Blockchain and the IoT will Thrive in a Collaborative and Decentralized Ecosystem

Nagendra Kumar April 26, 2017 Digitization, Internet of Things, Technology

New and smart technologies are emerging every day, but most are yet to prove their mettle in the marketplace. Two exceptions that have been well received, blockchain technologies and the Internet of Things (IoT), are helping creative innovators change the game in many different industries. While these technologies have the potential to disrupt every area of business and commerce, much of it is still untapped. Interest is rising every day, and exciting projects are moving past the pilot phase and onto the path to commercial success.

Blockchain is the infrastructure supporting Bitcoin and other crypto-currencies, and has wide-ranging implications for the way we transact, establish trust, and transfer value. In the most simplistic sense, it is an autonomous public ledger, spread over a global network, to record and authenticate transactions. IoT, on the other hand, refers to devices connected to a common interface that can interact with each other to exchange information in real-time. A number of vendor-driven closed-IoT ecosystems have emerged over last few years including Apple's HomeKit (home automation), Google's Nest (surveillance and automation), CitySense (civic applications), and the OpenIoT Phenonet Project (agricultural applications).

The world needs more solutions that leverage blockchain technologies and IoT, but there are fundamental challenges to overcome.

Challenges to Adoption

Conceptualizing creative solutions that make use of either blockchain technology or IoT isn't difficult. Developing them can be, because of a range of scalability and interoperability limitations.

Imagine an ecosystem with millions of connected devices, manufactured by

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hundreds of technology companies, collaborating seamlessly with each other while capturing and analyzing real time data for immediate responses. For that to be possible, there needs to be sufficient bandwidth available, as well as a standard language for data interoperability across different devices, irrespective of their make and model. The current set of vendor-specific technology standards and centralized cloud-based IoT application and infrastructure paradigms, are not able to scale up to cost-effectively address such scenarios.

Similar scalability limitations plague the existing blockchain implementations. Blockchain-backed Bitcoins, for example, takes over 43 minutes to verify a transaction now, up from 10 minutes when it was launched in 2009. The industry is working on addressing these limitations.

Initiatives like OIC, IIC and AllSeen Alliance for IoT, and Ripple, Etherem, R3CEV, and the Hyperledger Project for blockchain technologies are working to create open standards and optimize the core protocols to make these technologies more scalable and interoperable. But there is a need for industry participants to collaborate with regulators and technology pioneers to drive interoperability and scalability beyond closed networks.

The second, but perhaps more pressing issue with these technologies is the concern around information security and privacy. As the recent Dyn DDoS attack proved, IoT devices are highly vulnerable to cyber-threats. In addition, technology vendors are not adequately transparent around the usage of sensitive user data collected by smart devices. While a clear regulatory framework around data ownership, governance, and privacy is required, mainstream adoption will require a greater level of consumer trust and confidence.

Finally, there is a considerable gap in terms of the perceived consumer value delivered by IoT-based products that can justify consumer interest in paying premium prices or parting with their personal usage data. Product vendors also need to move away from just using IoT connectivity as a feature addition to make their product smart, and look at game-changing innovations to re-imaging their core customer proposition. In the case of blockchain technology, there is a need to expand adoption beyond cryptocurrencies and alternate payment systems. P2P value exchange platforms like Mycelia that allow individual value creators like artists, designers, and professionals to connect directly with consumers using smart contracts, can provide an impetus for wider adoption of blockchain based decentralized business models.

Unleashing the Potential of Blockchain and the IoT

Both blockchain technology and the IoT thrive on transparency and decentralization. Businesses might choose to innovate in isolation, but must collaborate with other businesses, regulators, and end users to realize the full potential of these two technologies. Doing so will not only help create better products and services, but also more viable business models.

Public bodies and federal governments should take the lead in enabling infrastructure development and driving community projects to leverage these technologies. Decentralized governance models established by non-profit consortiums such as ICANN and interconnected groups of autonomous bodies such as the Internet Network Operators' Groups are some examples of ideal collaboration. Such bodies help establish common standards and protocols that promote data interoperability, build customer confidence, and facilitate the proliferation of products and services that use these technologies.

Blockchain and the IoT have been in the development labs long enough. It's time to let them make a dent in the universe.

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