




The full mock interview is in the course
Distributed System Design Interviews Bible

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The Distributed System Design Interviews Bible

This course is the best online resource that you can use to learn about various aspects of distributed systems, improve your distributed system design skills, and ace your next distributed system design interview.

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Introduction

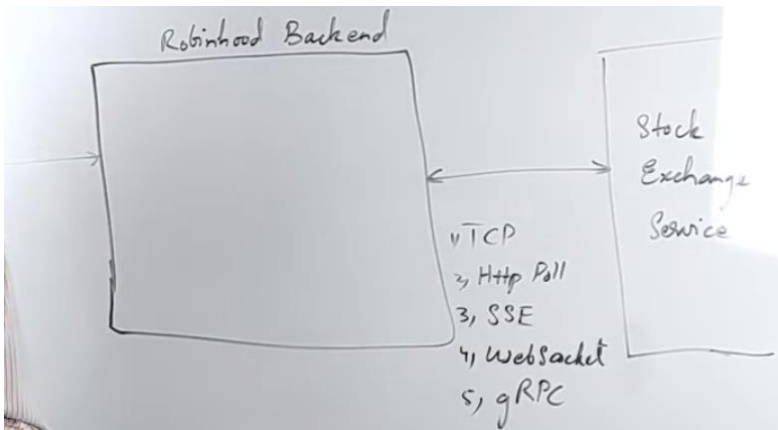
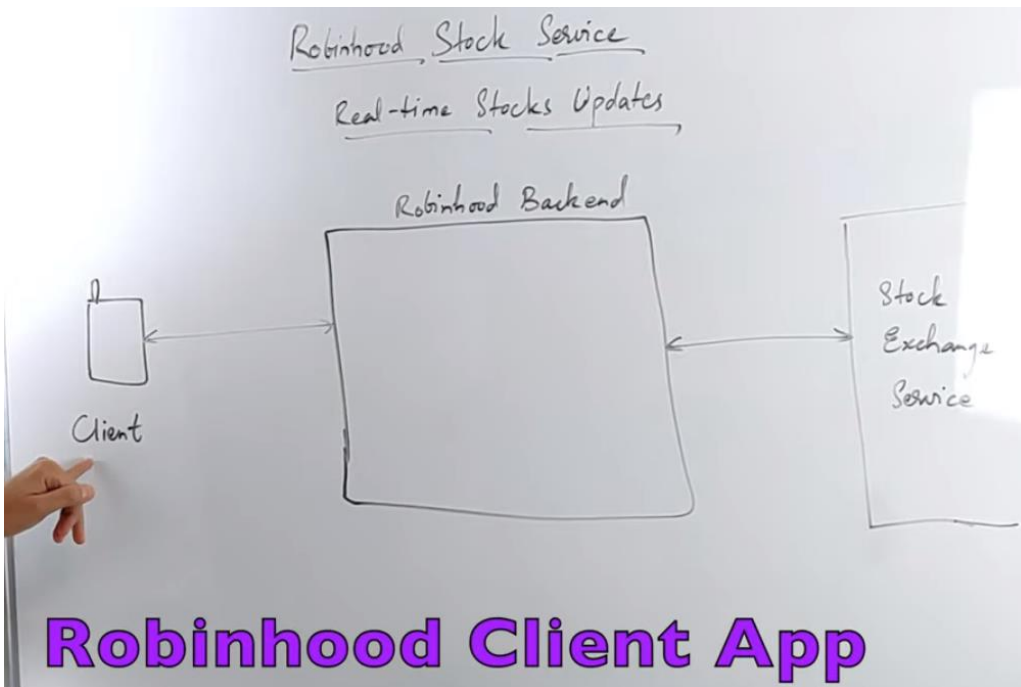
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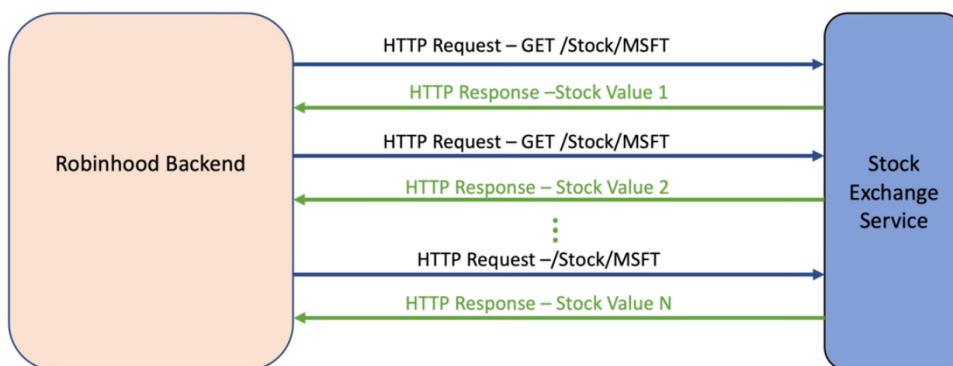
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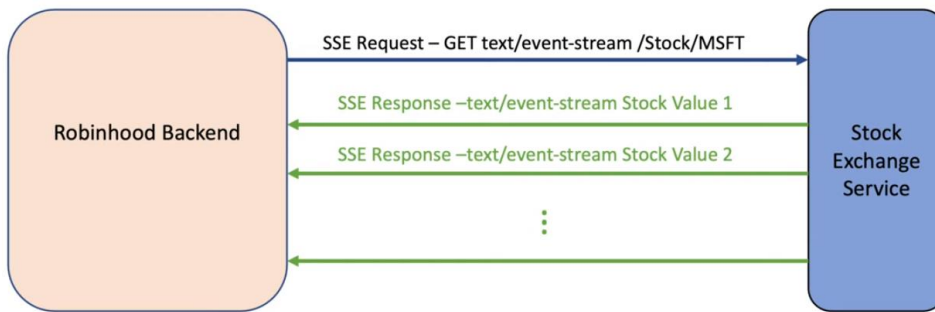
Realtime Stock Updates



