ACFE 2021 VIRTUAL FRAUD TRAINING SEMINAR
BLOCKCHAIN & CRYPTOCURRENCY

ACFE – Heartland Chapter

July 19, 2021

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Presenters



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Learning Objectives

- Blockchain basics
- What is blockchain technology?
- Types of digital asset and distributed ledger technology fraud
- Low and high-risk transaction types
- Investigative techniques

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CPE Polling Question #1

How familiar are you with digital assets and blockchain technology?

A. Not familiar at all
B. Somewhat familiar
C. Familiar
D. I work with clients using Blockchain daily

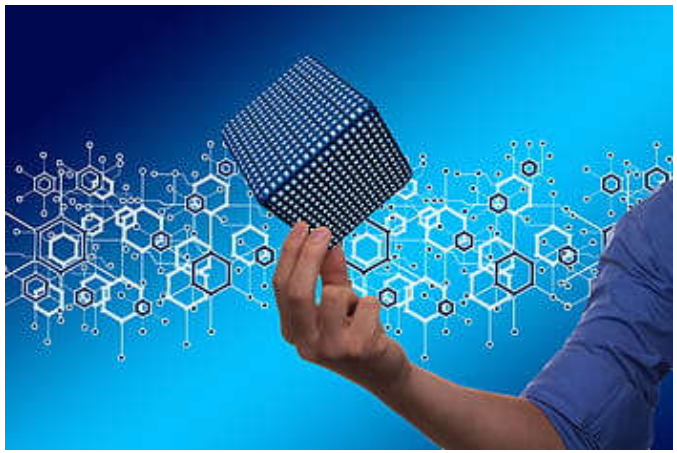
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BLOCKCHAIN BASICS

A high level overview

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Blockchain and DLT



BLOCKCHAIN

- Ever-growing list of records (blocks)
- Linked using cryptography
- Contains:
  - Previous block encoded as a cryptographic hash
  - A timestamp
  - Transaction data



DLT

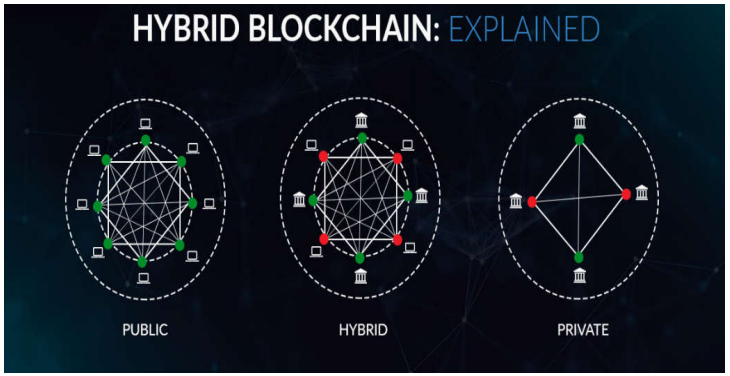
- Database of digital data stored in a continuous ledger
- Dispersed across multiple sites, countries, or institutions
- Managed by participants
- Typically public

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Three Types of DLT

- Permissionless (Public)
- Permissioned (Private)
- Hybrid (Mixture)



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What is Cryptocurrency?

- Uses distributed ledger to record transactions
- Transactions are immutable
- Transaction settlement is distributed or decentralized

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What is a Digital “Wallet”?

- Provides method to store, track, and receive digital currency
- Does not store actual currency, but the private keys that authenticate the user engaged in a transaction

