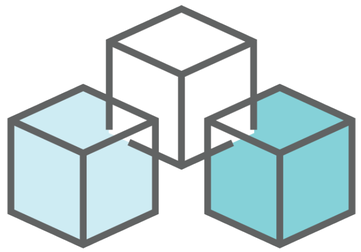


aCERT

Blockchain-based records for academic credentials

Kuber Shahi and Abhinav Nakarmi

Problem Statement

Issuing & Verifying Academic Ceriticates

Problem Statement

Issuing & Verifying Academic Ceriticates

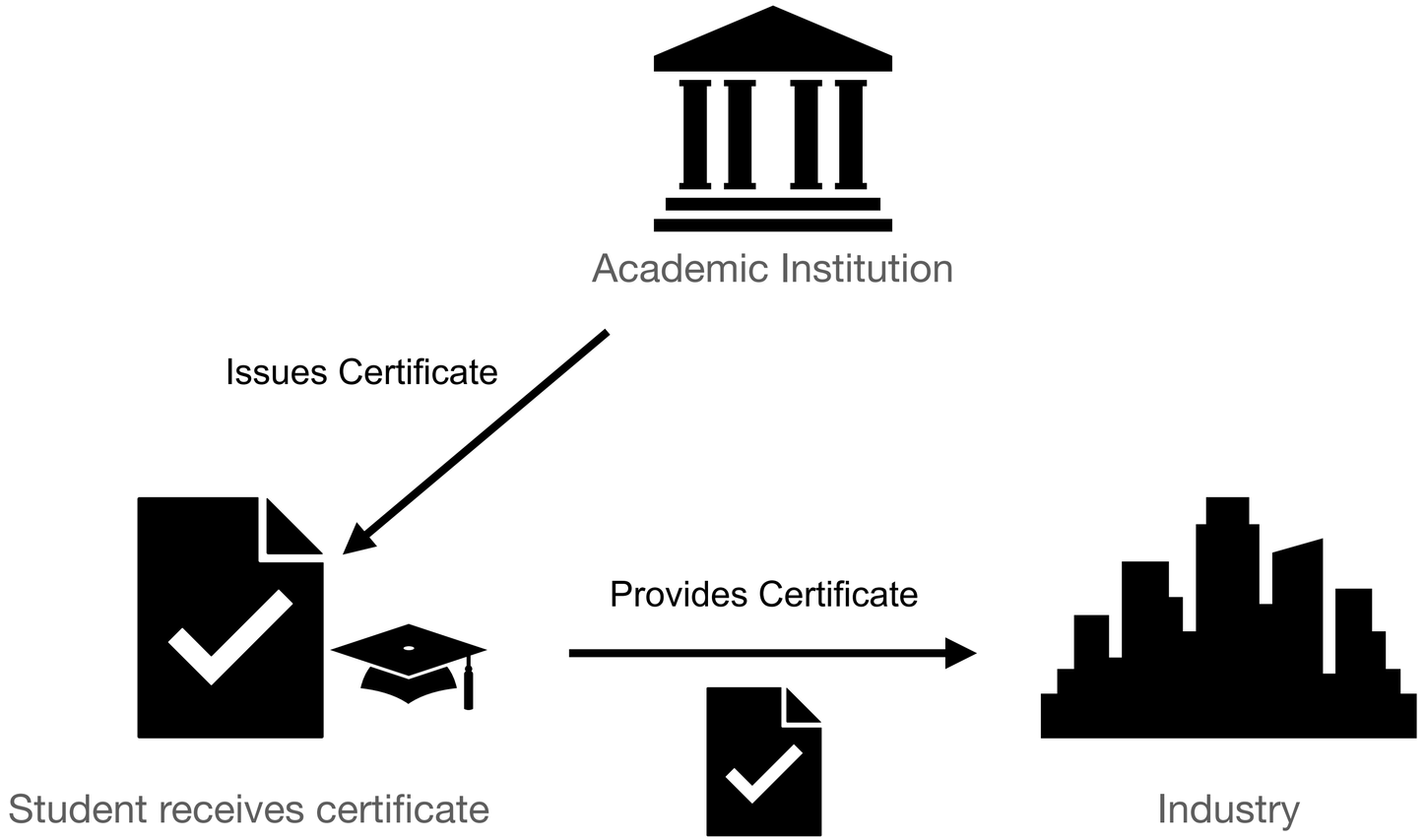
Academic Institution

Problem Statement

Issuing & Verifying Academic Ceriticates

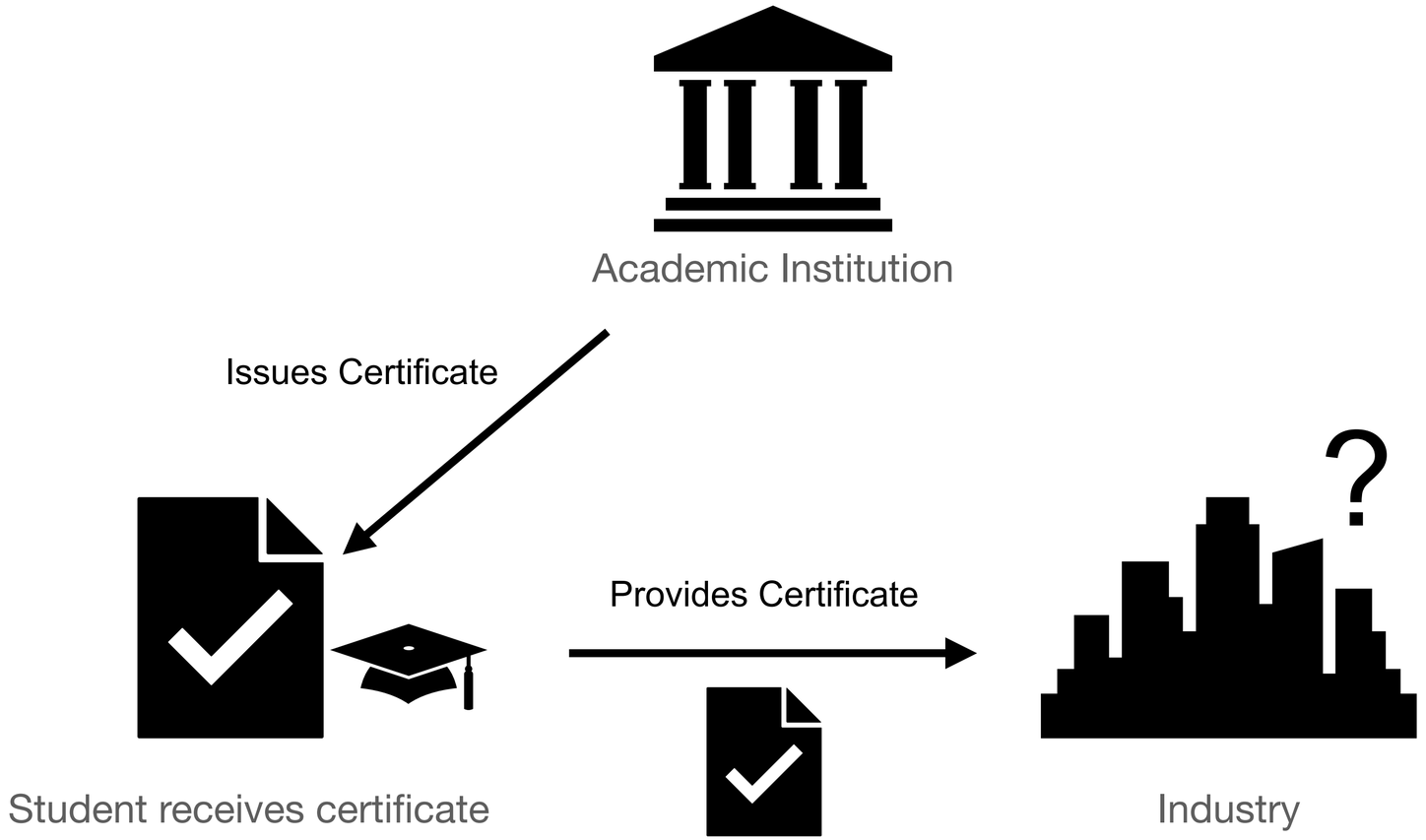
Problem Statement