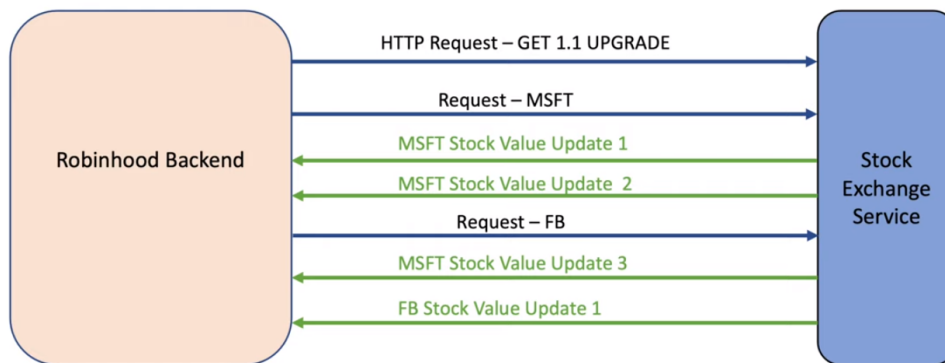
HTTP Polling



Server Sent Events



WebSocket



Bi-directional Communication Protocol

The screenshot shows the Yahoo Finance website interface. At the top, there's a navigation bar with links like Home, Mail, News, Finance, Sports, Entertainment, Search, Mobile, and More... Below this is a search bar and a user profile section for 'Arsalan'. The main content area features a large banner for 'SIGN UP & STREAM THE BIG GAME' with a price of \$69.99. Below the banner, there are several market data widgets for S&P Futures, Dow Futures, Nasdaq Futures, and Russell 2000 Futures. A large news article titled 'European stock markets stage recovery after previous rout' is prominently displayed. To the right, there's a 'My Portfolio & Markets' section with a table of stock prices and changes.

Symbol	Last Price	Change	% Change
MU	82.95	+1.02	+1.24%
STMP	-	-	-
TWOU	15.28	+0.99	+6.93%
MTBC	5.23	-0.15	-2.79%

The Stock Exchange Service will have many different client customers like Yahoo, Fidelity, Webull, etc

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Find out what to consider when market volatility increases.