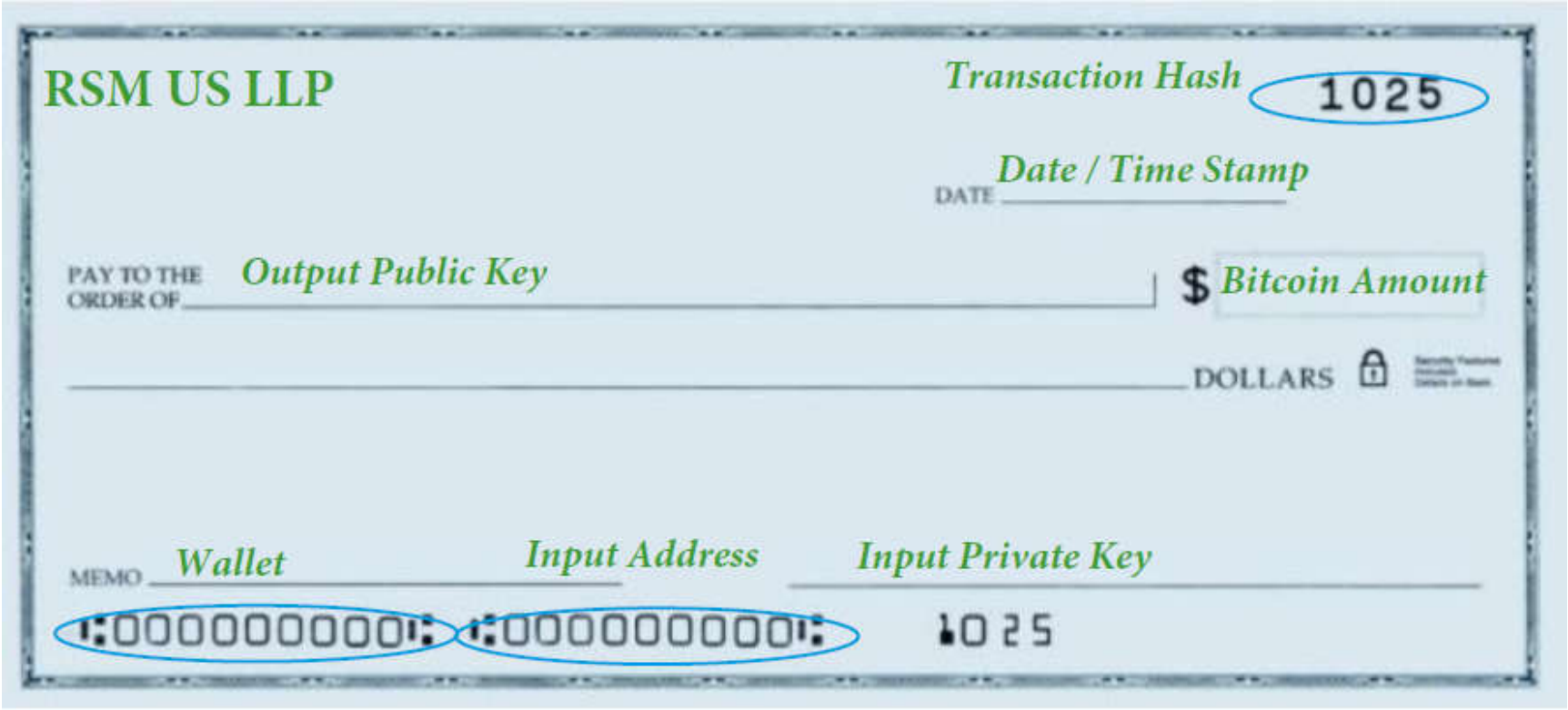
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Role of Public / Private Keys



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Analogizing a Bitcoin Transaction



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CPE Polling Question #2

Which of the following are examples of cryptocurrencies?

A. Bitcoin
B. Ethereum
C. Dogecoin
D. All of the above

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WHAT IS BLOCKCHAIN TECHNOLOGY?

An interesting historical analogy

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Island of Yap



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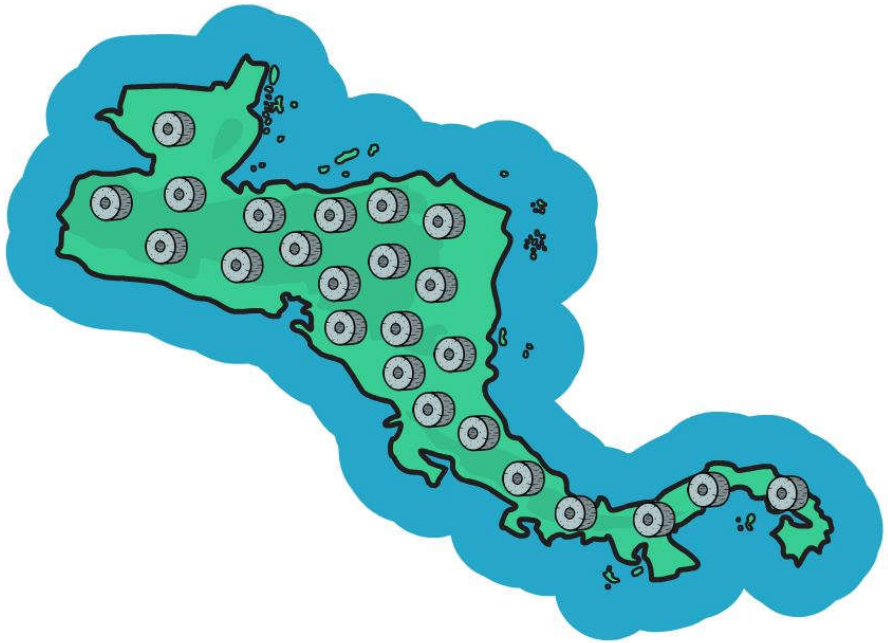
Yap Stones

