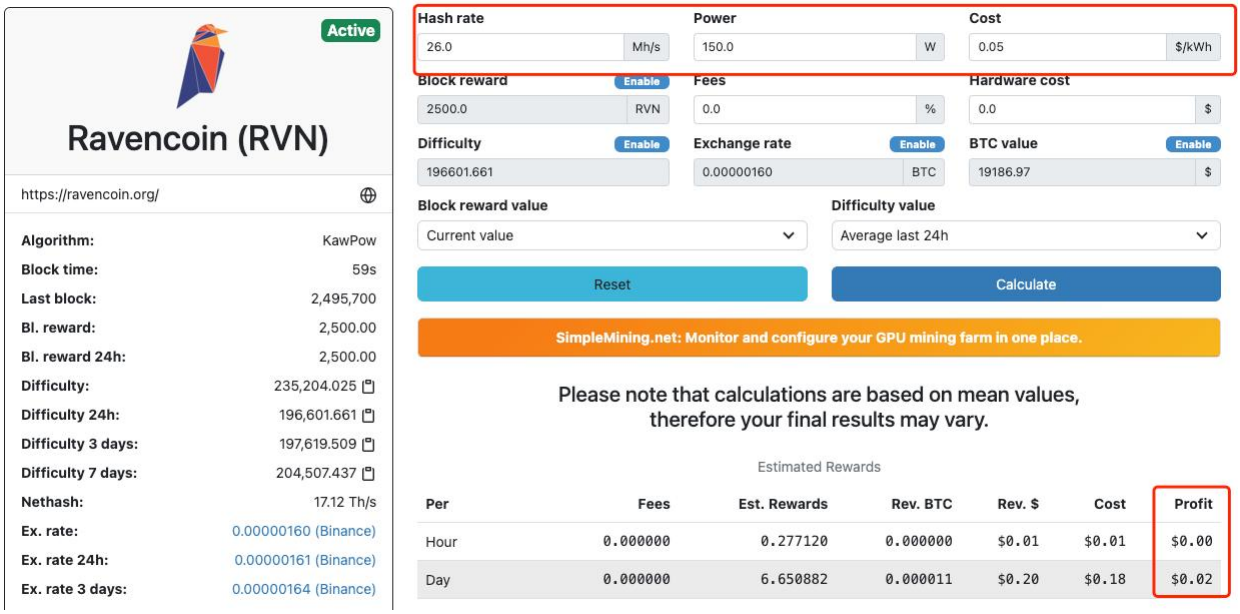
Price:

Charges	Formula	Price or Result
cost of 1 server and power 5 years	2519516.16 + 17044.94	$2,536,561.10
income of 5 years 1 server(with 8 GPU)	4.40 * 8 * 5 * 12	$2,112.00

We have $10M, so we can pay 10,000,000 / 2,536,561.10 = **3.94 group.**
Assume we can buy 4 group, so the income in 5 year is 2112 * 4 = **$8448**
No profit, it has a huge loss, 10,000,000 - 8448 = $9,991,552.00

We can make further assumptions, If we want to get profit, don't consider electricity, we have to get more than 10000000 / (4.40 * 5 * 12 * 8) = **4734 server,** the price of single group server (with 8 GPU) 10000000 / 4734 = **$2112, I search to Google, if we bought cheapest GPU($670 * 8), the price is greater than $2107, So this solution is impossible.**

If we just consider power cost, if the cost of power is less equal 0.05/kwh, it can get income. In other words, there is no consideration of the time(year) and one day we can receive our investment.



If we want to build a data center, we also have to buy other things:

Item	Description	Cost/item
Network Switches	N8560-64C, 64-Port Ethernet L3 Data Center Switch, 64 x 100Gb QSFP28, Support Stacking, Broadcom Chip, Software Installed	$15.99
Rack Cabinet	10u Low Profile Open Rack CFR-10-16	$453.60
Total		$ 469.59

Scheme 2 (3090 Ti)
In order to build private cloud, The GPU model with the highest hashrate under the KawPow algorithm is the **NVIDIA GeForce RTX 3090 Ti**, which has a hashrate of **55.18 MH/s** and monthly income is **$14.16**. The power is **450kw/h per GPU.**
Power: Based on hourly electricity price. We can get the price as of 2022-10-14 03:00:00 was: **$0.042/kWh**

