

Blockchain Platform Comparison Table

Criteria	Ethereum (Public)	Hyperledger Fabric (Private)	Quorum (Consortium)
Blockchain Name	Ethereum	Hyperledger Fabric	Quorum
Type (Public/Private/Consortium)	Public	Private	Consortium
Consensus Mechanism Used	Proof of Stake (PoS)	Pluggable consensus (PBFT, Raft, Solo)	Istanbul BFT (IBFT) or Raft
Permission Model (Open/Permissioned)	Open	Permissioned	Permissioned
Speed / Throughput (TPS if available)	15-20 TPS (base layer), up to 100,000 TPS with Layer 2	3,500+ TPS (varies based on configuration)	100-750 TPS (depending on network configuration)
Smart Contract Support (Y/N + Language)	Yes - Solidity, Vyper	Yes - Go, Node.js, Java, Python (called "Chaincode")	Yes - Solidity (Ethereum-compatible)
Token Support (Native or not)	Native token (ETH) + supports ERC-20, ERC-721, ERC-1155 standards	No native token (can create custom tokens)	No native token (Ethereum-compatible, can support custom tokens)
Typical Use Case	Decentralized applications (DApps), DeFi, NFTs, smart contracts	Enterprise applications, supply chain management, trade finance, identity management	Financial services, interbank transfers, trade settlements, regulatory compliance
Notable Technical Feature	Largest smart contract ecosystem, extensive developer tools, Layer 2 scaling solutions	Modular architecture, pluggable consensus mechanisms, channel-based privacy, fine-grained access control	Transaction privacy through private state management, Ethereum compatibility, enterprise-grade security

Report on Technical Capabilities

Ethereum excels in **decentralization and openness**, offering robust smart contract capabilities through Solidity with extensive developer tools and a vast ecosystem. However, its base layer throughput remains limited at 15-20 TPS, though Layer 2 solutions dramatically improve scalability.

Hyperledger Fabric provides **enterprise-grade modularity** with pluggable consensus mechanisms and superior performance at 3,500+ TPS. Its channel-based architecture enables fine-grained privacy controls and permissioned access, making it ideal for controlled environments. However, it lacks native cryptocurrency support and requires more complex setup.

Quorum balances **privacy with collaboration**, offering Ethereum compatibility while maintaining consortium-level control. Its 100-750 TPS throughput and private state management features make it suitable for regulated industries, though it sacrifices the full decentralization benefits of public blockchains.

For a decentralized app: Ethereum - Its open ecosystem, extensive developer community, and comprehensive DApp infrastructure make it the clear choice for public-facing decentralized applications.

For a supply chain network among known partners: Hyperledger Fabric - Its modular architecture, permissioned access controls, and high throughput perfectly suit controlled business networks requiring data privacy.

For an inter-bank financial application: Quorum - Its regulatory-friendly consortium model, transaction privacy features, and proven financial sector adoption make it optimal for banking collaborations.