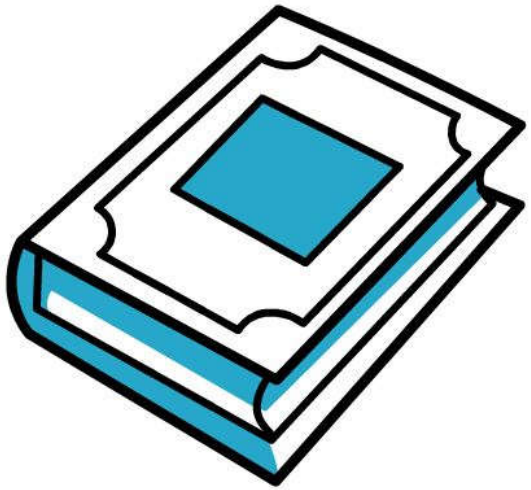




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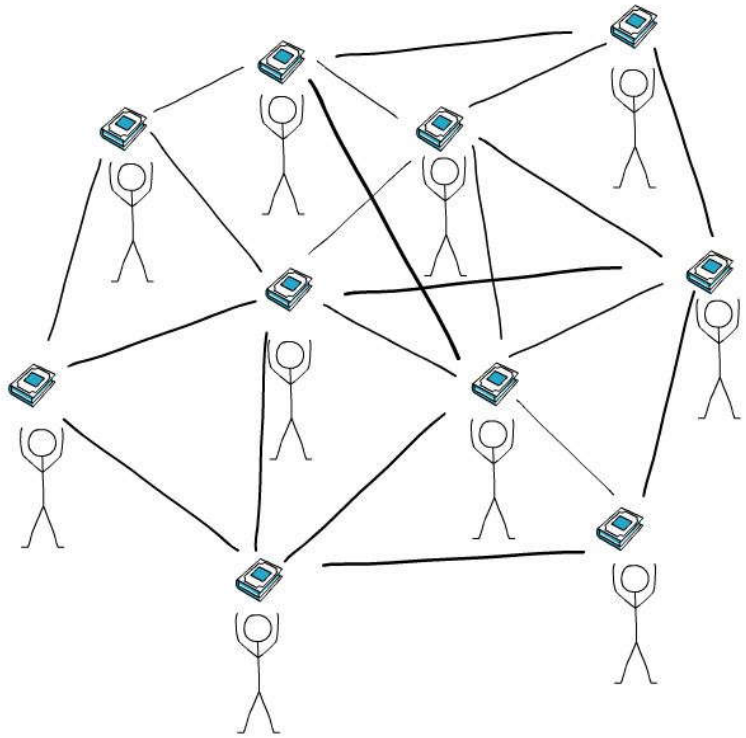
Tracking Ownership





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Distributed Ledger System



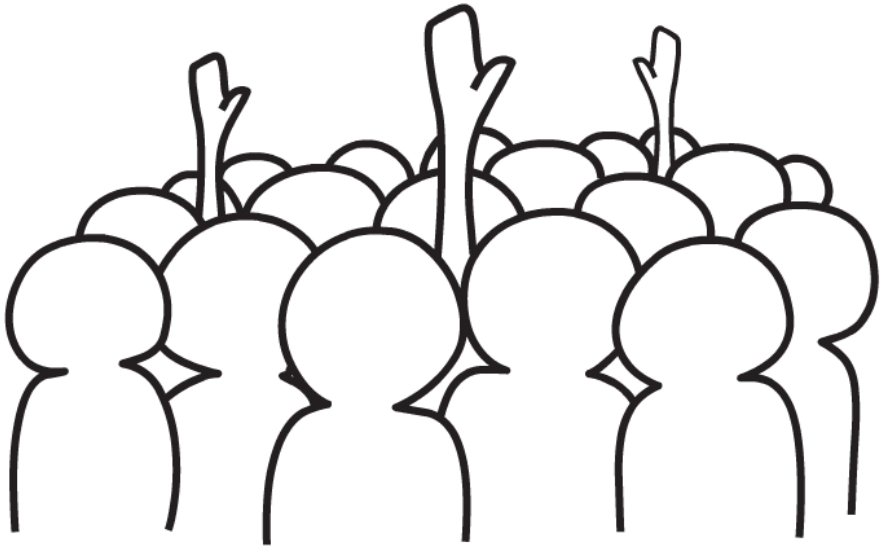
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Theft Protection



