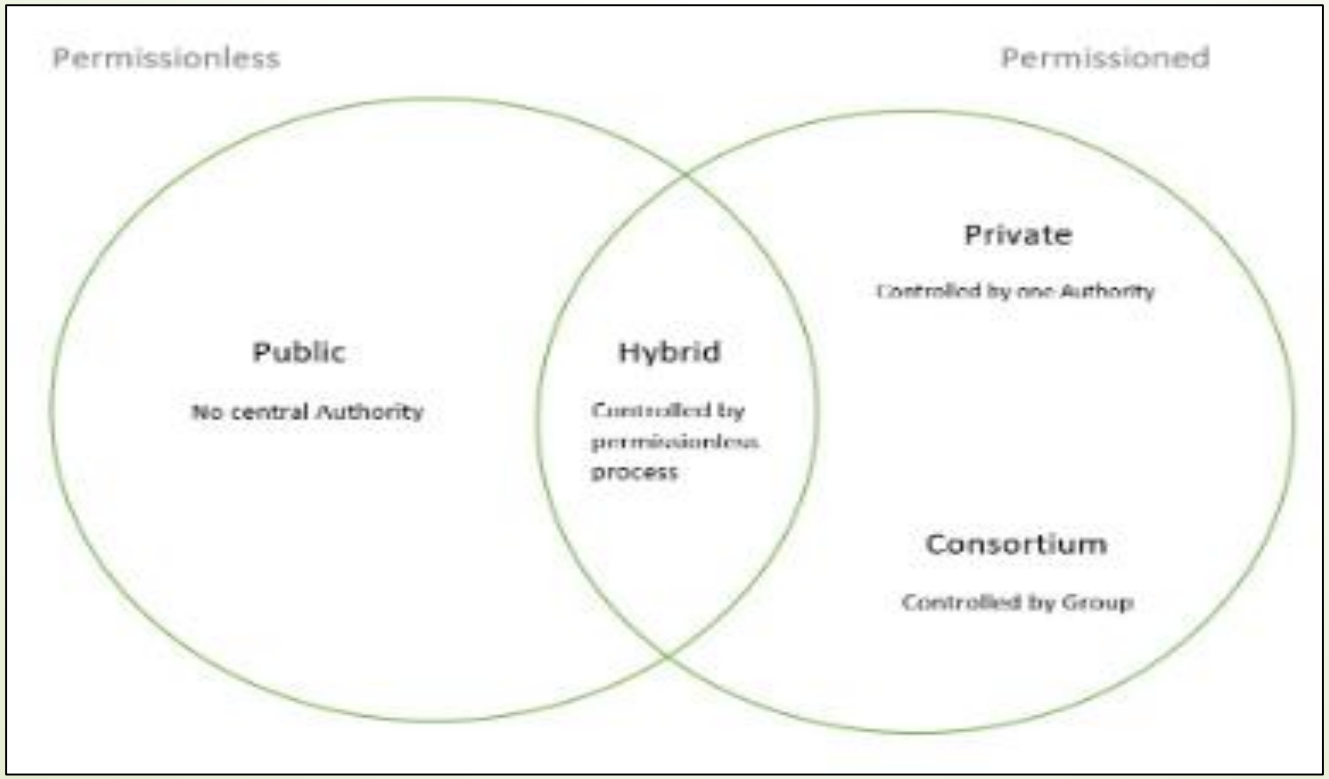
Introduction to Blockchain: Types

Types of Blockchain

- Public blockchain
- Private blockchain
- Hybrid blockchain
- Consortium blockchain



1. Public Blockchain

- These blockchains are completely open to the idea of decentralization.
- They don't have any restrictions; anyone with a computer and internet access can participate in the network.
- As the name is public this blockchain is open to the public, which means no one owns it.
- Anyone having internet and a computer with good hardware can participate in this public blockchain.
- All the computers in the network hold the copy of other nodes or blocks present in the network
- In this public blockchain, we can also perform verification of transactions or records

Advantages

- **Trustable -** *There are algorithms to detect no fraud. Participants need not worry about the other nodes in the network*
- **Secure** *- This block chain is large in size as it is open to the public. In a large size, there is greater distribution of records*
- **Anonymous Nature -** *It is a secure platform to make your transaction properly at the same time, you are not required to reveal your name and identity in order to participate.*
- **Decentralized -** *There is no single platform that maintains the network, instead every user has a copy of the ledger.*

