1. Ethereum (Public Blockchain)

• Type: Public

• Consensus: Proof of Stake (since Ethereum 2.0)

• Permission: Open to everyone

• Speed: Around 30 transactions per second on the main chain (Layer 1), but can go much higher with Layer 2 solutions (thousands of TPS)

• Smart Contracts: Yes – Mainly written in Solidity (also supports Vyper)

• Token Support: Yes – It has its own native token (ETH) and supports many others via ERC standards

• Best Used For: DeFi apps, NFTs, decentralized apps (dApps)

• Notable Technical Feature: Huge ecosystem with powerful developer tools and support for Layer 2 scaling like Optimism, Arbitrum, etc.

2. Hyperledger Fabric (Private Blockchain)

• Type: Private

• Consensus: Pluggable – can use Raft, Kafka, or others based on needs

• Permission: Only trusted participants can join

• Speed: Very fast – over 2000 transactions per second (depends on setup)

• Smart Contracts: Yes – Called “chaincode”; can be written in Go, JavaScript, or Java

• Token Support: No native token (it’s not built for cryptocurrencies)

• Best Used For: Secure enterprise use cases like supply chain tracking, healthcare data sharing, etc.

• Notable Technical Feature: Super modular and allows private channels for more secure transactions between specific members.

3. Quorum (Consortium Blockchain)

• Type: Consortium (shared among trusted institutions)

• Consensus: Istanbul BFT or Raft (fast and practical for trusted networks)

• Permission: Permissioned – Only invited participants can join

• Speed: Around 200–300 transactions per second

• Smart Contracts: Yes – Uses Solidity (just like Ethereum)

• Token Support: Yes – Custom tokens are possible (no fixed native token like ETH)

• Best Used For: Financial services, interbank transfers, and private enterprise solutions

• Notable Technical Feature: Supports private transactions – plus, it’s an enterprise-ready version of Ethereum, so you get familiar tools with more control.

2) Comparison

Ethereum (Public Blockchain)

• Public and fully decentralized.

• Uses Proof of Stake (PoS) – energy-efficient, secure, but slower than private networks.

• Around 30 TPS on Layer 1; thousands TPS possible with Layer 2 scaling (e.g., Arbitrum, Optimism).

• Smart contracts written in Solidity or Vyper.

• Fully supports tokens (native ETH + ERC-20, ERC-721, etc.).

• No privacy between participants – all data is public by default.

• Ideal for trustless, global interactions and open innovation.

Hyperledger Fabric (Private Blockchain)

• Permissioned and modular – only known participants can join.

• Uses pluggable consensus (e.g., Raft, Kafka) – very high performance.

• 2000+ TPS achievable depending on setup.

• Smart contracts (called chaincode) support Go, Java, JavaScript.

• No native token – not designed for cryptocurrencies.

• Supports channels for private communication between selected parties.

• Fine-grained access control, perfect for enterprise data privacy.

Quorum (Consortium Blockchain)

• Permissioned, enterprise-focused Ethereum fork.

• Uses Istanbul BFT or Raft – fast and fault-tolerant.

• Around 200–300 TPS.

• Smart contracts written in Solidity (same as Ethereum).

• Token support is optional (custom, but no native token like ETH).

• Supports private transactions within the same chain.

• Designed for financial use cases requiring both performance and confidentiality.

Platform Choice by Use Case

1. For a Decentralized App (dApp)

I Choose: Ethereum

Why?

• Open access and full decentralization.

• Large existing ecosystem of users, developers, and tooling.

• Strong support for smart contracts and tokens.

• Layer 2 solutions can handle scalability.

2. For a Supply Chain Network Among Known Partners

I Choose: Hyperledger Fabric

Why?

• Private, permissioned network – ideal for known entities.

• High throughput (2000+ TPS).

• Ability to create private channels for confidential transactions between specific parties.

• No need for a cryptocurrency – aligns well with traditional enterprise systems.