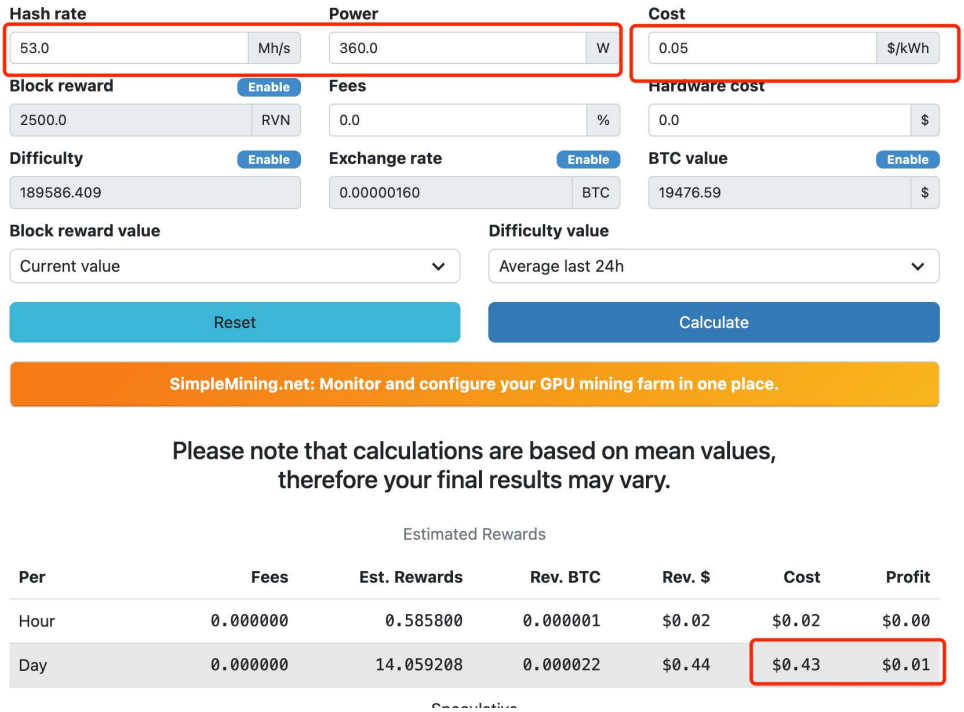
We can only consider used old server and assemble with 8 * GPU
CPU: MLLIQUEA-Cryptocurrency-Machine-Barebone-Motherboard
GPU: https://www.ebay.com/itm/284999888125?chn=ps&mkevt=1&mkcid=28 ($1350)

Charges	Formula	Price or Result
cost of 1 server with 8 GPU	430 + 1350 * 8	$11,230.00
cost of power for 5 years 1 server(with 8 GPU)	450 * 8 * 0.042 * 43800	$6,622,560.00
cost of 1 server and power 5 years	6622560 + 11230	$6,633,790.00
income of 5 years 1 server(with 8 GPU)	14.16 * 8 * 5 * 12	$6,796.80

We have $10M, so we can pay 10,000,000 / 6,633,790 = **1.5 group.**
Assume we can buy 1.5 group, so the income in 5 year is 6796.8 * 1.5 = **$10195.2**
No profit, it has a huge loss, 10,000,000 - 10195.2 = $9989804.8

We can make further assumptions, If we want to get profit, don't consider power etc. We have to get more than 10000000 / (14.16 * 5 * 12 * 8) = **1472 server,** the price of single group server (with 8 GPU) 10000000 / 1472 = **$6793, I search to Google, if we bought used cheapest GPU($1350 * 8), the price is greater than $6793, So this solution is impossible.**

If we just consider power cost, if the cost of power is less equal 0.05/kwh, it can get income. In other words, there is no consideration of the time(year) and one day we can receive our investment.