Issuing & Verifying Academic Ceriticates



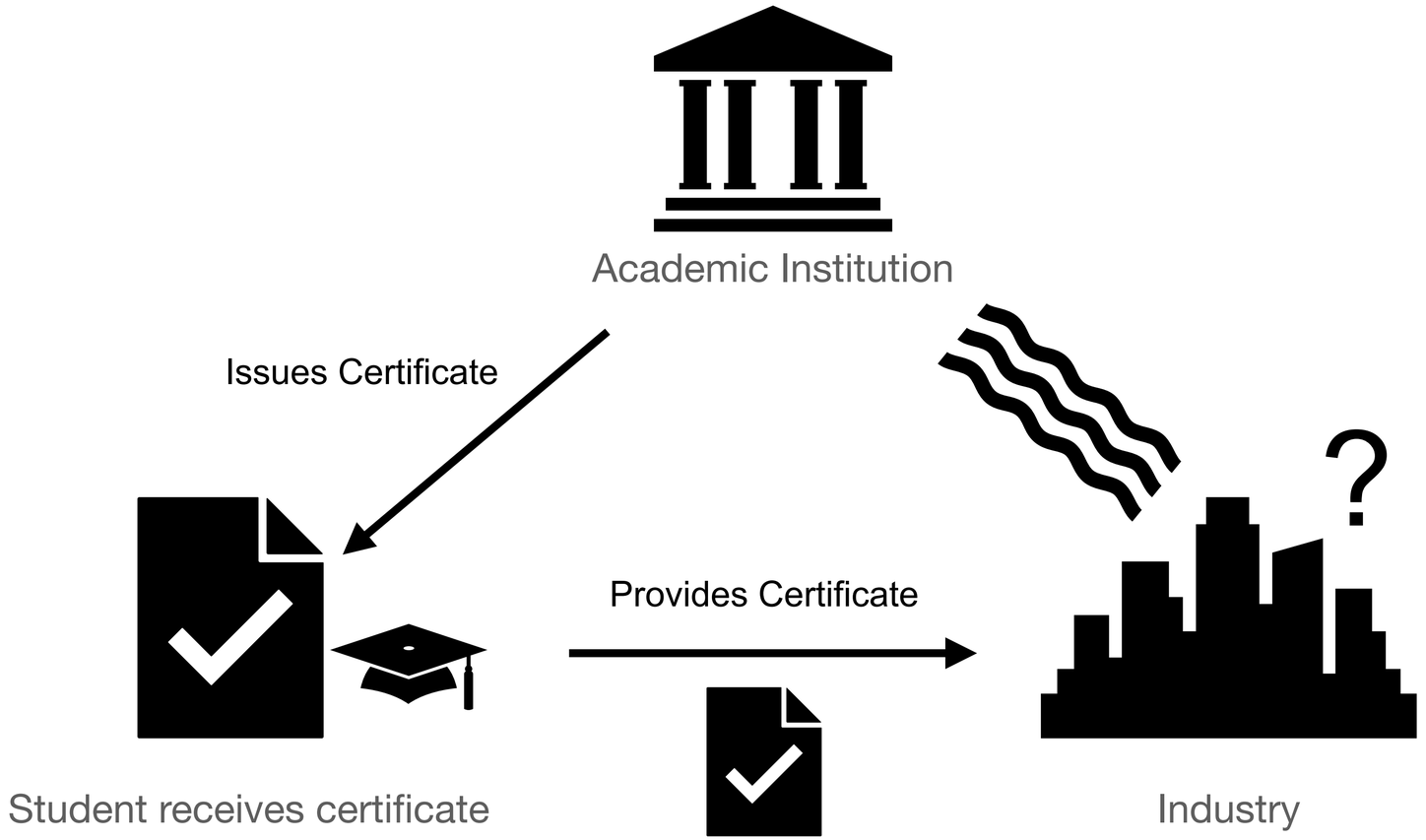
Problem Statement

Issuing & Verifying Academic Ceriticates



Problem Statement

Issuing & Verifying Academic Ceriticates



What if?

Issuing & Verifying Academic Ceritificates

We have access to a public (but secure) database.

What if?

Issuing & Verifying Academic Ceritificates

We have access to a public (but secure) database.

