

Blockchain in Aerospace

Blockchain Basics

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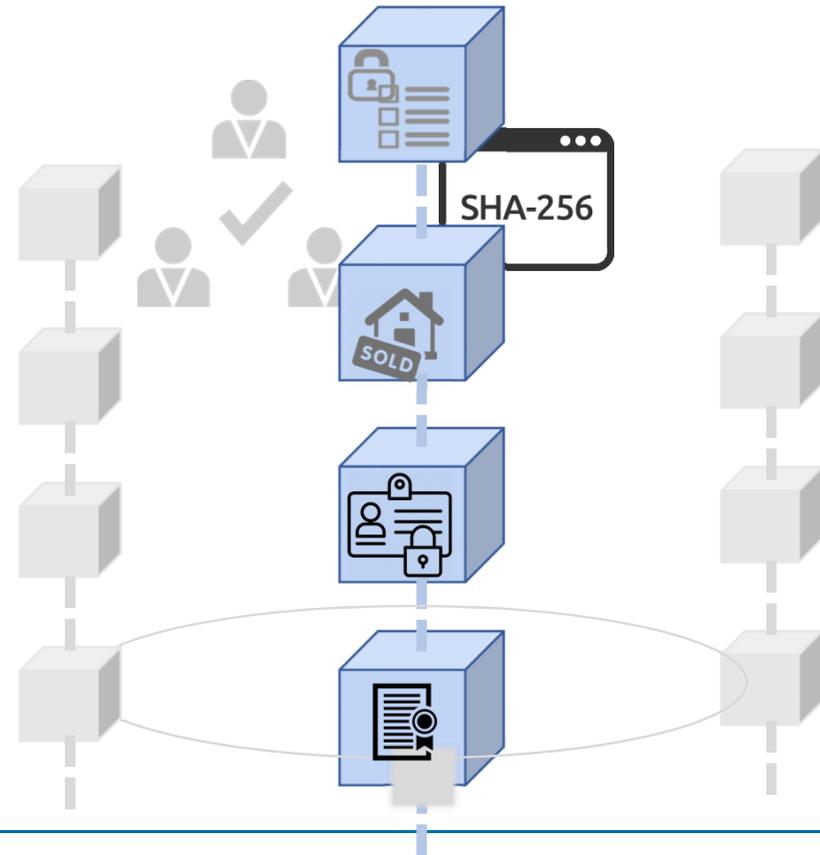


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What is Blockchain?

- A Blockchain is essentially a **secure record** or ledger of digital transactions.
- Transaction **meta-data** is held within time-stamped blocks that are sequentially linked in a way that prevents subsequent altering.
- Complex mathematical functions are used as protocols to assess the validity of each block, and (typically) a **multi-party consensus** mechanism is used to approve the appending of new blocks to the chain.
Note: Different Encryption and Hashing algorithms can be selected according to specific requirements.
- Any transaction that can be represented digitally, can be held on a Blockchain.
- Identical copies of the ledger are propagated around a network of nodes that participate in the consensus mechanism, ensuring complete **integrity** and **resilience** of the ledger.