Tricky times for tech stocks

Top news

Analysis-Volatile markets, Fed uncertainty add to U.S. dip buyers' risks

Reuters - 2:14 AM ET 1/25/2022

Today's markets

Please see perspective from the Securities and Exchange Commission (SEC) on the risks of day trading.
[Learn more](#)

DJIA NASDAQ S&P 500 FTSE 100 NIKKEI 225

+0.20% +0.63% +0.28% +0.75% -1.66%

Webull HOME MARKET TRADE PRICING DOWNLOAD HELP

Symbol/Name SIGN UP LOG IN

Start Trading Now with 0 Commissions

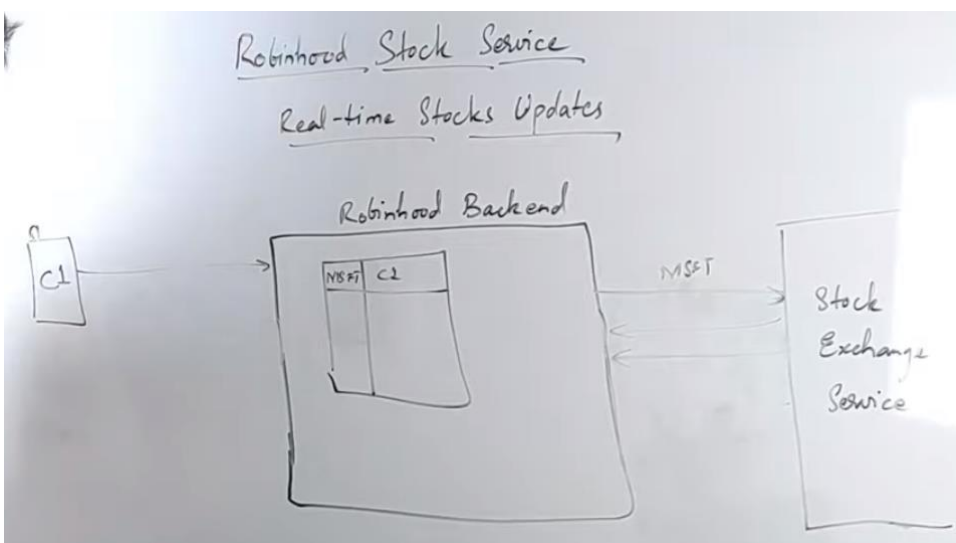
Try Webull Desktop **HOT**

Windows Mac Linux

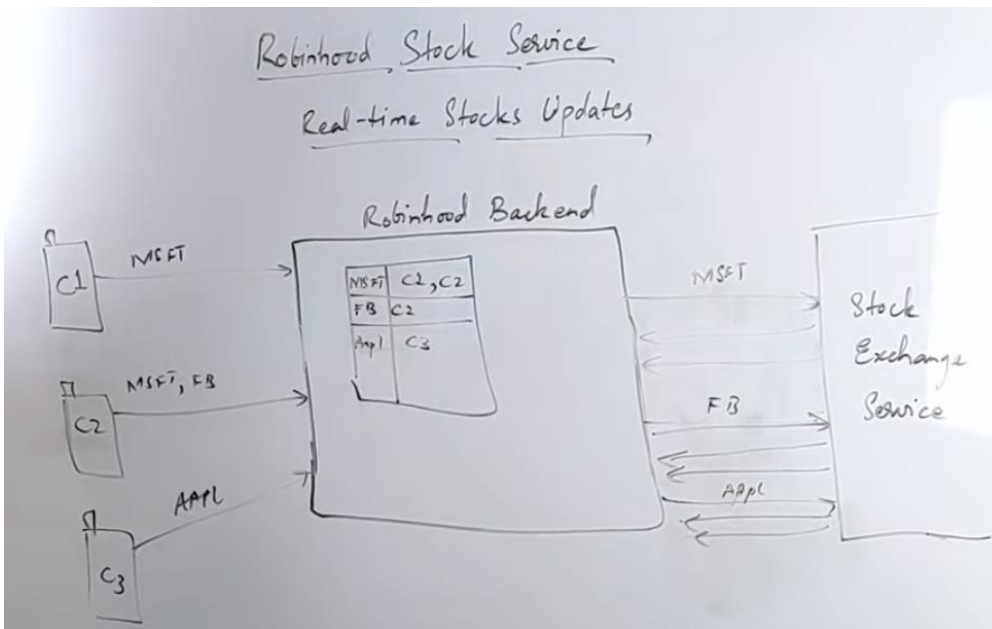
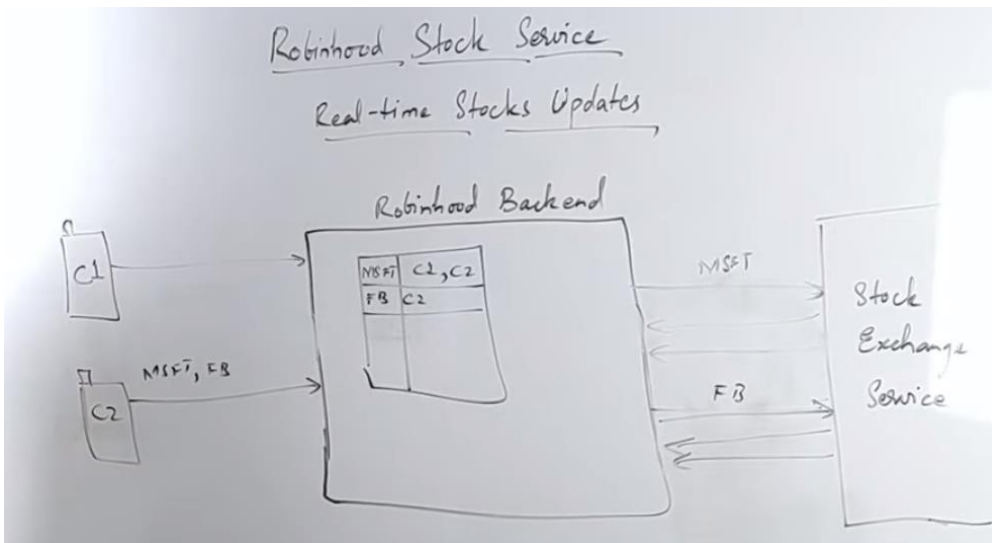
What is Webull Desktop? >