We are able to store (some) certificate information.

What if?

Issuing & Verifying Academic Ceritificates

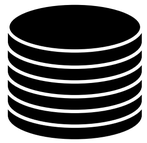
We have access to a public (but secure) database.

We are able to store (some) certificate information.

Anyone can access this database to verify the authenticity and integrity of the credentials.

~~What if?~~ Blockchain

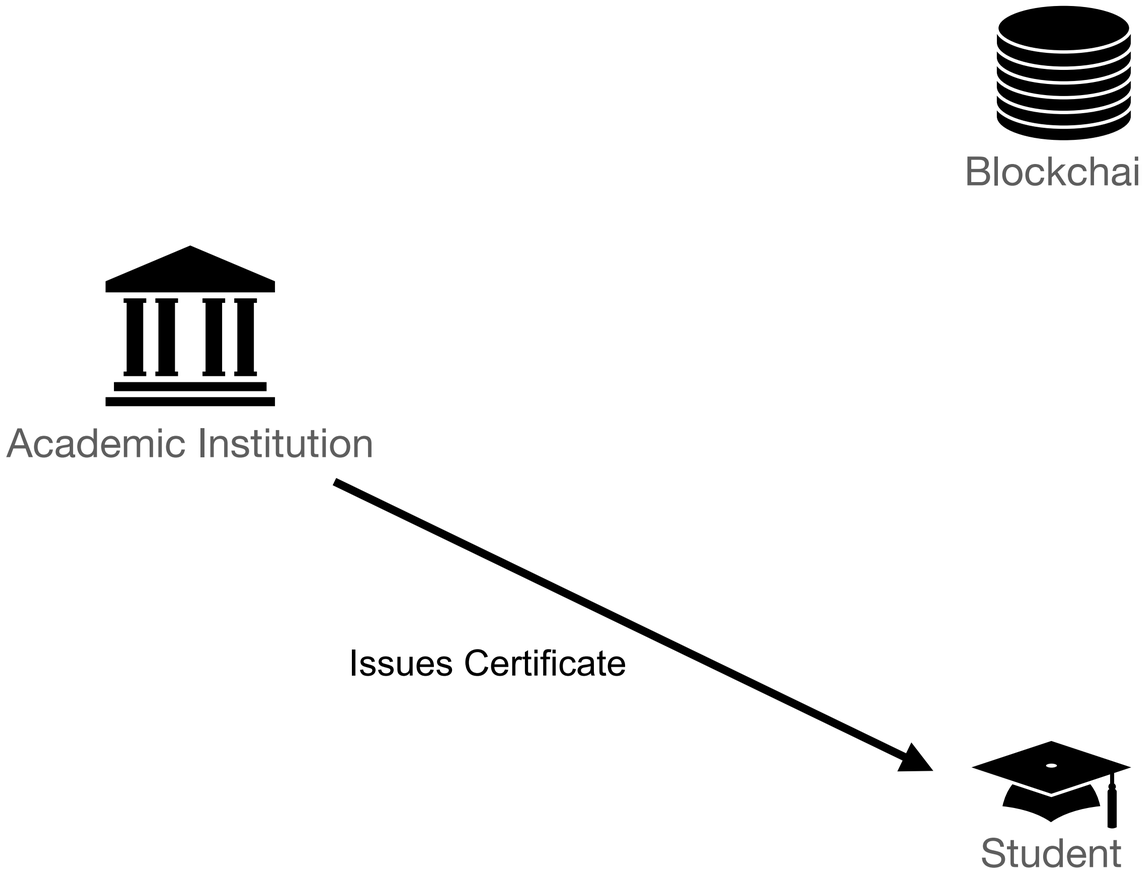
Issuing & Verifying Academic Ceritificates