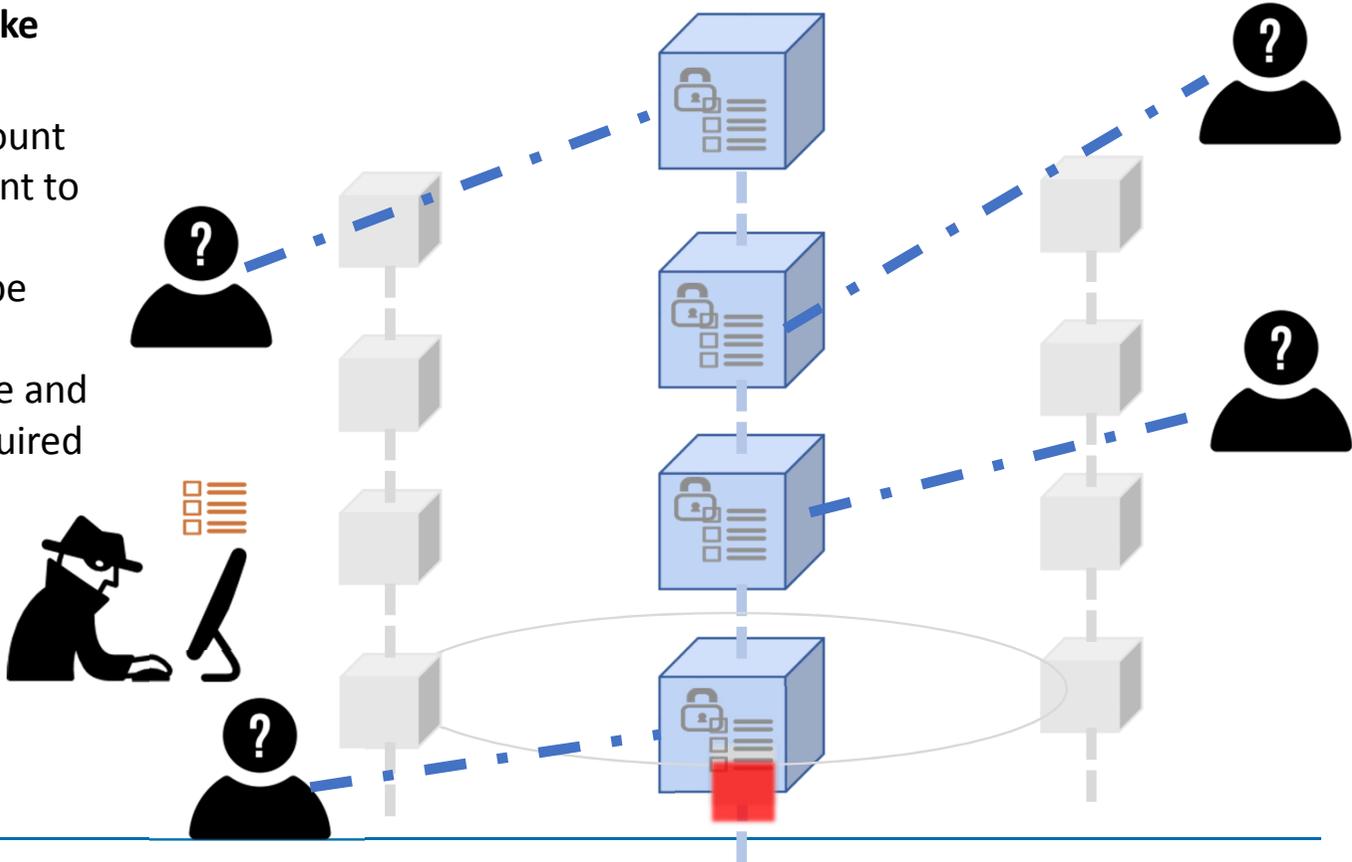
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Why is this so important?

The fundamental principles of Blockchain make it a very useful technology where:

- Immutability of transaction data is of paramount importance (Decentralised network is resistant to cyber attacks).
- Actors creating transactions do not need to be known by all other participating parties.
- Provenance of transactions across a disparate and potentially transient network of actors is required



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Some popular misconceptions

There is a lot of hype and even confusion around Blockchain.

“Blockchain is the same as Bitcoin”



Bitcoin is just one variant of Blockchain. There are over a hundred different types of Blockchain or Distributed Ledger Technologies

“Blockchains are not scalable”



Some blockchain implementations have been scaled to beyond half a million transactions per second.

“Blockchains are expensive to operate”



They don't have to be. Some consensus mechanisms for fully public chains can be costly... but private chains can be very cost effective.

“Blockchains can solve all your digital process problems”

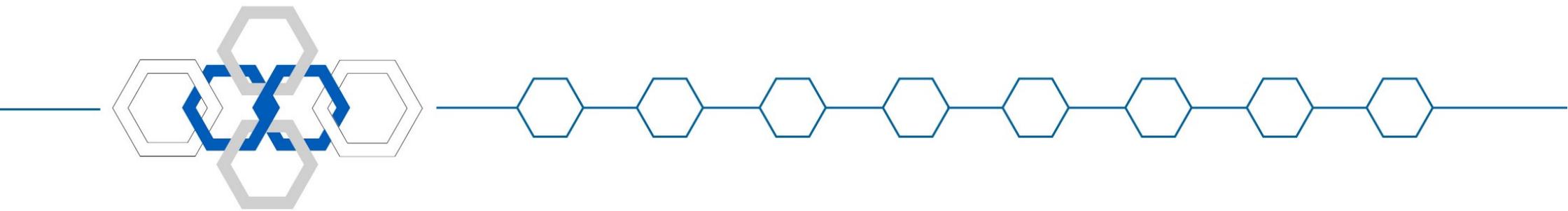


They have many applications but should only be used where process requirements cannot be completely solved using classical databases etc.



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