Blockchain and Government Records Management

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Designing Storage Architectures Meeting
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Background

- FY18 initiative to assess governments use of blockchain technology in records management
  - Review & analyze sources
  - Identify impact in context of records management policy / guidance

- Goal was to give NARA staff a better understanding of the technology and its implications

Records Management Implications

Records on the Blockchain:

The term "recorded information" as described in 44 U.S. Code § 3301b includes all traditional forms of records, regardless of physical form or characteristics, including information created, manipulated, communicated, or stored in digital or electronic form.

The blockchain hash, block header, and transactional data could be Federal records.

Records Management Implications

Records Appraisal:

- Hash and/or metadata could be records

- Records are appraised on content, not the file format

- Blockchain records may be considered a file format

- NARA may need to consider how & when records on a blockchain will be scheduled

Records Management Implications

General Records Schedules (GRS)

- Associated metadata about records can be captured in a blockchain (e.g. establishing integrity or provenance)
- In this case, disposition of the blockchain data could be covered under GRS 3.1 General Technology Management Records:
  - Item 050: if the related record is permanent
  - Item 051: if the related record is temporary
- Additional GRS examples:
  - GRS 1.1, item 010: Procurement of materials
  - GRS 5.4, item 010: Supply chain records
  - GRS 5.6, item 030: Equipment tracking
  - GRS 3.2, item 060: PKI Admin records

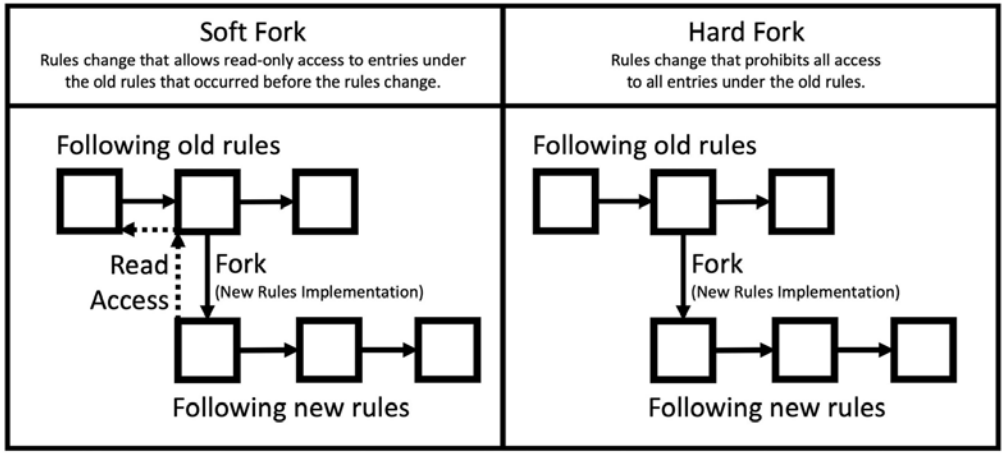
Records Management Implications

Transfer

- No established process for transferring blockchain records
- Discussion of transfer is theoretical

Shutdown problem

- there may not be one approach for preserving records on a blockchain
- may be possible to use the hard fork method



- combine blockchain technologies with archival technologies

Records Management Implications

Authenticity and Integrity

- Blockchain distributed ledger functionality presents a new way to ensure electronic systems provide electronic record authenticity / integrity.
- May not help with preservation or long term access and may make these issues more complicated.

Records Management Implications

Decentralization

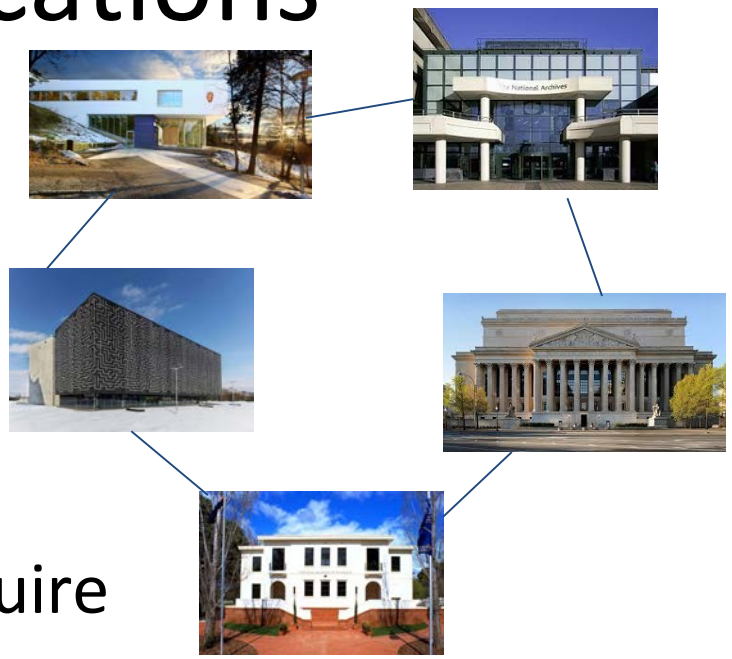
- The blockchain itself provides records validity and trust as opposed to an official recordkeeping system.

Blockchain and Success Criteria

Agencies adopting blockchain technologies will need to:

1. Develop policies to address the records management implications
2. Implement systems that can execute thos policies
3. Ensure they can access blockchain records/transactional data over time, and
4. Execute disposition.

Archival Implications



Archival Veracity

- ARCHANGEL Project
  - permissioned blockchain

Disciplinary Integration

- Future record keeping will require a multi-disciplinary approach:
  - computer scientists
  - software engineers
  - archivists

Resources

Blockchain white paper

https://www.archives.gov/files/records-mgmt/policy/nara-blockchain-whitepaper.pdf

2019 Criteria for Successfully Managing Permanent Electronic Records

https://www.archives.gov/files/records-mgmt/policy/2019-perm-electronic-records-success-criteria.pdf

Bulletin 2014-04: Format Guidance for the Transfer of Permanent Electronic Records

https://www.archives.gov/records-mgmt/bulletins/2014/2014-04.html

Federal Electronic Records Modernization Initiative (FERMI)

https://www.archives.gov/records-mgmt/policy/fermi

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