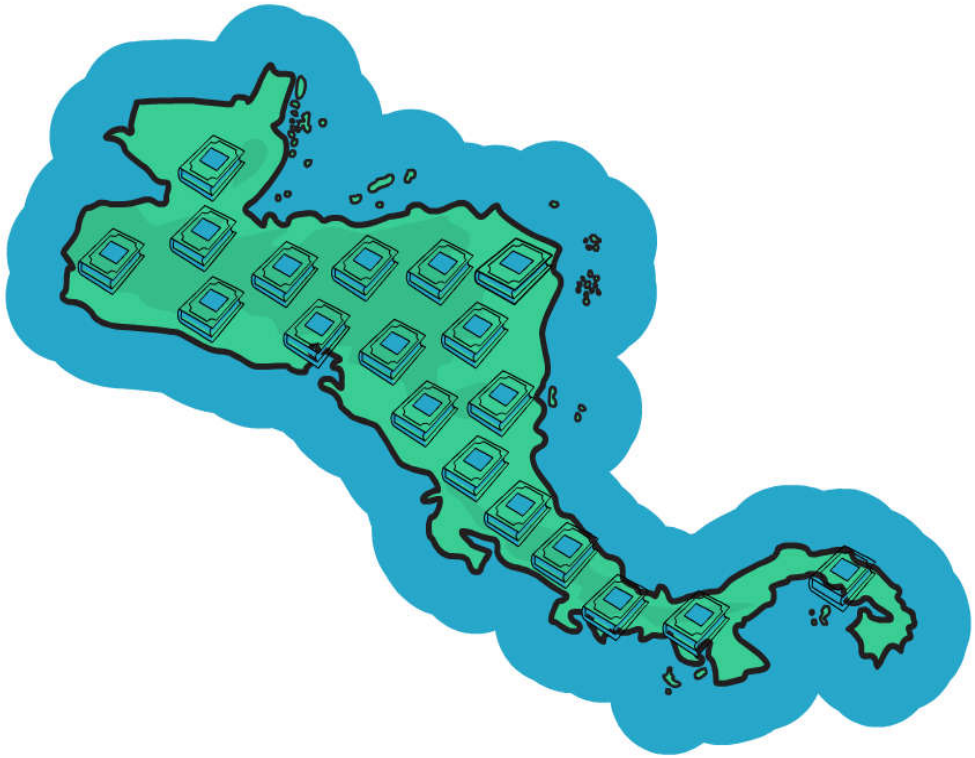
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The Vote



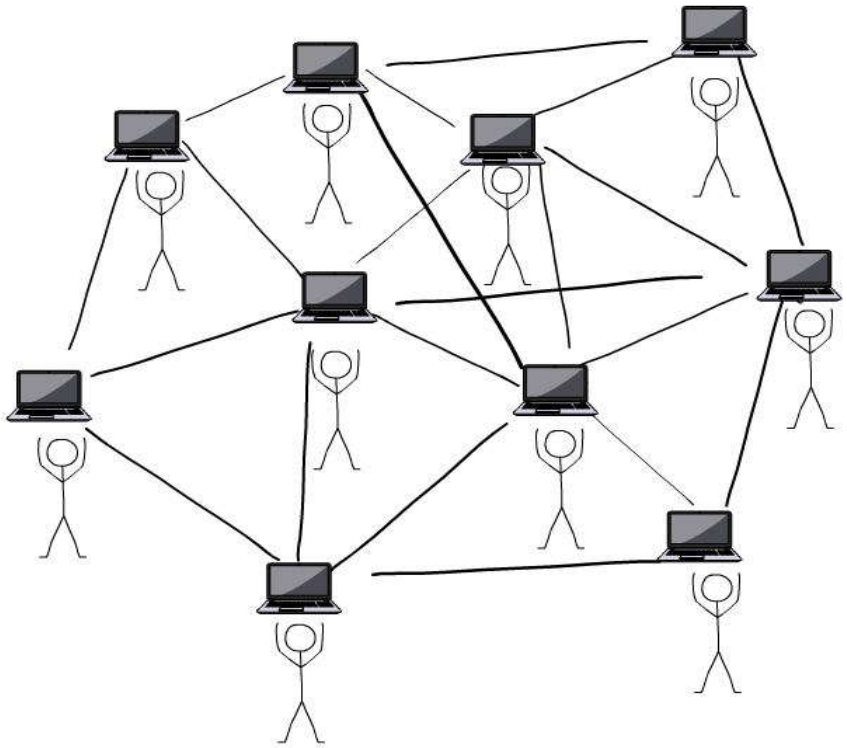
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Secured by Distribution



