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# The technology behind bitcoin is being used in surprising ways

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Bitcoin miners at work.

delays and wire fees that accompany international payments, opening bank records to the easy scrutiny of regulators and the public, advocates say.

It could ensure transparent and fair elections in the developing world.

It could even help certain Central American countries, where reliable records are rare, track things like land ownership.

What is this technology?

It's called the blockchain, and it's the digital ledger that forms the backbone of bitcoin.

Much ink has been spilled about the blockchain's potential for disruption. But the technology — which first emerged in 2009 — is still in its infancy, and there are some key obstacles that engineers must overcome before it can be used on a larger scale.

## What is the blockchain?



*This isn't a bitcoin!*

You can't reach out and touch a bitcoin. It doesn't exist in the physical world.

A bitcoin is just a piece of data stored on the blockchain.

The blockchain differs from conventional databases in a few important ways. Instead of storing data in one central location, it distributes it among a network of users running the bitcoin software. A complete history of every bitcoin transaction is stored on the blockchain, and all of these recorded transactions are open to public scrutiny.

Before a bitcoin transaction is approved and processed by the network, it is verified using a cryptographic algorithm that checks the transaction against the histories stored on every computer in the network. This process is complex, but it has one big advantage: it makes the blockchain very difficult to hack, advocates say.

Established companies are interested in the blockchain because it can clear transactions almost instantly and eliminate intermediaries from financial transactions, while offering both parties a high degree of transparency and security.

Some enthusiasts envision a world in which versions of the blockchain — or some other blockchain-inspired protocol, but built on a unique foundation — will become the universal protocol that underpins our entire financial system.

## Cryptobonds

Overstock.com **OVER, +9.54%** a large U.S. e-commerce company based in Salt Lake City, is already testing the technology's limits. The retailer has built its own trading system on top of the blockchain, and early in June announced that it intends to offer \$25 million in so-called cryptobonds that will trade on the platform.

The experiment is part of the company's larger exploration into the innovative potential of cryptocurrency, which its CEO, Patrick Byrne, calls "Medici." So far, Byrne is the only investor in the bonds. But the company says it anticipates announcing more buyers in the near future.

The trading platform, a company representative says, offers same-day settlement for trades — a process that typically takes three days, using conventional market infrastructure.