Blockchains & The Power Industry

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America's Electric Cooperatives

Panel Goals

Demystifying Blockchain

- Educate members on Blockchain – Joseph Hagerman.

- Discuss real world uses from the perspectives of energy service companies, consultants, and researchers - Panelists

Members will walk away with a better understanding of Blockchain and have discrete real-world examples.

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Blockchains? Bitcoins?

Bitcoin Blockchain

Bitcoin **is a user** of Blockchains

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WHAT IS BLOCKCHAIN?

A technology that:

permits transactions to be gathered into blocks and recorded;

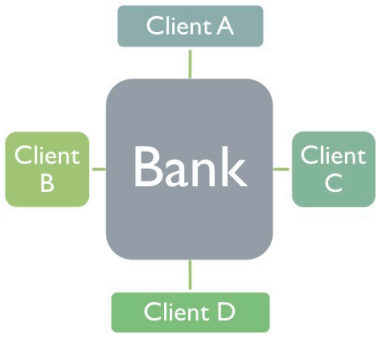
allows the resulting ledger to be accessed by different servers.

cryptographically chains blocks in chronological order; and

"A BRIEF INTRODUCTION TO BLOCKCHAIN," NANCY LIAO '05, JOHN R. RABEN/SULLIVAN & CROMWELL EXECUTIVE DIRECTOR YLS ASSOCIATE RESEARCH SCHOLAR IN LAW (courtesy of SEC.gov)

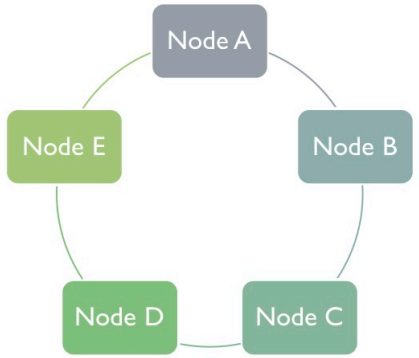
WHAT IS A DISTRIBUTED LEDGER?

Centralized Ledger



- There are multiple ledgers, but Bank holds the "golden record"
- Client B must reconcile its own ledger against that of Bank, and must convince Bank of the "true state" of the Bank ledger if discrepancies arise

Distributed Ledger



- There is one ledger. All Nodes have some level of access to that ledger.
- All Nodes agree to a protocol that determines the "true state" of the ledger at any point in time. The application of this protocol is sometimes called "achieving consensus."

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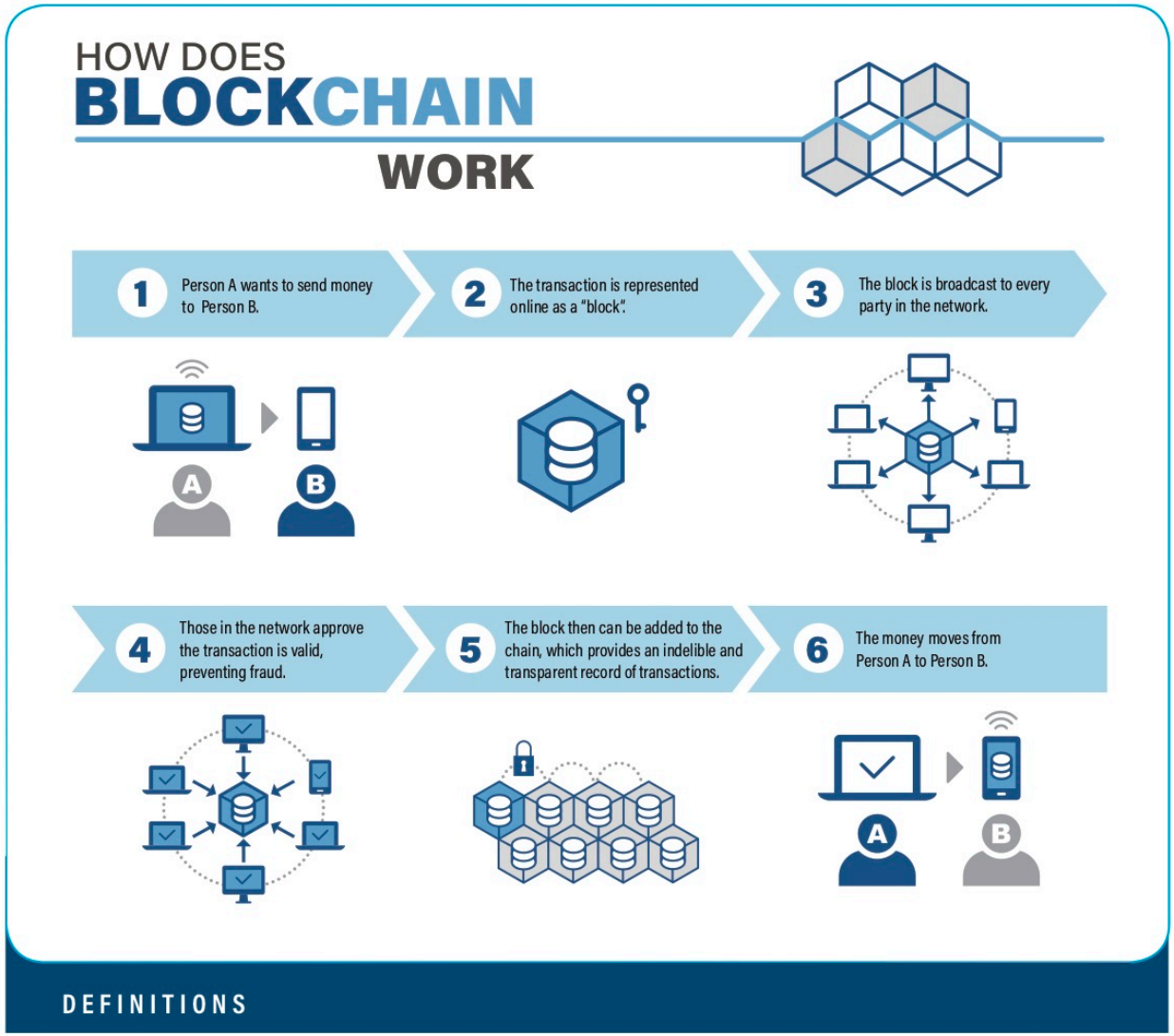
What We've Learned So Far…

Blockchain is a system comprised of..

- Transactions
- Encryption processes
- Immutable ledgers
- Decentralized peers
- Consensus mechanisms



"Blockchain and Transactive Energy: How It May Affect Your Cooperative" (CFC publication from June 2018)

About The Panelists…

- **STINA BROCK – ELECTRON**
  Senior Vice President of North America for Electron.
  - Electron combines blockchain technology with deep energy industry expertise to build a platform for the digital backbone of the modern energy marketplace.

- **ALEX KIZER - ENERGY FUTURES INITIATIVE**
  Director of Strategic Research & Sr Associate at Energy Futures Initiative
  - EFI develops and manages projects that focus on timely, cross-cutting issues related to operations, market design, and policy in energy sectors at home and abroad.

Questions For Our Panelists

The energy sector is moving towards full digitalization as Cooperatives enhance their service territory through deploying smart grids, installing AMI, integrating new distributed energy resources, and investing in "utility connected equipment."

- How can blockchain can help these digital developments?
- How is your company using blockchain for its customers? What utility problem does Blockchain solve?
- What is the solution you are focusing on and how is Blockchain utilized? Can you discuss a real-world example? A case study?
- What does the future hold?