Blockchain Platform Comparison

Feature	Ethereum (Public)	Hyperledger Fabric (Private)	R3 Corda (Consortium)
Type	Public	Private	Consortium
Consensus Mechanism	PoS (Eth2)	Pluggable (e.g., Raft, Kafka)	Notary-based
Permission Model	Open (Permissionless)	Permissioned	Permissioned
Speed/Throughput	20-100 TPS* (100k TPS post-danksharding)	3,500-20,000 TPS	170-1,000 TPS
Smart Contract Support	Yes (Solidity, Vyper)	Yes (Go, Java, Node.js)	Yes (Kotlin, Java)
Token Support	Native (ETH) + ERC-20/721	No native token	No native token
Typical Use Case	DeFi, NFTs, dApps	Enterprise supply chains	Financial services

Feature	Ethereum (Public)	Hyperledger Fabric (Private)	R3 Corda (Consortium)
Notable Technical Feature	EVM compatibility	Channel-based privacy	Point-to-point transactions

Short Report

Ethereum excels as a **public decentralized platform** with robust smart contract capabilities (Solidity) and native token support. Its shift to PoS enhances scalability (100k TPS post-upgrades) while maintaining security. Ideal for permissionless dApps like DeFi protocols where transparency is critical.

Hyperledger Fabric offers **granular privacy** through channels, allowing confidential transactions between selected participants. Its pluggable consensus (e.g., Raft) enables high throughput (20k TPS) without mining overhead. Best for enterprise supply chains (e.g., IBM Food Trust) requiring auditable yet private data sharing.

R3 Corda uses **unique point-to-point transactions** instead of global broadcasting, ensuring only involved parties see data. Notary-based consensus provides finality without mining. Tailored for financial consortia (e.g., inter-bank settlements) where legal enforceability and privacy are paramount.

Platform Selection Justification

1. **Decentralized App (dApp): Ethereum**

   - ○ **Why**: EVM compatibility, native token (gas fees), and open access enable trustless dApps (e.g., Uniswap). PoS balances security and scalability.

2. **Supply Chain Network: Hyperledger Fabric**

   - ○ **Why**: Channels allow Walmart and suppliers to share data privately. Pluggable consensus handles high throughput for logistics tracking.

3. **Inter-Bank Application: R3 Corda**

   - ○ **Why**: Point-to-point transactions hide sensitive data from competitors. Legal identity frameworks (e.g., Corda Settler) ensure regulatory compliance.