Rough estimate Income:

Cloud type	Income	Profit
Public	**$86,760**	**-$9,913,240.00**
Private(A4000)	**$8,448**	**-$9,991,552.00**

Comparison and Summary:

Whether it is public cloud or private cloud, it is impossible to have income under the kawpow algorithm with a 5-year term. But if we stretch the time, for example, to more than decades or hundreds of years, it is possible to have income by using private cloud, but not by using public cloud.
Because if the unit price of power is low enough, below 0.05 or lower, each month each GPU can cover the cost of power, there is some income, these income can be covered to the hardware, but the time will be very long.

Screenshots

Configuration 1:

1. **Compute Server:**

THINKMATE

READY TO BUY?
1-800-371-1212

RAX PT12-12A1

My System October 11th, 4:46 pm EDT

Thinkmate Config ID 605616

Configured Price: **$10,776.00**

Selection Summary	
Barebone	Ampere® Altra® ARM - 2U - 8x 2.5" SATA + 4x U.2 NVMe - 2x M.2 NVMe - Dual 1-Gigabit Ethernet - 800W Redundant
Processor	Ampere® Altra® Max M128-30 Processor, 128-Core (3.0GHz, 128MB L1, 3200MT/s) 250W
Memory	16 x 8GB PC4-25600 3200MHz DDR4 ECC RDIMM
M.2 Drive	256GB Kioxia XG6 M.2 PCIe 3.1 x4 NVMe Solid State Drive
Controller Card	Broadcom HBA 9500-8i SAS3/SATA 8-Port Tri-Mode Host Bus Adapter - PCIe 4.0 x8
Network Adapter	Intel® 100-Gigabit Ethernet Network Adapter E810-CQDA1 - PCIe 4.0 x16 - 1x QSFP28
Trusted Platform Module	Trusted Platform Module - TPM 2.0
Cables	2 x AC Power Cord (North America), C13, NEMA 5-15P, 2.1m CAB-AC
Mounting Rails	Gigabyte Rail Kit for R152, R272
Operating System	Ubuntu Linux 20.04 LTS Server Edition (ARM64)
Warranty	Thinkmate® 5 Year Advanced Parts Replacement Warranty (Zone 0)

Tech Specs	
Barebone	
Memory Technology	DDR4 ECC Registered
Chipset	System on Chip
Form Factor	2U
Color	Black
Memory Slots	16x 288-pin DIMM Sockets
Graphics	Aspeed AST2500 BMC
Ethernet	Dual-Port Intel i350 Gigabit Ethernet LAN Dedicated Management LAN port
Power	800W 80 Plus Platinum (1+1) Redundant Power Supply
External Bays	12 x 2.5-inch hot-swap drives
M.2	2 M.2 PCIe 4.0 x4 Form Factor: 2242/2260/2280/22110 Key: M-Key
Expansion Slots	Low-profile expansion slots: Slot_6: 1 x PCIe x16 (Gen4 x16 bus) slot Slot_5: 1 x PCIe x16 (Gen4 x8 bus) slot Slot_4: 1 x PCIe x16 (Gen4 x16 bus) slot Slot_3: 1 x PCIe x16 (Gen4 x8 bus) slot Slot_2: 1 x PCIe x8 (Gen4 x8 bus) slot, occupied by CNV3122 (NVMe HBA) Slot_1: 1 x PCIe x16 (Gen4 x8 bus) slot, occupied by CNV3122 (NVMe HBA)
Front Panel	Power button with LED ID button with LED Reset button System Status LED HDD LED LAN LEDs 2 USB 3.0 ports
Back Panel	2 Ethernet RJ45 ports 1 RJ45 Management LAN port 3 USB 3.0 ports 1 VGA ID button with LED Debug port
Dimensions (WxHxD)	17 x 3.4 x 25.9 inches 438 x 87.5 x 660 mm
NVMe 6.4Gbps Controller	NVMe HBA
NVMe 6.4Gbps Ports	4
SATA 6Gbps AHCI Controller	CSTO180 (ASM1164) SATA HBA
SATA 6Gbps AHCI Ports	8

