Emergency Response Blockchain Powered by Artificial Intelligence

March 15, 2019

United Solutions

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BUSINESS CHALLENGE

When a public health emergency occurs anywhere around the world, emergency responders from the Centers for Disease Control and Prevention (CDC) are sent to help contain, monitor, and resolve the situation. Since CDC's Emergency Operations Center was created in 2001, the agency has responded to major global events such as the Deepwater Horizon Oil Spill (2010), Hurricane Irene (2011), and Ebola Outbreak (2014), during which approximately 4,000 CDC staff were deployed. The deployment of responders involves a very complex value chain that consists of both highly-trained human resources and material resources that are vital to a successful containment. Thousands of activities are captured to ensure the effective deployment and safe return of those deployed in the field. The speed, quality, and safety of these deployments are directly correlated to the number of lives that can be saved. The current legacy process tracks and manages responders using a series of legacy systems that do not communicate well with one-another, resulting in high deployment costs and long lead times.

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Blockchain, Artificial Intelligence, and IoT Reimagines Emergency Response

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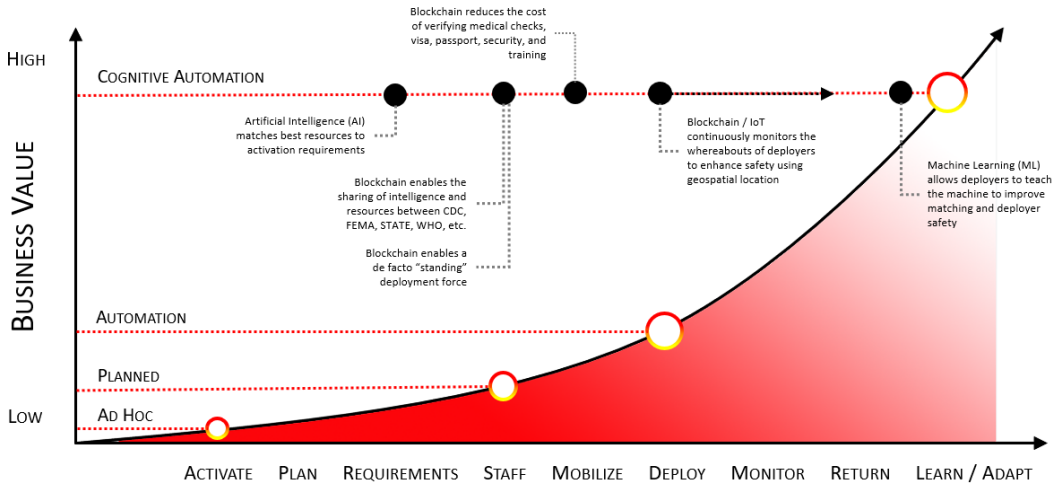
EMERGENCY RESPONSE REIMAGINED



To address this, CDC partnered with United Solutions to digitally transform the emergency response value chain in order to achieve faster deployment times and better health and safety for the workforce, which will ultimately save more lives in the field. United Solutions is

helping CDC reimagine this process and reduce the deployment cycle time by building the infrastructure to support an **emergency response blockchain**, web application, and hybrid mobile application, that leverages **artificial intelligence**, **distributed ledger technology**, and **internet of things** for the emergency response value chain. These emerging technologies will work in concert to automate the value chain, which is currently posing a huge risk to deployment time, safety, and quality.

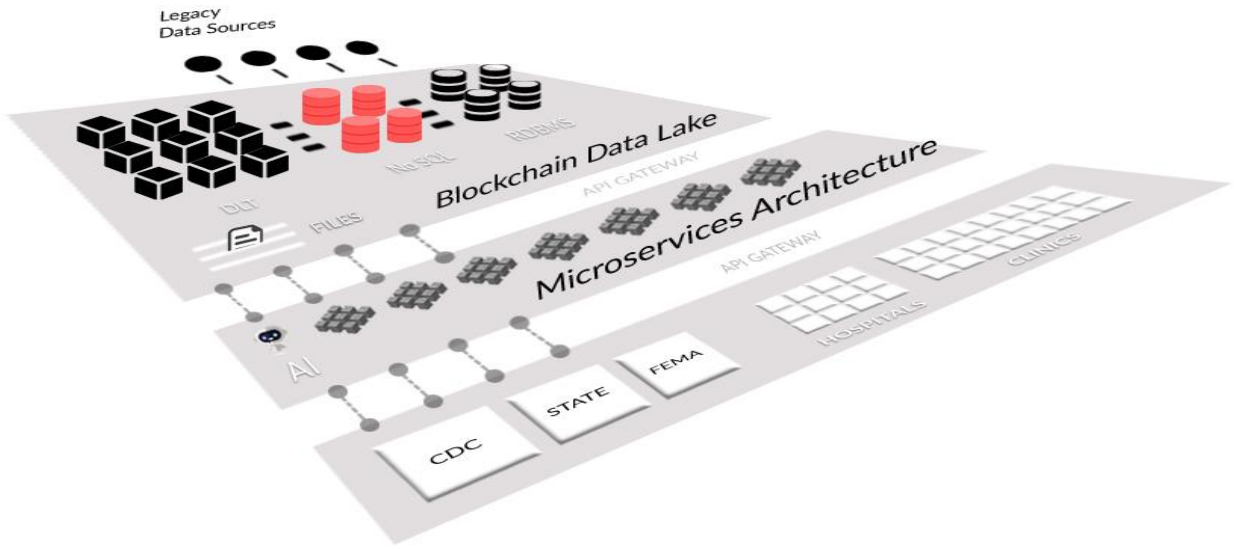
SUSTAINABLE BENEFITS

Faster deployments save lives

Real-time connectivity from anywhere in the world protects the deployment force

Continuous agility amplifies effectiveness

Blockchain (DLT) will ensure the flexibility needed to interoperate with the legacy systems that currently support the deployment process and allow for streamlined automation of the process. The immutable nature of the transactions on the blockchain will ensure trust between all parties that participate in the value chain – security and medical checks, passport and visa validation, training and skills verification, travel, etc. This encrypted ledger will be shared and synchronized across all nodes which are distributed amongst all participants in the value chain, such as CDC, STATE, FEMA, hospitals, and clinics.



Artificial Intelligence (AI) will run on top of the blockchain to match responders to an event by comparing the requirements of the deployment to information about responders, such as their skills, medical history, mental health, and specific expertise, a process which currently takes days and weeks to complete.

Internet of Things ("**IoT**") extends the blockchain's power to the field. IoT is a computing concept where mobile and micro devices are connected to the blockchain and continuously publish real-time digital insights to the shared distributed ledger about the geolocation, health, and safety of responders deployed in the field. IoT can also track the global supply chain for emergency response including but not limited to medical equipment deployed to the field and lab specimen collected from the field.

The mobile application and web application will interact with each other and the blockchain to ensure all parties in the value chain have insight into the progress of the deployment value chain. Using the web application, CDC can activate a response, select resources, track the readiness of resources, and monitor safety of resources in the field. Using the mobile application, responders can collaborate with CDC in real-time to ensure they are safe and have the resources needed while deployed.

Chris Verhoeven, co-author, is a Creative Director at United Solutions. He is the Project Manager for the Emergency Response Blockchain Project. **David T. Nguyen**, JD, MBA, co-author, is the Chief Executive Officer at United Solutions. He is the Executive Sponsor of the company's blockchain, artificial intelligence, and digital transformation projects.

United Solutions is a progressive digital transformation company that built the first federally authorized blockchain to cognitively automate emergency response, grants, procurement, and supply chain. For more information, please email sales@unitedsolutions.biz.

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