

Comparison Table Between Different Blockchains : -

Type	Public Blockchain	Private Blockchain	Consortium Blockchain
Blockchain Name	Ethereum	Hyperledger Fabric	Quorum
Consensus	PoS	Raft	Raft
Permission Model	Open	Permissioned	Permissioned
Speed (TPS)	15-30 TPS	1,000-20,000 TPS	100-500 TPS
Smart Contract Support	Yes, Solidity	Yes, Chaincode	Yes, Solidity / Vyper
Token Support	Native Token (Ether)	No Native Token	No Native Token
Typical Use Case	DeFi, NFTs, RWA	Enterprises B2B	Financial Services
Notable Technical Feature	Layer 2, ERC Standards	Private Channels	Privacy Concern

Report : -

Ethereum, **Hyperledger Fabric**, and **Quorum** serve different blockchain needs.

Ethereum is a public, **permissionless** platform with PoS consensus, supporting **EVM-based smart contracts** (Solidity/Vyper) and high interoperability via **ERC standards**. It excels in DeFi, NFTs, and DAOs but suffers from lower **30 TPS** and no native privacy.

Hyperledger Fabric is a **permissioned enterprise solution** with modular **consensus Raft** and **private channels** for data isolation. It achieves a high **1,000–20,000 TPS** but lacks native token standards and uses **Docker-based chaincode** (Go/Java/JS). It's ideal for supply chain and healthcare.

Quorum, an Ethereum **fork**, combines EVM compatibility with permissioning and privacy (**Tessera**). It supports **RAFT/IBFT** consensus **100–500 TPS** and is tailored for financial applications like interbank settlements.

I Would Choose ICP : -

- For dApp : -

ICP's web-speed performance (**Max 25,621 TPS**), direct web serving capabilities, and **reverse gas model** make it superior for user-facing dApps.

Unlike Ethereum's high gas fees and slow confirmations, ICP enables **full-stack on-chain applications** with HTTP outcalls for **seamless Web2 integration**.

Canister storage capacity of up to **400GB per canister** allows for rich media applications, databases, and complex dApp functionalities that would be prohibitively expensive on other blockchains.

- For Supply Chain Network : -

ICP's **canister isolation** enables secure multi-partner data segregation while maintaining shared visibility.

Threshold cryptography eliminates single points of failure critical for supply chain integrity.

HTTP outcalls provide real-time integration with existing **IoT** sensors, and **logistics** systems **without** requiring **oracles**.

The **Service Nervous System (SNS)** enables decentralized governance for supply chain rules and protocol updates across participating partners.

Deterministic execution ensures consistent supply chain rule enforcement across all partners, while **immutable audit trails** provide tamper-proof provenance tracking.

- Inter-bank Financial Application : -

ICP's **deterministic execution** ensures precise financial calculations and regulatory compliance.

Chain Fusion with Bitcoin integration (ckBTC) enables direct Bitcoin custody and transactions without bridges, allowing banks to offer secure Bitcoin services and cross-chain settlements natively.

Threshold cryptography provides bank-grade security without traditional consensus vulnerabilities.

The **Service Nervous System (SNS)** enables decentralized governance for supply chain rules and protocol updates across participating partners.

Sub-second finality enables real-time settlement capabilities superior to Quorum's 100-500 TPS.

The **reverse gas model** makes micro-transactions economically viable, while **HTTP outcalls** facilitate seamless **SWIFT integration** and real-time regulatory reporting without external oracles.