John Carne

IRACIS Consulting

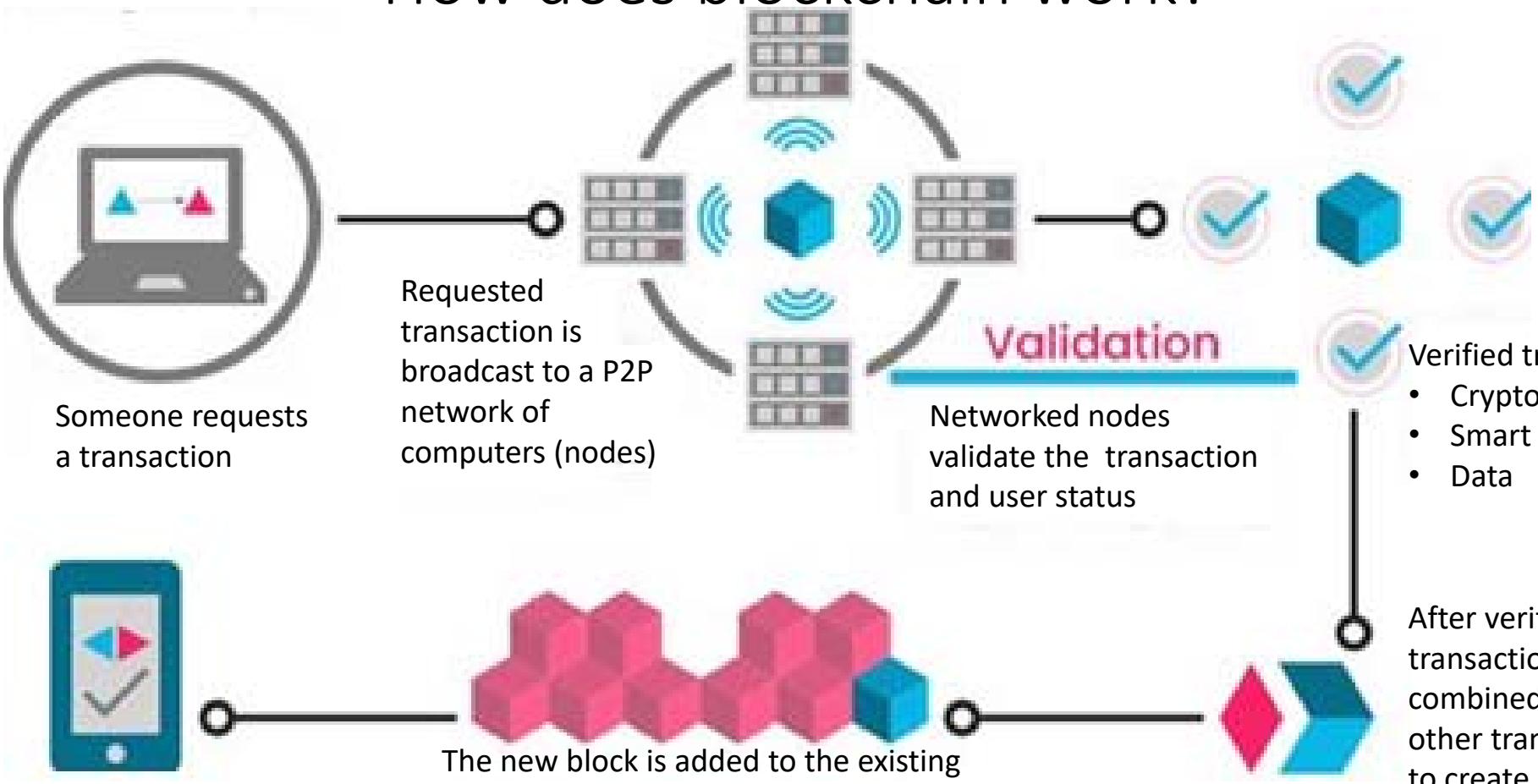
401-203-9360

john_carne@outlook.com

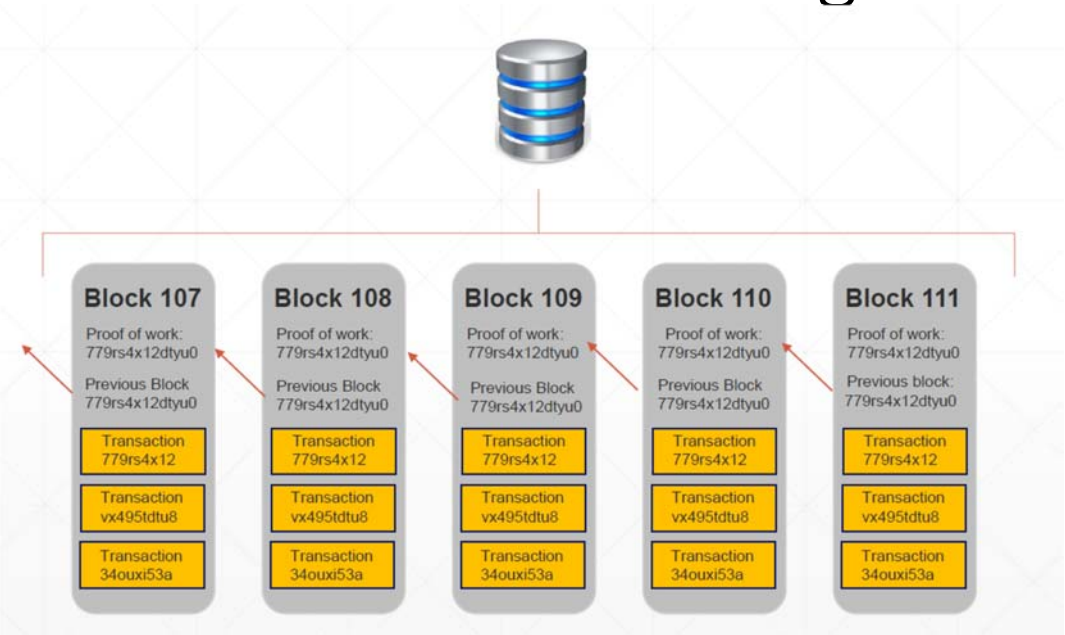
What are we talking about?

- There are 2 topics that get intermingled:
  1. Cryptocurrency: the idea that networks can securely transfer value without central points of control and “financialized” into tradable assets
  2. Blockchain: the idea that networks can collectively reach consensus about information across trust boundaries.
