Distributed Autonomous Organizations

Ronald L. Chichester, J.D., CFE, CISA

Presented to the Joint Meeting of
HTCIA and the InfraGuard Tech SIG
January 26, 2017
Houston, Texas

Overview

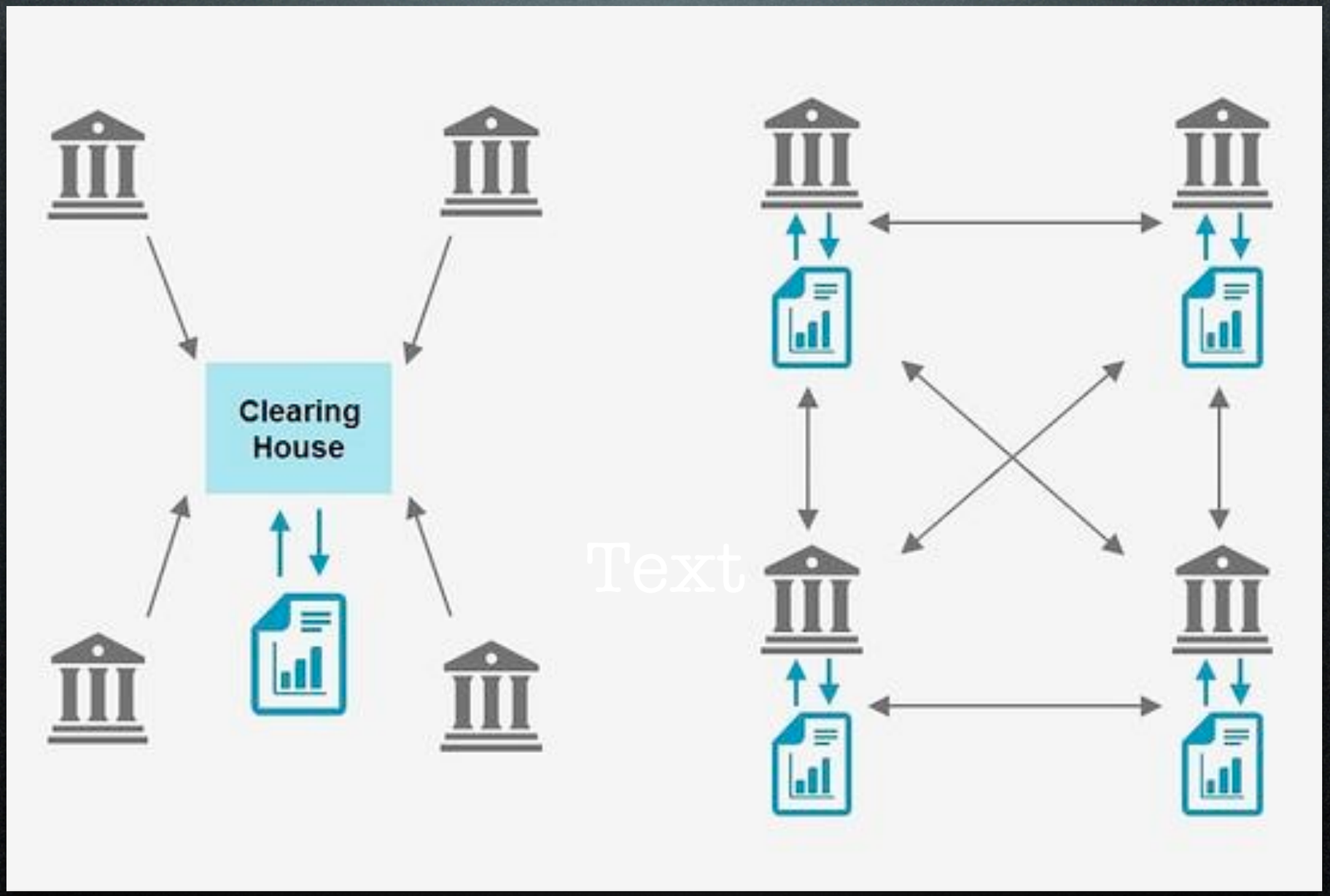
- The Phenomenon
- The Technology
- More Background
- What's Happening
- What if Something Goes Wrong?

The Phenomenon

Bitcoin!

