

The background features a vibrant blue gradient with subtle, wavy horizontal lines. In the bottom right corner, there are abstract, flowing shapes in shades of purple, pink, and orange, creating a dynamic and modern aesthetic.

aws SUMMIT

INDIA | MAY 25, 2023

ETECH007

Building a globally scalable, low latency, and cost-effective crypto derivatives trading platform

Darshit Vora (He/His)

Senior Startup SA

AWS India

Saurabh Goyal (He/His)

Co-founder & CTO

Delta Exchange



Agenda

- Peculiarities of Centralized Crypto Exchanges
- Building blocks of Centralized Crypto Exchanges (CeX)
- Delta Exchange – high performance derivative trading exchange built on AWS

Traits for high performant centralized crypto exchange platform



Simplified interconnection with venues and counterparties



Elasticity to handle market volatility with 24x7 availability



Seamless interoperability and global user base



Enhanced security functionality

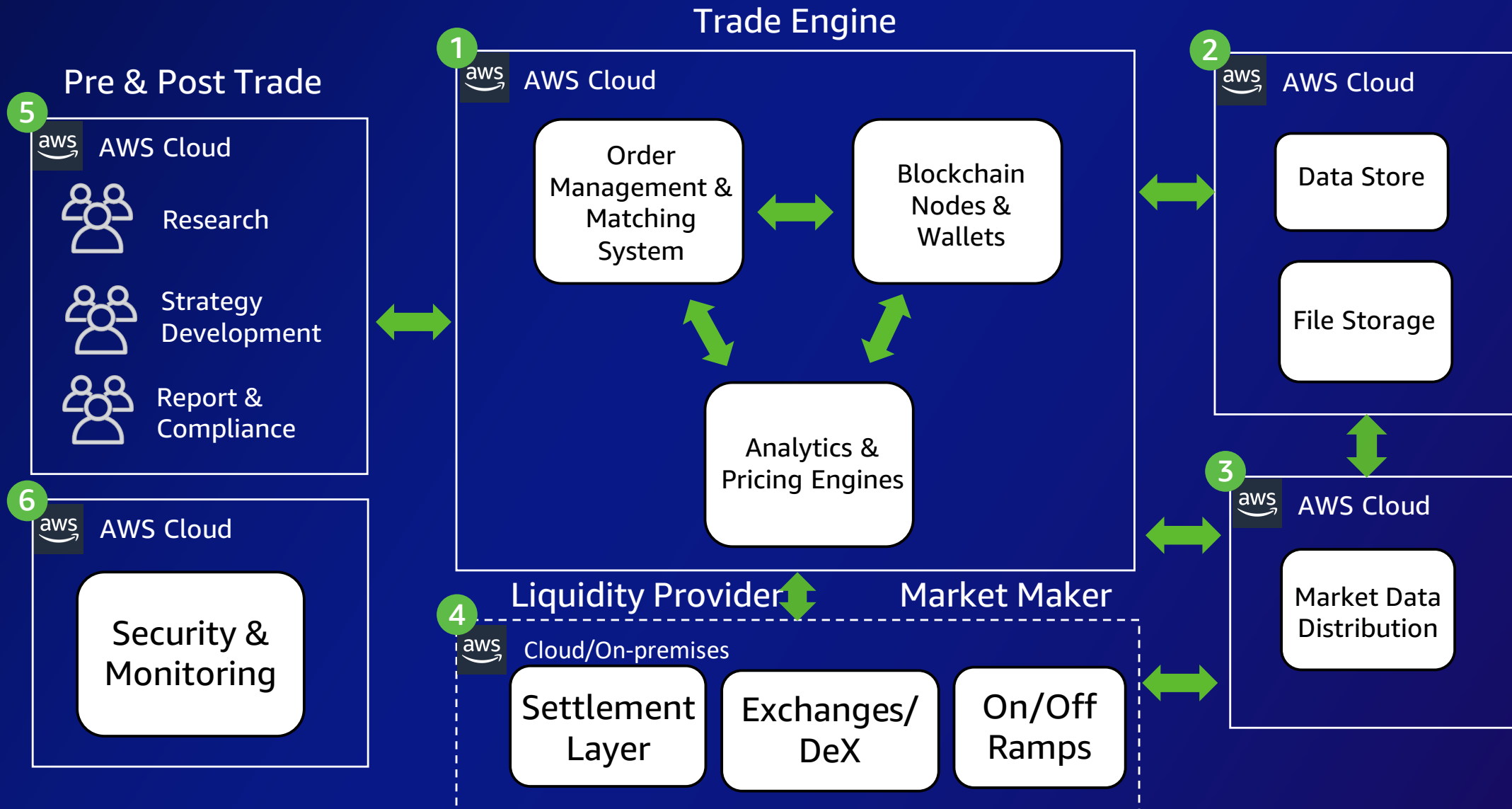


Pay as you go



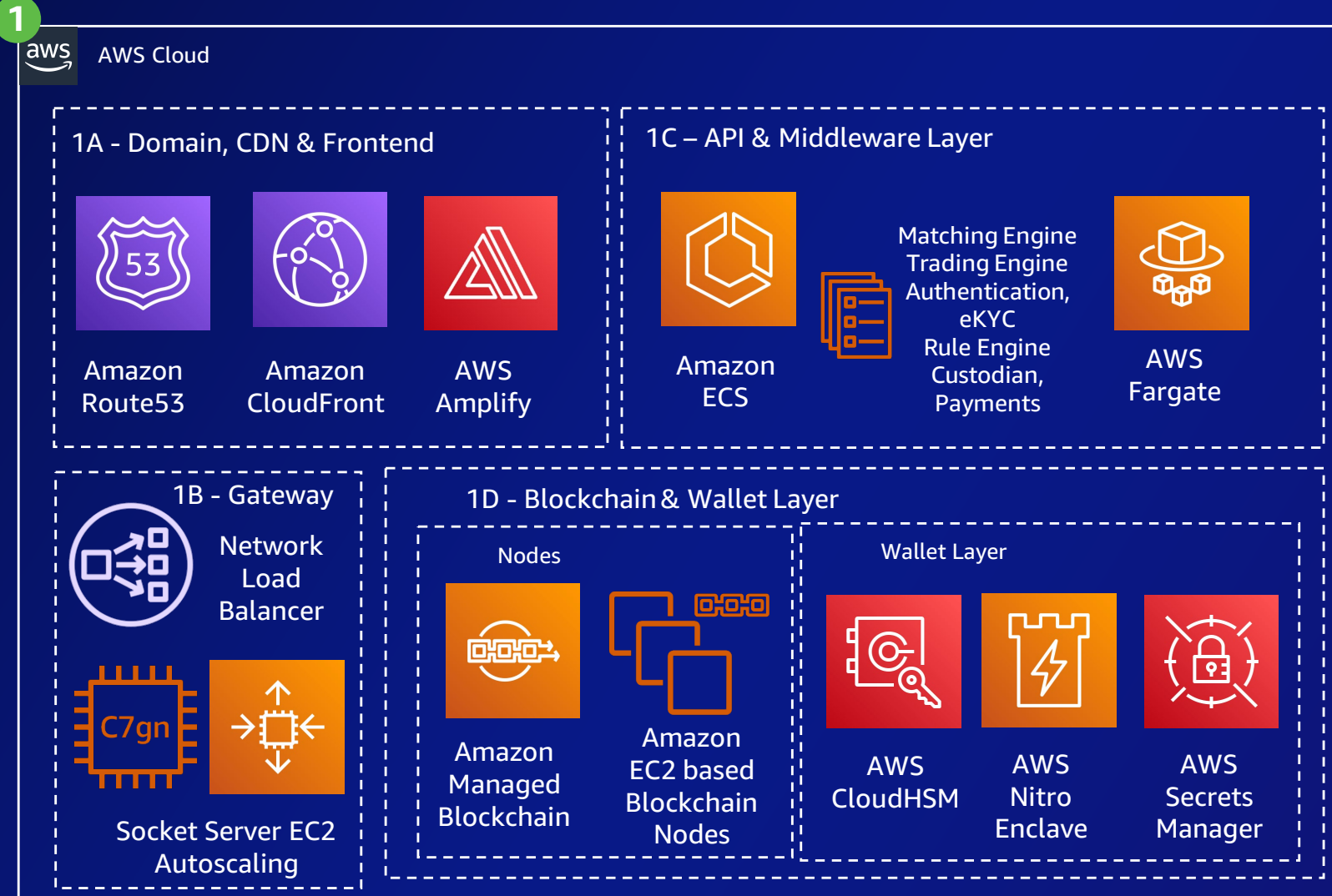
Low latency workload for high performance transactions

