BITCOIN – BLOCKCHAIN
& **XMS** by **MereSecure**®

Presented by:

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To:

EBA RISK

Wednesday, September 20th, 2017

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Overview

- Bitcoin Cryptocurrency
    - What is it?
    - Recent ledger spin-offs
    - Challenges and Benefits
- Blockchain Technology
    - Background
    - Industry Use Cases
    - Challenges and Benefits
    - Present & Future
- XMS Platform

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Bitcoin Cryptocurrency
"What is it?"

- Created in 2009 by 'named' Satoshi Nakamoto following the financial crisis of 2008

- "Bitcoin is an open-source, decentralized digital currency built on top of a distributed cryptographic ledger. Every transaction is stored across a distributed ledger that is maintained through a process of "mining" that generates more bitcoins" [1]

- SHA-256 hash, blocks are chained together and therefore are immutable

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Bitcoin Cryptocurrency "Splits?"

- Bitcoin, Bitcoin Cash: "The first 'hard fork' in bitcoin's history just occurred".[2]

- Bitcoin, Bitcoin Cash, Segwit2x: Coming in November [3]

- Some Differences? Bitcoin stores in 1MB blocks, Bitcoin Cash stores in 8MB blocks, Segwit2x stores in 2MB

- Why block size limitations? Avoid Denial-of-Service with made up block information [4]

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Bitcoin Cryptocurrency "Challenges?"

- Performance
  - Limited scale ($1MB$ blocks) – Throughput 10 minute updates
- Complex currency splits offering different exchanges
  - Segwit2x (forthcoming), Bitcoin Cash, Ethereum)
- Bad actors can take advantage of anonymity
- State actors putting restrictions on its implementation (Exchanges, ICO, Risky)
- Current market conditions – Bitcoin (BTC) is up over 300%, Volatile

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Bitcoin Cryptocurrency
"Benefits?"

- Lower cost in transactions, Global players

- Globally reduce concerns for any Government corruption

- Current market conditions – Bitcoin (BTC) is up over 300%, Volatile

- Big investment into cryptocurrency exchanges

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Cryptocurrency ALL

- https://en.wikipedia.org/wiki/List_of_cryptocurrencies

- For CryptoCurrency Market Caps: https://coinmarketcap.com/

- There were more than 900 cryptocurrencies available over the internet as of 11 July 2017 and growing. New cryptocurrency can be created any time. By market capitalization, Bitcoin is currently (2017-08-19) the largest blockchain network, followed by Ethereum, Bitcoin Cash, Ripple and Litecoin [5]

(Source:6) 7

Cryptocurrency
"Hardware Players"

- Processing power required to be a successful miner

- Companies specialize in making Graphics Processing Units (GPU)

- Expanding market share with global interest

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Cryptocurrency
"Just the beginning"

Jefferies semiconductor analyst Mark Lipacis writes:

"We actually believe that the technology they are based on, called Blockchain, which supports secure accounting of distributed ledgers, has applications in financial services beyond cryptocurrencies. We expect demand for Blockchain GPUs (including for cryptocurrencies) to continue to grow and become an important driver for GPU growth, even if with some degree of volatility." [7]

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Blockchain Technology "Background?"

- Biggest implementation of the "[protocol]" [8] since the internet.

- Block chains expand over many personal computers

- The system is not owned by anyone

- Ledger of bundles of records submitted in blocks by contributors

- Chronological chain data, mathematical encryption algorithm hash

- Immutable

Source: 9

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Blockchain Technology
"Background?"

- Change how we trust in business. Trust is the core to doing business. We need to trust to be able to transact. Trust need is growing.

- 30% errors in existing record keeping of documents

- House, car, rights to art, patent -- all tamper-able record examples

Source: 10

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Blockchain Technology "Implemented?"