Disadvantages

- **Processing** - *The rate of the transaction process is very slow, due to its large size. Verification of each node is a very time-consuming process.*
- **Energy Consumption -** *Proof of work is high energy-consuming. It requires good computer hardware to participate in the network*
- **Acceptance -** *No central authority is there so governments are facing the issue to implement the technology faster.*

Use Cases

- *Public Block chain is secured with proof of work or proof of stake they can be used to displace traditional financial systems.*
- *The more advanced side of this block chain is the smart contract that enabled this block chain to support decentralization.*
- *Examples of public block chain are Bitcoin, Ethereal.*

2. Private Blockchain

- These block chains are not as decentralized as the public block chain only selected nodes can participate in the process, making it more secure than the others.
- These are not as open as a public block chain.
- They are open to some authorized users only.
- These block chains are operated in a closed network.
- In this few people are allowed to participate in a network within a company/organization.

Advantages

- **Speed -** *The rate of the transaction is high, due to its small size. Verification of each node is less time-consuming.*
- **Scalability -** *We can modify the scalability. The size of the network can be decided manually.*
- **Privacy -** *It has increased the level of privacy for confidentiality reasons as the businesses required.*
- **Balanced -** *It is more balanced as only some user has the access to the transaction which improves the performance of the network.*

Disadvantages

- **Security** - *The number of nodes in this type is limited so chances of manipulation are there. These block chains are more vulnerable.*
- **Centralized** - *Trust building is one of the main disadvantages due to its central nature. Organizations can use this for malpractices.*
- **Count -** *Since there are few nodes if nodes go offline the entire system of block chain can be endangered.*

Use Cases

- With proper security and maintenance, this block chain is a great asset to secure information without exposing it to the public eye.
- Therefore, companies use them for internal auditing, voting, and asset management.
- *An example of private block chains is Hyper ledger, Corda*.

3. Hybrid Blockchain

- It is the mixed content of the private and public blockchain, where some part is controlled by some organization and other makes are made visible as a public blockchain.
- It is a combination of both public and private blockchain.
- Permission-based and permissionless systems are used.
- User access information via smart contracts
- Even if a primary entity owns a hybrid blockchain it cannot alter the transaction

Advantages

- **Ecosystem –** *The most advantageous thing about this blockchain is its hybrid nature. It cannot be hacked as 51% of users don't have access to the network*
- **Cost -** *Transactions are cheap as only a few nodes verify the transaction. All the nodes don't carry the verification hence less computational cost.*
- **Architecture** *- It is highly customizable and still maintains integrity, security, and transparency.*
- **Operations** *- It can choose the participants in the blockchain and decide which transaction can be made public.*

Disadvantages

- **Efficiency -** *Not everyone is in the position to implement a hybrid Block chain. The organization also faces some difficulty in terms of efficiency in maintenance.*
- **Transparency -** *There is a possibility that someone can hide information from the user. If someone wants to get access through a hybrid block chain it depends on the organization whether they will give or not.*
- **Ecosystem -** *Due to its closed ecosystem this block chain lacks the incentives for network participation.*

Use Cases

- *It provides a greater solution to the healthcare industry, government, real estate, and financial companies.*
- *It provides a remedy where data is to be accessed publicly but needs to be shielded privately.*
- *Examples of Hybrid Blockchain are the Ripple network and XRP token.*

4. Consortium Blockchain

- It is a creative approach that solves the needs of the organization. This block chain validates the transaction and also initiates or receives transactions.
- Also known as Federated Block chain.
- This is an innovative method to solve the organization's needs.
- Some part is public and some part is private.
- In this type, more than one organization manages the block chain.

Advantages

- **Speed** - *A limited number of users make verification fast. The high speed makes this more usable for organizations.*
- **Authority -** *Multiple organizations can take part and make it decentralized at every level. Decentralized authority, makes it more secure.*
- **Privacy -** *The information of the checked blocks is unknown to the public view. but any member belonging to the block chain can access it.*
- **Flexible -** *There is much divergence in the flexibility of the block chain. Since it is not a very large decision can be taken faster.*

Disadvantages

- **Approval -** *All the members approve the protocol making it less flexible. Since one or more organizations are involved there can be differences in the vision of interest.*
- **Transparency -** *It can be hacked if the organization becomes corrupt. Organizations may hide information from the users.*
- **Vulnerability -** *If few nodes are getting compromised there is a greater chance of vulnerability in this block chain.*

Use Cases

- *It has high potential in businesses, banks, and other payment processors.*
- *Food tracking of the organizations frequently collaborates with their sectors making it a federated solution ideal for their use.*
- *Examples of consortium Block chain are Tender mint and Multichain.*