Block Chain Technology–
The Enterprise Awaits

By Pete Harris

Four Simple Steps to Transform Legacy Datacenters, Part 1:
Sit Together

By Hans Ashlock

Block Chain Technology: *The IT Enterprise Awaits*

By Pete Harris, Principal, Lighthouse Partners

> *Consider this: 100 startups are developing block chain applications, and around $1 Billion has been invested in them to date. Marc Andreessen – who invented the web browser and is now one of the investors – has called block chain a "core innovation," and the mainstream business media is covering it almost daily – piquing the interest among the C-suite of major corporations. The next step: enterprise adoption. Probably.*

While most in the startup community believe it is a given that block chain technology will become embedded in the IT infrastructure of Fortune 1000 companies – and for sure the promise is tangible – a few challenges need to be overcome before that becomes a probable scenario.

Now, before I get into the promise and challenges, here is a very quick overview of block chain technology and why it is considered unique:

• Block chain technology is implemented as a software and data layer that runs on a physical distributed network, using internet protocols.

• Block chain is the technology platform the underpins the bitcoin crypto currency. It was first described in the 2008 white paper that introduced bitcoin, authored by the mysterious Satoshi Nakamoto. Also, just for the record, Satoshi used two words – i.e. block chain – to describe his invention, though many now refer to it as the singular, blockchain. Clearly, I'm with Satoshi on this.

• As well as supporting bitcoin, block chains have also been implemented to run other crypto currencies, and to potentially support a wide range of applications that are not currencies at all. So bitcoin is a reference implementation of a block chain, but because it was the first such implementation, it of often referred to as 'the' block chain.

• Block chains are a type of database that has some rather unique properties.

• Block chains rely on cryptography – including public and private encryption keys – to secure them and to ensure that any attempt to tamper with them can be detected.

• A block chain is a time ordered list of immutable records – once a record is written to it, it cannot be deleted or changed (without being detected).

• A block chain is distributed and shared, so that the same data set is stored on multiple network nodes, and hence it is very secure.

• The consistency of data sets across nodes is managed by what is called a consensus protocol, and these can differ depending on the implementation of the technology.

• Bitcoin's consensus mechanism uses a 'Proof of Work' approach where certain network nodes perform complex mathematical operations to ensure the integrity of new data blocks that are added.

• Bitcoin's Proof of Work ensures overall block chain integrity even when one or more rogue nodes might be working to undermine it. The end result it that bitcoins can be safely sent (and be proven to have been sent) from one person to another, even if the individuals do not know one another. And this means that no central authority or hub is needed to manage bitcoin transactions between individuals/nodes on the network. They are pure peer-to-peer operations, sometimes referred to as decentralized.

• Proof of Work requires increasingly powerful computer technology, and relatedly increasing amounts of electrical power, in order to perform it. The nodes that perform this Proof of Work function are actually rewarded for their efforts in bitcoin, and so the process is popularly refered to as 'mining'.

• As well as Proof of Work, other consensus approaches have been developed, especially for block chains that are implemented with known security in place, i.e. where it is known that there are no rogue nodes. These alternative

consensus mechanisms are often faster and have higher throughput than bitcoin's Proof of Work.

Building business applications – and not just crypto currencies – on block chain technologies is now being investigated for pretty much every vertical, because the block chain approach offers to improve the performance of some processes, make them more transparent to regulators, more resistant to cyber criminals and generally simplify what's needed to implement them. Simplification means reduced time to market and reduced operational costs.

Little wonder, then, that corporations as diverse as the Nasdaq stock exchange, the banking giant UBS, the credit card issuer Visa, healthcare tech provider Philips, and the Government of Honduras (which has a problem of government corruption when it comes to managing land title records) are all exploring block chain-based applications.

While block chain technology in all its guises has much going for it, actually implementing it in live production within enterprise environments will require marrying it with practical know how of deploying scalable, reliable and secure systems that conform to agreed service level agreements – the kind of skills that are second nature to the major IT vendor community.

Which is where there is some reason to pause. Because despite the innovative pressure and the increasing corporate interest, the major IT vendors that would commonly partner with enterprises to implement their core infrastructure seemingly have little to offer when it comes to block chain expertise.

That's a view I formed after conducting a simple survey* of 100 big IT vendors, reviewing each of their websites for information on block chains. As detailed in the resulting report – Searching in Vain for The Block Chain - Just 23 had anything at all to say about it, and that number dropped to 15 when management consultants and IT analysts were not counted.

In my view, unless the major global IT vendor community becomes educated in block chain technology – along with its technology benefits and business potential – there is real threat that the roll out of this innovation will be slowed.

Looking back at the history of IT adoption, while startups have generally been the early stage innovators of some new development, it is only when much larger established IT vendors have become involved have the new technologies really taken off. I am thinking of innovations including big data processing, cloud computing, mobile services, open source … and even the internet itself.

This state of affairs is hardly surprising. Major corporations that operate on a global scale require equally global and trusted IT partners when it comes to deploying technology on which their business depends. For example, in the case of cloud computing, corporations concerned with cyber security and compliance with data regulations required the comfort that comes with working with a capable, experienced and financially stable IT vendor that they established a relationship with.

Following this thinking, for block chain technology to be adopted by mainstream corporations and implemented in core infrastructure and systems, the solutions need to be offered by the major global IT vendors.

Given the potential opportunity of re-architecting the business processes of major corporations worldwide using block chain approaches, and of offering services with much lower costs, there is a real imperative for the big IT vendors to get up to speed on the technology.

Looking forward to 2016, I believe that a number of these large vendors will rapidly educate themselves on block chain, begin to offer advice to their customers, and explore partnerships with (and perhaps acquisitions of) players in the startup community that are already up to speed, leading to them offering block-chain based products and services.

Peering out a few years, I expect that among the major IT players, there will be both leaders and laggards, the latter being most likely those vendors with incumbent technologies and revenue streams, and real vested interests in slowing down the path of innovation. And for some of the leaders, it could well be a bet-the-company decision to go the block chain route. For sure, though, block chain adoption will succeed or fail based on what these IT heavyweights choose to do, and how well they execute. File under 'History repeats itself'.

• Download Lighthouse Partners' research survey "Searching in vain for The Block Chain" at www.lighthouse-partners.com/resources.html.

ABOUT THE AUTHOR

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