- Various software companies that have created opportunities to leverage block chain.
  - Microsoft B-a-a-S platform[34], Amazon, etc.
  - Ethereum Platform used by Consensys [14]
  - Monax Platform used by Softjourn[11]
    - Proof of concept with internal voting system with Germany based banks
    - Europe based ticketing company running a pilot
    - Database moved to blockchain

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Blockchain Technology
"Industry Use Cases: Emerging Areas"

- Financial
  - Nasdaq[21,22], Large banks [23]
- Food Supply
  - Food Safety - Consortium of companies [12]
  - Organics: Tangerines [13]
- Decentralize database network by Bluzelle[16]
- General cases: Shippers, Security alerts,
- Ethereum+Seals: Tamper Evidence bag, photo hash, serial #, [19]

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Blockchain Technology
"Industry Use Cases: Healthcare"

- Leveraging the blockchain concepts within Medicare

- Implement "Smart Health Profile"

- Protection of privacy, Zero-Knowledge Proof

- Interact with sensitive health data

- Immutable: Cannot alter records without flag

- Analyze data with pseudonymity

Source: "A Blockchain Profile for Medicaid Applicants and Recipients, Institute for the Futures Lab"; Authors: Kathi Vian, Allessandro Voto and Katherine Haynes-Sanstead

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Blockchain Technology
"Industry Use Cases: Insurance"

- "Blockchain Used as Settlement Mechanism for Cat Bond with Parametric Trigger"

- Catastrophe bonds -- all time high with more than $10 billion in 2017

- Investors buy bonds to help back insurance companies with specific parameters involved on catastrophic events

    "An event within the parameters of the bond triggers a payout, rather than the results of that event initiating a process of insurance settlement. A cat bond on a Category 5 hurricane hitting Tampa, Florida, from Aug. 1 to Nov. 1 will pay out if a hurricane that strong hits that location during that period of time. Unlike an insurance contract for an asset, a parametric bond does not require a claims or investigation process before settlement ... but it does still require settlement."[17]

- "Catastrophe bonds lay off the risk on assets; the blockchain lays off the risk on settlement"[18]

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Blockchain Technology
"Industry Use Cases: Title Conveyance"

- Cook County Recorder of Deeds Pilot program

- **Result**: *CCRD has successfully used components of blockchain technology (file hashing and Merkle trees) to secure government records on a site maintained by an authorized non-government reseller.*

- **Result**: *CCRD used the concept of "oracles" to build the most informative property information website in Cook County, with a dedicated landing page for each parcel. These landing pages can be conceptualized as "digital property abstracts," which help people see the benefits of consolidating important property information.* [20]

Source: "John Mirkovic, Deputy Recorder, Cook County and Karen Yarbough, Cook County Recorder of Deeds, Final-Report-CCRD-Blockchain-Pilot-Program-for-web (PDF)"

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Blockchain Technology
"Industry Use Cases: Title Conveyance"

- Include Blockchain file hashing and data integrity certification into new land records system currently being installed

- Superior to self-hosting-client-server models as it is immutable

- Distributed ledgers better option over electricity required to perform Proof-of-Work

- Both conveyance and recording in one event is possible with a blockchain

- Avoid fraud with verified records in the chain

Source: "John Mirkovic, Deputy Recorder, Cook County and Karen Yarbough, Cook County Recorder of Deeds, Final-Report-CCRD-Blockchain-Pilot-Program-for-web (PDF)"

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Blockchain Technology
"Industry Use Cases: Title Conveyance"

- Created Digital property detail records that combines the data from many local government agencies city, county, records, assessors etc.

    "In buying a house, relevant information affecting one's ability to acquire a certain property exists in at least five offices, including the Recorder of Deeds, Assessor, Treasurer, Circuit Court, City of Chicago, as well as consultation of GIS plat maps held by the Clerk."

Source: "John Mirkovic, Deputy Recorder, Cook County and Karen Yarbough, Cook County Recorder of Deeds, Final-Report-CCRD-Blockchain-Pilot-Program-for-web (PDF)"

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Blockchain Technology
"Industry Use Cases: Title Conveyance"

"Blockchain is not an all-or-nothing approach; aspects of the component technology can be implemented individually or selectively to improve recordkeeping outcomes."

- Wireless vs Home vs Smartphone vs Blockchain

Source: "John Mirkovic, Deputy Recorder, Cook County and Karen Yarbough, Cook County Recorder of Deeds, Final-Report-CCRD-Blockchain-Pilot-Program-for-web (PDF)"

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Blockchain Technology "Challenges"

- Hidden secret information, Privacy, Anonymity – Pseudonymity -- Implementation

- Oversight and monitoring blinded by encryption depending on the 'technology' as fool-proof.

- Reliant on static standard cryptography (SHA256)

- Open-source software based subject to defects – all nodes run the same version software – "THE BITCOIN CLIENT IS ABOUT 30,000 lines of code"[25]

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Blockchain Technology
"Benefits"

- Record accuracy, lower risk of data leakage, fraud and manual methods of forgery - Immutable

- Everyone shares answers (miners), they all must match or they are thrown out and Updated, 10 minute updates (Bitcoin)

- Two parties can send/receive info without involving a middle-person

- Enable proof that a specific document existed at a certain time:

  Who? When? What?