The Technology

BLOCKCHAIN



Source: Wall Street Journal
http://online.wsj.com/media/0201_cio_ledg_G_20160201185005.jpg

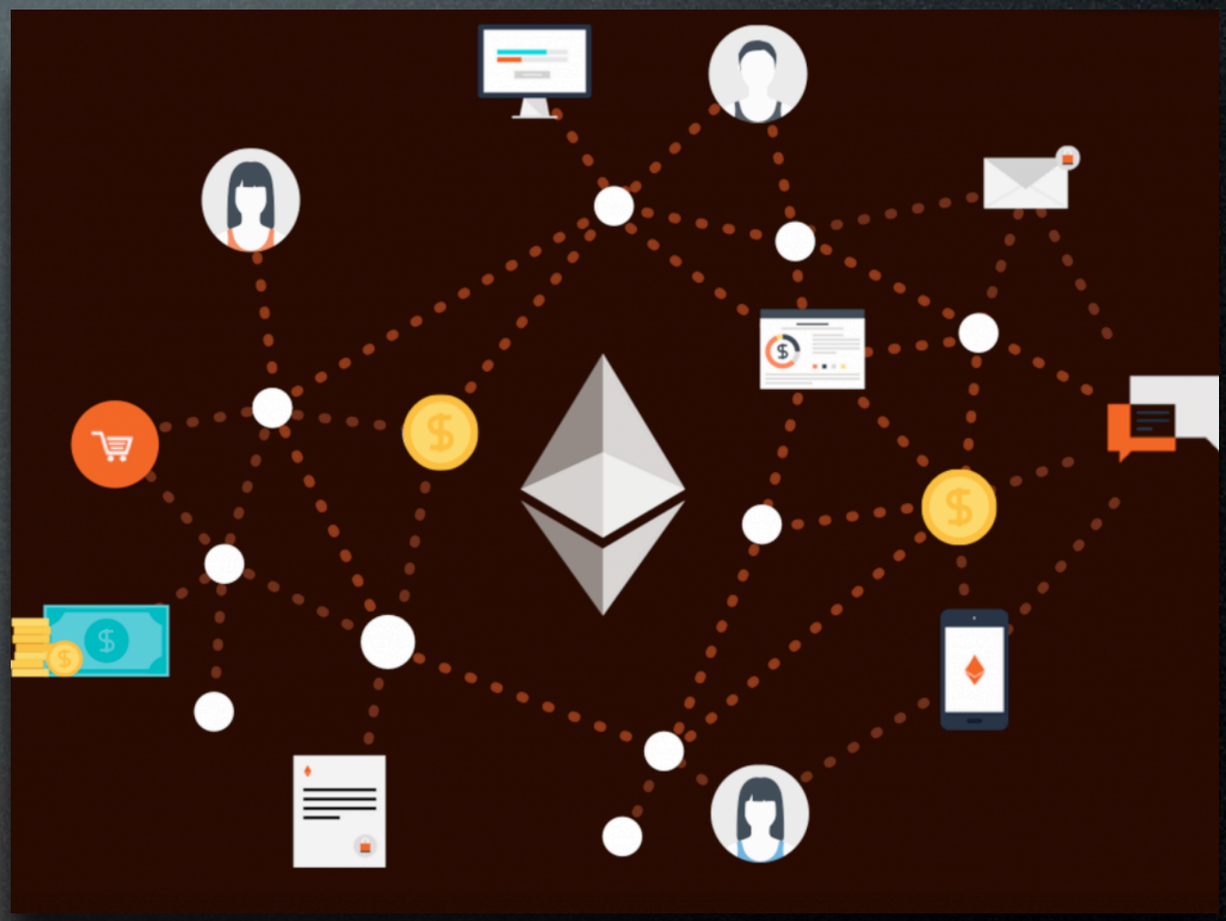
Blockchains

