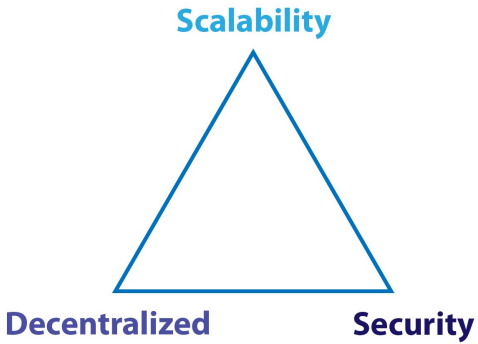
Professional Blockchain Course

Future Scope - Current Research

"Vision is a picture of future, that produces passion."

Current Research - Blockchain 3.0

- The birth of Blockchain 1.0 was followed by Smart Contracts as Blockchain 2.0 and currently the third generation of Blockchain is rising in form of Hashgraph and Directed Acyclic Graph.
- Blockchain 3.0 is capitalizing on the limitations of it's predecessors by providing scalability, transaction throughput and performance.
- Blockchain currently has a Trilemma between Scalability, Security and Decentralization.



Blockchain Scalability Research

The current research has led to development of scaling solutions which states that not all participants and network nodes need to all the information. A group of nodes can maintain their state and provide a finality over the main chain

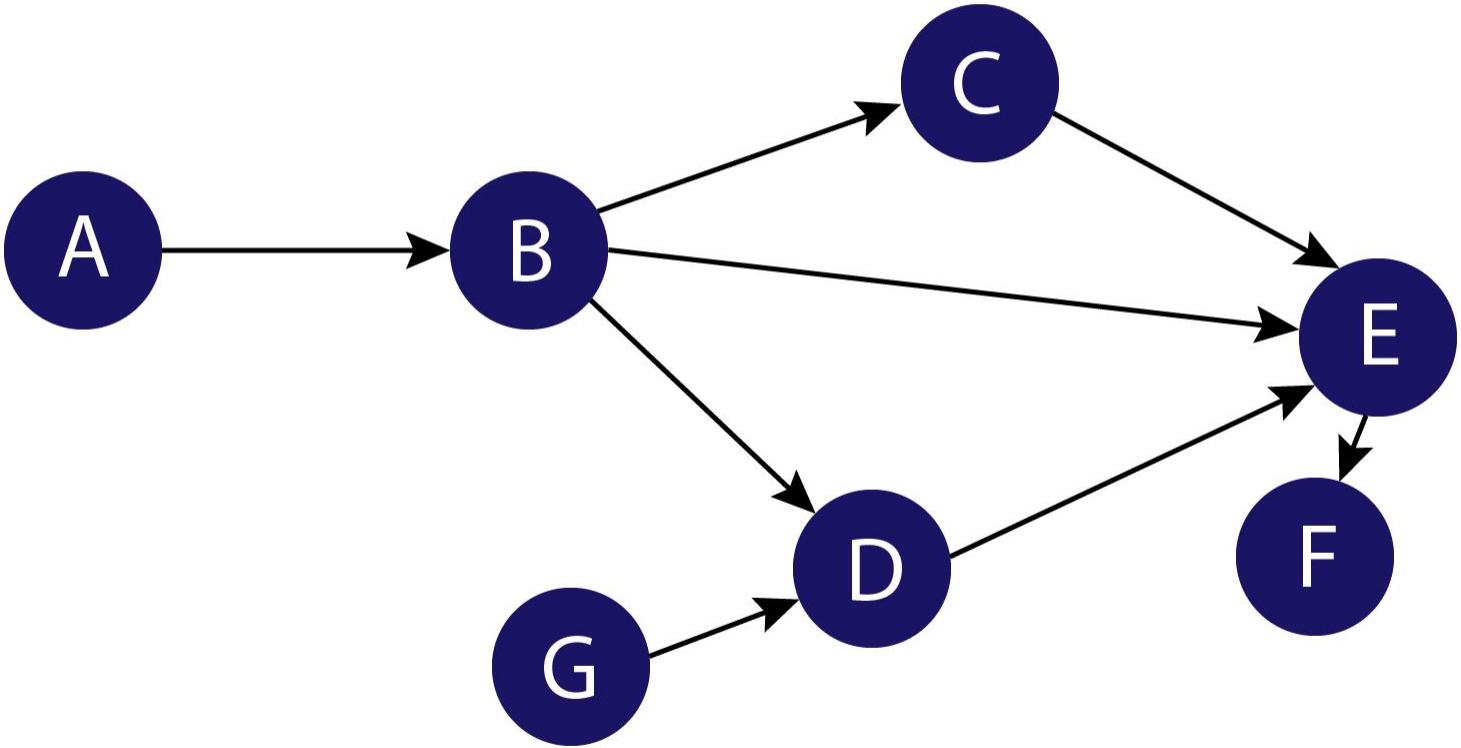
- **Bitcoin lightning network** - The Lightning Network adds another layer to Bitcoin's blockchain and enables users to create payment channels between any two parties on that extra layer. These channels can exist for as long as required, and as they're set up between two people, transactions will be almost instant and the fees will be extremely low or even non-existent.