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Blockchain Technology
"Present Recap"

- Multiple platforms to build on

- A few blockchain applications that are mainstream offerings

- Currency and digital payment based solutions are expanding worldwide

Example Marketing Ad popup while reading articles on Bitcoin. The market is embracing it. (**not endorsing this ad**)

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Blockchain Technology
"Future"

- Building Artificial Intelligence into Smart Contracts

- Internet of Things, devices are demanding *Trusted*

- Quantum Supremacy, the players and its impact on encryption[27,28,29]

- Thoughts to <u>counter</u> Quantum HIGH SPEED computing

"This is where quantum mechanics comes in. Alice and Bob can verify each other's identities using a technique called quantum key distribution. This sends information using quantum particles such as photons, which cannot be copied by an eavesdropper without destroying them" [26]

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Third party Stay

- Every company involved in implementing any third-party solution will need to be monitored accordingly.

- The concept is expansive and not all of the parts can always be implemented in every situation.

- Trusted connections between everything

- The Oracles

XMS

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The Problem: Timely and Comprehensive Enhanced *External* Management

Sending and Receiving *ANY* documentation under one transport securely.

Documentation delivery may include:

Legal: Contracts, Corporate documents, Insurance Policies (COI)

Financial: Statements, 1099, Other Tax documents, References

Personnel/Human Resources: I9, W9, Employment Applications

Questionnaires: PDF, Online Forms, Spreadsheets, Files

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The Problem: Timely and Comprehensive
Enhanced *Third-Party* Management

Many organizations must assess and continually monitor enterprise-wide security management, governance, risk, and compliance (GRC) programs.

Documentation delivery may include:

Certifications: Exam Results, Credentials, Licenses

Policy: Security, Privacy, Data Handling , SSAE16 SOC1/2/3, PCI

Vulnerabilities: Network & Application Pen Test Reports, Static/Dynamic Code Scanning

Questionnaires: Bits, Ariba, Vendor compliance programs

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The Problem: Timely and Comprehensive Continued… Enhanced Third-Party Management

- Mandates push down through the Vendor/Supplier chain

- Documentation must be kept up to date on regular frequency

- Exchanging of many sources of information to different destinations

- Very time consuming and resource intensive for any organization

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# The Solution: **XMS**

e**X**change **M**anagement **S**ystem

- **Efficiency Improvement – Do More With Less**

  Simple to share documents and forms · Quickly search by key filters · Easily engage external parties