Building centralized crypto exchange

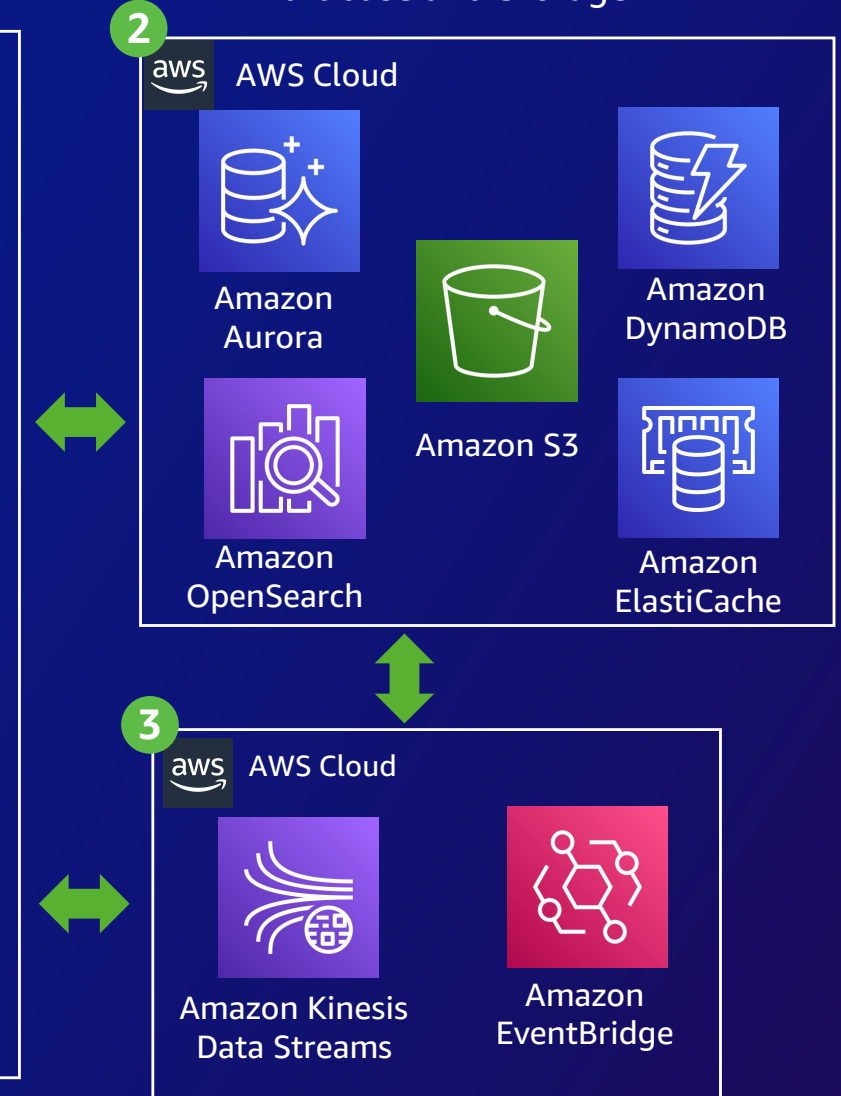


Building centralized crypto exchange

Trade Engine



Database and Storage



Building Delta Exchange on AWS

Saurabh Goyal (He/His)