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Communication between Client App and Backend is over SSE

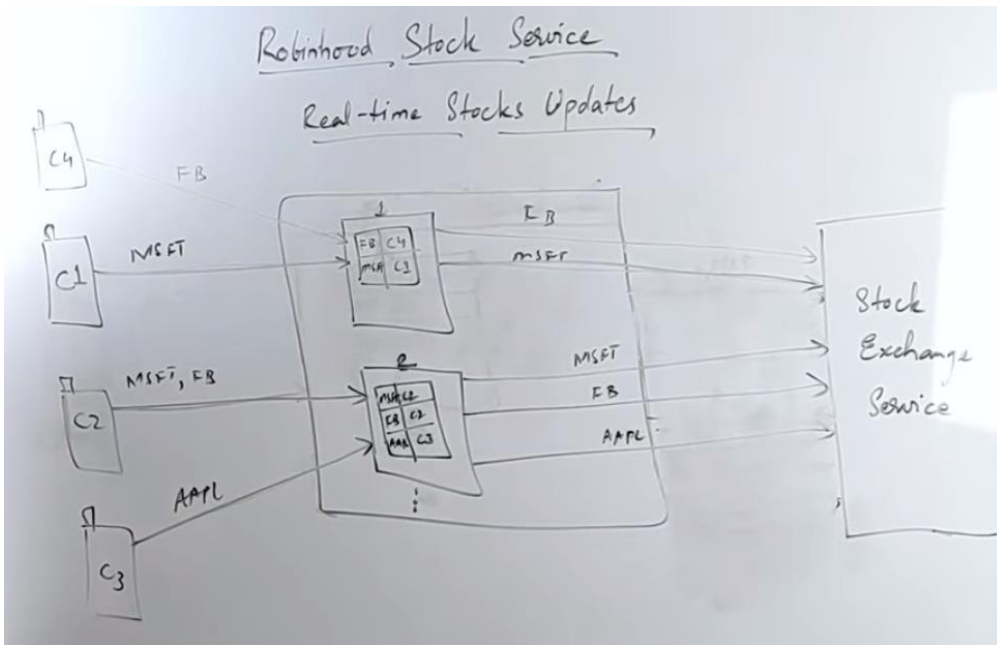


This is the fastest way to received real-time stock updates from the Robinhood backend