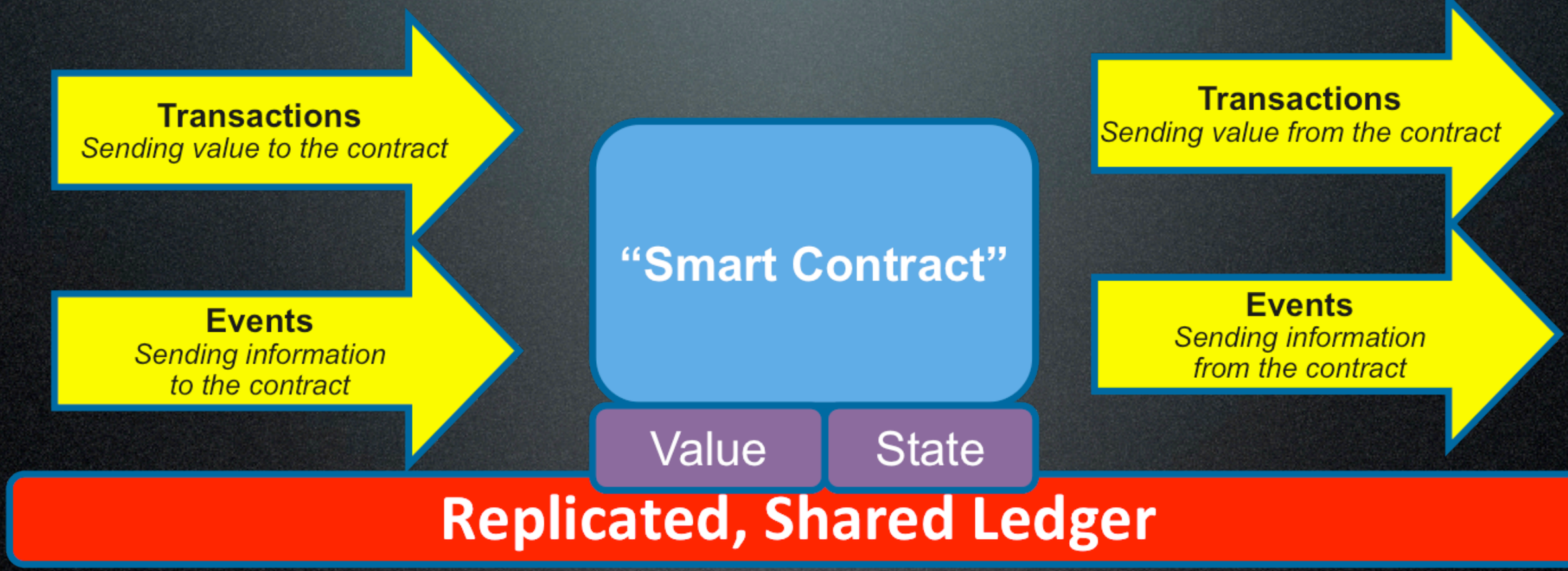
- Record transactions ...
- ... in a reliable manner; and
- ... in a manner that precludes refutation of the transaction (by either party)