Processor	
Product Line	Ampere Altra Max
Socket	FCLGA4926
Clock Speed	3.00 GHz
Cores/Threads	128
TDP Wattage	250W
Memory	
Technology	DDR4
Type	288-pin DIMM
Capacity	16 x 8 GB
Speed	3200 MHz
Error Checking	ECC
Signal Processing	Registered
M.2 Drive	
Storage Capacity	256GB
Interface	PCIe 3.1 x4 NVMe
Endurance	<1 DWPD
Read IOPS	355,000 IOPS
Write IOPS	365,000 IOPS
Read Speed	3050 MB/s
Write Speed	1550 MB/s
NAND	KIOXIA's 96-Layer BiCS FLASH™
Controller Card	
Product Type	SAS Host Bus Adapter
Data Transfer Rate	12Gb/s SAS
Internal Ports	8 Ports
I/O Processor	LSI SAS3808
Max Devices	SAS/SATA: 1024
Network Adapter	
Speed	100Gb Ethernet
Connector	QSFP28
Interface	PCIe 4.0 x16

Quotation Date: October 11th, 2022, 08:45 PM EDT. All prices subject to change.

Configured Price: **$10,776.00**

READY TO BUY?
1-800-371-1212

CONFIGURATION ID
605616

THINKMATE

Thinkmate is a world-class provider of custom computer and server equipment since 1986. Our business was formed around assisting our customers in planning, budgeting, and implementing complete solutions. We provide a broad range of customized server, storage and cluster solutions to governments, universities, corporations and high performance computing markets. Our commitment to superior customer service and cutting edge technology has kept us the number one white box server solutions provider for nearly twenty years.

2. Storage Server

THINKMATE

READY TO BUY?
1-800-371-1212

STX-JB JE106-0420-SAS3

My System October 11th, 4:09 pm EDT

Thinkmate Config ID 605598

Configured Price: **$75,122.40**

Selection Summary	
Chassis	Thinkmate® STX-4244 4U Chassis - 106x 3.5" SAS Drives - 2000W Redundant Power
Storage Drive	106 x 20TB SAS 3.0 12.0GB/s 7200RPM - 3.5" - Seagate Exos X20 Series FastFormat™ (512e/4Kn)
Controller Card	I have an existing Host Server or Adapter
Cables	8 x 1-Meter External SAS Cable - 12Gb/s to 12Gb/s SAS - SFF-8644 to SFF-8644
	2 x IEC320 C19 to C14 Power Cable - 14AWG - 250V/15A - 3ft / 0.9M (TAA Compliant)
Warranty	Thinkmate® 5 Year Advanced Parts Replacement Warranty (Zone 0)

Tech Specs	
Chassis	
Product Type	4U Rackmount JBOD
Color	black
Watts	2000W
External Drive Bays	Up to 106 x 3.5-in hot-swap SAS drive bay with SES
Dimensions (WxHxD)	Height (with top cover): 176.4mm / 6.95 in Width (without ears and rails): 441mm / 17.4 in Depth (with handles, without cables): 1139mm / 44.8 in
Storage Drive	
Storage Capacity	106 x 20TB
Interface	12.0Gb/s SAS
Rotational Speed	7200RPM
Cache	256MB
Format	512e/4Kn

Quotation Date: October 11th, 2022, 08:59 PM EDT. All prices subject to change.

Configured Price: **$75,122.40**

READY TO BUY?
1-800-371-1212

CONFIGURATION ID
605598

THINKMATE

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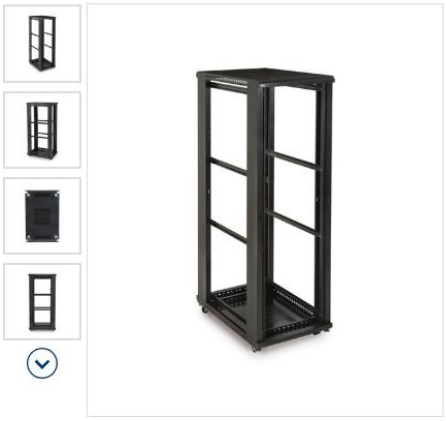
3. Racks

RACKMOUNT SOLUTIONS

Departments | Manufacturer | View Free Shipping Items | I am looking for

Home / Server Racks & Cabinets / Server Racks / Data Center Server Rack / 42u 36"D 4-Post Rack without Doors or Side Panels