- In this presentation, we will focus on the concepts of blockchain

How does blockchain work?



Distributed ledger



- A database of transactions that is shared and synchronized across multiple computers and locations
- No centralized control. Each party owns an identical copy of the record, automatically updated as soon as any additions is made.
- Immutable - Append only database

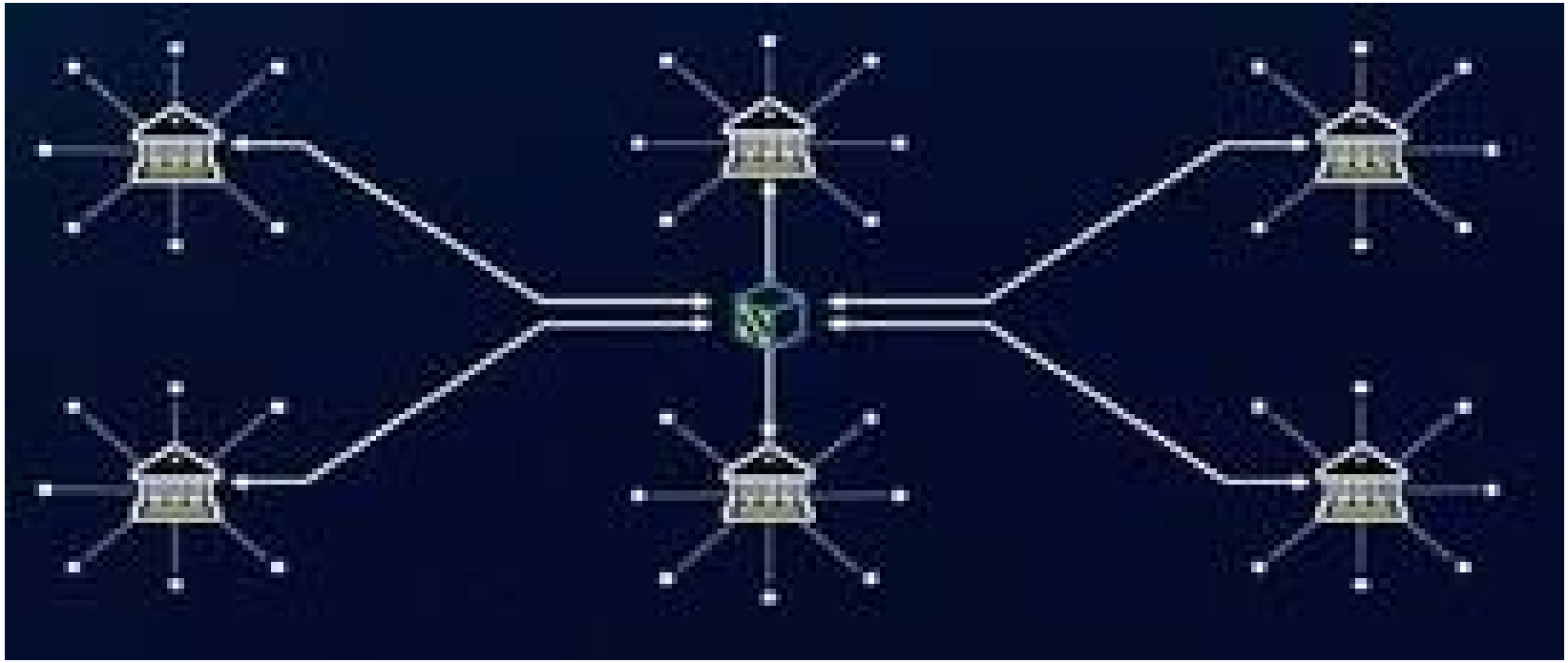
What is a smart contract?

