Blockchain Platform Comparison & Use Case Analysis

Task Overview

Categories to select platforms from:

- Public Blockchain: Ethereum

- Private Blockchain: Hyperledger Fabric

- Consortium Blockchain: R3 Corda

1)Comparison Table

Blockchain Name	Type	Consensus Mechanism Used	Permission Model	Speed / Throughput (TPS)	Smart Contract Support	Token Support	Typical Use Case	Notable Technical Feature
Ethereum	Public	Proof of Stake (Ethereum 2.0 — since The Merge)	Open	~30 TPS on mainnet, scalable with Layer-2 (Polygon, Arbitrum)	Yes — Solidity, Vyper	Native Token (ETH)	Decentralized Apps (DApps), DeFi, NFTs	Smart contracts, open participation, Layer-2 scaling solutions
Hyperledger Fabric	Private	Pluggable (e.g., Raft, Kafka, Solo — deprecated)	Permissioned	~1000+ TPS depending on configuration	Yes — Chaincode (Go, Java, Node.js)	No native token	Enterprise supply chain, asset provenance tracking	Modular architecture, permissioned channels for data privacy
R3	Consort	Notary-based	Permissi	~170 TPS for	Yes — JVM	No nativ	Inter-bank	Point-to-point

Corda	ium	(can use Raft/BFT or others)	oned	financial transactions	based (Kotlin, Java)	e token	payments, syndicated loans, financial settlements	messaging, data minimization, high privacy

2 Short Report (150–200 Words)

The selected blockchains — Ethereum, Hyperledger Fabric, and R3 Corda — differ significantly in terms of their technical architecture, consensus mechanisms, and intended use cases.

Ethereum, a public blockchain, operates on Proof of Stake consensus, allowing open participation. Its main strength lies in its extensive smart contract capabilities via Solidity and a thriving decentralized ecosystem. Although its base throughput is around 30 TPS, scalability is achieved through Layer-2 solutions like Polygon. It also supports native tokens, making it ideal for public DApps, DeFi platforms, and NFT marketplaces.

Hyperledger Fabric, a private and permissioned blockchain, employs a pluggable consensus framework, achieving 1000+ TPS in enterprise-grade environments. It does not support native tokens but offers advanced privacy features like channels and private data collections, making it suitable for supply chain networks among known, trusted partners.

R3 Corda serves as a consortium blockchain for industries like banking and finance. It uses a Notary-based consensus model supporting point-to-point data sharing, achieving 170 TPS. With smart contract support via Kotlin/Java and a focus on privacy and regulatory compliance, it excels in inter-bank financial applications.

Platform Recommendations

Scenario	Recommended Platform	Justification
A decentralized application (DApp)	Ethereum	Open participation, token economy, Solidity smart contracts, Layer-2 scaling
A supply chain network among known partners	Hyperledger Fabric	Permissioned access, high TPS, modular architecture, private channels
An inter-bank financial application	R3 Corda	Point-to-point privacy, regulatory alignment, smart

contracts in Kotlin/Java