Blockchain

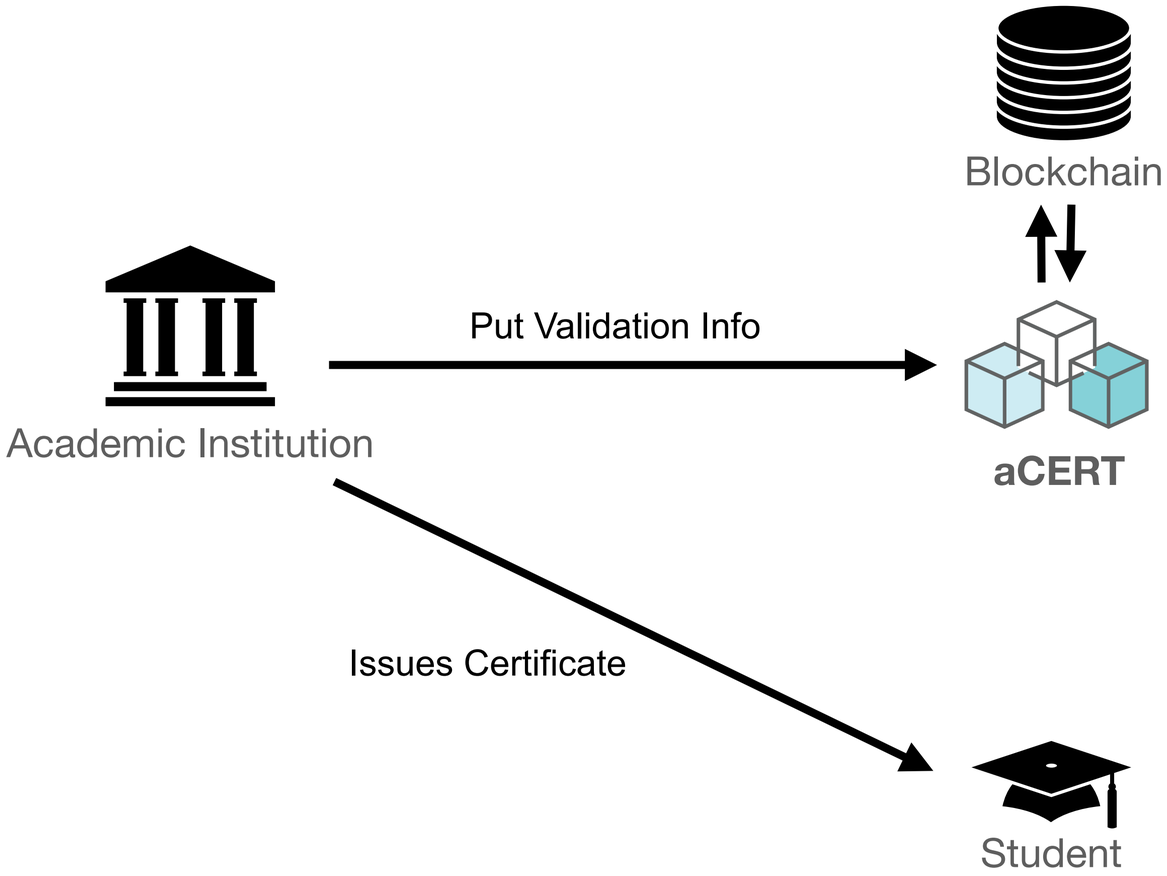
~~What if?~~ Blockchain

Issuing & Verifying Academic Ceritificates



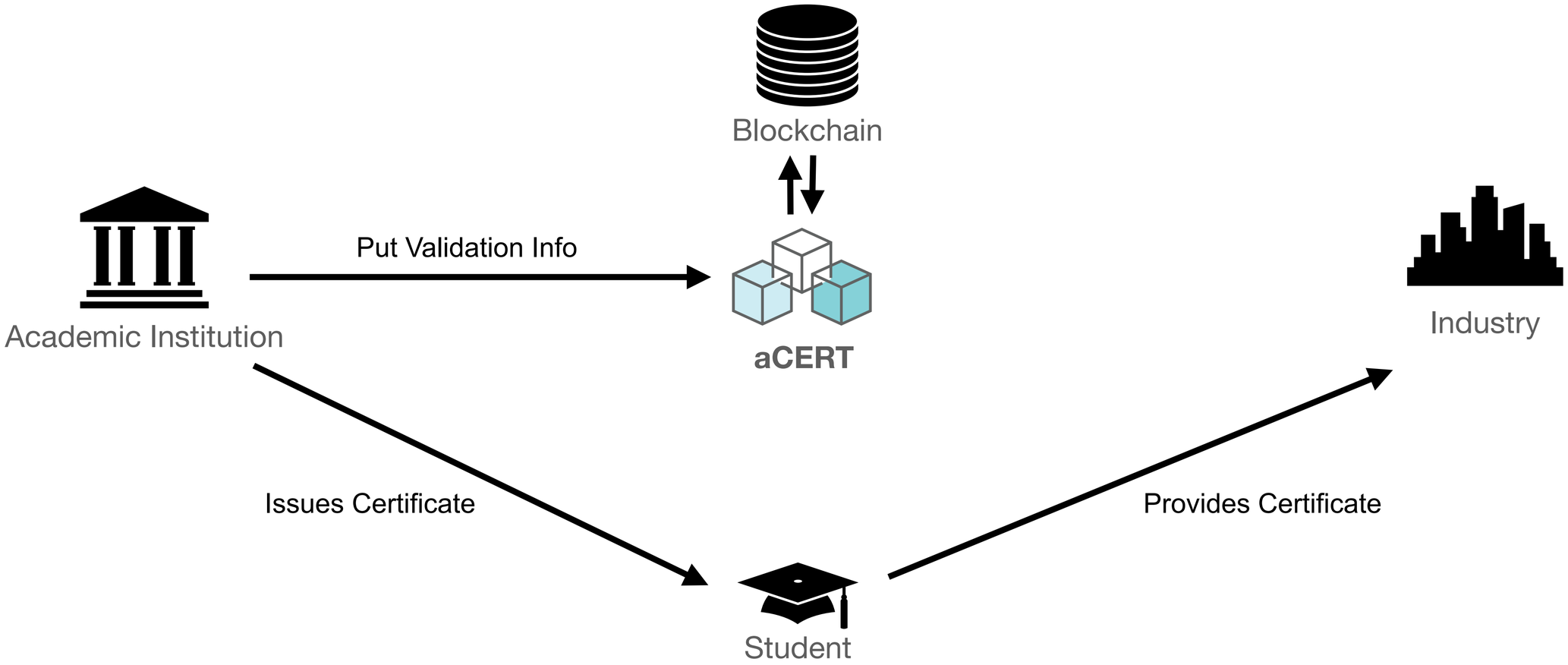
~~What if?~~ Blockchain

Issuing & Verifying Academic Ceritificates



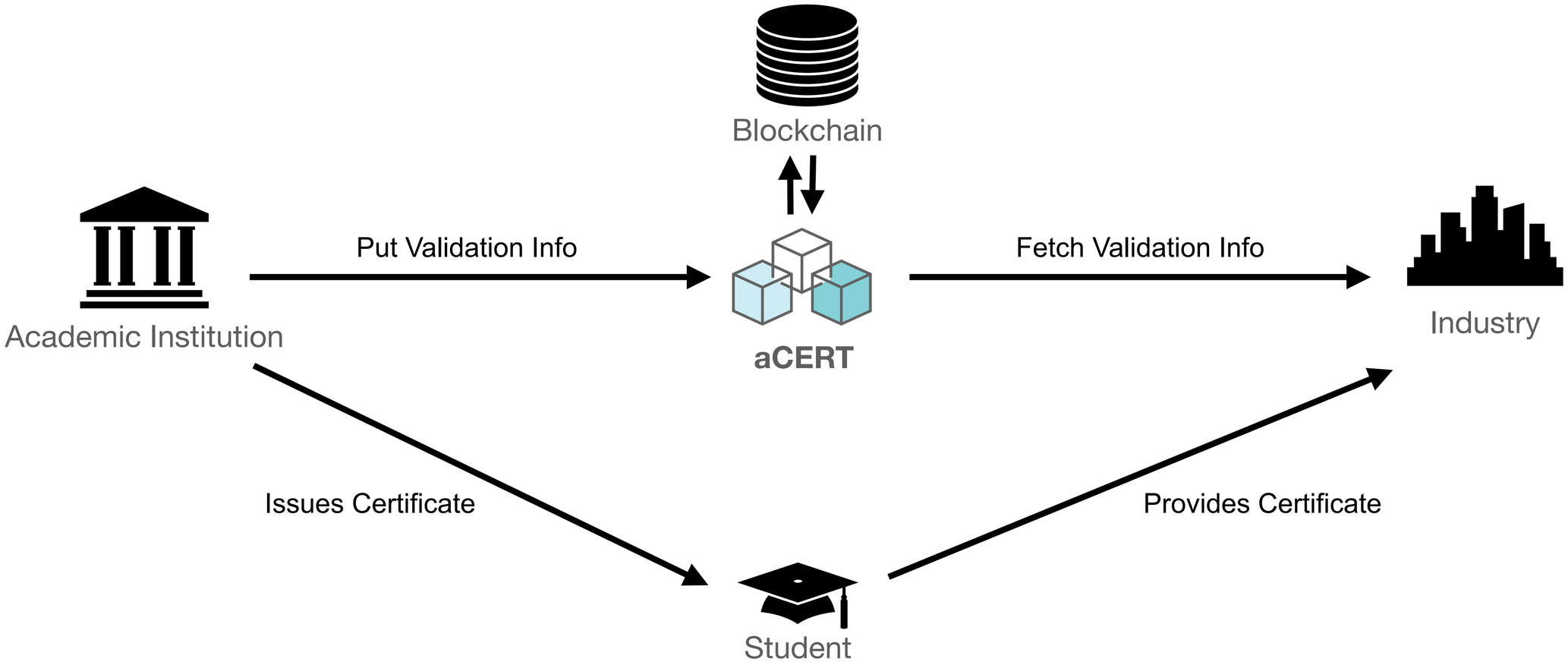
~~What if?~~ Blockchain

Issuing & Verifying Academic Ceritificates



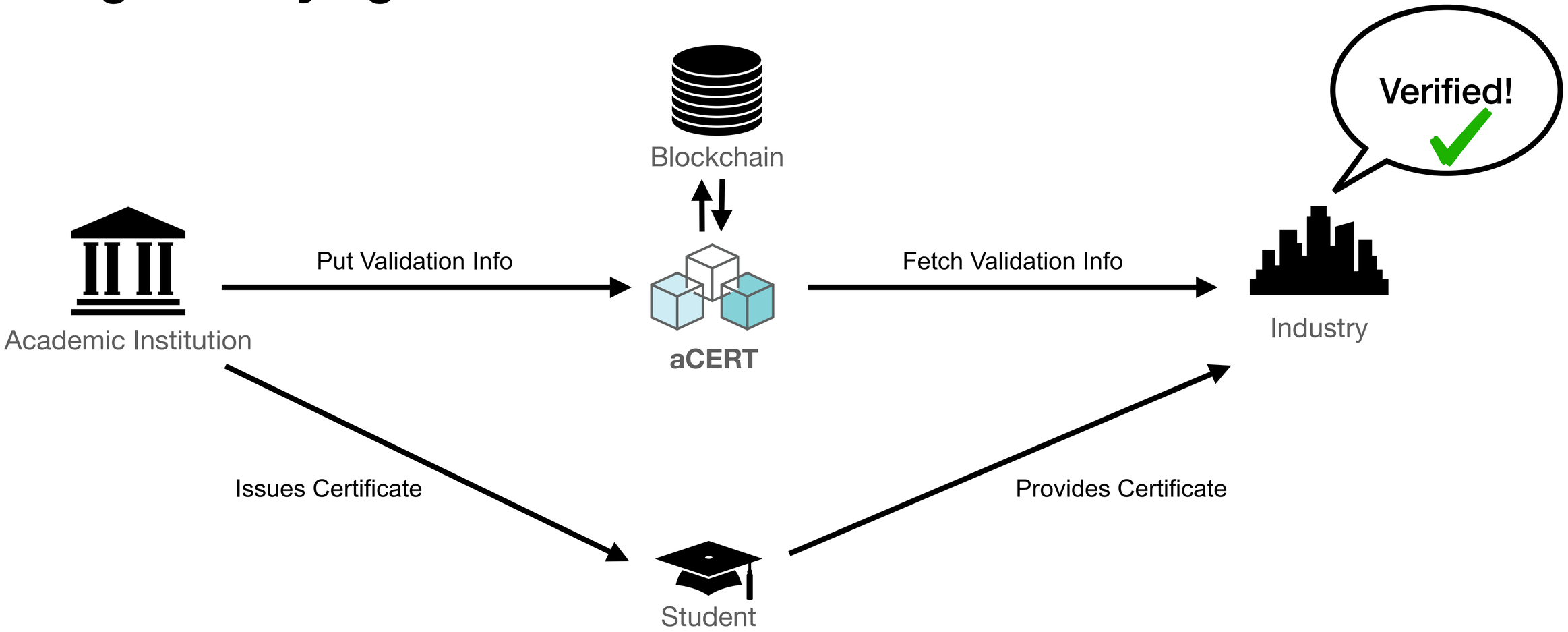
~~What if?~~ Blockchain

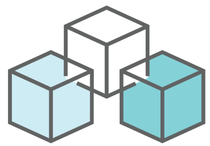
Issuing & Verifying Academic Ceritificates



~~What if?~~ Blockchain

Issuing & Verifying Academic Ceritificates





aCERT

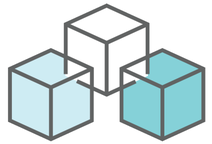
Merkle Tree

- Universities need to issue a lot of certificates.

aCERT

Merkle Tree

- Universities need to issue a lot of certificates.
- Issuing each certificate info on the blockchain is expensive and inconvenient.



aCERT

Merkle Tree

- Universities need to issue a lot of certificates.
- Issuing each certificate info on the blockchain is expensive and inconvenient.
- Merkle Tree can help.

