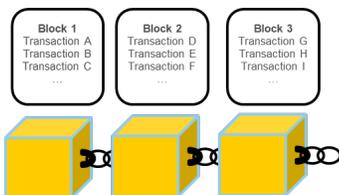


Blockchain's Potential for Defense Applications

What is a Blockchain?

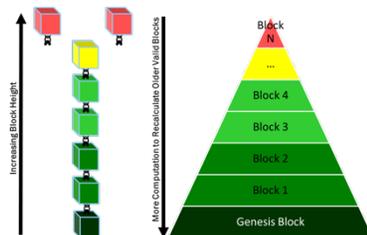
In simplest terms, a blockchain is a digital, decentralized, and encrypted database. Less simply, a blockchain combines three older technologies: Private/Public Key Cryptography, Peer-to-Peer Networks, and Verification Algorithms. The goal is to allow users to send messages (e.g., transactions), that anyone on the network can verify, while protecting the user's identity and private information.



In a blockchain, each entry (block) in the database depends on (is "chained to") the previous record.

A block contains summarized messages, a link to the previous block, its position in the chain, and other metadata as required by the blockchain's specific protocol. The link to the previous block, which in turn is linked to its previous block, protects older entries in the database from alteration, since any changes will cascade into newer records.

In addition, since the database of record is decentralized and distributed among many users, intentional or accidental alterations to past records will be considered anomalous by a network majority and subsequently orphaned. Thus, older blocks leading back to the original block (i.e., the Genesis block) are progressively more secure over time. The amount of processing power required to alter older and older blocks would be nigh impossible to muster by a bad actor, as newer validated blocks are added to the chain.



How Might Veracity's Customers Use Blockchain?

Currently, much proof-of-concept work is underway to implement blockchain technology for the Aerospace and Defense industries. The primary Defense-centric application of blockchain technology is cybersecurity. Since a blockchain is a distributed database, there is no single point of failure/attack. Any altered instance of the database will provide information regarding a hacker's target, making it easier to track and combat the attacker. Moreover, sensitive information would be protected through the public/private key cryptography scheme at the heart of any blockchain implementation.

Asset management is another potential blockchain application for Defense Department supply chains. To account for the classified nature of some supply chains, a completely private blockchain could require invitations for a user/node to join the network. The blockchain could also be a hybrid system where select information is visible publicly, but classified information is reserved for private invitees. The infrastructure itself could be handled by servers located at Stateside military installations. Through this implementation, a complete cradle-to-grave audit trail, verifiable by all network users, could be generated to justify budgets and increase public confidence in the Defense Department's asset management process. Additionally, current blockchain developers are touting potential improvements in verifying regulatory compliance, asset tracking, counterfeit protection, and recall management for Defense supply chains.

Summary

Blockchains are relatively new and innovative combinations of prior technologies, intended to produce transparency, protect data, and improve transaction efficiency. Looking forward, they may be used for cybersecurity platforms and to conduct large-scale asset management for the U.S. Navy.