Blockchain Platform Comparison Table

Feature	Ethereum (Public)	Hyperledger Fabric (Private)	R3 Corda (Consortium)
Type	Public	Private	Consortium
Consensus Mechanism	Proof of Stake (PoS, via Ethereum 2.0)	Pluggable (default: RAFT, can support Kafka, PBFT, etc.)	Notary-based (Raft or BFT depending on trust level)
Permission Model	Open – anyone can participate	Permissioned – access restricted to known participants	Permissioned – shared among vetted institutions
Speed / Throughput (TPS)	~15–30 TPS	1,000–3,000+ TPS (depends on configuration and hardware)	~100–200 TPS (varies with network size and notary implementation)
Smart Contract Support	Yes – Solidity (Turing-complete, EVM-based)	Yes – Chaincode (Go, Java, JavaScript)	Yes – CorDapps (Kotlin, Java; runs on JVM)
Token Support	Yes – Native Token (ETH) and ERC standards	No native token (tokenization possible via external modules)	No native token (focus on asset and data flows without token use)

Typical Use Case	dApps, DeFi, NFTs, DAOs, global payments	Supply chains, trade finance, healthcare systems	Financial services, insurance, interbank settlements
Notable Technical Feature	Public access, large developer ecosystem, DeFi	Modular architecture, channel-based privacy, high throughput	Point-to-point messaging, identity management, legal contract focus

Detailed Comparative Report

Ethereum, Hyperledger Fabric, and R3 Corda serve distinct needs in the blockchain ecosystem. **Ethereum**, a public blockchain, is open to all participants and excels in supporting decentralized applications (dApps). It employs **Proof of Stake** to ensure consensus and uses the **Ethereum Virtual Machine (EVM)** to execute smart contracts written in **Solidity**. Despite its robust developer ecosystem and token economy (e.g., ETH, ERC-20), Ethereum's **limited throughput (~30 TPS)** can hinder enterprise scalability.

In contrast, **Hyperledger Fabric** is a **private, permissioned** blockchain designed for enterprises. It supports **pluggable consensus** (e.g., RAFT) and uses **Chaincode** for smart contracts. With **throughput exceeding 3,000 TPS**, and fine-grained access control using channels, it's ideal for **supply chain networks** where data privacy is critical.

R3 Corda, although technically a Distributed Ledger Technology (DLT), operates in a **consortium** model. It doesn't use a traditional blockchain but offers **point-to-point communication**, **legal contract compatibility**, and **notary services** for consensus. Corda is optimized for **interbank and financial applications**, providing strong privacy and regulatory compliance.

Platform Choices:

- **Decentralized app** → Ethereum (open, programmable)
- **Supply chain** → Hyperledger Fabric (private, scalable)
- **Inter-bank network** → R3 Corda (secure, financial-grade DLT)