More Background

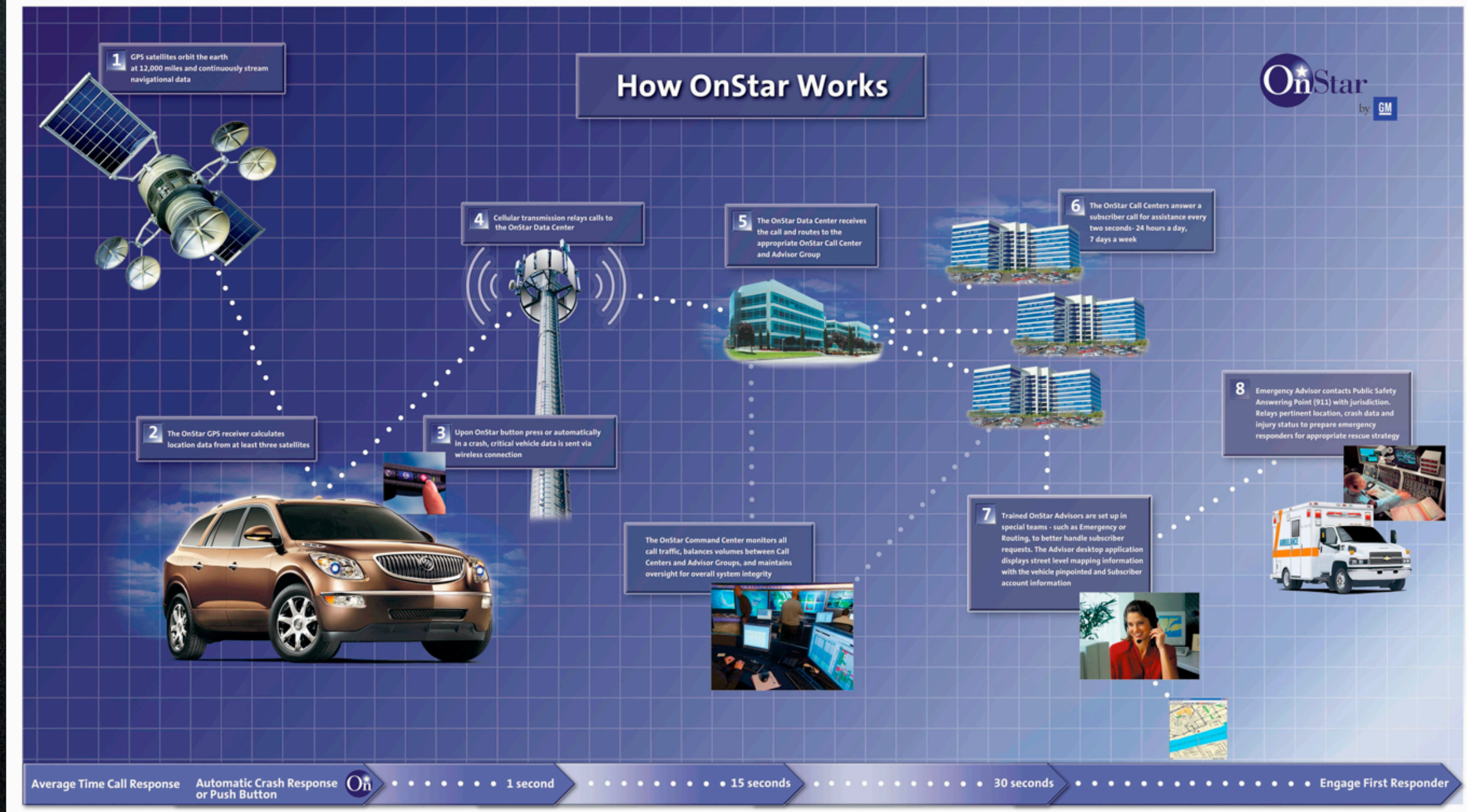
Next Steps

- Blockchains are proven
- Can you make an app for that?
- Ethereum, PyThereum, Lisk, StratusPlatform, others...
- Javascript, Python...
- Artificial Intelligence?