KENDALL HOWARD

42u 36"D 4-Post Rack without Doors or Side Panels

SKU: KH-3170-3-001-42 | by Kendall Howard

$821.25 ★★★★★ 1 Review | Ask a question

Shipping Method:	LTL Freight
* Estimated Ship Date:	Wed Oct. 12 - Fri Oct. 14

* Some exclusions apply. For an up to date shipping estimate contact sales@rackmountsolutions.net

Qty: 1 ADD TO CART

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4. Air conditioning units

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Tripp Lite Rackmount Cooling Unit Air Conditioner 7k BTU 2.0kW 120V 60Hz

MFG.PART: SRCOOL7KRM CDW PART: 3715085

~~$1,526.40~~

$914.99 Advertised Price

1

Lease Option ($25.97/month)

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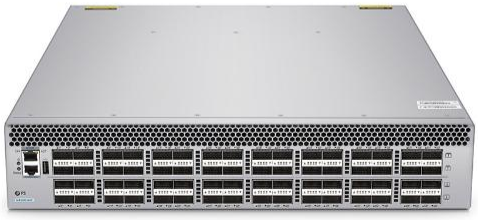
Tech Specs | Accessories | Reviews ★★★½☆ (4) | Save To Favorites | Share

Availability: 2-4+ Days

Expected in-stock date for this item is between 2-4 days. Item will ship once it is in stock.

Add Accessories

5. Network Switches



Click to open expanded view

N8560-64C, 64-Port Ethernet L3 Data Center Switch, 64 x 100Gb QSFP28, Support Stacking, Broadcom Chip, Software Installed #110481

High-capacity spine switch for medium and large data centers and large enterprise networks

US$ 14,199.00

Import Fees Included ⓘ

47 Sold | 7 Reviews | 39 Questions

FS P/N: N8560-64C

Models:

- 48x SFP+, 100G Uplink
- 48x SFP28, 100G Uplink
- 32x QSFP28, 100G Uplink
- 64x QSFP28, 100G Uplink
- 64x QSFP-DD, 400G Uplink

Series:

- Fixed Series Switches
- Modular Series Switches
- Open Networking Switches

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1 Add to Cart

6. Network Cables

Electronics › Computers & Accessories › Computer Accessories & Peripherals › Cables & Accessories › Cables & Interconnects › Ethernet Cables › Cat 7 Cables

Roll over image to zoom in

Cat8 Ethernet Cable 10FT 5 Pack Multi Color, BUSOHE Cat-8 Flat RJ45 Computer Internet LAN Network Ethernet Patch Cable Cord, 40Gbps 2000MHz Faster Than Cat7/Cat6/Cat5, for Router,Modem,Xbox - 10-Feet

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4.5 out of 5 stars 2,185 ratings | 5 answered questions

Amazon's Choice for "cat 7 ethernet cable 10 ft"

List Price: $22.99

Prime Price: $20.53 ($0.41 / Foot)

FREE Returns

You Save: $2.46 (11%)

Prime Early Access Exclusive Prime price

Get $100 off instantly: Pay $0.00 upon approval for the Amazon Store Card.