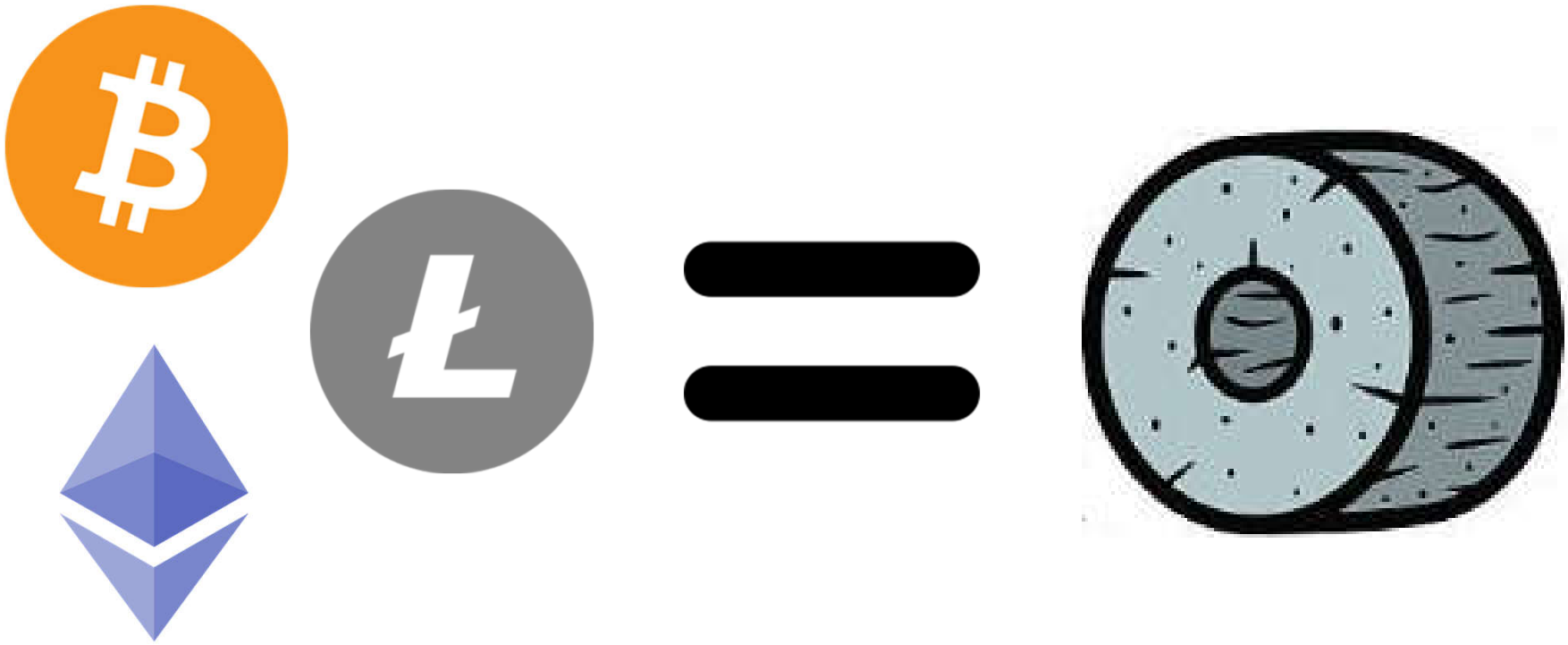
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Blockchain



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All digital assets are just stones



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IDENTIFY TYPES OF DIGITAL ASSET AND DLT FRAUD

Schemes and Case Studies

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Ransomware Attacks



- Form of malware
- Attackers break into victims' network
- Hold data hostage and demand ransom
- Demand usually for hard-to-trace digital currency

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Case Study – Colonial Pipeline

- On May 7, 2021, Colonial Pipeline (an American oil pipeline) suffered a ransomware cyberattack which impacted computerized equipment managing the pipeline. The Company halted all operations to contain the attack, and paid the ransom requested (75 bitcoins) within hours.
- After paying the ransom, Colonial received the decryption tool, which operated so slowly, the Company used their own backups to restore their systems.
- Colonial acted immediately, contacting the FBI and sending the ransom with the assistance of the FBI. The FBI was able to recover 63.7 bitcoins, through access to the digital wallet's private keys.

