Blockchain Platform Comparison and Analysis

# Comparison Table

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| Blockchain Name | Type | Consensus Mechanism Used | Permission Model | Speed / Throughput | Smart Contract Support | Token Support | Typical Use Case | Notable Technical Feature |
| Ethereum | Public | Proof of Stake (PoS) | Open | 30–100 TPS (scalable via L2) | Yes (Solidity, Vyper) | Yes (ETH - Native) | Decentralized apps (DApps), DeFi, NFTs | Large developer ecosystem, Layer 2 scalability |
| Hyperledger Fabric | Private | Pluggable BFT-based consensus | Permissioned | Up to 20,000 TPS | Yes (Go, JavaScript) | No (Custom asset tokens) | Enterprise solutions, supply chain | Channel-based privacy, modular architecture |
| R3 Corda | Consortium | Notary service (customized Raft/BFT) | Permissioned | 500+ TPS | Yes (Kotlin, Java) | No (Asset modeling only) | Inter-bank transactions, regulated finance | Point-to-point architecture, legal prose support |

# Short Report

This report analyzes three blockchain platforms from different categories: Ethereum (Public), Hyperledger Fabric (Private), and R3 Corda (Consortium). Each platform offers unique technical strengths tailored for specific use cases.  
  
Ethereum, as a public blockchain, supports open participation and excels in smart contract functionality using Solidity or Vyper. Although its throughput is lower (30–100 TPS), it benefits from a massive developer ecosystem and Layer 2 scalability solutions, making it ideal for decentralized applications.  
  
Hyperledger Fabric, a private blockchain, delivers high throughput (up to 20,000 TPS) and modular architecture. It enables enterprise-grade solutions with fine-grained permissioning and privacy through channels, making it suitable for internal or supply chain networks.  
  
R3 Corda, a consortium blockchain, supports high performance and privacy by using a point-to-point architecture. It’s tailored for financial institutions needing regulated and secure data exchanges without native token dependency.  
  
For a decentralized app, Ethereum is most suitable due to its openness and smart contract support. For a supply chain among known partners, Hyperledger Fabric offers the best performance and permissioning. For inter-bank financial applications, R3 Corda stands out with its privacy, legal prose handling, and direct messaging architecture.