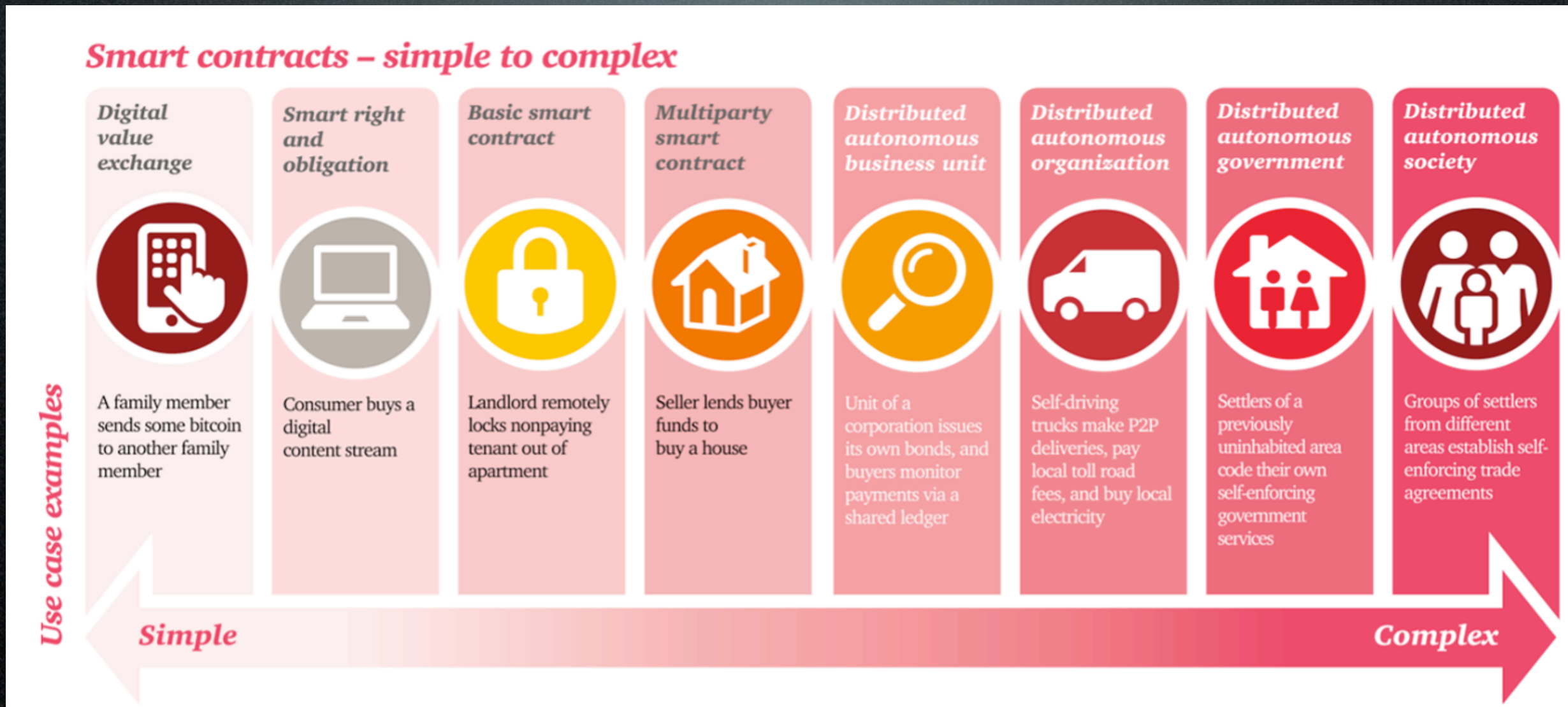


Smart Contracts



Smart Property

The IoT



The Spectrum

Distributed Autonomous Organizations

- A corporation in software
- No employees
- No central location
- No need to incorporate

```
pragma solidity ^0.4.0;

/// @title Voting with delegation.
contract Ballot {
    // This declares a new complex type which will
    // be used for variables later.
    // It will represent a single voter.
    struct Voter {
        uint weight; // weight is accumulated by delegation
        bool voted;  // if true, that person already voted
        address delegate; // person delegated to
        uint vote;   // index of the voted proposal
    }

    // This is a type for a single proposal.
    struct Proposal
    {
        bytes32 name;   // short name (up to 32 bytes)
        uint voteCount; // number of accumulated votes
    }

    address public chairperson;
```

What's Happening

Slock.it

SOLUTIONS ETHEREUM COMPUTER TEAM BLOG CONTACT

Download Video as MP4

Rent, sell or share anything - without middlemen

SHARE

SHARE 18

TWEET

PIN

COMMENT

EMAIL

CADE METZ BUSINESS 06.06.16 7:00 AM

THE BIGGEST CROWDFUNDING PROJECT EVER—THE DAO—IS KIND OF A MESS

GET WIRED

Don't Let The Future Leave You Behind. Get 6 Issues For Just $5.

SUBSCRIBE NOW

MOST POPULAR

CULTURE

Inside the Weird, Industry-Shaking World of Donald Glover

4 HOURS

MOVIES

The New *Logan* Trailer Plays (Violently) Against Type

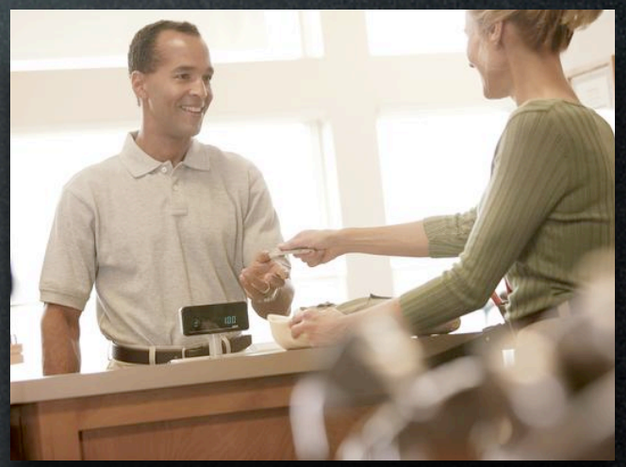
1 HOUR

USER INTERFACES

Alexa Is Conquering the World. Now Amazon's Real Challenge Begins

1 DAY

What if something goes wrong?



