SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME : 19CS622 BLOCKCHAIN TECHNOLOGY

IV YEAR / VII SEMESTER

Unit 1- INTRODUCTION TO BLOCKCHAIN

Topic 2 : Block Chain Technology and Types of Blockchain

Problem

- ❑Not truly decentralized as it requires permission
- ❑Risk of corruption as only a few participants are involved.
- ❑Anytime owner and operator can change the rules as per their need.

Blockchain – Recap

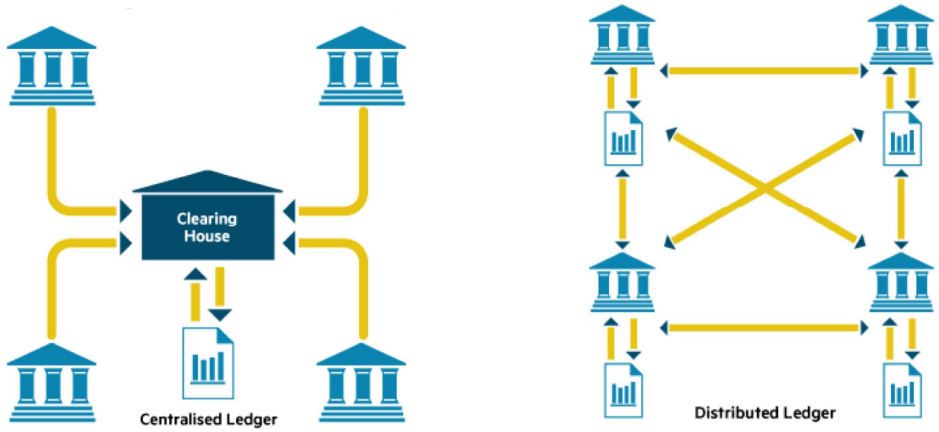
- **Blockchain – What is it?**
  - Aka DLT (Distributed Ledger Technology) - rudimentary shared accounting system
  - Technologically, it is :
    - Distributed database – public ledger (you can insert, select data, but **can't** update or delete data.
    - Distributed computer – execute digital contracts
    - Based on **p2p** (peer-to-peer) technology, cryptology and API

Blockchain – Recap

- **Blockchain – What is it?**
  - In fact, the blockchain is more than a technology, it
    - Usually contains financial transactions
    - Is replicated across a number of systems in almost real-time
    - Uses cryptography and digital signatures to prove identity, authenticity and enforce read/write access rights
    - Can be written by everyone in a public blockchain (but only certain participants in a private blockchain)
    - Can be read by participants, often a wider audience
    - Has mechanisms to make it hard to change historical records, or at least make it easy to detect when someone is trying to do so

Blockchain - Blockchain terminologies

- **Distributed ledger - What is it?**



A public blockchain has some characteristic features:

✓Write-only, immutable, transparent data storage.

✓Decentralized, no need for intermediaries.

✓Consistent state across all participants.

✓Resistant against malicious participants.

✓Open to everyone.

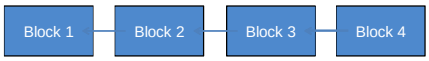
Block Chain Technology Challenges - Cont..

❖The high energy consumption - Bitcoin uses a lot of energy.

❖The scalablity issue - Bitcoin supports far less transactions per second than e.g. VISA.

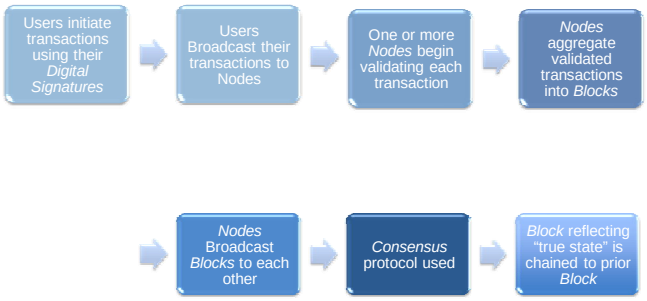
❖It opens up possibilities for money laundering - Some blockchains as Monero are anonymous.

