**BLOCKCHAIN PLATFORM COMPARISON**

| **Feature** | **Ethereum (Public)** | **Hyperledger Fabric (Private)** | **R3 Corda (Consortium)** |
| --- | --- | --- | --- |
| **Type** | Public | Private | Consortium |
| **Consensus** | Proof of Stake (Eth2) | Pluggable (e.g., Kafka, Raft) | Notary-based consensus |
| **Permission Model** | Open | Permissioned | Permissioned |
| **Throughput** | ~30 TPS | 3,000+ TPS | ~170 TPS |
| **Smart Contracts** | Yes (Solidity) | Yes (Go, JavaScript) | Yes (Kotlin, Java) |
| **Token Support** | Native (ETH) | No native token | No native token |
| **Use Cases** | DeFi, NFTs, public dApps | Enterprise supply chains | Financial institutions |
| **Key Feature** | EVM-compatible | Channel-based privacy | Point-to-point transactions |

**Technical Capabilities Analysis (200 words)**

Each of these blockchain platforms is built with a different goal in mind, making them suitable for very specific types of applications.

**Ethereum:** is a fully public blockchain focused on decentralization. It uses Proof of Stake (Eth2) to validate transactions without needing a central authority. This makes it ideal for applications like DeFi and NFTs that thrive on open participation and transparency. With support for smart contracts via Solidity and a thriving developer ecosystem, Ethereum remains the go-to choice for truly decentralized apps, despite its relatively lower throughput.

**Hyperledger Fabric:** is geared toward businesses and enterprises. It’s a permissioned network, which means participants are vetted and known, allowing for private, secure collaboration. Fabric stands out with its modular architecture—particularly its use of channels for confidential data sharing—and customizable consensus options. It doesn’t have a native token, which is often a plus in environments where cryptocurrency isn’t needed or allowed.

**R3 Corda:** sits between these two extremes, tailored for financial institutions. It offers selective transaction visibility through a point-to-point model, meaning only involved parties see the data. Corda’s smart contracts also include legal prose, which is valuable for regulatory compliance. It's ideal for interbank transactions where trust, privacy, and clarity are paramount.

**Platform Selection Recommendations**

1. **For a Decentralized App (dApp)** : **Ethereum**
   * Offers the most open and composable ecosystem with EVM compatibility
   * Native token (ETH) enables built-in incentive mechanisms
   * Ideal for global, trustless participation
2. **For a Supply Chain Network** : **Hyperledger Fabric**
   * Channel-based privacy ensures confidential transactions between partners
   * Suited to known participants like vendors, manufacturers, and distributors
   * High throughput supports data-heavy workflows
3. **For Interbank or Financial Applications** :**R3 Corda**
   * Designed from the ground up for regulated financial services
   * Smart contracts reflect legal language, making them compliance-friendly
   * Efficient and private communication through point-to-point transactions

.