Co-founder & CTO

Delta Exchange



Tenets for Delta Exchange

- Innovative financial engineering in crypto
- Onboard retail traders from TradFi to Crypto derivatives
- Move fast and experiment with ideas
- Scale rapidly once you find the market fit

Table	Chart	BTC	ETH	C-BTC-25800-050423									
05 Apr 23	06 Apr 23	07 Apr 23	14 Apr 23	21 Apr 23	28 Apr 23	<	>	Prices	Greeks	Data	🔧	24h Change 10.61%	Price 2783.0
Calls										BTC: 28502.40 1.02%			
										Time to Expiry: 0d:0h:58m			
6H OI Chg.	Delta	Volume	Bid Qty BTC	Bid (Price / IV)	Ask (Price / IV)	Ask Qty BTC	OI	Strike	OI	Bid Qty BTC			
0.00	1.00	\$8.70K	6.443	2657.0 0.0%	2747.0 500.0%	3.866	\$0.00						
0.00	1.00	\$951.67	6.443	2459.0 0.0%	2543.0 500.0%	3.866	\$0.00	Avg. Price	~2780.8				
0.00	1.00	\$0.00	6.443	2262.0 0.0%	2340.0 500.0%	3.866	\$0.00	Amount (BTC)	36.146				
0.00	1.00	\$0.00	6.443	2065.0 0.0%	2137.0 469.3%	3.866	\$0.00	Premium (USD)	100513.87				
0.00	1.00	\$0.00	6.443	1869.0 0.0%	1934.0 422.2%	3.866	\$0.00	26400	\$202.84K	64.193			
0.00	1.00	\$0.00	6.443	1671.0 0.0%	1731.0 379.2%	3.866	\$0.00	26600	\$52.83K	62.378			
0.00	1.00	\$394.32	6.443	1475.0 0.0%	1528.0 332.9%	3.866	\$0.00	26800	\$98.63K	64.283			
0.00	1.00	\$0.00	6.443	1277.0 0.0%	1325.0 289.2%	3.865	\$56.99	27000	\$367.17K	59.982			
0.00	1.00	\$56.47	6.442	1080.0 0.0%	1122.0 246.4%	3.866	\$20.83K	27200	\$164.05K	64.193			
0.00	1.00	\$56.67	6.443	981.0 0.0%	1020.0 223.2%	3.865	\$28.50	27400	\$94.32K	63.720			
28.50	1.00	\$28.50	6.442	883.0 0.0%	919.0 202.7%	3.866	\$38.04K	27500	\$9.20K	0.001			
0.00	1.00	\$30.89K	6.443	784.0 0.0%	817.0 179.6%	3.866	\$1.37K	27600	\$158.72K	64.184			
0.00	1.00	\$5.51K	6.443	686.0 0.0%	716.0 159.7%	3.866	\$7.81K	27700	\$155.45K	64.193			
0.00	1.00	\$4.91K	6.443	589.0 0.0%	615.0 136.2%	3.866	\$163.57K	27800	\$91.30K	64.194			
0.00	1.00	\$223.55K	6.443	490.0 0.0%	513.0	3.866	\$216.71K	27900	\$39.50K	63.317			
-427.53	1.00	\$137.88K	6.443			3.866		28000	\$116.43K	1.047			

Order Book

0.01

Price (USD)

Size (BTC)