❖The question remains as to how far we want to bypass the middleman. Often he can also protect us, e.g. a bank can protact us to the extend that we do not transfer the money to the wrong person.



Blockchain terminologies

- **Distributed ledger – How it works?**



Types of blockchain - Cont..

- **Types of blockchain**
  - There mainly three types of Blockchains that have emerged after Bitcoin introduced Blockchain to the world.

✓ Public Blockchain:

no one in charge, anyone can participate in reading/writing/auditing the blockchain (i.e. Bitcoin, Litecoin, etc.)

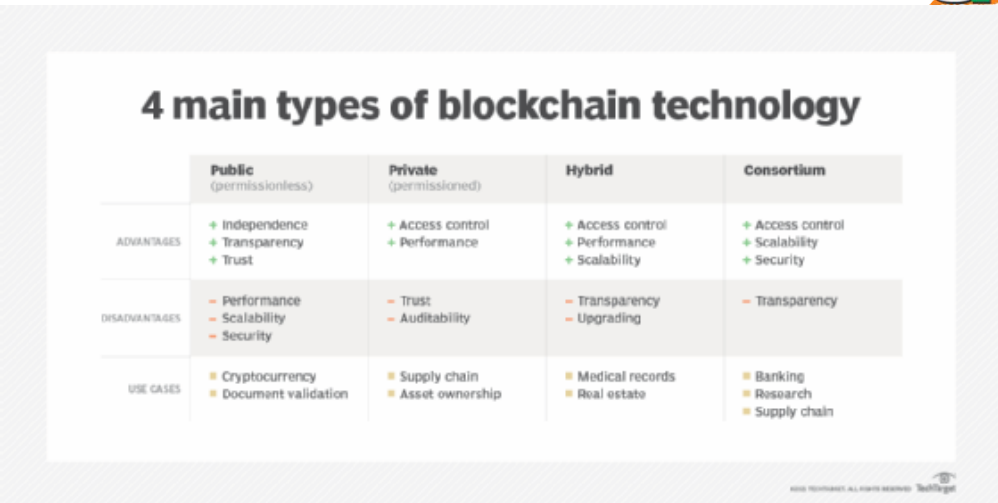
✓ Private Blockchain:

a private property of an individual or an organization, there is one in charge of important things such as read/write or whom to selectively give access to read or vice versa (i.e. Bankchain)

✓ Consortium or Federated Blockchain:

More than one in charge. A group of companies or representative individuals come together and make decisions for the best benefit of the whole network (i.e. r3, EWF)

Block Chain Technology - Cont..



Activity

Disadvantages

- ✓ Data modification is not possible.
- ✓It requires large storage for a large database.
- ✓The owner cannot access the private key again if they forget or lose it.

Advantages

- ❖It provides greater trust among users.
- ❖It provides greater security among data.
- ❖Reduce the cost of production.
- ❖Improve Speed.
- ❖Invocation and tokenization.
- ❖It provides immutable records.
- ❖Smart contracts

Assessment 1

1. List out the Advantages types of Block Chain Technology
   a)_____
   b)_____
   c)_____
   d)_____

2. Identify the Applications types of Block Chain Technology
   a)_____
   b)_____
   c)_____
   d)_____

TEXT BOOKS:

1. Mastering Bitcoin: Unlocking Digital Cryptocurrencies, by Andreas M Antonopoulos 2018

2. Imran Bashir, “Mastering Blockchain: Distributed Ledger Technology, Decentralization and Smart Contracts Explained”, Second Edition, Packt Publishing, 2018.

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1. William Mougayar, “Business Blockchain Promise, Practice and Application of the Next Internet Technology, John Wiley & Sons 2016.

2. Josh Thompson, ‘Blockchain: The Blockchain for Beginnings, Guild to Blockchain Technology and Blockchain Programming’, Create Space Independent Publishing Platform, 2017.

3.Arvind Narayanan, “Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction”, Princeton University Press, July 19, 2016.

THANK YOU