Law is the Regulation of
Transactions Among Humans

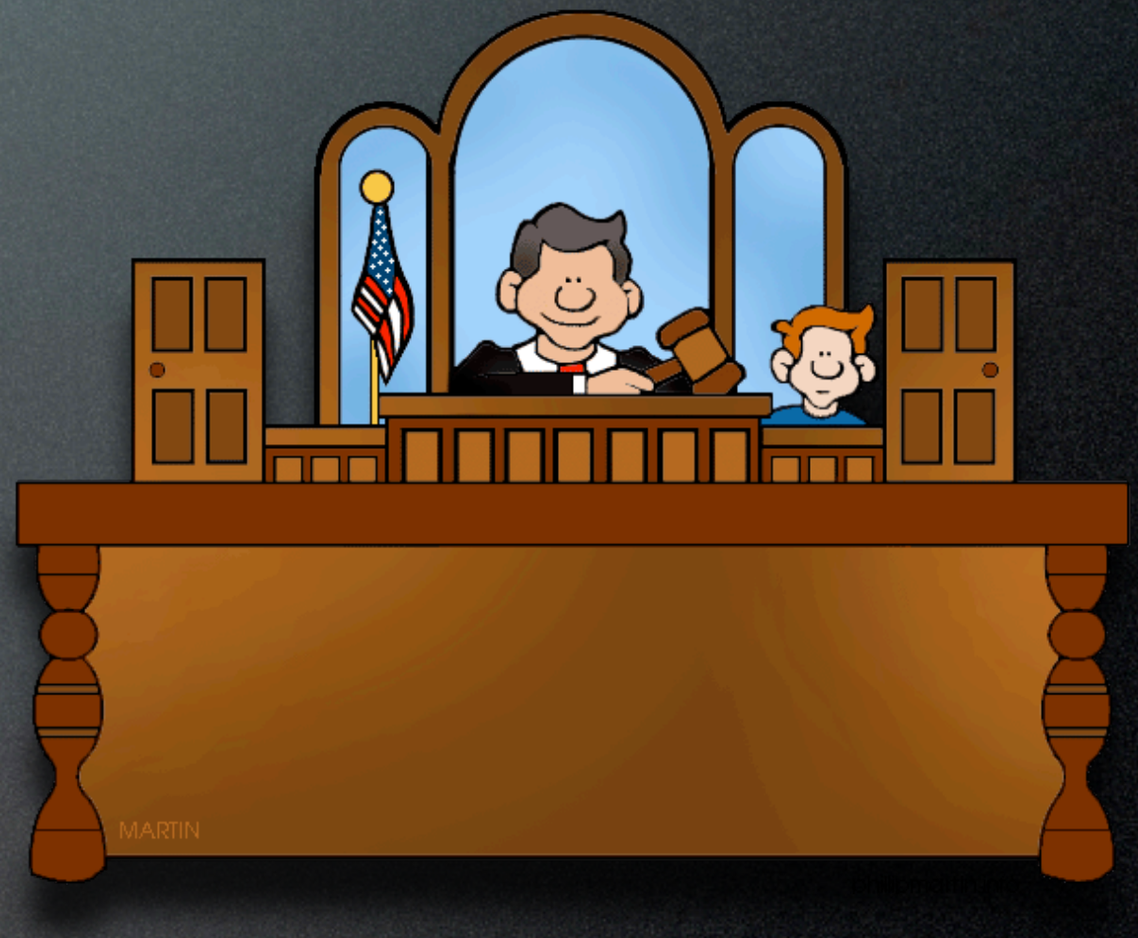
Redress of Wrongs

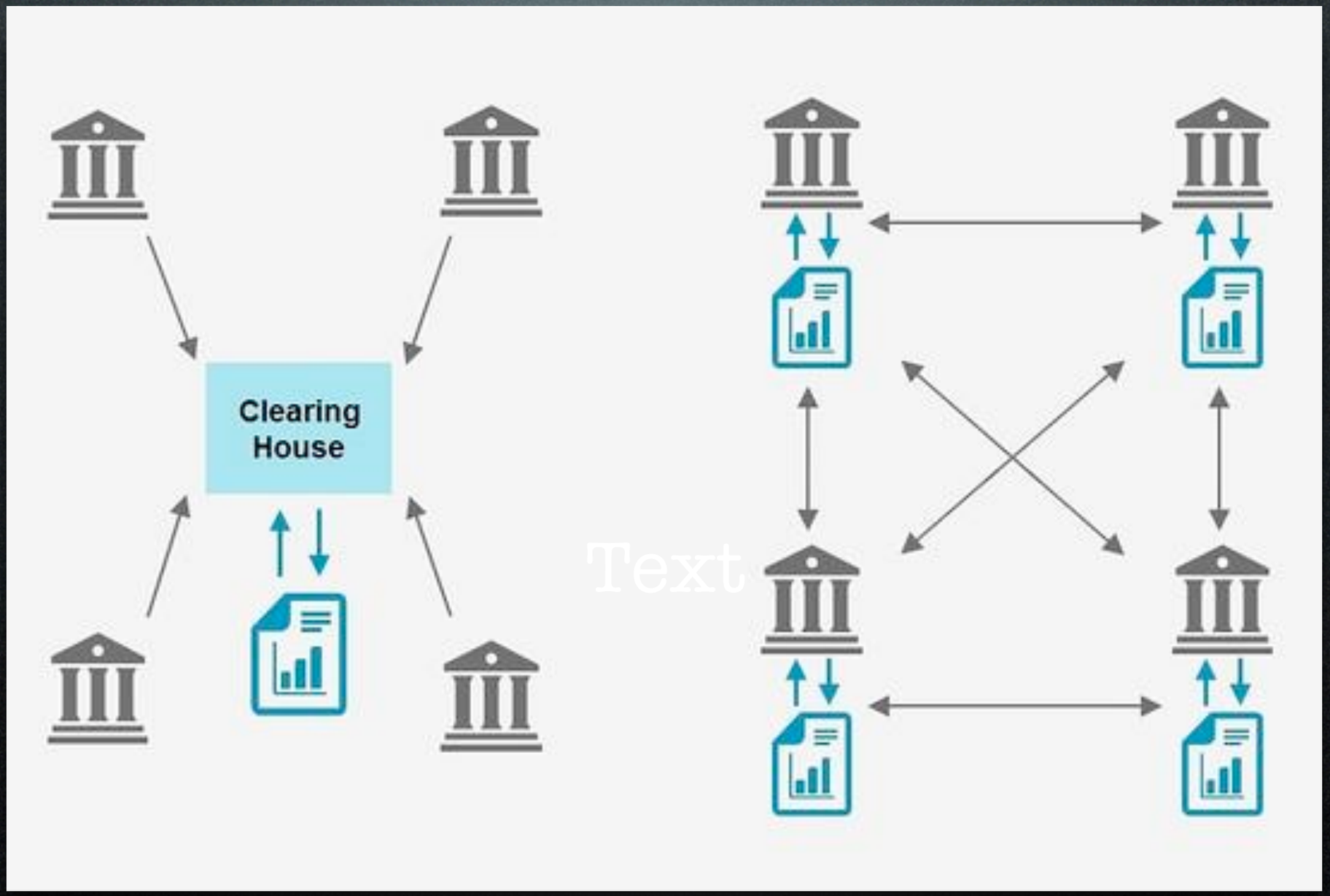
Courts Require

Courts Require Jurisdiction

Jurisdiction

- Jurisdiction comes in two main types:
  - In Personam
  - In Rem





Source: Wall Street Journal