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2020 Cyber Attack Highlights

- According to the RSM/NetDiligence 2020 Cyber Claims Study; IBM X-force 2021 Threat Intelligence Index Report:
  - The top attack type for the year was Ransomware, comprising 21% of all Cyber Attacks
  - Of these attacks, 59% also threatened to leak sensitive data
  - Median ransom payment was $252K with total direct costs around $490K

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CPE Polling Question #3

What common form of attack was perpetrated on Colonial Pipeline?

A. Randomware
B. Ransomware
C. Exhange Hack
D. None of the above

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Types of Crypto / DLT Fraud

- Ponzi/investment schemes
- Embezzlement
- Dusting
- SIM swapping
- Exchange hacks



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Exchange Hacks



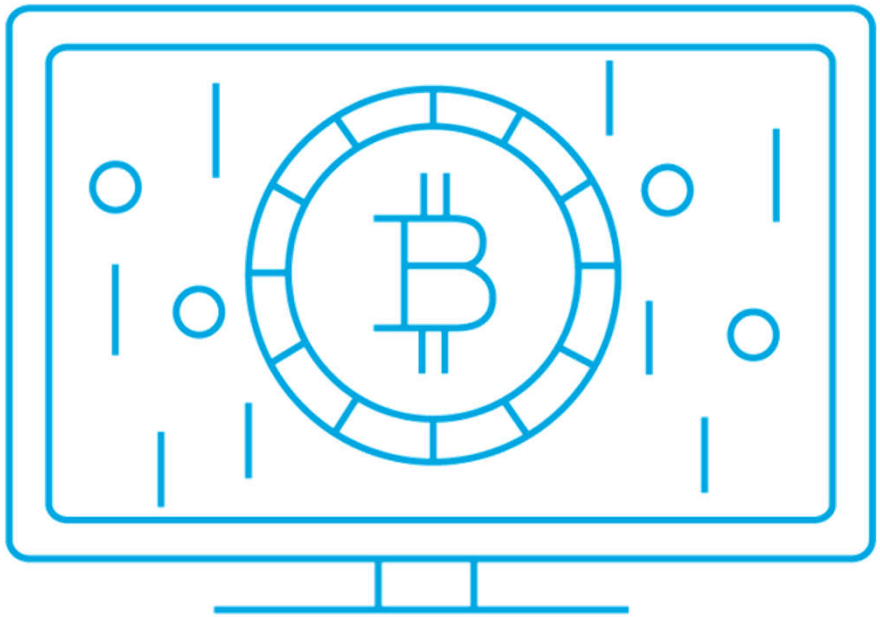
- In 2020, $1.4 billion was stolen from cyber criminals, compared to $4.5 billion in 2019.
- Criminals attempt to hide and/or conceal the traceability of stolen crypto through “mixers.”

Source: Cryptocurrency Crime and Anti-Money Laundering Report Dated May 2021

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Bitcoin “ATMs”

- Connected directly to exchanges via the internet
- Easy to buy / sell cryptocurrencies
- Connection to high risk exchanges and illicit activities



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Mixers

- One to many
- Obscure Identify
- Chain-hopping



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Case Study - Twitter Hack

- $140k misappropriated to hackers
- Blockchain analysis used to identify hackers
- Experts suggest a rise in similar attacks heading into 2021 and beyond



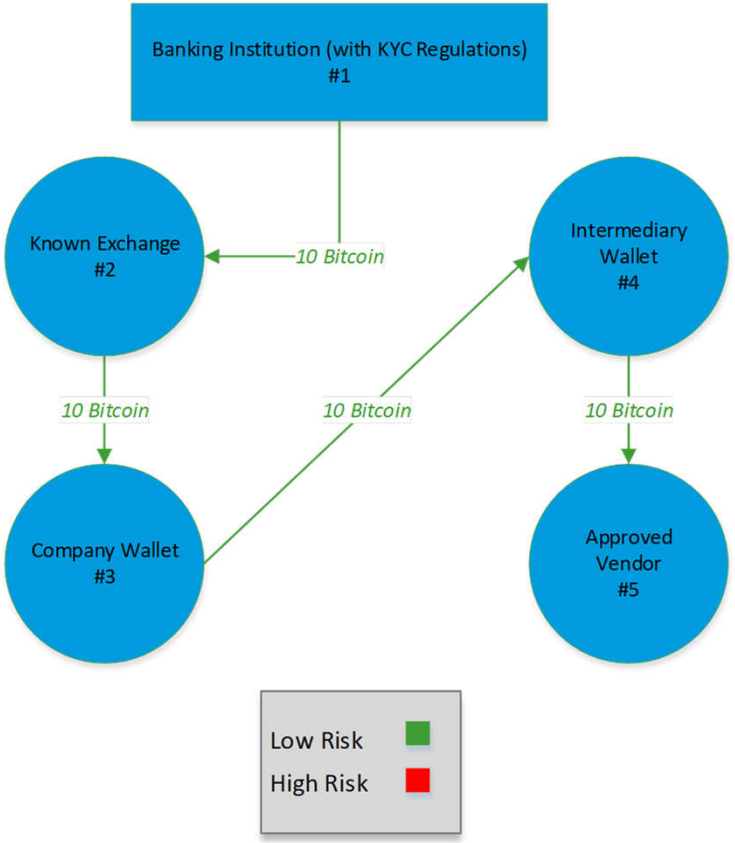
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BLOCKCHAIN TRANSACTION TYPES