- Smart contracts – self-executing agreements based on blockchain technology – automatically trigger actions or payments once conditions are met.

Some Use Cases

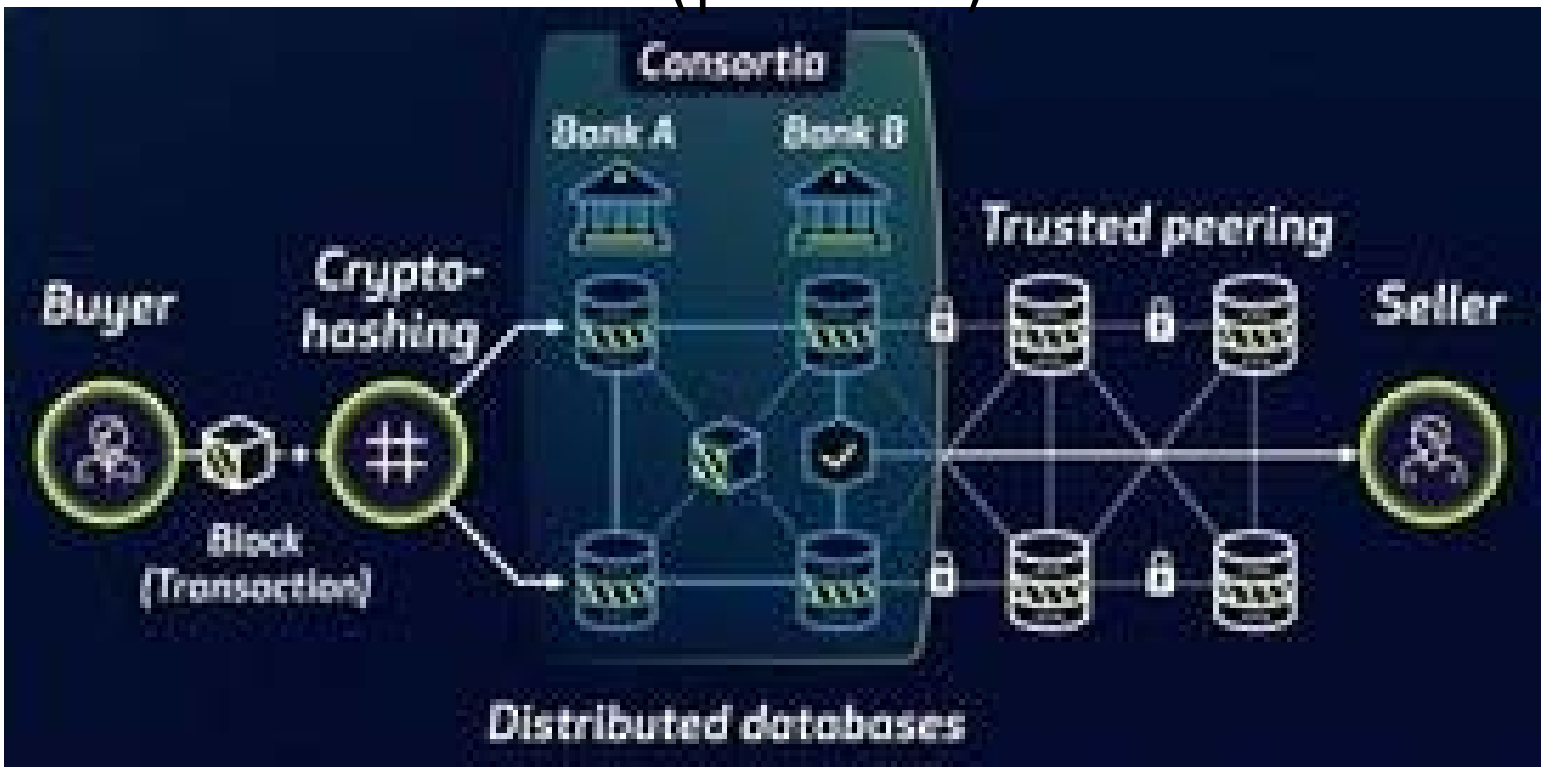
- Walmart – selected vegetables – farm to table
- Merck – ingredient to patient
- Maersk – shipping process – including letters of credit

