One Network Enterprises™

How Blockchain Can Enhance and Secure the Food Supply Chain

THE IMPORTANCE OF FOOD SAFETY

Food is essential to sustaining our lives and keeping us vibrant and healthy. Its freshness and purity are critical for our health. Contamination can be fatal. Restaurant and food service companies are rightly concerned that their supply chains are vulnerable to contamination. The Center for Diseases estimates that every year 48 million Americans get sick, 128,000 are hospitalized, and 3,000 die from food borne illnesses.

The costs to the public are high. Companies affected by such contaminations suffer too, in revenue and reputation. Food Safety Magazine documented 622 food safety recalls worldwide due to contamination, at an average cost of to the company of $10 million. The damage extends beyond the immediate cost of the recall and dollars. It has a long term affect on reputation and customer loyalty.

To complicate matters, food is fragile, easily contaminated, and even in good care it is perishable.

Global food supply chains have made food more vulnerable. Longer journeys bring more parties, more interactions, less visibility, more opportunity for mishandling and failure.

Supply chain partners need to communicate and collaborate with each other up and down the supply chain. That communication can be broad and frequent. A recent report concluded that a single avocado shipment into the EU involved at least 200 communications between 30 parties. Then there are regulatory issues. The Food Safety Modernization Act (FSMA) tries to reduce the possibility of food borne illness with extensive rules that affect food producers and facilities. FSMA focuses on prevention, inspections and compliance, response, imports and enhanced partnerships. This creates a bigger administrative burden on food producers and handlers.

Lastly but by no means least, are the customers, increasingly requesting fresh, local, non-GMO, and other requirements of their food. Food quality and safety have to be a top priority for any food service related company.

WHAT IS BLOCKCHAIN?

Blockchain is a digital, distributed ledger that allows members of a community to share information transparently. Each member or node maintains a copy of the ledger, and all updates must be validated by the entire community. The blockchain can store virtually any type of information that

can be captured digitally, including transactions, states, ownership, and more. Because it is distributed, blockchain is virtually tamperproof and resistant to outages.

Smart contracts represent an enhancement to blockchain that allows transactions to be triggered automatically when pre-programmed conditions are met. For example, when receipt of a delivery is confirmed, the smart contract could trigger payment from the buyer to the seller.

HOW CAN BLOCKCHAIN HELP?

It is a type of multi-party network with a near real-time, single version of the truth for all parties. The food supply chain is distributed and multi-party, with many handlers and hand-offs. This makes it ideal for blockchain. Traditional, enterprise-centric supply chain solutions like Enterprise Resource Planning systems (ERP), require periodic batch transfers of data between systems. This leads to inaccurate and, conflicting data that creates confusion and poor decisions. Blockchain can provide a near-real time view of the food supply chain, with a single, authoritative source of data for all parties, providing numerous benefits.

Transparency and Traceability – Blockchain's near real time record of transactions across the network provides an authoritative source of truth for all trading partners in the food supply chain. Trading partners have immediate access to critical information, enhancing transparency across the network. With serialization and blockchain, items can be tracked from producers and raw supply, through to the shelf or the table. This is important for customers, for operational efficiency, and for regulators.

Chain-of-custody – These apps further enhance visibility and security by providing information on who has what product where. They provide an irrefutable record of the passage of food and its condition through the supply chain. Chain-of-custody apps should support real world scenarios such as serial tracking, lot tracking, hybrid tracking, lot splitting, tracking through consolidation and deconsolidation, blending and discrete mixing, partial chains-of-custody, and targeted recalls. This enhances the security of the supply chain by increasing the likelihood that proper handling procedures will be followed, and if they are violated, enables managers to identify when, where and how infractions occurred.

Food recalls – If and when a recall is necessary, full transparency and a record of the chain-of-custody means recalls are quicker and highly targeted. Recalls are less likely as companies can identify problems early and resolve them before they become full blown crises. When recalls are required, they are more targeted, as companies can identify the precise source of the problem, contain it quickly, and recall only the affected items. This speeds up the process and reduces the costs and concerns associated with recalls. Enhanced supply chain performance – By sharing data securely and transparently, business partners enjoy visibility to transactions and product throughout the supply chain, including visibility to orders, inventory, shipments, and capacity. This enables them to coordinate demand, supply and logistics more efficiently, and to improve service to customers, while reducing waste and costs.

Smart Contracts – With smart contracts, trading partners can automatically execute transactions and processes, based on specified conditions. Things like Invoices, payments and receipts can be triggered based on contractual terms being met. For example, when a restaurant signs for receipt of a shipment, payment to the supplier can be released automatically. This eliminates many administration costs, delays and potential errors.

Blockchain is a vital tool in enhancing food quality and safety in the food supply chain. To learn more about how to quickly and effectively complement your IT systems with blockchain, read the paper, **Bridge to Blockchain**.

ONE BLOCKCHAIN

ONE Blockchain is One Network's blockchain solution that connects blockchain networks like Hyperledger Fabric and Ethereum to One Network's Real Time Value Network. With ONE Blockchain, companies can leverage blockchain now, while maintaining full confidentiality and control over their information. Combined with powerful multiparty apps, restaurants and food companies realize more efficient operations, higher service, with reduced waste.

Learn more about blockchain-enabled food solutions:

Email: inquiries@onenetwork.com
Web: www.onenetwork.com
Call: +1 866-302-1936