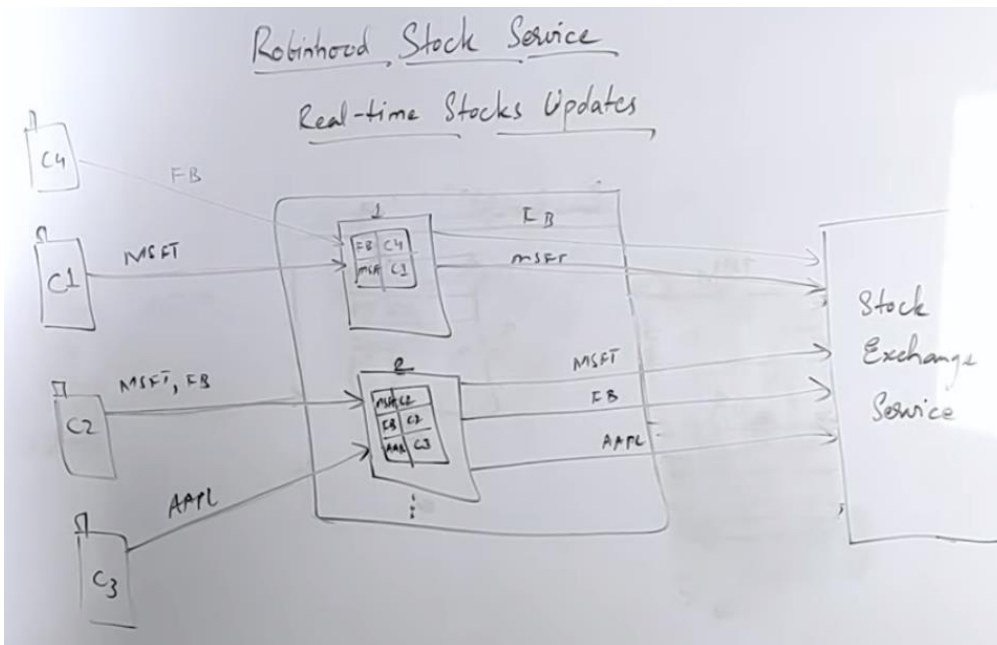
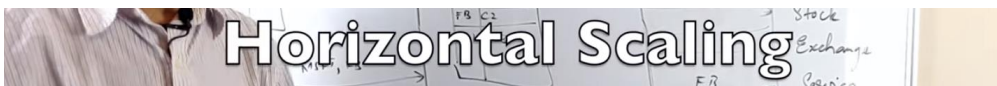
Neither Scalable

Nor Highly Available

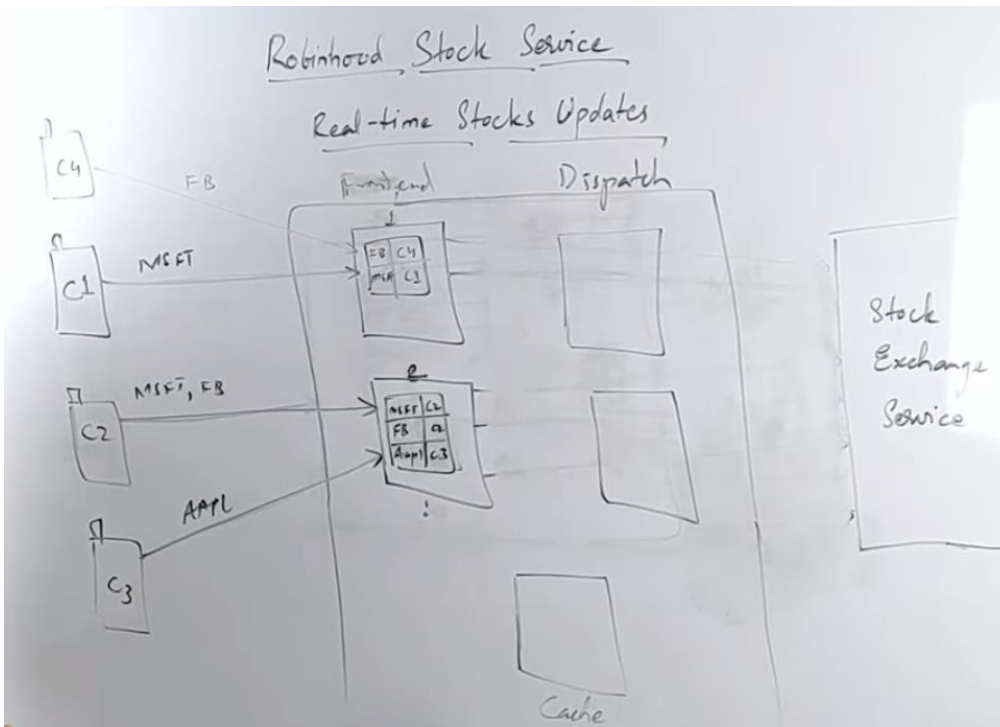
We can go up to about 200K request threads/connections per machine