Federated Blockchain



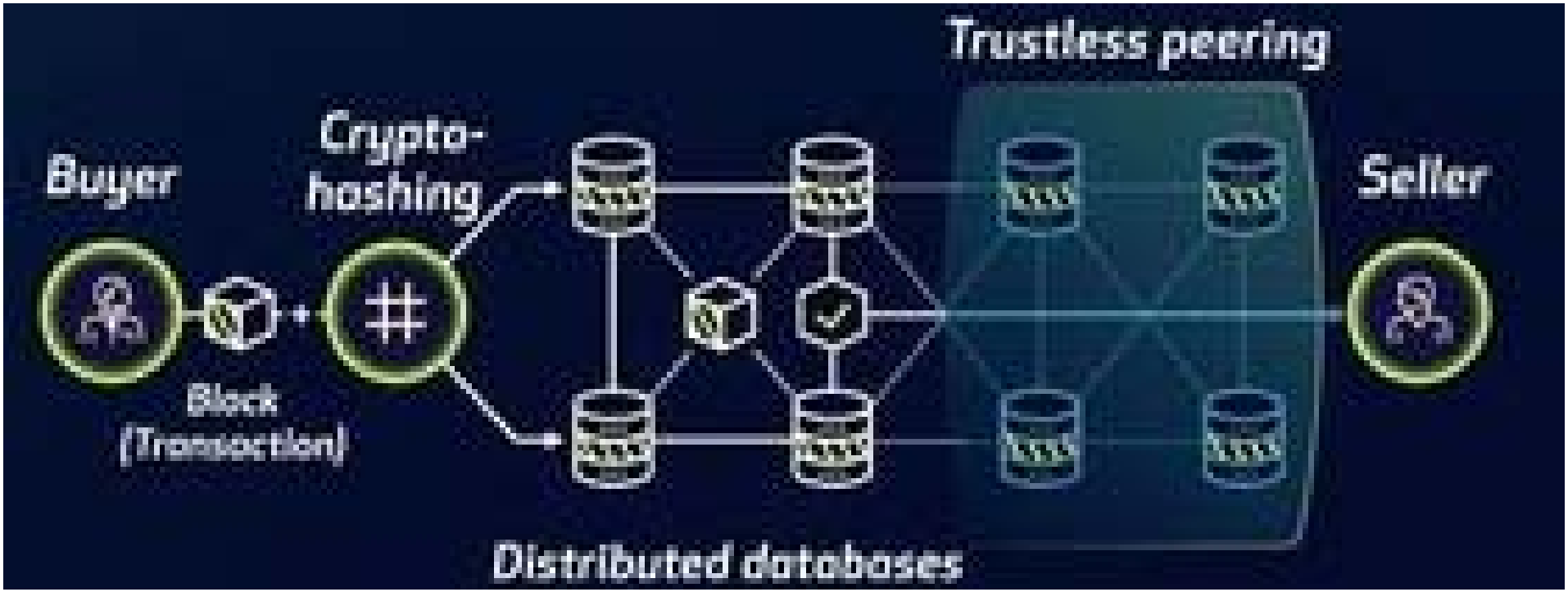
- Operates under the ***leadership of a group***
- ***Access is limited*** to those given permission by the group
- Due to limited membership, federated blockchain is ***faster,*** more ***scalable*** and has ***more transaction privacy***

Permissioned (private) Blockchain



- Access may be public but only a ***few users*** have permission to view and verify transactions
- Ideal where ***data privacy*** is an issue
- Data handling is ***simplified*** as there are fewer gatekeepers (miners)
- Compliance can be ***automated*** as the organization has control over the code (smart contracts)

Permissionless (public) Blockchain



- Access is ***public*** and ***open source*** code
- Transactions are ***transparent*** to anyone on the network with a block viewer but ***anonymous***.
- The ***ultimate democracy*** – fully distributed edger – no middleman
- ***Minimal administration costs*** (no network servers or sys admins)

Hybrid Blockchain

- A ***public blockchain*** on a private network with ***restricted participation.***
- Private network ***generated blocks of hashed data*** stored on the public blockchain without sacrificing data privacy.
- ***Flexible control*** over what data is kept private and what is shared on the public ledger.
- Hybrid blockchains offer the benefits of ***decentralization and scalability*** without requiring consensus from every node on the network.

ANY QUESTIONS