	DECISION	PORTFOLIO	EXECUTION	
LEVEL 1 - TRADER				
	Trader (discretion + rule-based)	Portfolio Management System (PMS) → Allocation, exposure.	→ Order Management System (OMS)	→ Generates Orders, Pre-Trade Compliance, Margin/Funds, Transaction Overview
[Trader / Algorithm / Al] → [OMS] → [Risk Controls]	Algorithm (rule-based)		↓↑	
	AI		Execution Management System (EMS)	→ Executes Orders, Reports Updates Back to OMS
	Autonomous & Adaptive			
↓				
LEVEL 2 - BROKER	CONNECTION		OPTIMIZE	VENUES
	Direct Market Access (DMA)	Bypass Broker Routing Logic. Buy-side gets lower costs and extremely fast order execution.	\rightarrow	
[Broker Connection] → [SOR] → [Exchange]	Financial Information Exchange (FIX) Gateway	Standardized protocol for institutional order flow. Push data means fast, minimal delay, bi-directional constant flow.	→ Smart Order Routing (SOR) - Price - Liquidity - Latency - Fees / Rebates →	Exchange / Electronic Communication Network – execution venues where orders are matched. (Dark Pools exist as alternative execution venues but are purposefully excluded from this flow.)
	API Endpoint (RESTful / WebSocket) (Pull)	Coding access using broker-provided interfaces (REST, WebSocket, or proprietary). Automated order placement, data retrieval, and account management directly from trading systems. Pull requested data. One-direction at a time.		
	GUI / Trading Terminal (Bloomberg or IBKR TWS)	→ Manual entry via broker-provided interface (Bloomberg, IBKR TWS).		
	Sponsored Access / Co-location	Ultra-low-latency setup. Connects inside or near the exchange's data center. Co-location provides physical proximity for faster execution; Sponsored Access lets non-members trade through a sponsoring broker.	n	
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LEVEL 3 - MARKET	ORDER DATA		MATCHING	REPORTS
	Order Book / Market Depth	Best bid/ask defines current market price.	→ Matching Engine	→ Trade execution report back to EMS ↓
[Order Book] → [Matching Engine] → [Trade Execution]	Volume of buy and sell orders across prices.	→ Updates in real time.	→ - Match Market Orders w/ limit orders - Price-time priority	Broker receives and confirms fill ↓
		Orders are either executed or canceled.	- Partial fills possible	Trader account update upstreamed to PMS.
↓				
LEVEL 4 - POST	SETTLEMENT	CLEARING	CUSTODIAN	PORTFOLIO
	Match trade details between buyer and seller	→ Clearinghouse guarantees trade (novation)	Handles assets.	Position and P&L updated post settlement ↓
[Clearing & Settlement] → [Custodian] → [Portfolio Update]	Net obligations (cash vs securities)		→ Handles cash delivery.	→ Back-office reconciliation ↓
	Initiate settlement instructions		Books and records alignment.	Reporting completed.