Revolutionize your Supply Chain with

BLOCKCHAIN TECHNOLOGY

ZEBRA

What is Blockchain Technology?

In the Supply Chain, Blockchain Technology refers to the ability to record transactions, track assets and create transparency for managing documents across the logistics landscape, thus increasing the efficiency, quickness and innovation of the supply chain process. It is a distributed database on the network where many users can access, inspect, or add digital data or transactions, but cannot change or delete them. Serving as an append-only transaction ledger, the original information remains while leaving a permanent trail of new information transactions.

BLOCKCHAIN TECHNOLOGY USES

DIGITAL CURRENCY

FINANCE

IOT

DATA STORAGE

GOVERNANCE

ONLINE VOTING

HEALTHCARE

INSURANCE

How Blockchain Technology Works

Using a state-of-the-art cryptography, each record is time-stamped and affixed to the event that preceded it, so a change to the contents of a previous block would invalidate the data in all the blocks after it, thus generating an unbroken chain of events.

In Blockchain, there is no single organization that can control these transactions. Instead, it can only be updated through the consensus of a majority of participants in the system. Therefore, we rely on an agreement of several entities instead of trusting a single entity. A consensus-driven system makes the data tamper-resistant and reduces the likelihood of added transactions through a cyber-attack. It also allows transactions that are recorded in the supply chain to be published, so anyone can see the contents of the blockchain and verify that they occurred.

In the Supply Chain, Blockchain could document a transaction every time a product changes hands, from the product being built at the manufacturing plant to the product being picked off the shelf in the warehouse to the product being delivered to the retail store to ultimately the product being purchased by the customer. Each of these transactions could be documented, thus creating a permanent history of the product.

In summary, Blockchain is a digital record-keeping mechanism that makes it easier and safer for businesses with supply chain operations to work together over the internet.

Nathan Clevenger, Director of Intelligent Edge Solutions at Zebra Technologies said, "The first Blockchain-based solutions that we are bringing to market are traceability, but we are actively exploring how we can utilize our devices operating at the edge as the bridge from the physical world into a digital representation in Blockchain smart contract applications and transactions."
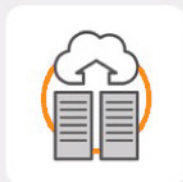
What are the Benefits of Blockchain Technology in the Supply Chain?

Documentation: Be able to record the quantity and transfer of assets – like pallets, trailers and containers – as they move between supply chain nodes. Having a digital record of all transactions eliminates blind spots in supply chains and eliminates the need for manual bills of lading (BOLs), invoices, and proof of delivery (POD).

Traceability: Allows you to trace a product's journey through the supply chain and identify where an issue occurred. For example, if a food product is found to contain bacteria, a farmer can send a digital transaction so that the origin of the product can be tracked and traced back to the originating farm, lot, and serial number, and then proactively stop before it becomes a larger problem.

Accountability: Know where your assets are, where they've been, who currently owns them, and when they are expected to arrive at a designated location. Track purchase orders, change orders, receipts, and shipments for improved accuracy and better customer satisfaction.

Security: With transactions being encrypted in Blockchain, it is nearly impossible to falsify data. Because digital data is validated by different network nodes, it makes it possible to confirm the identity of the parties submitting transactions. As the transaction is duplicated on the network servers, it becomes impossible to alter the content without authorization from all connected computers.

With this valuable information and a larger, more connected supply chain network, businesses can track orders, shipments, chain of custody and the status of all assets with real-time updates. From conducting payment and audits to tracking inventory and assets, blockchain technology will enable greater supply chain efficiency than ever before.

What are the Current Challenges of Blockchain Technology in the Supply Chain?
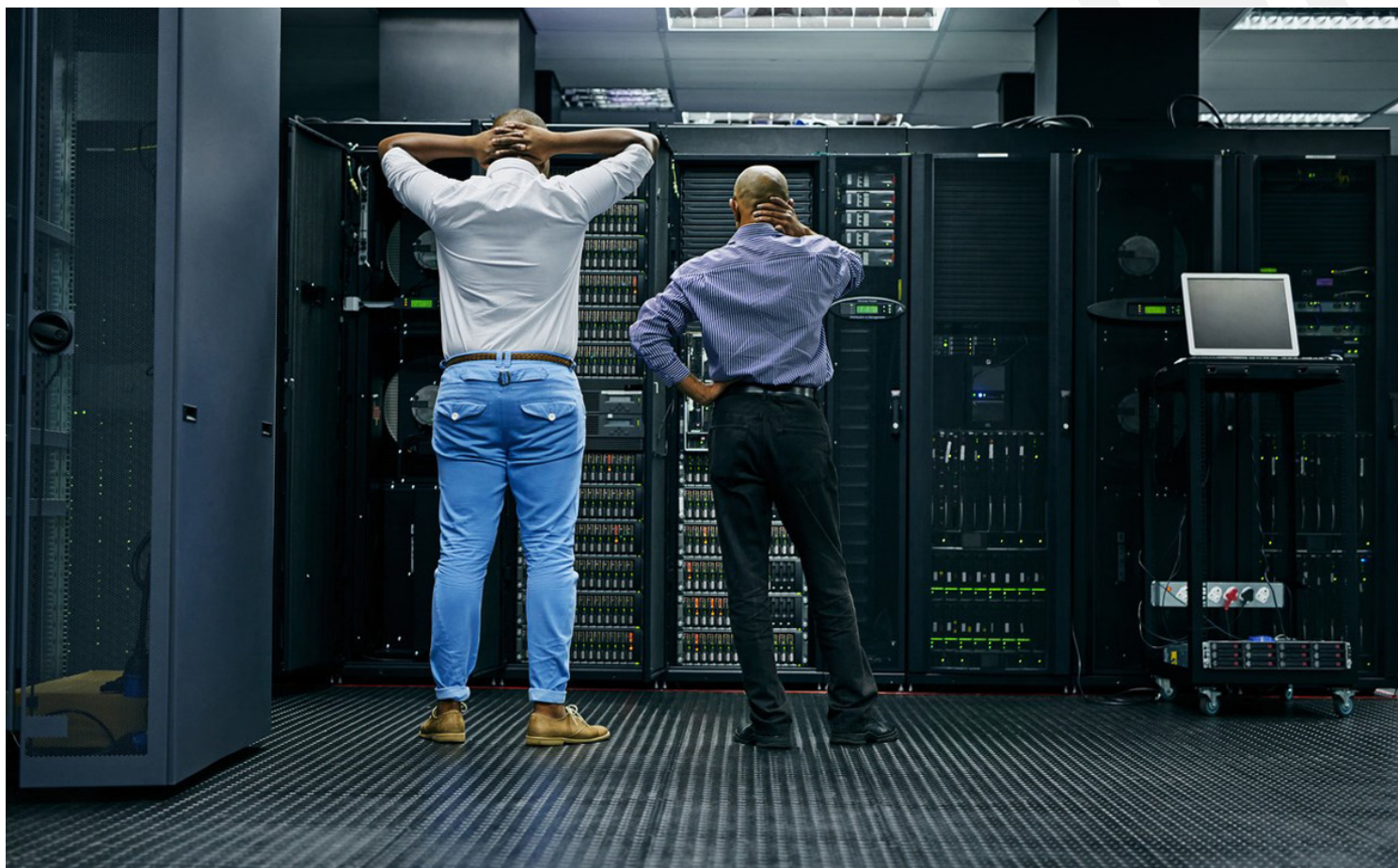
Confidentiality: With Blockchain's transactions being very transparent amongst various parties, it would not be uncommon for directly competing parties to have access to one another's data. While there are some mechanisms in place, such as partitioning and micro-communities, to guard the level of transparency of the digital data, none of them have created a practical solution that works in the supply chain environment.

