Blockchain Platform Comparison

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)	Open	15–30 TPS (Layer 1)	Yes (Solidity, Vyper)	Native (ETH, ERC-20, etc.)	Decentralized Apps (DApps), DeFi; Feature: Smart contracts and large developer ecosystem
Hyperledger Fabric	Private	Pluggable (e.g., Raft, Kafka)	Permissioned	Up to 3,500+ TPS	Yes (Go, Java, JavaScript)	No native token	Enterprise supply chain, finance; Feature: Modular architecture, privacy controls
Quorum	Consortium	IBFT, Raft	Permissioned	Up to 2,000+ TPS	Yes (Solidity)	Supports Ethereum-compatible tokens	Finance, interbank settlements; Feature: Privacy through private transactions

Q.2 **Write a Short Report (150–200 words):**

- Compare and contrast the **technical capabilities** of each.

- Which platform would you choose for:
  - A decentralized app?
  - A supply chain network among known partners?
  - An inter-bank financial application?

Justify your choice based on technical points.

Ans - The technical functionality of Ethereum, Hyperledger Fabric, and Quorum also differs substantially because of their design objectives.

Ethereum is a public blockchain that uses Proof of Stake consensus. It offers strong smart contract support using languages like Solidity and Vyper and powers a vast ecosystem of decentralized apps (DApps). However, its throughput is relatively low (15–30 TPS on Layer 1), making it less suitable for high-speed enterprise use without Layer 2 enhancements.

Hyperledger Fabric is a private, permissioned blockchain designed for enterprise applications. It features a modular architecture with pluggable consensus (e.g., Raft), high throughput (up to 3,500+ TPS), and strong privacy controls. It does not support a native cryptocurrency, making it ideal for internal organizational networks like supply chains.

Quorum is a consortium blockchain based on Ethereum. It supports smart contracts (Solidity), allows private transactions, and offers improved throughput (up to 2,000+ TPS). Its permissioned nature makes it well-suited for financial services between trusted institutions.

Platform Choices:

Decentralized app: Ethereum – due to its public nature and robust DApp ecosystem.

Supply chain among known partners: Hyperledger Fabric – for its privacy, control, and high TPS.

Inter-bank financial application: Quorum – for its privacy features and Ethereum compatibility.