http://online.wsj.com/media/0201_cio_ledg_G_20160201185005.jpg

Problems

- Nodes of the blockchain aren't owned by the defendant
- Nodes can be conducting other lawful activities

Evidence

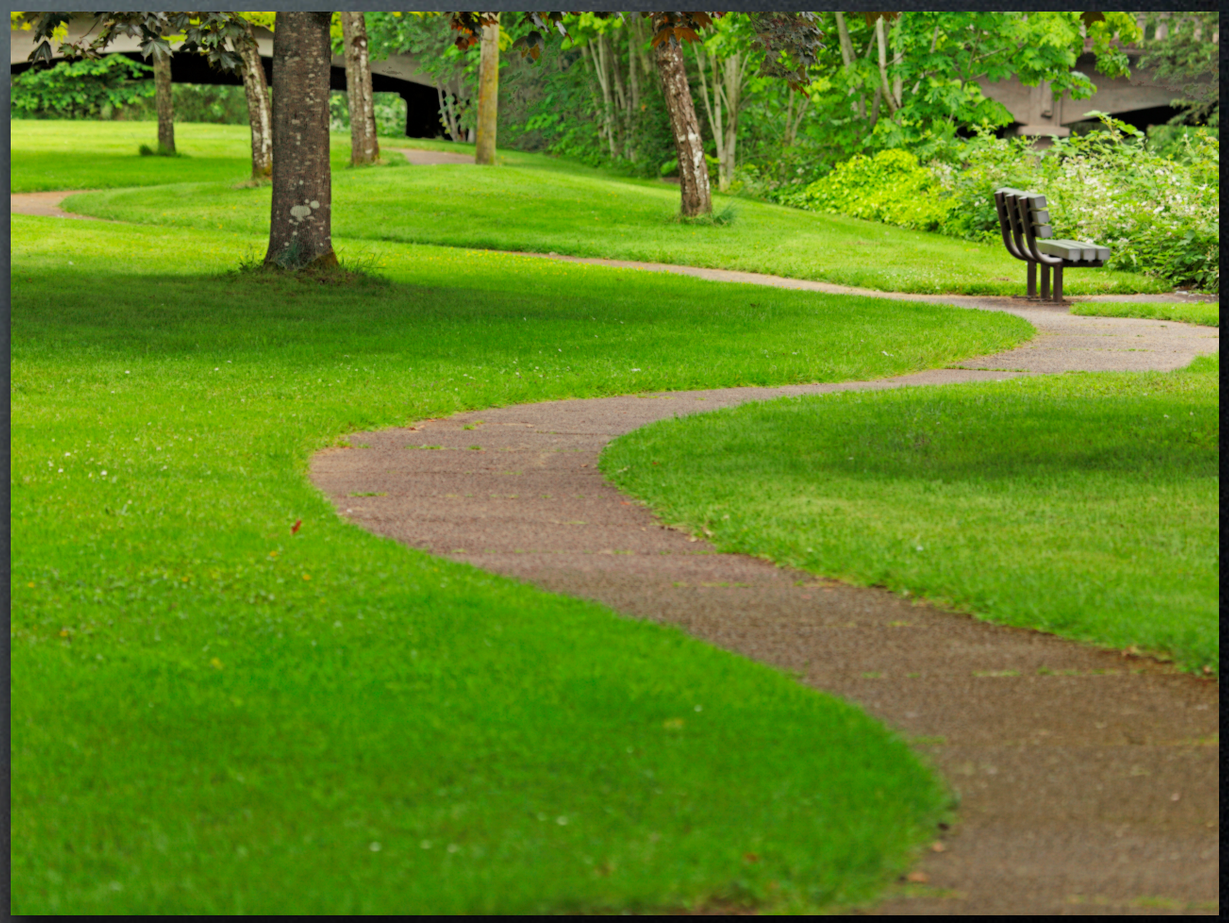
- Find the nodes...
- Employ a blockchain analyzer...
- Follow the money...
- Find the person...
- Establish jurisdiction.