Size: **10 Feet**

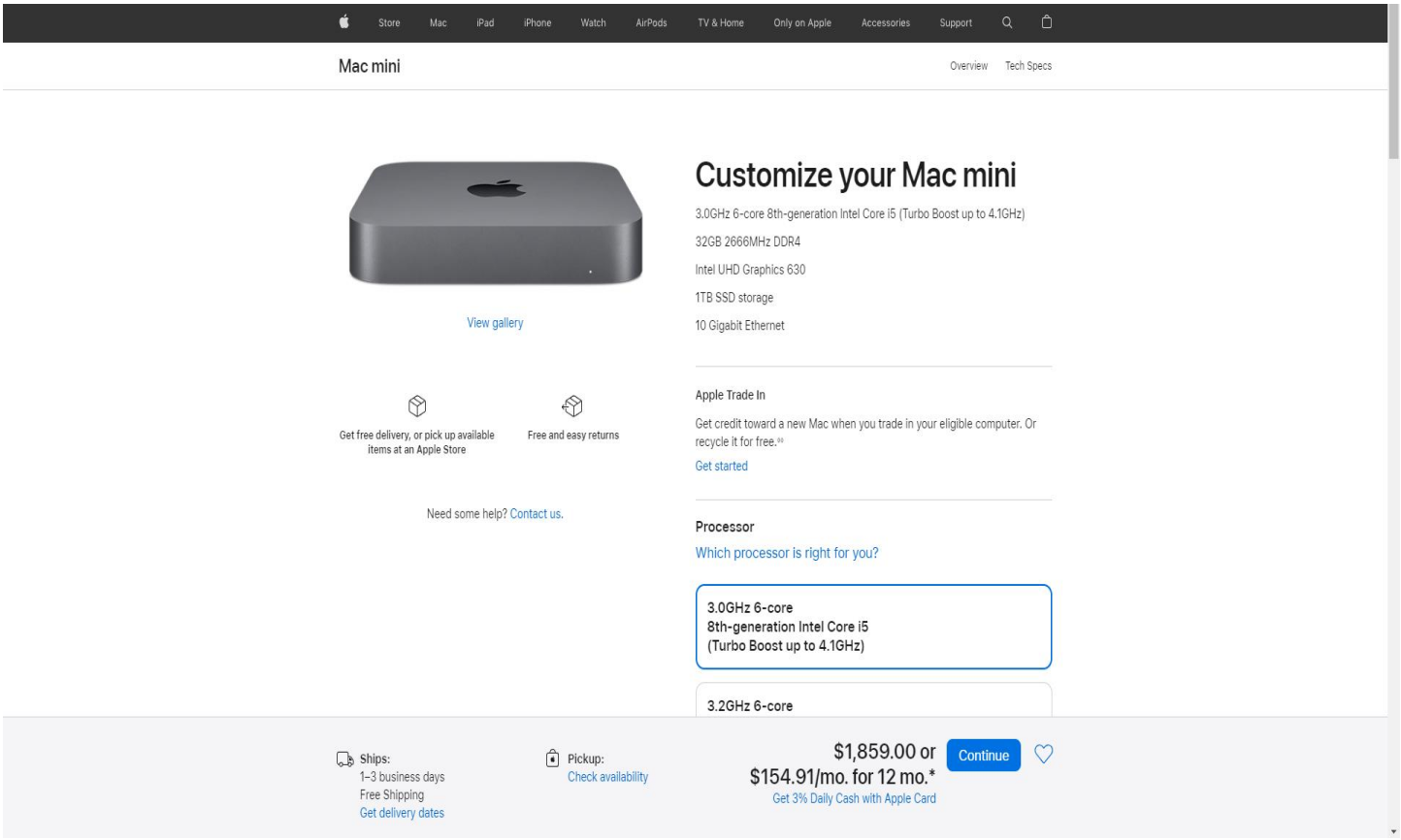
1 Feet	3 Feet	5 Feet	7 Feet	10 Feet
$12.47 ($2.49 / Foot)	$13.31 ($0.89 / Foot)	$15.19 ($0.61 / Foot)	$17.59 ($0.50 / Foot)	**$25.99 ($0.52 / Foot)**