Scalability: For Blockchain to effectively operate, cooperation is required from all parties. Getting wide enough adoption from parties will be a challenge, compared to a more practical on-boarding process. Additionally, it will be difficult to integrate digital transactions from smaller parties who don't have the infrastructure for Blockchain. More importantly, Blockchain's performance is still a work in progress. Its transaction rate needs to be substantially higher before it is ready to manage today's fast moving global supply chain.

Human Error: Blockchain technology is a distributed database that relies on accurate information. Therefore, digital transactions need to be entered accurately in the first place. If poor data is entered into the Blockchain, inaccurate data assumptions will be made in subsequent chains. Furthermore, Blockchain is susceptible to the problem of having too much data, which can affect real-time information.

While challenges still exist with Blockchain, efforts continue to be made to optimize the technology. Steps are being taken to control user access which would limit data being available to all parties. As Blockchain becomes more widely used, the costs associated with participation will continue to decrease, especially for smaller parties. In the meantime, it's important to analyze if Blockchain will generate the return on investment for your business or if a more practical solution is more ideal.

How can Barcodes and Zebra help you with Blockchain Technology in the Supply Chain?

Barcodes has been a global leader in supply chain automation since 1994. Barcodes specializes in fully automated solutions in the manufacturing, warehouse & distribution, transportation & logistics, and retail environments. As a Blockchain expert, Barcodes can help formalize a strategy to streamline your operations and enhance operational efficiencies in the supply chain. If you're not ready for Blockchain, Barcodes has implemented thousands of practical work-in-process, warehouse management, proof of delivery, and point of sale applications across the supply chain using mobility, scanning and printing barcode data capture technology.

Whether you're thinking of Blockchain or simply want to improve your supply chain operation, make sure to partner with a service provider like Barcodes who values transparency and innovation, and understands your pain points.

Nathan Clevenger, Director of Savanna Portfolio at Zebra Technologies said, "Our solutions give our customers a performance edge, at the front line of their business operations, and now with our new Savanna Blockchain data services offering, we are giving our customers, partners, and software developers the ability to record, print, scan, read, and locate events directly onto a Blockchain for traceability. So when a GS1 label is printed on a Zebra printer, the barcode is scanned by a Zebra scanner or mobile computer, and an RFID tag is read by a Zebra RFID reader, that event, time, date, location, and device serial number can be automatically transmitted to the cloud via Zebra Savanna and recorded as an immutable transaction on a Blockchain."

References

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About Zebra Technologies

Zebra builds tracking technology and solutions that generate actionable information and insight, giving companies unprecedented visibility into their businesses by giving physical things a digital voice.

Zebra's extensive portfolio of solutions give real-time visibility into everything from products and physical assets to people, providing very precise operational data not only about where things are, but what condition they are in. This allows business leaders to use data to make better, more informed decisions, respond in realtime and ultimately, help businesses understand how they work, and how they could work better.

For more information call us at 877.321.9598

About Barcodes EDGE

Barcodes EDGE is a services division of Barcodes Inc, North America's leading provider of barcode, mobile computing, RFID, and retail solutions. Our tailored approach to services is a key differentiator within the market. We know that your business operations are unique to you and require a partner who will take the time to understand your needs and protect your market edge.

Our team has extensive experience across retail, manufacturing, healthcare, government, distribution and transportation industries. We help you realize the business value of your systems and hardware through dedicated service teams and a holistic commitment to quality service that allows you to extend your teams and extend your reach.

We think a core quality of a trusted partner is to be easy to work with. That's why we engage our technical solutions and deployment teams early in the conversation to hear your requirements and listen to your issues. Then we work together to find the best options that will provide the best value for you.