What about encryption?

- Blockchain transactions can be encrypted
- So how can you obtain jurisdiction if you don't know what the transactions are about?
- You don't have to
- That the transactions took place is all you need

Other Interesting Twists

- No persistent storage necessary (but possible)
- Even during function calls
- Have to stop DAO process on ALL nodes before you disable a DAO
- Can’t delete previous transactions without breaking blockchain

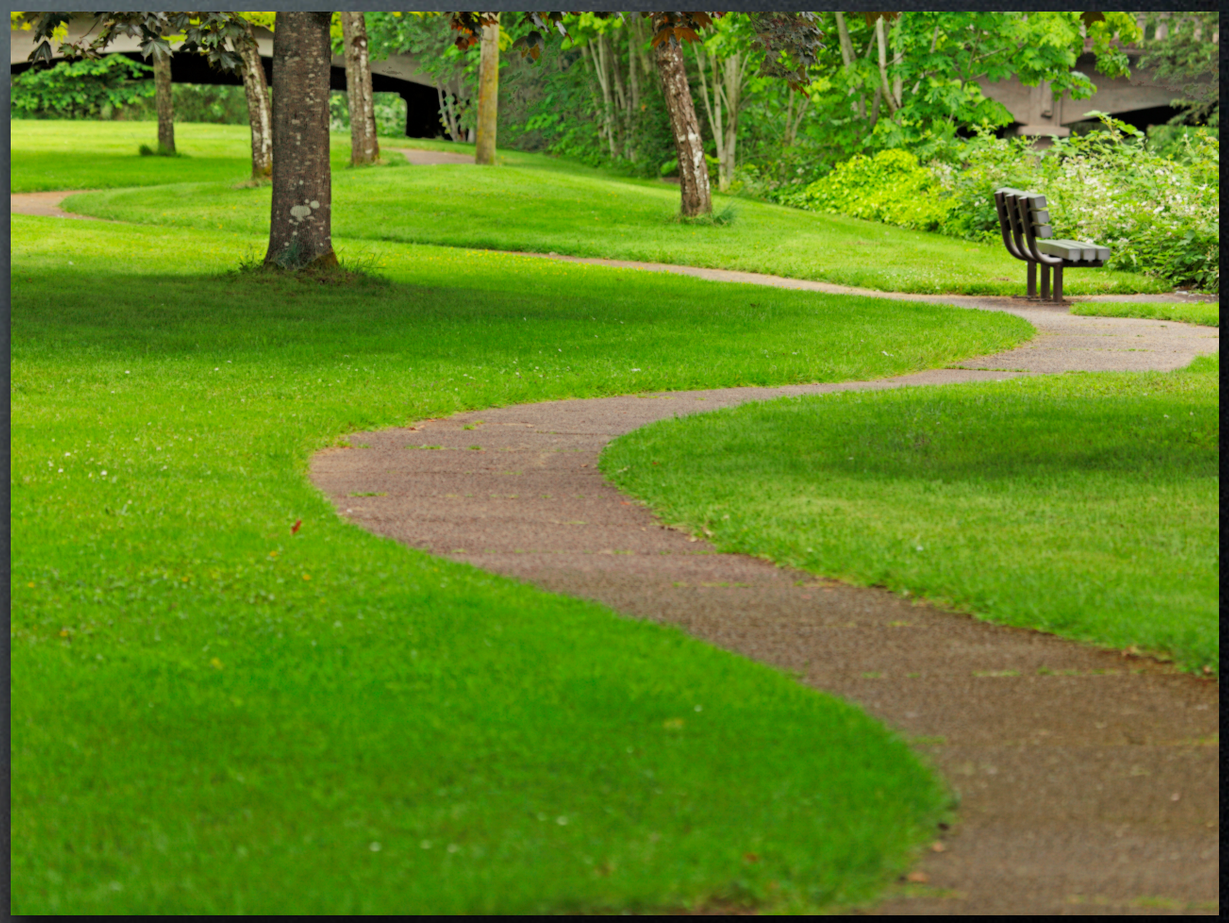


Other Interesting Twists

- No slack
- No swap files
- Have to discern s/w behavior by piecing together transactions
- Would “sting” transactions be permissible to establish jurisdiction?

Other Interesting Twists

- Code for smart contracts can be compiled from files on multiple (remote) servers
- DAO's can subcontract to other DAO's
- DAO can be given artificial intelligence



Questions?

Ronald L. Chichester

Attorney at Law, CFE, CISA

(713) 302-1679

Ron@TexasComputerLaw.com