Product details

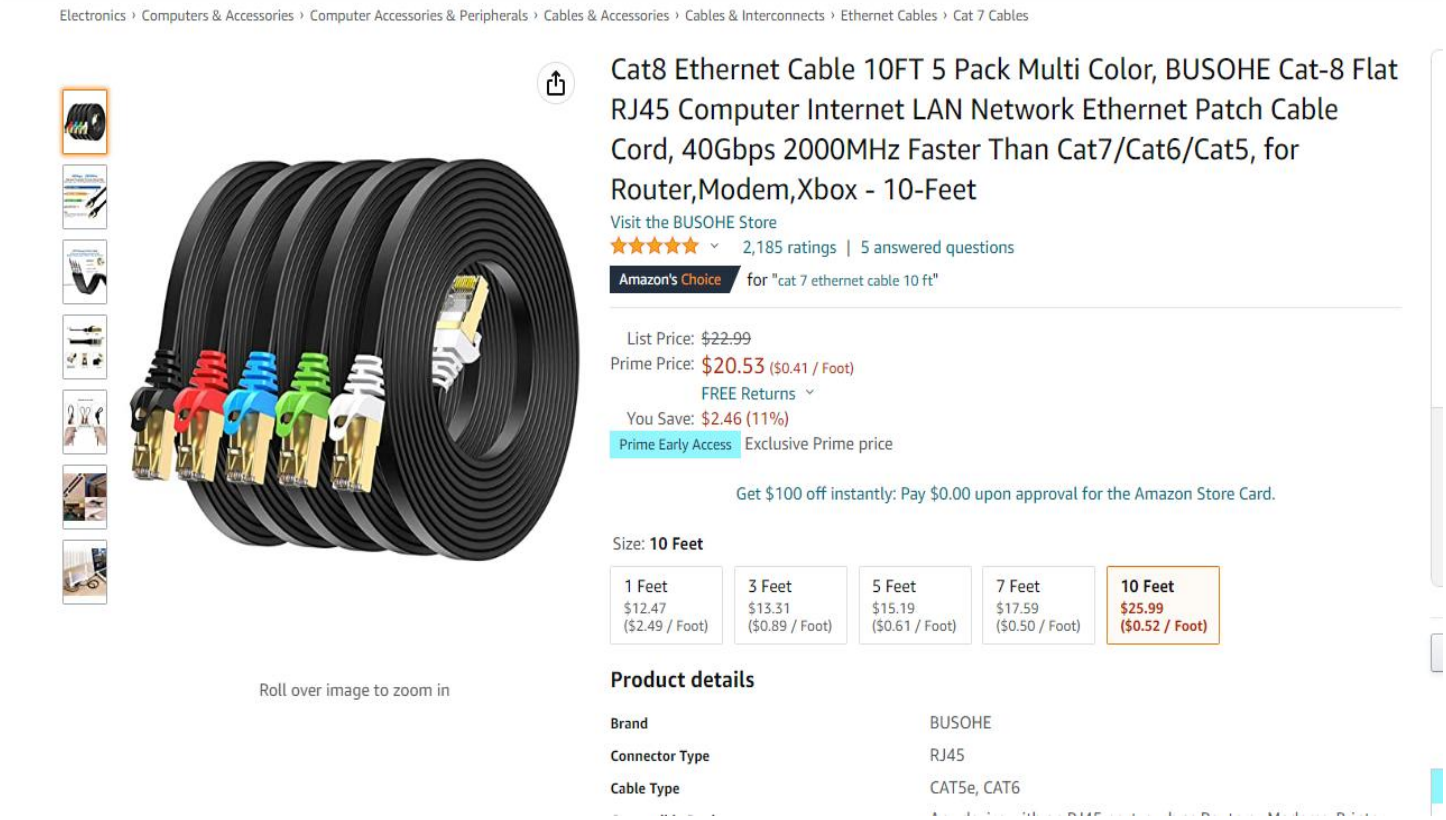
Brand	BUSOHE
Connector Type	RJ45
Cable Type	CAT5e, CAT6

Configuration2:

1. Compute Server



2. Network cables



Configuration3:

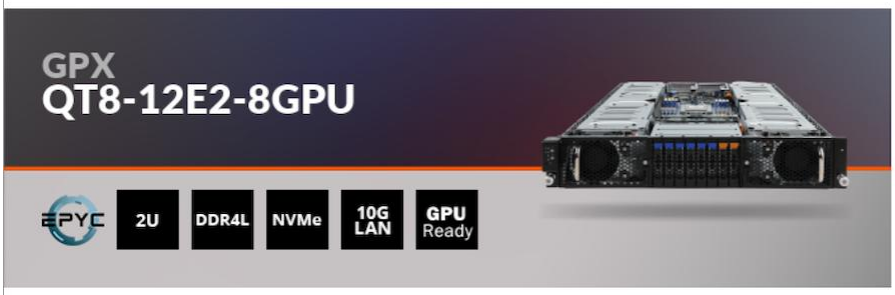
THINKMATE

READY TO BUY?
1-800-371-1212

GPX QT8-12E2-8GPU

My System October 13th, 4:19 pm EDT

Thinkmate Config ID 606117



Configured Price: **$17,044.94**

Selection Summary

Barebone	AMD EPYC™ 7003 Series - 2U GPU Server - 6x 2.5" SATA/SAS3 - 2x U.2 NVMe - 10GbE SFP+ - 2+0 2200W
Processor	AMD EPYC™ 7313P Processor 16-core 3.00GHz 128MB Cache (155W)
Memory	8 x 8GB PC4-25600 3200MHz DDR4 ECC RDIMM
M.2 Drive	256GB Kioxia XG6 M.2 PCIe 3.1 x4 NVMe Solid State Drive
GPU Accelerator	8 x NVIDIA® RTX A4000 - 16GB GDDR6 - PCIe 4.0 x16 - Active Cooling (4xDP)
Network Adapter	Broadcom NetXtreme 1-Gigabit Ethernet Network Adapter - PCIe 2.0 x1 - 2x RJ45
Cables	2 x IEC320 C19 to NEMA L6-20P Locking Power Cable, 12AWG, 250V/20A, Black - 6ft
Operating System	No Windows Operating System
Warranty	Thinkmate® 3 Year Advanced Parts Replacement Warranty (Zone 0)

Tech Specs

Barebone

Memory Technology	DDR4 ECC Registered
Form Factor	2U
Color	Black
Memory Slots	8x 288-pin DIMM Sockets
Graphics	Aspeed AST2500 BMC
Ethernet	2 Ports 10GbE SFP+ (Mellanox ConnectX-4)
Power	2+0 2200W 80 PLUS Platinum hot-swappable power supply C19 power cord required
External Bays	8x 2.5-inch hot-swap drives
M.2	1 M.2 PCIe 3.0 x4 1 M.2 PCIe 3.0 x2 PCIe Gen3 Form Factor: 2242/2260/2280/22110 Key: M-Key
Expansion Slots	8 FH PCIe 4.0 x16 for GPGPUs (Broadcom) 2 LPHL PCIe 4.0 x16
Front Panel	Power button with LED ID button with LED Reset button System Status LED HDD LED LAN LEDs
Back Panel	2 10GbE SFP+ ports 1 RJ45 Management LAN port ID button with LED Power button with LED Reset button NMI button 2 USB 3.0 ports

	1 VGA System status LED
Dimensions (WxHxD)	17.6 x 3.4 x 31.5 inches 448 x 87.5 x 800 mm
Processor	
Product Line	EPYC 7003
Socket	SP3
Clock Speed	3.00 GHz
Cores/Threads	16C / 32T
AMD Boost Technology	yes
TDP Wattage	155W
Memory	
Technology	DDR4
Type	288-pin DIMM
Capacity	8 x 8 GB
Speed	3200 MHz
Error Checking	ECC
Signal Processing	Registered
M.2 Drive	
Storage Capacity	256GB
Interface	PCIe 3.1 x4 NVMe
Endurance	<1 DWPD
Read IOPS	355,000 IOPS
Write IOPS	365,000 IOPS
Read Speed	3050 MB/s
Write Speed	1550 MB/s
NAND	KIOXIA's 96-Layer BiCS FLASH™
GPU Accelerator	
Memory Capacity	16 GB GDDR6 with ECC
Processor	Ampere (GA104)
DisplayPort Output	4x DisplayPort 1.4a
Network Adapter	
Speed	1Gb Ethernet
Connector	RJ45
Interface	PCI Express 2.1 x1
Cable Medium	Copper

Quotation Date: October 13th, 2022, 05:17 PM EDT. All prices subject to change.

Configured Price: **$17,044.94**

READY TO BUY?
1-800-371-1212

CONFIGURATION ID
606117

THINKMATE

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5 Port	5 Port w/ Enhanced Features	8 Port w/ Enhanced Features
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Racks & Cabinets:

Middle Atlantic Products

10u Low Profile Open Rack CFR-10-16

SKU: CFR-10-16 | by Middle Atlantic

$453.60 4.0 out of 5 stars 3 Reviews Ask a question

Shipping Method:	
* Estimated Ship Date:	Mon Oct. 17 - Wed Oct. 19

* Some exclusions apply. For an up to date shipping estimate contact sales@rackmountsolutions.net

Qty: 1 ADD TO CART

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