- **Focused – Key functionality**

  Augments <u>any</u> existing vendor or third-party user management solution

- **Faster Response – Up to the Minute Dashboard Statistics**

  Quickly request document updates of all or a group of contact invites

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XMS

Main Product Features
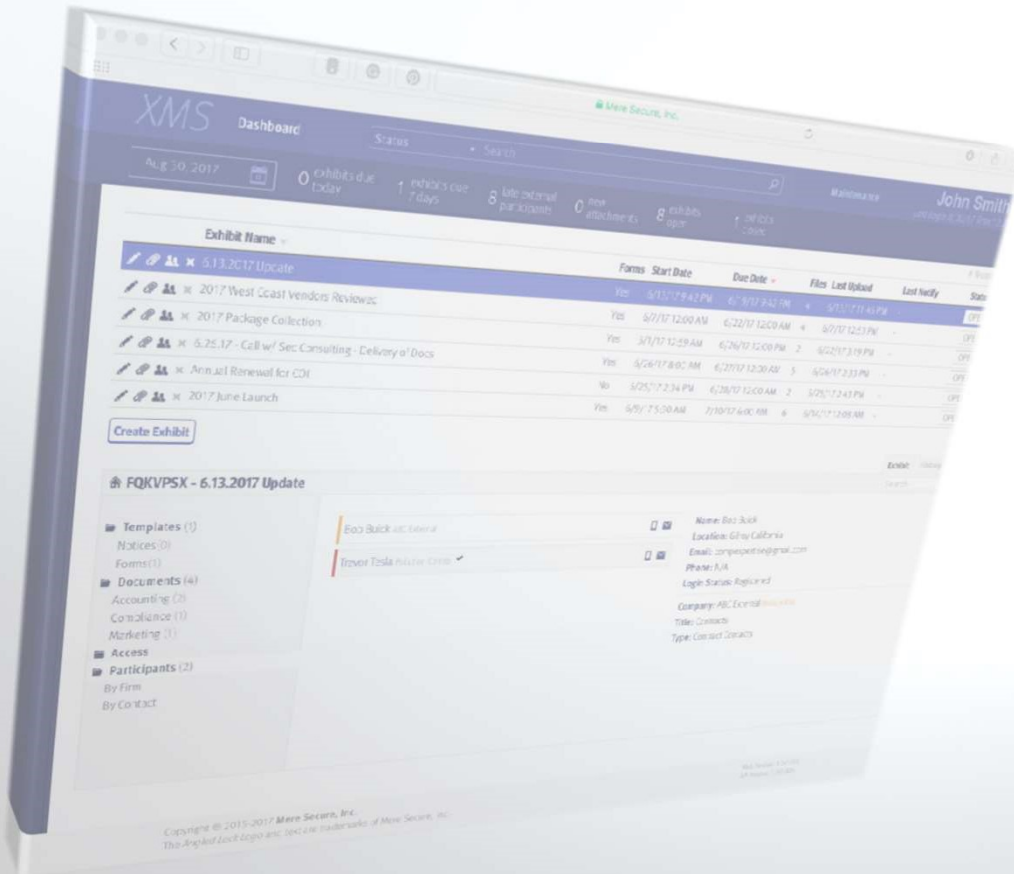
- · Simplified Login
- · Two Step registration
- · **Multiple role desktop dashboards**
- · **Manage contact profiles**
- · **Upload or Download Files**
- · **Create Exhibit containers**
- · Easy Dashboard menu controls
- · **Integrate your External Forms**
- · Street Address Geocoding
- · **Automated Workflow**
- · Upload Documents via packages
- · **Advanced Permission control**
- · Quick filter ribbon
- · **Manage 1-to-many invited participants**
- · Maintenance module of all controlled content
- · Accessible from anywhere with a browser

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XMS

Role Based Dashboards

SEARCH LIST

XMS shows a listing of exhibits whereby each is made up of forms, files, and linked external contacts. Search on title, filename, last upload and reference code

TREE DETAIL

XMS organizes information for easy filtering of the data on the selected exhibit. The tool reference codes every record with a 7 unique letter for easy reference and privacy

FILE UPLOAD

XMS displays the filename, file upload date and who uploaded it along with a download link - filtered by selected category as an option

FLOW CONTROL

XMS associates a status attribute to help filter open from completed exhibits. This XMS status is separate from the third-party desktop workflow status

FILE DETAIL

XMS displays specific information on each file upload, including description, source and size and allows the individual to key in specific custom fields such as last reviewed by, scored by, endless possibilities on every available file

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XMS

Who will benefit?

Internal Participants

Financial
    Banks, Credit Unions, Brokers, Title Companies, Risk Managers

Security
    Security Management, Compliance, Risk Assessments

Insurance
    Brokers, Agents, Agencies
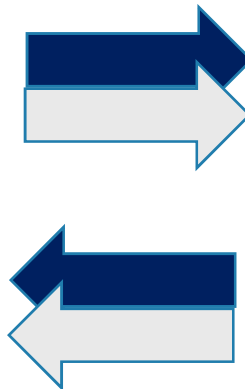
Legal
    Attorneys, Mergers, Acquisitions

Tax
    Preparers, CPA's, Accounting Professionals, Auditors

Independent Contractors
    Compliance, Governance, 3rd party, Risk, Investigations

Other
    Charities, Consumers, Non-Profit's, Government Municipalities, Foreign European Markets

External Participants

Suppliers   Goods, Services, Manufacturers

Consultants

Portfolio partners   Co-ops, Shared Deals

Third Party Services   Colo providers, SaaS services

Fourth Party Services

Vendors   Contractors, Sub-Contractors, Programs

Any Other Participant

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XMS

Summary

1. Simple to share documents and forms · Quickly search by key filters · Easily engage **external** parties

2. Augments **any** existing vendor or third-party user management solution

3. Flat fee Monthly Subscription Based

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Thank you for your time!

"...Share files securely"
MereSecure

"...Organize & Streamline"
MereSecure

"...Simple to use"
MereSecure

15%
"..no software to install"
MereSecure
Copying files 53%   Installing features and drivers   Configuring settings

Markus Schmucki

President & CEO

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