Each app server will now have its own lookup table and communicate with the Stock Exchange Service on its own via SSE



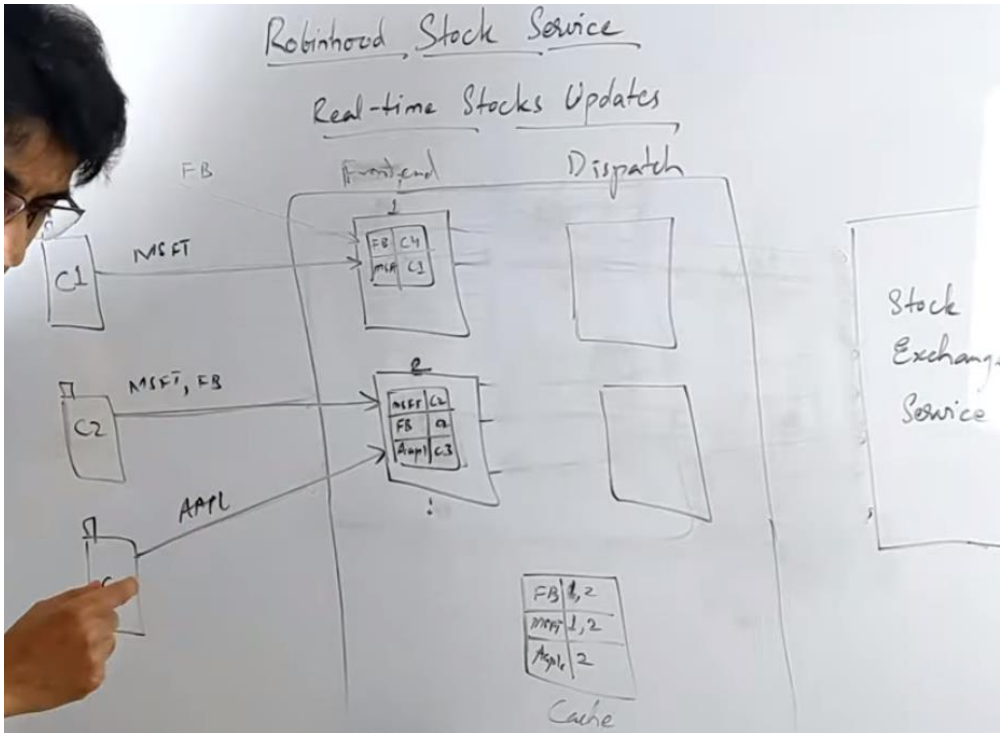
We can't have each App server calling the paid Stock Exchange Service for all 5K stock tickers, we need to optimize