aCERT

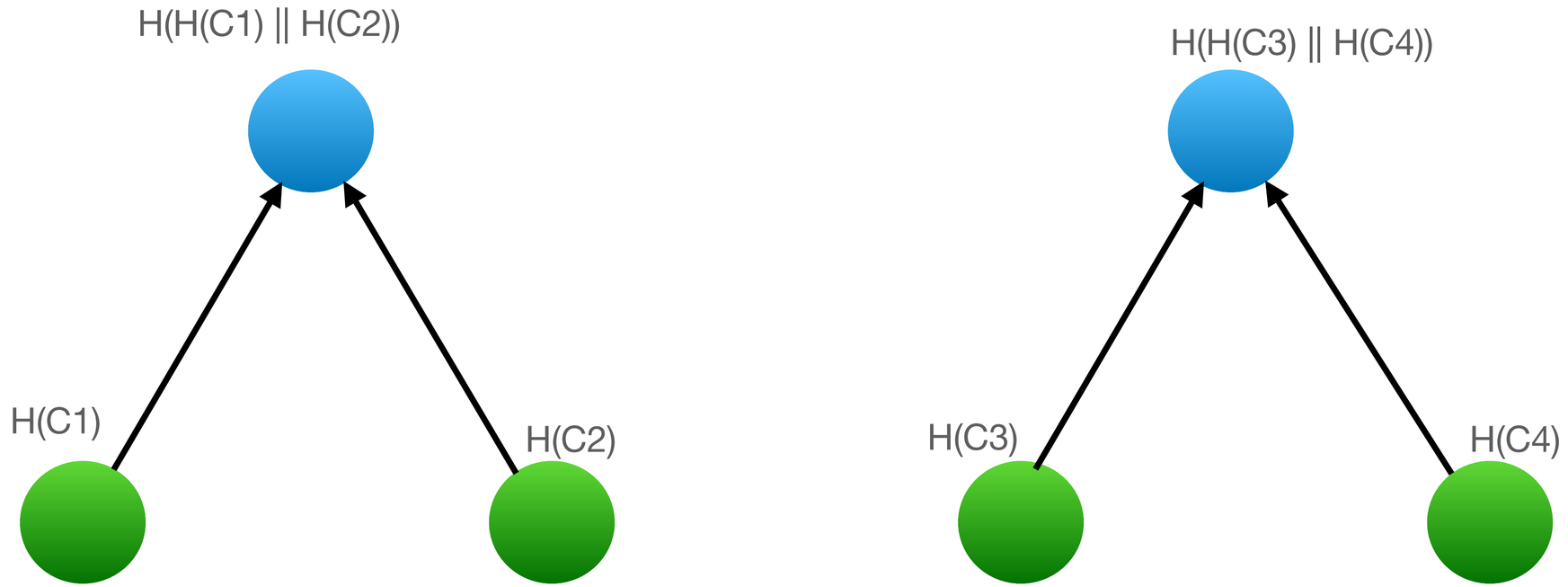
Merkle Tree

aCERT

Merkle Tree