How to identify high risk transactions

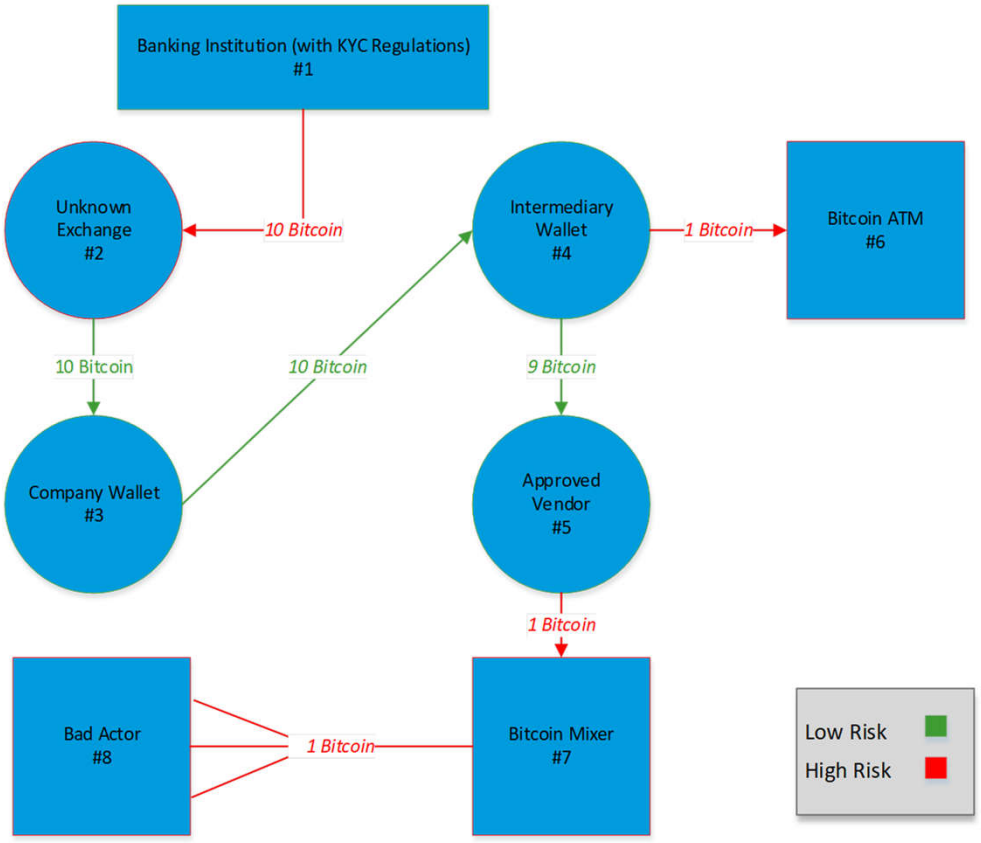
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Transaction Flow – Low Risk



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Transaction Flow – High Risk



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High vs. Low Risk Transactions

High Risk

- Involve non-KYC regulated exchanges
- Lacks segregation of duties
  - Individual responsible for purchasing from exchange also executes payment to vendor
- Weak approval process
  - Lacks supporting documentation for vendor (missing EIN #, contact information, business name)
- Involves a non-reoccurring process
  - Purchases from several exchanges
  - Lacks document listing all company controlled wallet addresses
  - Transaction involving Bitcoin ATMs and Mixers

Low Risk

- Involve Company controlled wallet addresses
- Involve proper segregation of duties
- Involve KYC regulated exchanges
- Vendor Master Files (with proper approval processes)
- Involve a reoccurring and repetitive process
  - Exchange → Company Intermediary Wallet → Approved Vendor

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CPE Polling Question #4

Which of these represents a factor in a potentially high-risk transaction?