- **Ethereum sharding** - The entire state of the network is split into a bunch of partitions called shards that contain their own independent piece of state and transaction history. Certain nodes would process transactions only for certain shards, allowing for a higher throughput of transactions.

DAG - A Not So Blockchain Solution

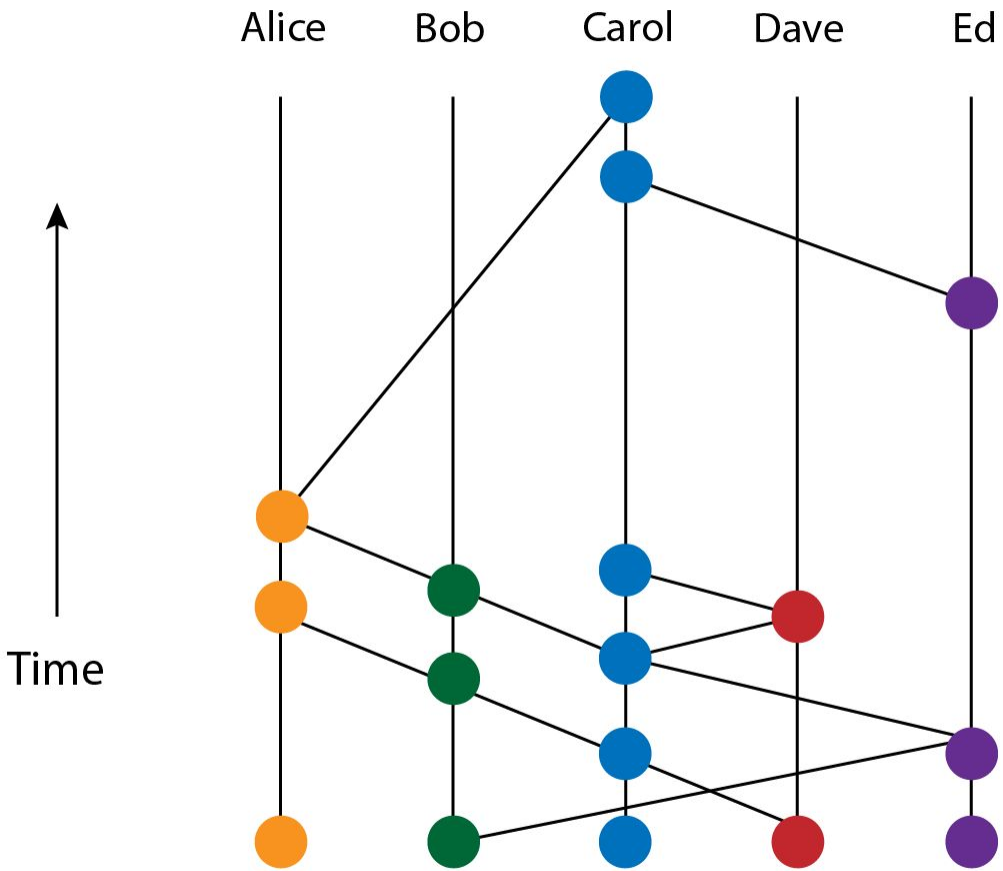
- DAG directly links transactions to other transactions without putting them in the blocks first.
- DAG is more like a mazy network known as “Tangle” and follow horizontal scheme as compared to Blockchain’s vertical scheme.
- There are no blocks or miners in DAG, thus there is no need to wait for the confirmation of the Blocks.
- Tangle has same properties as Blockchain, it is a distributed database present over a peer-2-peer network.
- Unconfirmed new transaction must confirm one or two additional transactions before the unconfirmed transaction can be processed and confirmed itself.
- Markov chain Monte Carlo ensures that network participants do not just confirm their own transactions.

Directed Acyclic Graph



HashGraph - The Latest Excitement

- HashGraph also belongs to the category of Distributed Ledger Technologies that brings in the concept of events, where events are hashed to each other.
- HashGraph was started as consensus library between 6000 banks.
- The current “Hedra Hashgraph platform” aims to drive forward public HashGraph platforms. The leadership council for the same consists of 39 members.
- Events in HashGraph consists of: timestamp, 2 different parent hashes and transactions.
- Hashgraph uses gossip protocol to communicate between 2 computers.
- Hashgraph use “Gossip-about-Gossip” consensus, meaning every participant should know all the transaction history in the Hashgraph.


Alice
Bob
Carol
Dave
Ed
Time

Blockchain vs DAG vs Hashgraph

Technology	Blockchain	Directed Acyclic Graph	Hashgraph
Copyright	Open Source	Open Source	Patented
Consensus	Started with PoW	PoW - Tangle tip	Virtual Voting
Openness	Public Ledger	Public Ledger	Private Ledger
Applications	Bitcoin	Iota	Swirlds
Efficiency(tps)	3-4	500-800	>250,00

THANK YOU

For more information contact
info@we2blocks.com