



## BLOCKCHAIN AND SMART CONTRACTS

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## WHAT WE'LL COVER TODAY

### What Is Blockchain Technology?

- Centralized and distributed systems
- What is a blockchain?
- Digital signatures
- Hash values
- Consensus

### Smart Code and Smart Contracts

- Using smart code to make smart contracts
- Replacing traditional contracts
- Performance, risks and other issues

### Sample Applications

- Real estate
- Securities trading
- Supply chain
- IP
- Energy

### Advantages and Disadvantages

When is it useful to consider employing blockchain and smart-contract technology?

# What is blockchain technology?

## CENTRALIZED SYSTEMS



- A central intermediary (e.g., a bank) transfers actual value between two parties and is normally the final authority
- All parties involved in a transaction may keep and use their own copies of ledger, but the local copy isn't authoritative
- There is a single point of failure:
  - if a centralized ledger is lost through IT failure, physical disaster, malware attack, etc., information is lost due to the single point of failure

## CENTRALIZED SYSTEMS



- Typical examples of centralized databases are relational databases we are all familiar with
- Centralized databases may themselves be distributed for redundancy and efficiency purposes without changing their centralized character
  - The point of difference is whether there is a centralized network participant with unique validation or authentication responsibilities different from ordinary participants

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