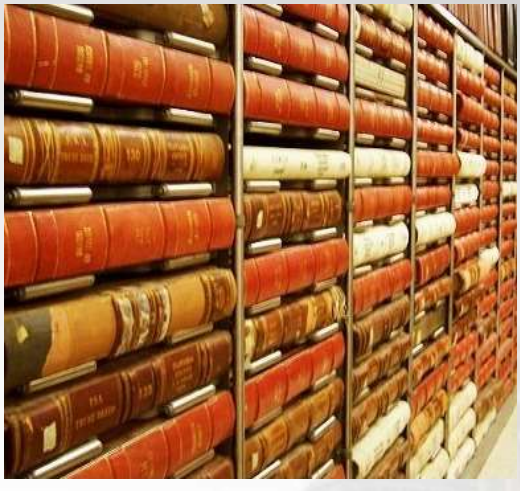
# Blockchain Technology
# What Is It and Why Do I Care?

**Mark Ladd**

**VP, Regulatory & Industry Affairs**

**Simplifile, LC**

PRIA
Property Records Industry Association



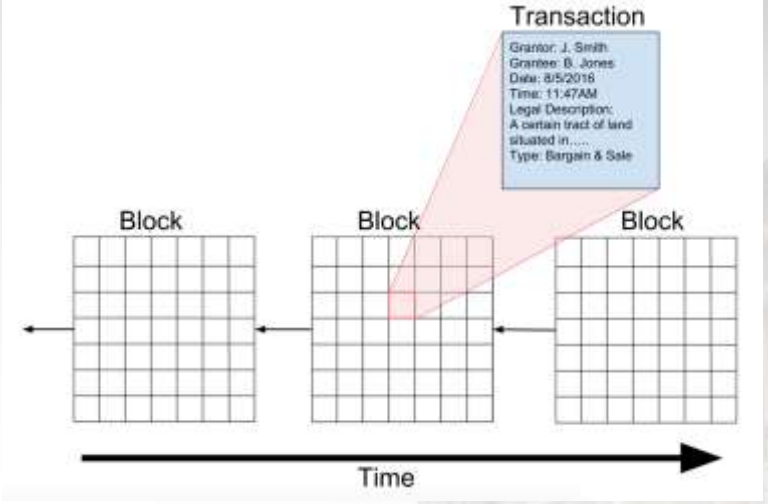
An electronic system based on ***cryptographic proof*** (a mathematical formula) instead of third-party testimony, allowing any two willing parties to transact directly with each other without the need for a third party

Transactions are computationally ***impractical to reverse***

System allows participants to agree on a ***single history*** of the order in which transactions were received, and therefore a ***single universal truth*** about who owns what

The blockchain is a ***distributed, public ledger***.

- Unchangeable, digitally recorded data
- Linked or "chained" together
- In a continuous, trusted record




A cryptographic hash
of this 35-page document:

acfa1ddcce49724dcf8c
422fb52fe6510b30bed
b32709cc699b5e0e7b8
c91d0d

## Trustless process

- People have laws, rules, regulations, standards that keep the public record running honestly
- Blockchain is governed by computers checking each other
- There is no need for clearing by the various parties typically included in a transaction
- Blockchain does away with the people aspect

## Types of Blockchains

- **Public** – Grants read access and ability to create transactions to all blockchain users; users can transfer value without the express consent of blockchain operators
- **Private** – Limits read access to predefined list of entities; users have to rely on interfaces provided by blockchain operators in order to read and submit transactions

## Types of Blockchains

- **Permissionless** blockchain building allows anyone to contribute data to the ledger with all participants possessing an identical copy of the ledger
- **Permissioned** blockchain building is restricted to a set of known entities; identical copies of a ledger are distributed only to a limited number of trusted participants

| | Public | Private |
|---|---|---|
| Permissionless | • Anyone can read<br>• Anyone can write | • Doesn't exist. A permissionless private blockchain wouldn't be very private |
| Permissioned | • Anyone can read<br>• Only known entities can write | • Only known entities can read<br>• Only known entities can write |

**Authorization and Authentication**

- User authorization is performed using public key cryptography (PKI)
- Provides security, decentralization
- Eliminates single points of failure
- Provides complete time ordering of events
- Similar security is used in existing server farms and data centers

## Value of Blockchains

- Availability
- Openness / Transparency
- Auditability
- Alternative to existing centralized asset management
- Transforms *asset transfer* the way the internet transformed *data transfer*

## Security Properties

- Impossibility of counterfeit
- Immutability (cannot be changed)
- Reduction in opportunity for fraud
- Disintermediation (no “middle men”)
- Transparency and ease of auditing
- Less expensive transaction processing

## Vital Properties

- Consensus on the order of events
- Continuous arbitration of blockchain entries; prevents a user from executing the same action more than once
- Registration of every single transaction on one tamper-proof ledger
- Redundancy of the ledger
- All transactions are visible, archived and in effect for all time

## Categories of Blockchain Users

- Asset issuers
- Blockchain notarization (time-stamping)
- Regulators
- Smart contracts
- User application developers
- End users

**Where are we?**

- For the public sector, is there truly a benefit?
- For business, what are the business models?

**Why should we care, as an industry?**

- Internationally, multiple proofs of concept related to real estate transactions are in play
- Each done by technologists in partnership with a government
- It has the potential to severely affect aspects of each industry involved in real estate transactions

**Like What?**

- The public record and recording jurisdiction obligations?
- Notarial Law / RULONA?
- Title and Mortgage Industries?
- Secondary Market?
- Everything!!

**Questions to Answer**

- A real estate transfer is not the only action taken on a property. What about Transfer Tax? Mortgages? Releases? Everything else in between?
- Is a transaction a digital document?
- Who adds the transaction to the blockchain?
- How does legislation need to change the law?
- How are fees and monies transferred?
- Can we use non-digital documents?

**In Summary**

- Blockchain = Immutable and distributed database that is permanent
- Transactions are encrypted
- Technology that only now is starting to be explored
- Who should help guide that exploration but industry experts?

The train is coming.
Do we hop on, build the tracks, or watch it pass us by?

Will it crash?

# Thank you.

**Mark Ladd**

mark.ladd@simplifile.com

PRIA
Property Records Industry Association