A. Involves good segregation of duties
B. Involves KYC regulated exchanges
C. Involves a weak approval process
D. None of the above

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INVESTIGATIVE TECHNIQUES

How to investigate

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Identification of Digital Assets

- Experts can identify public/private key information stored on seized hardware.
- But significant digital asset value might have been transferred elsewhere.
- Blockchain analytics can support additional recovery.

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Recovery of Digital Assets

- Tracing issues and methods:
  - Strategizing the recovery plan
  - Rapidly transferred currency
  - Foreign-based exchanges often used

- Recovery strategies:
  - Working with law enforcement
  - Facilitation by third parties
  - Legal actions against exchanges

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Profile the Subject

- Create a personal profile.
- Review information for leads.
- Pay special attention toward mention of relationships with specific attorneys, notaries, corporate affiliations, and officers.



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Trace Illicit Transactions

- Analyze financial records:
  - Inflows/outflows
  - Movement of property/other assets
- Identify connections between:
  - Individuals
  - Corporations
  - Assets at issue

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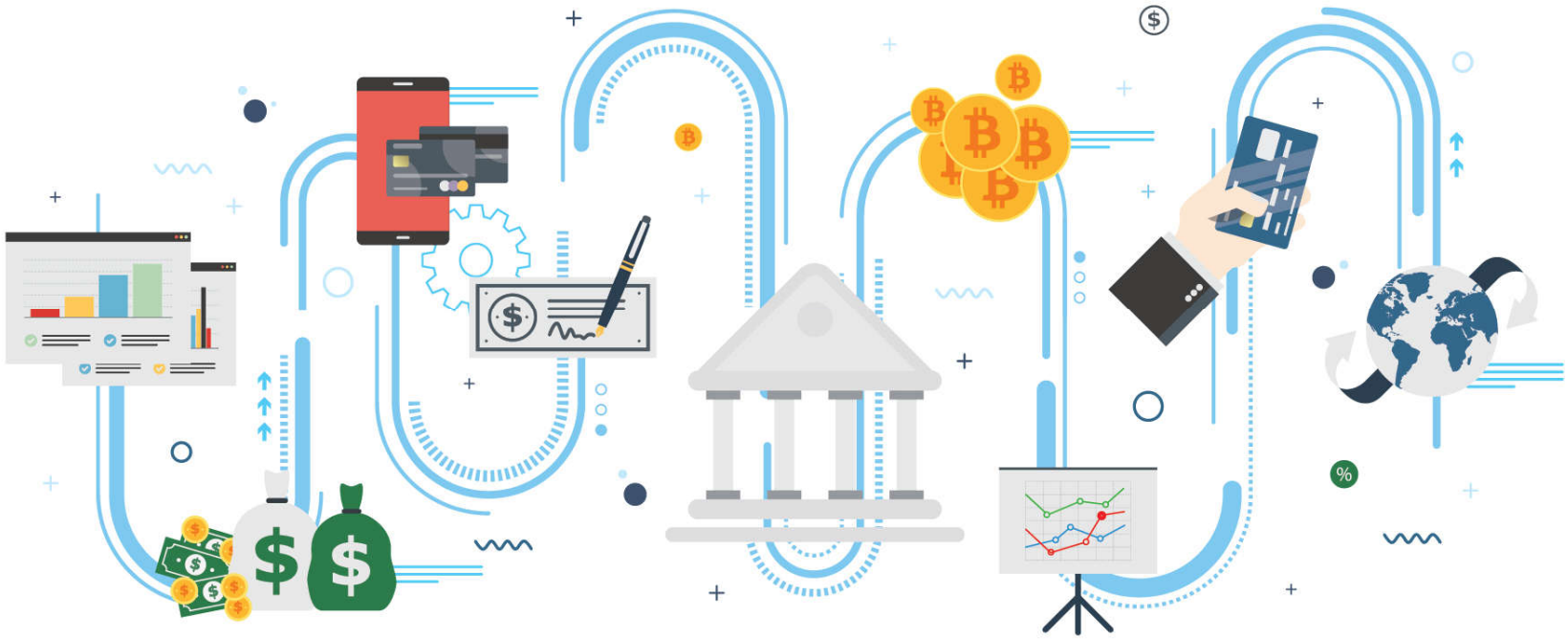
Trace Illicit Transactions

- What are the sources of the subject's income, assets, and liabilities?
- Is there any missing or inconsistent information?
- Does the subject live a lifestyle that is in excess of the reported income?

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Pseudo-Anonymity of Bitcoin Allows Investigators to “Follow the Money”



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QUESTIONS AND ANSWERS

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