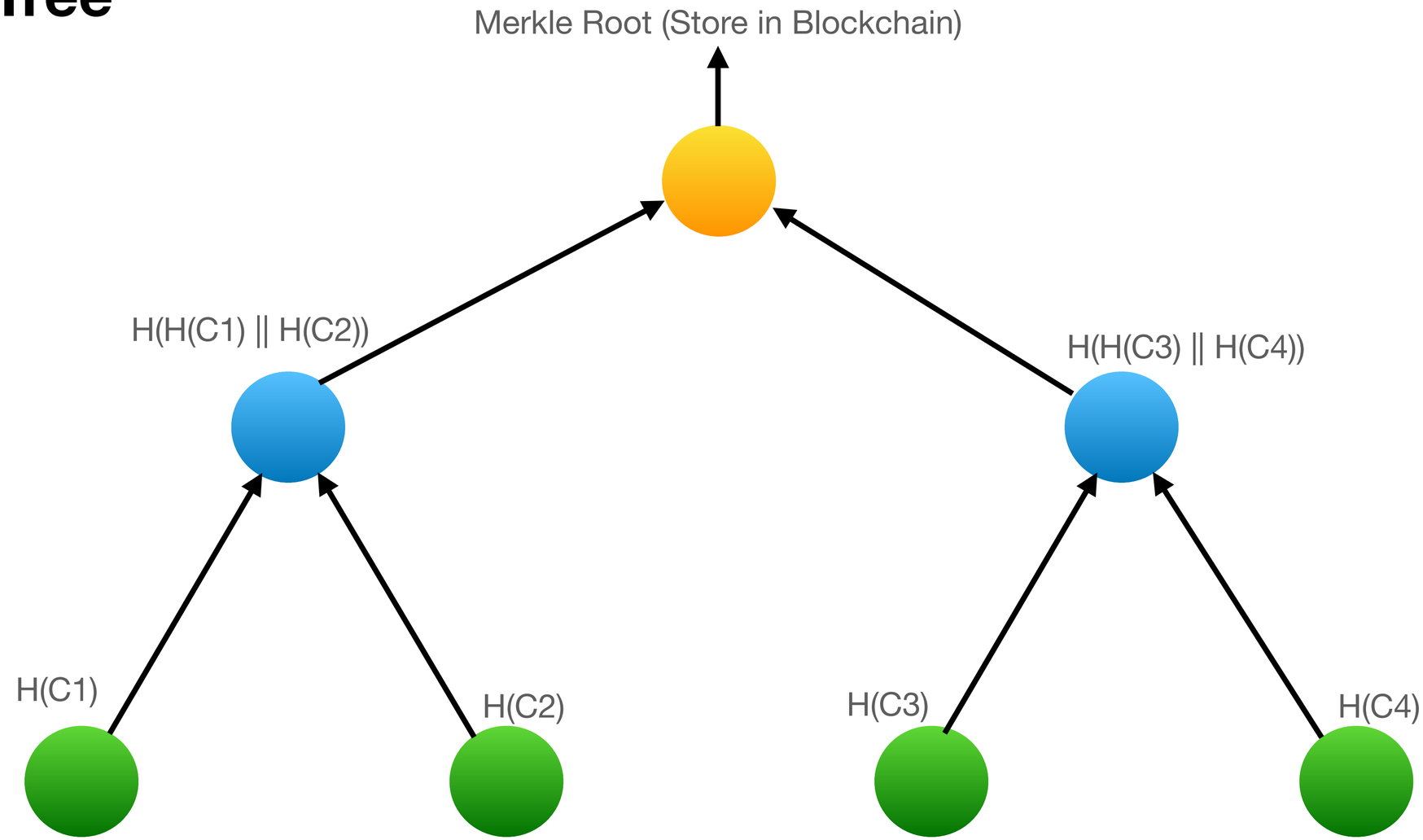
aCERT

Merkle Tree



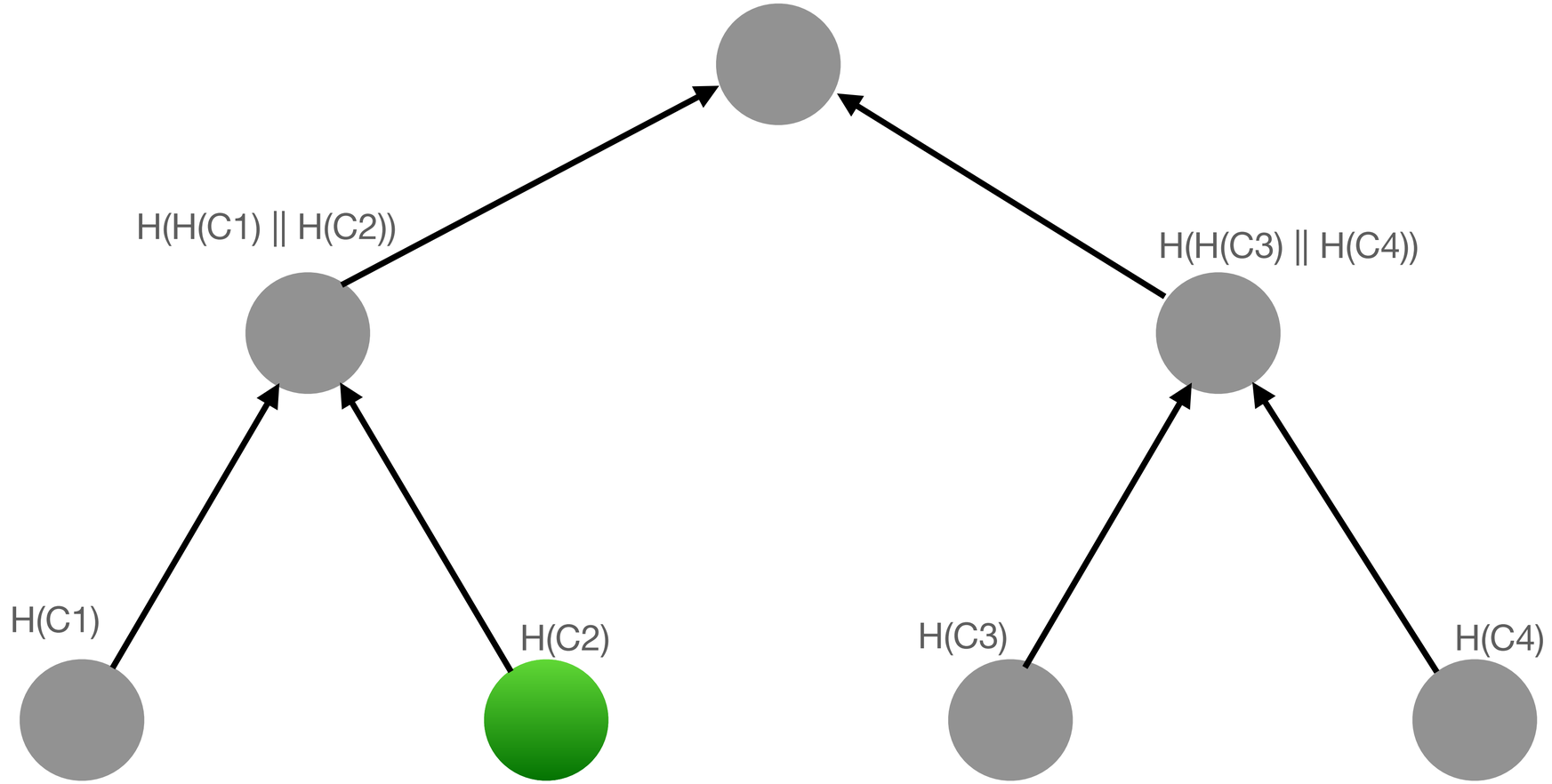