2890.0

6.995

2855.0

6.098

2819.0

9.949

2783.0

10.628

2761.0

7.040

2752.0

4.663

2747.0

3.866

2783.0

Mark IV 12.5%

I 28503.3

M 2700.2

2657.0

6.443

2653.0

7.771

2643.0

11.733

2621.0

17.714

2585.0

16.581

2549.0

10.163

2514.0

11.659

2468.0

13.375

Recent Trades

Price (USD)

Size (BTC)

Time

2783.0 ↗

0.030

10:45:18

2683.0 ↘

0.030

10:43:29

2546.0 ↘

0.015

06:08:11

2398.0 ↘

0.093

05:28:46

2319.0 ↘

0.093

05:28:08

2281.0 ↘

Complexities of Crypto Derivatives Exchange



Realtime Mark to Market (PnL)

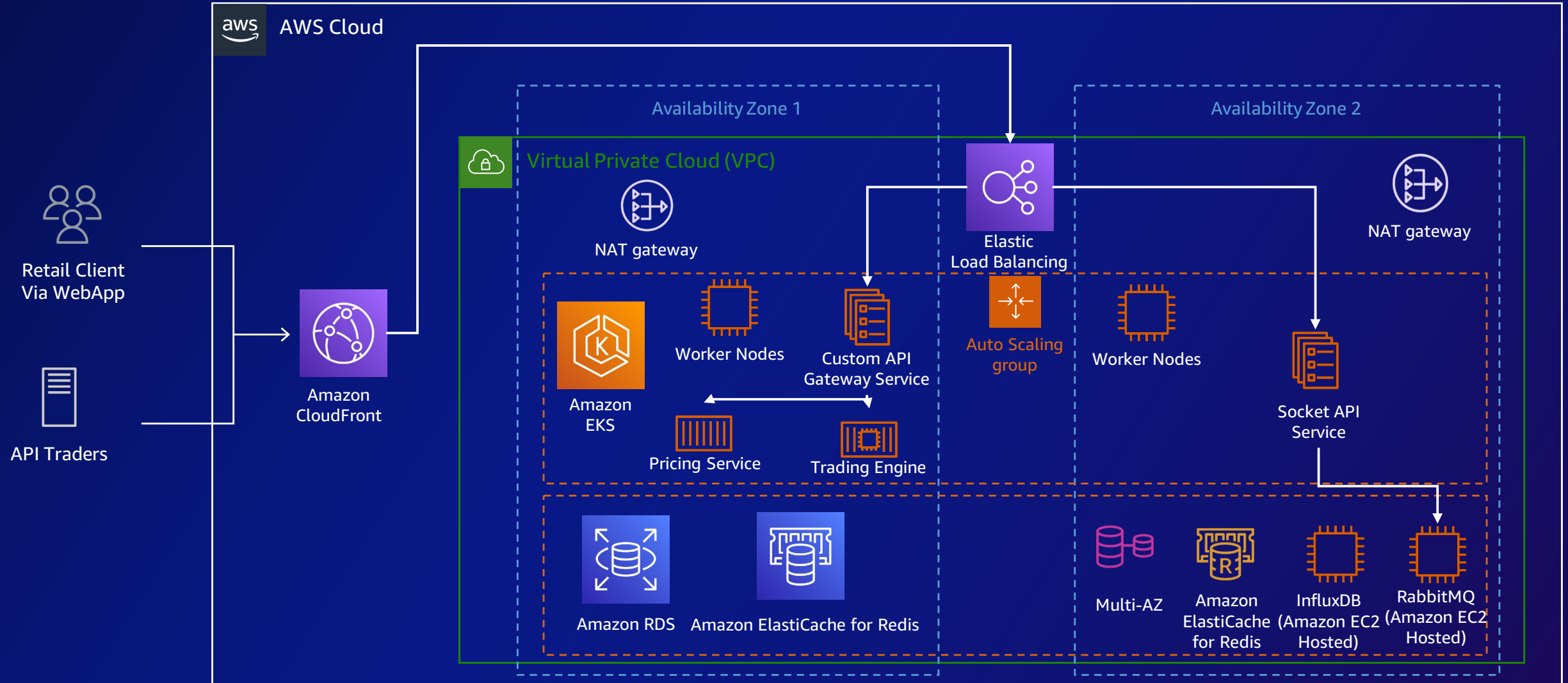


**Unexpected market
volatility**



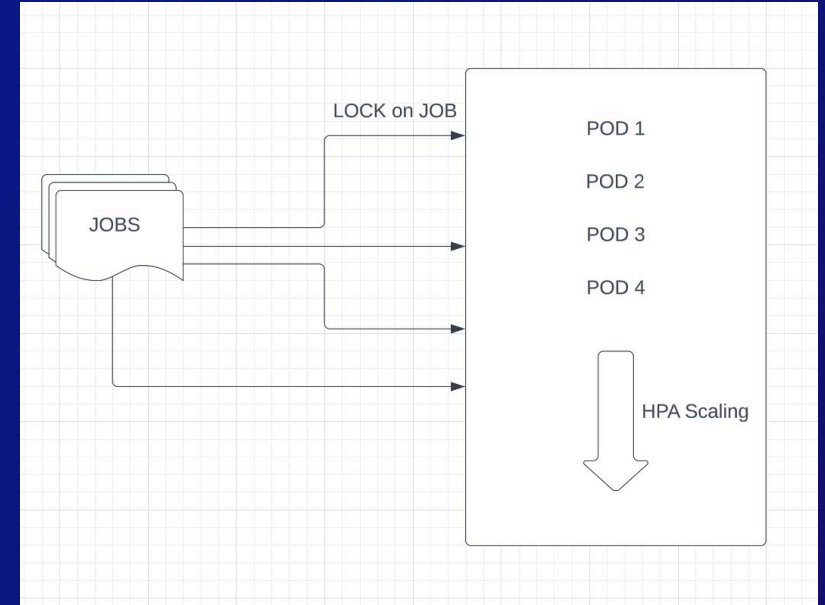
**Diverse Product
Offering with higher
throughput
requirements**

Architecting Delta Exchange core engine

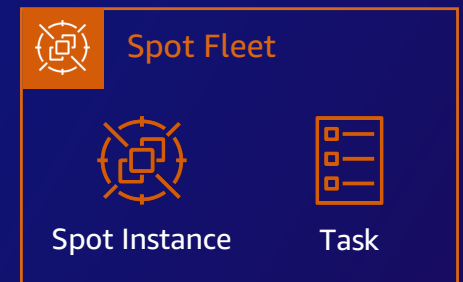


Amazon EKS at scale

- New contracts are launched in real time, as per the market movement
- Amazon EKS Pods scale up and down in real time to cater to newly launched contracts
- Use a worker pool architecture where any Pod can acquire a lock on a contract and run it
- Use Amazon EC2 spot instances to optimize our infra cost



Amazon Elastic Kubernetes
Service (Amazon EKS)



Amazon RDS for high write throughputs

- Trading Engine is a transactional high write throughput system
- Amazon RDS for MySQL with provisioned IOPS
- Fine tuning buffers and bin log params
- Automated backups and Multi AZ to ensure high availability



**Amazon Relational
Database Service
(Amazon RDS)**



Multi-AZ



**Optimized
Writes**

Scaling Delta Exchange further

- Start using Amazon Timestream to power our custom metrics monitoring
- Migrate from Amazon RDS for MySQL to Amazon Aurora



**Amazon
Timestream**



**Amazon
Aurora**

skillbuilder.aws 

Your time is now

Build in-demand cloud skills *your way*



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Thank you!

Darshit Vora
Senior Startup SA
AWS India

Saurabh Goyal
Co-founder & CTO
Delta Exchange



Please complete the
session survey