The rise and rise of the decentralised web

By Simon McCullough

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While the internet isn't technically centralised, it is monolithic and monopolised in practice.

A handful of companies currently control most of the world's personal data and, in most cases, we are ostensibly fine with this situation… or are we?

Driven largely by data privacy concerns, there is a growing chorus of entrepreneurs, experts, activists, and consumers starting to call for major changes.

Everywhere you look, trust in the internet's string-pulling behemoths is taking a hit due to a constant storm of hacks, technical mishaps, and operational intractability. People are getting disillusioned and consequently, an aspirational exodus toward more protected, transparent, and decentralised web options is gathering pace.

Source: pixabay.com

In many ways, decentralisation is already trundling into the mainstream, largely thanks to the fervour surrounding Bitcoin and a clutch of its lesser known cryptocurrencies. This is just the beginning too. We can confidently anticipate eye-catching and frenetic progress in the coming years as blockchain, the technology underpinning Bitcoin, continues to evolve.

New tech on the block

Blockchain is a global database functioning as an incorruptible digital ledger of economic transactions. It can be programmed to record not just financial transactions, but virtually anything of value. Intriguing use-cases are popping up all over, from food supply chain traceability to micropayments for media content.

Many of the emerging concepts propose a dramatic shift in traditional approaches to transactions and businesses processes. It will simplify the Internet of Things (IoT), prompt a decentralised app design boom and, crucially, reinforce identity management capabilities.

Tech boffins, investors, and top-level decision-makers of every ilk are duly and intently monitoring the situation.

Source: pixabay.com

The father of the internet, Tim Berners-Lee, is one such observer and a firm believer that change is both necessary and on its way. Ultimately, he wants his creation to go back to what he originally intended – a decentralised platform with unfettered user freedom and watertight personal data controls. To help turn the tide, he recently founded SOLID, an open source project aiming to decentralise web applications, foster true data ownership, and improve privacy.

There's also a hive of entrepreneurial activity starting to evince blockchain's commercial viability. TraDove is shooting for a B2B blockchain payment network for international transactions, recently raising $53m and fuelling corporate demand for cryptocurrencies for sales and marketing – a $76bn market.

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In Japan, the ambitious PATRON has big expansion plans for its decentralised influencer-marketing platform set to eliminate inefficiencies in branded content and social media. Then there's Celcius Network, a trailblazing borrowing and lending platform committed to introducing the next 100 million people to cryptocurrencies. There are many others and it is easy to see why excitement is building.

Curb your enthusiasm?

Beyond the headlines, however, there are still plenty of obstacles on the road to decentralised nirvana.

Firstly, mass adoption requires mass buy-in. It can be a slow process to get behind something new, particularly if it stems from a field prone to technical opacity. Having said that, consumers are tech-savvy and data conscious than ever before. Incidents like Cambridge Analytica illegally mining Facebook data for 2016 US presidential election advertising are already prompting many to explode the status quo.

> *Another potential impediment to user enthusiasm is speed, which is an enduring and well-known issue for decentralised apps. Without high-powered servers to keep latency at bay, there is always a looming buffer dread. Switching to a slower network is undoubtedly a tough sell but decentralisation acolytes believe the problem will be resolved soon. As the sentiment goes, lag is temporary. Disruption is permanent.*

Even more complicated is the regulatory minefield ahead. Establishing data jurisdictions? Defining responsibilities for deleting and changing information on the blockchain? These are all lingering grey areas. Current legislative frameworks will buckle under the adaptive strain without consistent and focused industry input and governmental vision. Clearly, widespread change is needed to untangle mounting and unavoidable complexities.

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In the long-term, it is important to note that a thriving blockchain-driven B2B marketplace or platform will require all stakeholders to develop and deliver applications and services that integrate in a safe, scalable, and reliable manner.

In addition, it will necessitate the technical wherewithal to coordinate massive data flows and business processes, as well establish sustainable infrastructures for applications and a distributed network of connected things. Automation and orchestration tools and frameworks – most often associated with DevOps and open application programming interface (APIs) ecosystems – will be in high demand.

As ever, security remains a major concern. It isn't the blockchain that's getting hacked – it's the things that surround it: payment systems, databases, and user credentials. Today's cryptocurrency exchanges may be tomorrow's banks, and you can bet somebody will try to rob them. Industry-wide, we must get better at boosting developers' abilities to self-service provision and automate the network. We also need to ensure that security services are intimately integrated into the software development cycle.

The road ahead

Soaring demand for data security and transparency, combined with emerging business models built on blockchain technology, will only continue to cast all things decentralised in a positive light. Meanwhile, existing technical hitches will diminish over time due to inevitably improved processing technologies and the step changes required to comprehensively leverage the IoT. All businesses operating in the tech and data arena need to know the score, and carefully consider which investments can both meet, and pre-empt, shifting customer demands.

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