

What is blockchain, and which businesses use it?

By ***Jonathan Hassell***, (http://mobilebusinessinsights.com/author/jonathan_hassell/) on December 13, 2016



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Jonathan Hassell

Blockchain is all the rage these days, and if you follow technology news, you’ve probably heard of it and have a vague idea that it has somewhat tangentially to do with bitcoin. However, what is blockchain, and which businesses should be using it?

What is blockchain?

Blockchain is a technology that makes a distributed ledger (http://www.ibm.com/blockchain/what_is_blockchain.html) possible. A blockchain itself, a single unit, is what constitutes the record of a single transaction. You might think of this as financial transactions, but

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blockchain is not limited to just financial services. Any time there is an exchange of value, the fact that it happened and the details thereof can be recorded in a blockchain.

The integrity of this blockchain and a ledger full of these blockchain is verified through a couple of ways. Every transaction is digitally signed so that it cannot be altered without the signature failing and a modification being detected. The entries themselves are also distributed among a blockchain deployment or similar infrastructure. The copies of the digitally signed transactions exist in multiple places in the chain, further ensuring the security of the transactions and making it next to impossible to alter an already written ledger.

How is this possible? As the copies of the transactions exist everywhere in the deployment, it can very quickly come to a consensus about the right state of a transaction. When new transactions or edits to existing transactions come in, a majority of the nodes in the blockchain deployment have to go through procedures and algorithms to evaluate and record the history of the individual edits or new records that are proposed.

If enough of these veracity checks pass, the new transaction or the edits to an existing transaction are permitted and a new block is added to the chain of ledger transactions. If the veracity checks do not pass or some detail about the proposed transaction or edit cannot be verified, the addition is rejected and the ledger stays intact in its previous version.

The point here is that the distributed nature of the ledger allows blockchain to operate independently of any central or certifying authority. Rather, integrity is dispersed among all the nodes in a blockchain deployment.

There are several software projects, some open-source and some collaborations with industry partners and commercial software vendors, that implement blockchain technology.

How are blockchain and bitcoin related?

Bitcoin, the dark currency that fascinates techies worldwide, is based on the distributed ledger technology that underpins blockchain. Specifically, bitcoin uses an anonymous public ledger everyone has the right to use — this is where [bitcoin mining \(https://techcrunch.com/2013/04/08/how-to-mine-bitcoins/\)](https://techcrunch.com/2013/04/08/how-to-mine-bitcoins/) comes in.

Which businesses are suitable for blockchain?

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Aside from the very public bitcoin, there are many more limited, private deployments of blockchain. Businesses can use software to permission blockchain among a smaller number of known participants to further tighten the integrity of the ledger system.

Financial institutions (<http://mobilebusinessinsights.com/2016/11/byod-policy-for-financial-firms/>) can use blockchain to essentially eliminate the need for end-of-day batch processing, since real-time settlements are possible through the consensus function of blockchain. This allows for faster access to settled funds and less manual processing on the part of the financial institution.

Logistical companies that work with a variety of suppliers, end customers, customs brokers and shipping companies that deliver overseas. For these outfits, blockchain offers a way to verify exchanges of value have taken place without the necessity of incurring currency exchange, wire transfer and other money remittance fees at every step of the transaction.

Blockchain is certainly an interesting technology with many potential applications, but it is still in its infancy. However, it's still a space to watch, especially if your company deals with transactional integrity, value exchanges or fund settlements.

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