

I have chosen Ethereum as an platform from Public Blockchain , Hyperledger Fabric from Private blockchain and R3 Corda from Consortium blockchain.

Markdown sheet for the following is :

## 1. Ethereum :

**Blockchain Name:** Ethereum

**Type:** Public Blockchain

**Consensus Mechanism Used:** Proof of Stake (PoS)

**Permission Model:** Open (Anyone can participate in the network without approval)

**Speed / Throughput:** Around **15–30 transactions per second (TPS)** on the mainnet, an scale higher with **Layer 2 solutions** (e.g., Optimism, Arbitrum)

**Smart Contract Support:** Yes , Primary languages: **Solidity** and **Vyper** , Executed on the **Ethereum Virtual Machine (EVM)**

**Token Support:**      **Native token:** ETH

**Typical Use Case:** Decentralized applications (dApps) , DeFi (Decentralized Finance) , NFTs (Non-Fungible Tokens)

### **Notable Technical Features:**

Ethereum Virtual Machine (EVM): A decentralized computing environment for smart contracts  
Large Developer Ecosystem and rich tooling

## 2. Hyperledger Fabric :

**Blockchain Name:** Hyperledger Fabric

**Type:** Private

**Consensus Mechanism Used:** Pluggable Consensus (e.g., Raft, Kafka, BFT-based options)

**Permission Model:** Permissioned (Only authorized participants can join and transact)

**Speed / Throughput:** Can reach 1,000+ TPS depending on configuration and infrastructure

**Smart Contract Support:** Yes

**Token Support:** No Native Token

### **Typical Use Case:**

1. Enterprise applications like supply chain, healthcare, banking, and identity
2. Private, auditable business transactions between known parties

**Notable Technical Features:** Modular architecture , Private data collections

### 3. R3 Corda:

📄 **Blockchain Name:** R3 Corda

📄 **Type:** Consortium

📄 **Consensus Mechanism Used:** Uses notary services for transaction ordering and uniqueness, Can use BFT or Raft for consensus within notaries

📄 **Permission Model:** Permissioned

📄 **Smart Contract Support:** Yes

📄 **Token Support:** No native token

📄 **Typical Use Case:**

1. Financial services, insurance, trade finance, and legal agreements
2. Focus on direct peer-to-peer transactions with legal clarity

📄 **Notable Technical Features:** Point-to-point architecture for privacy.

Q) Compare and contrast the **technical capabilities** of each.

Ans. **Ethereum** : is a public blockchain, meaning anyone can join and use it. It uses a system called Proof of Stake to agree on transactions. It supports smart contracts, which are programs that run on the blockchain, written in a language called Solidity. It is great for building open, decentralized apps but is slower (about 15–30 transactions per second) and less private.

**Hyperledger Fabric** : is a private blockchain used mostly by businesses. Only invited members can join. It is fast (can handle 1000+ transactions per second), supports smart contracts in common languages like Go and Java, and allows for private communication between specific groups. It is good when privacy and speed are important.

**R3 Corda**: is not a traditional blockchain. It's more like a secure database shared between trusted companies. Only the parties involved in a transaction see it, which makes it very private. It is often used in banks and financial institutions. Corda supports smart contracts in Java or Kotlin and focuses on legal and business processes.

Q) Which platform would you choose for:

A decentralized app?

A supply chain network among known partners?

An inter-bank financial application?

Ans.

🔗 **A decentralized app (dApp):** Chosen Ethereum :

Because it is open to everyone, supports smart contracts, and is designed for public, decentralized systems like games, finance apps, and NFTs.

🔗 **A supply chain network among known partners:** Choose Hyperledger Fabric

Because it is private, fast, and secure. Only trusted members can join, and it allows sharing data only with the right people. This is useful when multiple companies work together.

🔗 **An inter-bank financial application:** Choose R3 Corda

Because it is made for financial systems. It keeps transactions private between the banks involved and supports legal agreements, which are important in banking.