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University of Sydney builds new Red Belly Blockchain technology

The university has touted its blockchain development as super fast and safe.

By Asha McLean | July 3, 2017 -- 02:04 GMT (03:04 BST) | Topic: Innovation

Image: University of Sydney

Researchers at the University of Sydney (USYD) are building a new blockchain technology, dubbed Red Belly Blockchain, that they believe has the potential to revolutionise the global economy.

Named after one of Australia's most deadly snakes (http://www.australiangeographic.com.au/topics/science-environment/2012/07/australias-10-most-dangerous-snakes/), the new system being developed by the university's School of Information Technologies is expected to allow secure and almost instantaneous digital transfer of virtual currencies across the world, touted as faster than the systems in place by the likes of card giant Visa.

"In recent testing, our blockchain achieved the best performance we have seen so far -- with more than 440,000 transactions per second on 100 machines," said USYD academic Dr Vincent Gramoli, who heads up the Concurrent Systems Research Group developing the blockchain.

"In comparison, Visa's network has a peak capacity of around 56,000 transactions per second and the Bitcoin network is limited to around seven transactions per second."

Blockchain is a distributed ledger technology originally conceptualised to facilitate the trading of the bitcoin cryptocurrency. In a nutshell, blockchain allows for the tracking of digital assets so that a level of trust and consensus can be established, and previous transactions agreed upon.

According to USYD, its Red Belly Blockchain is the first blockchain being built to work both in public and private contexts, allowing for the exchange to occur in a peer-to-peer fashion, as well as in an industrial environment restricted to certain users.

"As opposed to mainstream public blockchains, ours is not subject to double spending -- when an individual successfully spends their money more than once -- because its chain of blocks never forks," said Gramoli.

Gramoli said the university's blockchain is being developed in part to avoid common problems currently plaguing digital transactions, such as forking, when the blockchain starts to diverge into two or more potential paths forward.

"As opposed to consortium blockchains, it can treat hundreds of thousands of transactions per second coming from a potentially unbounded number of clients. It offers a performance that scales horizontally, which ensures the security of transactions," he added.

The next stage for the Red Belly Blockchain is to develop a recommendation system to automate the selection of the participants of a consensus instance which USYD hopes will ensure the security of the blockchain.

When delivering its 2017-18 Budget, the federal government announced it will be aligning the GST treatment of digital currency (http://www.zdnet.com/article/budget-2017-government-to-remove-bitcoin-double-tax-next-month/), including Bitcoin, with regular money as of July 1 2017, in a bid to promote the growth of Australia's fintech industry.

Australian corporates are also embracing blockchain technology. In October, the Commonwealth Bank of Australia, in partnership with Wells Fargo and Brighann Cotton, claimed the first interbank trade transaction (http://www.zdnet.com/article/commonwealth-bank-and-wells-fargo-claim-first-interbank-blockchain-trade/) combining blockchain technology, smart contracts, and IoT.

In addition, a project using a shared, distributed ledger that can store complete transaction history has almost been completed by the Australian Securities Exchange (ASX).

The exchange recently said its blockchain initiative (http://www.zdnet.com/article/asx-completes-blockchain-trading-platform-prototype/) is on track for a final decision in the second half of 2017, with the prototype complete (http://www.zdnet.com/article/asx-reports-au219m-h1-profit-as-it-readies-futures-trading-platform-for-march/) and the organisation moving to build an "industrial-strength solution" to use as its equity settlement, asset registration, and clearing platform. Its broader plan is to become the first exchange in the world to upgrade to post-trade services using the technology.

ASX group executive for operations Tim Hogben also said recently that blockchain is ideally suited for securely recording medical health information (http://www.zdnet.com/article/asx-argues-medical-records-are-ripe-for-blockchain/).

Similarly, the Sydney Stock Exchange (SSX) announced a project recently that would see it instantly settle trades using blockchain technology (http://www.zdnet.com/article/sydney-stock-exchange-to-implement-instant-blockchain-based-settlements/) with the help of Sydney-based Bit Trade Labs.

Australia's incumbent telco carrier Telstra announced in September it was experimenting with a combination of blockchain and biometric security (http://www.zdnet.com/article/telstra-explores-blockchain-biometrics-to-secure-smart-home-iot-devices/) for its IoT smart home offerings.

Although the immutable record of transaction has found itself tangled up in a regulatory delegation-fest between government organisations in Australia, with eight different government bodies (http://www.zdnet.com/article/blockchain-development-in-australia-overseen-by-eight-regulatory-bodies/) overseeing blockchain development to some degree in the country, Data61 recently said blockchain holds promise as a new foundation for transactions in society (http://www.zdnet.com/article/data61-has-its-sights-on-a-blockchain-based-future/), in particular for voting, notarisation, supply chain, registration, and process coordination, in addition to payment-related services.

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