BLOCKCHAIN EXPLAINER

Timestamp

#TIMESTAMP #BLOCKCHAIN #BITCOIN #DATABASE

A timestamp is a sequence of characters or encoded information identifying when a certain event occurred, usually providing date and time of day, sometimes to the fraction of a second. Blockchain uses digital timestamps to validate information.

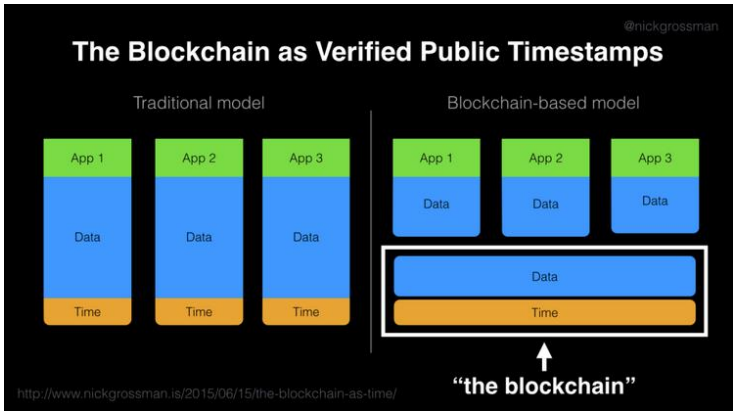
How It Works:

A blockchain timestamp has a similar function as a post office's postmark on an envelope. When someone mails an envelope, the post office's postmark, which has the date of the stamp, process that whatever was put in the envelope was done so before the date of the stamp.

The blockchain timestamp is essentially **a digital, shared, and programmable** version of a postmark.

Before blockchain, every application kept its own notion of time. For example, when someone posts on Facebook, Facebook saves the post and timestamps it. All other parties have to trust that this timestamp is **accurate**, and that it would **never be changed** in the future.

With the blockchain, timestamps are the way that information is validated. These timestamps are verified by all parties to ensure they are **correct.** Blockchain timestamps are also **immutable**, meaning they cannot be altered by any participant in the network.



The diagram above shows the traditional model vs. the blockchain-based model. Blockchain acts as a shared database by moving data that was previously confined to individual apps to a shared database.

In this way, the blockchain acts as essentially a **database of verified, public timestamps**. It is a way for any participant to state, publicly and immutably, that a certain event happened at a certain time.

The Blockchain's timestamps are:

Decentralized

No one entity controls the database of timestamps on the blockchain, and all parties in the network confirm that the timestamp has happened. This is the "mining" process.

Immutable

Once a timestamp has been verified and recorded, no party has the ability to undo the transaction. A transaction may only be reversed by another transaction.

Public

All of the timestamps are publicly visible for all participants on the network.

Programmable

Participants can write code against the blockchain to trigger an action based on the details of a smart contract embedded in a timestamp

Bitcoin Timestamp:

bitcoin

- Each block contains a Unix time timestamp (a system for describing instants in time as the number of seconds elapsed since 00:00:00)
- Source of variation for the block hash
- Make it more difficult for adversary to manipulate the blockchain
- Unsigned integer for timestamp, so the year 2038 problem is delayed

Sources: http://www.nickgrossman.is/2015/06/the-blockchain-as-time/
https://en.wikipedia.org/wiki/Unix_time
https://en.bitcoin.it/wiki/Block_timestamp