

Attribute	Ethereum	Hyperledger Fabric	R3 Corda (Consortium Mode)
Type	Public	Private	Consortium
Consensus Mechanism	Proof of Stake (Ethereum 2.0)	Pluggable (e.g., Raft, Kafka)	Notary-based (Raft, BFT)
Permission Model	Open	Permissioned	Permissioned
Speed / TPS	~30–100 TPS	~1,000–3,000 TPS	~170–200 TPS
Smart Contract Support	Yes (Solidity, Vyper)	Yes (Chaincode - Go, Java)	Yes (JVM - Kotlin/Java)
Token Support	Yes (ETH - Native)	No native token	No native token
Typical Use Case	Decentralized apps, DeFi	Enterprise operations, internal transactions	Interbank payments, legal contracts
Notable Feature	Turing-complete smart contracts, EVM	Channels for private data, modular design	Point-to-point messaging, strong identity

Short Report (Comparison & Use Case Analysis)

Ethereum, as a public blockchain, is designed for trustless environments. It supports a vast ecosystem of dApps using Solidity and benefits from decentralization. However, its throughput is relatively low compared to private or consortium chains, making it less suitable for high-volume enterprise use cases.

Hyperledger Fabric is optimized for private, permissioned networks. Its modular consensus and high throughput make it ideal for business applications requiring privacy, such as supply chains. It doesn't support native tokens but offers flexibility via smart contracts (Chaincode).

R3 Corda, functioning well in consortium settings, uses a unique notary consensus model. It doesn't broadcast transactions to the whole network, which helps with performance and privacy. While it lacks a native token, it's ideal for finance and legal use cases, especially interbank transactions.

Platform Choices:

- **For a decentralized app: Ethereum** — due to its public, trustless nature and active developer community.
- **For a supply chain network among known partners: Hyperledger Fabric** — because of its privacy, scalability, and modularity.
- **For an inter-bank financial application: R3 Corda** — its strong identity model and private transaction flow suit financial institutions best.