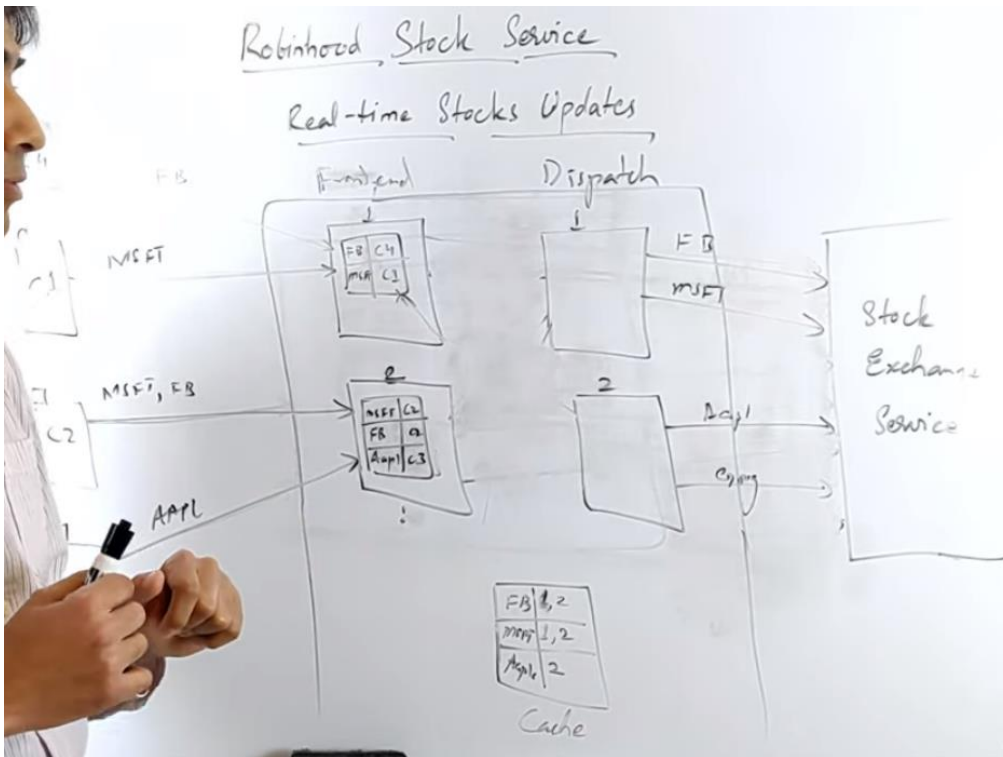
We now have 3 kinds of App servers, **Frontend Servers**, **Dispatch Servers**, **Global Cache**

Frontend Servers

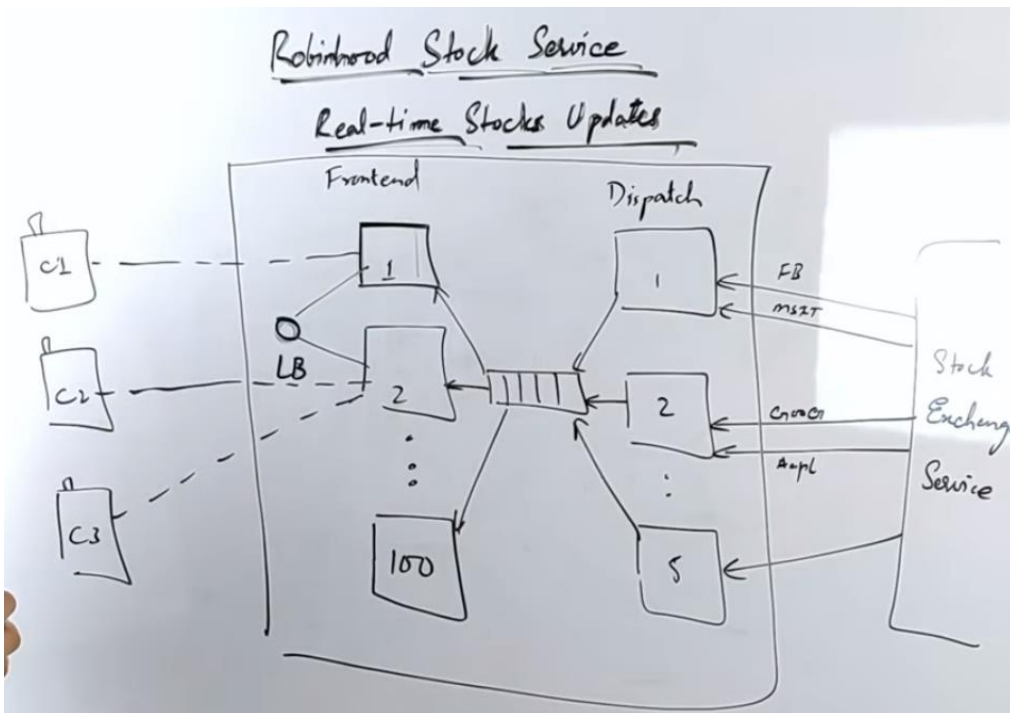
The Frontend Servers have the lookup tables to know which client connections need which stock ticker information



There are 2 types of Lookup tables, Frontend Lookup tables and the Global Cache Lookup tables.



The Dispatch Servers will be smaller in number to the Frontend Servers and make the SSE calls to the Stock Exchange Service. Dispatch Servers do not duplicate SSE for individual stocks.



We can replace the Global Cache with Kafka (as a multi-consumer queue that is scaled by partitions) between the Frontend Servers and the Dispatch Servers for published stock notification events.