At Omnicom Health Group, we understand that the Blockchain technology is a hot topic in industries such as financial services, but we also know that healthcare is planning the most aggressive deployments.

Tell us what you think at technology@omnicomhealthgroup.com.
1 What Is Blockchain Technology?

The most popular strategy circulating among healthcare and also the Office of the National Coordinator for Health Information Technology (ONC) is Blockchain technology. A 2016 report by Deloitte of 308 executives indicated that healthcare and life science organizations are turning their attention to Blockchain.

Blockchain technology was first described in 2008 by Satoshi Nakamoto as a decentralized, public, cryptographically empowered system. There is no central database as in the traditional system; instead, there is a network of nodes where the information is copied and made accessible. Each node contributes to the collective process of validating and certifying digital transactions for the network.

The concept behind Blockchain consists of 3 components: a widely distributed network, a shared ledger with validated access identities, and digital transactions.
Interoperability With Blockchain

What does Blockchain mean for healthcare? And what are some implications of Blockchain with healthcare?

Lack of interoperability in healthcare management is a strong barrier. So the first-use case that pops up when discussing Blockchain technology with healthcare is data exchange. Patient medication information is collected by multiple entities such as physicians and labs, which is stored in individual databases and hence is not accessible to other healthcare entities in a secure way. With the use of Blockchain technology, patient information can be shared and accessed anywhere with certified access credentials.

Each healthcare event, such as X-rays and blood work, creates a digital transaction in a distributed network of nodes in Blockchain. Each transaction is validated by a physician or clinician trusted with an access key and then timestamped, which also maintains the history of patient data. When new information needs to be added for the patient in the network, every node is notified and updates its copy accordingly. Blockchain also offers a big advantage to patients by giving them constant access to their wellness data, and promoting a healthy lifestyle to reduce the chances of contracting major diseases.
3 Data Security and Scalability With Blockchain

The Centers for Disease Control and Prevention (CDC) estimates that 78% of all office-based physicians in the United States use EMR (electronic medical records). Blockchain can help facilitate the secure transfer of this massive amount of data. The FDA and IBM Watson embarked on a joint venture to try and tackle this problem, which they hope can provide more transparency and availability of health data to patients and their providers. You can read more about it here. With Blockchain technology, sensitive healthcare information is not only stored in one place, but also at multiple checkpoints, which improves security. With Blockchain as the distributed network, it is difficult to hack the system at multiple nodes, thereby decreasing the chance of cyberattacks.

Blockchain technology organizes data as transactions that can be verified and recorded through the consensus of all the parties involved. For healthcare, this means that any medical data entered into a system can have each transaction or entry validated.

This could greatly affect healthcare as providers often have their own version of patient records and these records are not always validated with one another. These records, though, are of great value to doctors for new and existing patients. With Blockchain technology, every doctor or healthcare provider can have access to patient data easily and in real time, improving clinical care coordination and clinical care in emergency medical situations.
4 IoT With Blockchain

Blockchain can help manage large amounts of health data obtained from connected health devices by providing a secure, unalterable ledger system.

Blockchain and the combination of cryptographic processes behind it offers an intriguing alternative. Because Blockchain is built for decentralized control, a security scheme based on it will be more scalable than the traditional one. Many companies are currently working on devices using Blockchain technology as security. This is also one of the major threats with IoT devices and Blockchain can help further reduce that threat.

A Singapore company called Bowhead Health ICO is developing a device that monitors the patient’s biometric data to dispense personalized supplements and medicine. The video is available [here](#). Patients have full control of their medical data with smart contracts. Through the Bowhead smartphone application, patients will be able to monitor their data in real time. This real-time data can also be used by healthcare professionals to provide timely advice to people in need of healthcare attention and direction.
Palo Alto–based company doc.ai has developed a Robo-Genomics platform. It is a deep conversational agent designed to improve genetic data comprehension and provide decision support.

This platform is being developed with an advanced natural language processing technology platform using Blockchain technology to timestamp its database and decentralize artificial intelligence (AI).

The patient can ask questions such as, “How can I decrease my cholesterol in 3 weeks?” or “Why was my glucose level over 100 and a week later it was 93?” AI provides answers to all these types of questions. Patients can have a conversation with the robo-doctors, which can help them solve their problem or direct them to their physicians. Since the robo-doctor uses Blockchain technology, patient data can be shared with their physicians in real time.
Conclusion

Blockchain technology shows promise in healthcare data storage based on its secure and decentralized nature, which challenges centralized data storage. Moreover, since all electronic medical records will be available using Blockchain technology in real time, it gives accessibility of data to patients and caregivers. We believe Blockchain technology is a game changer for the security, scalability, and availability of medical data, and is also a great advance in IoT healthcare devices.

If you would like to learn more, please contact us at technology@omnicomhealthgroup.com.
Sources