aCERT

Merkle Tree



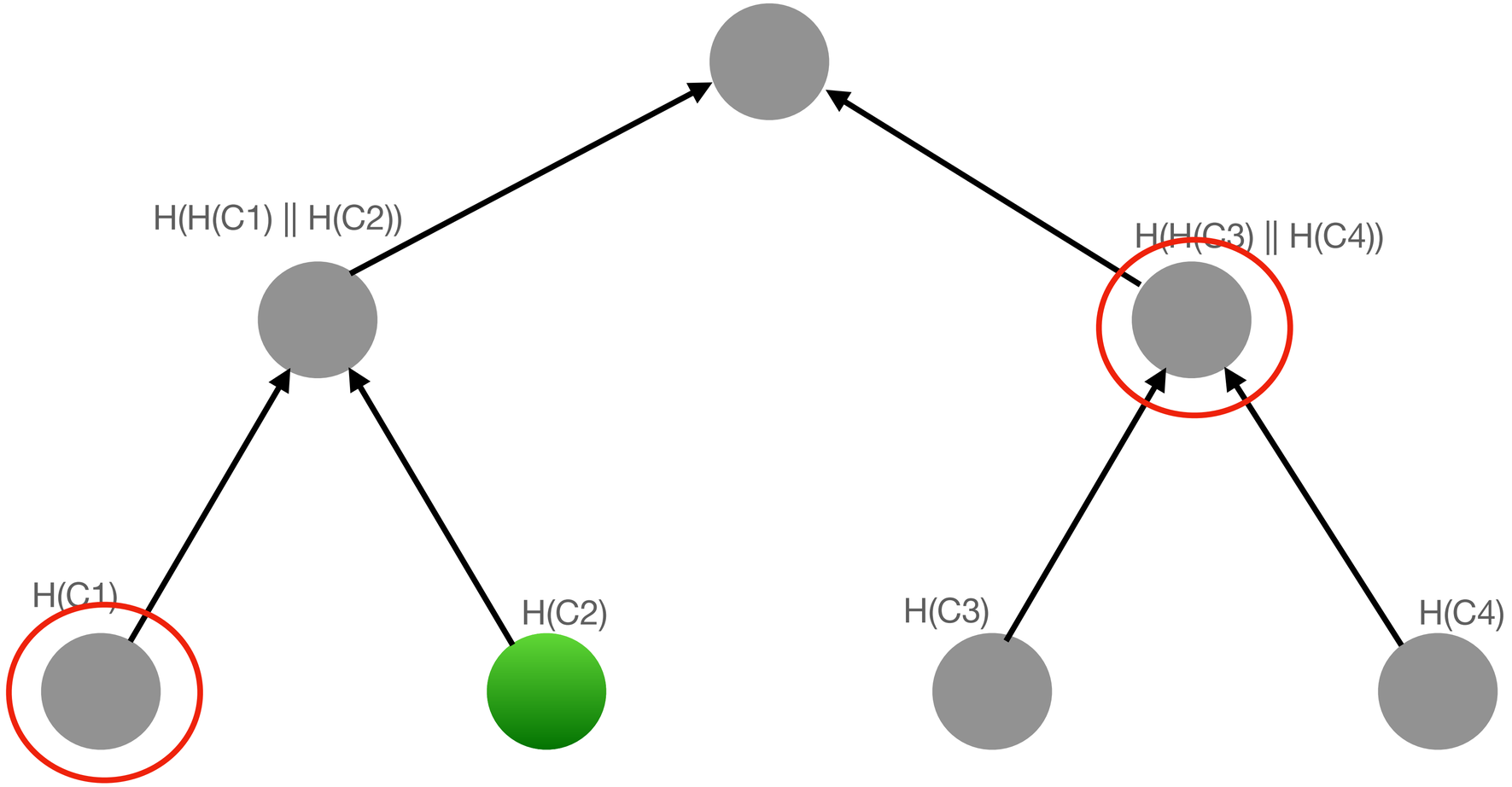
aCERT

Merkle Tree - Example



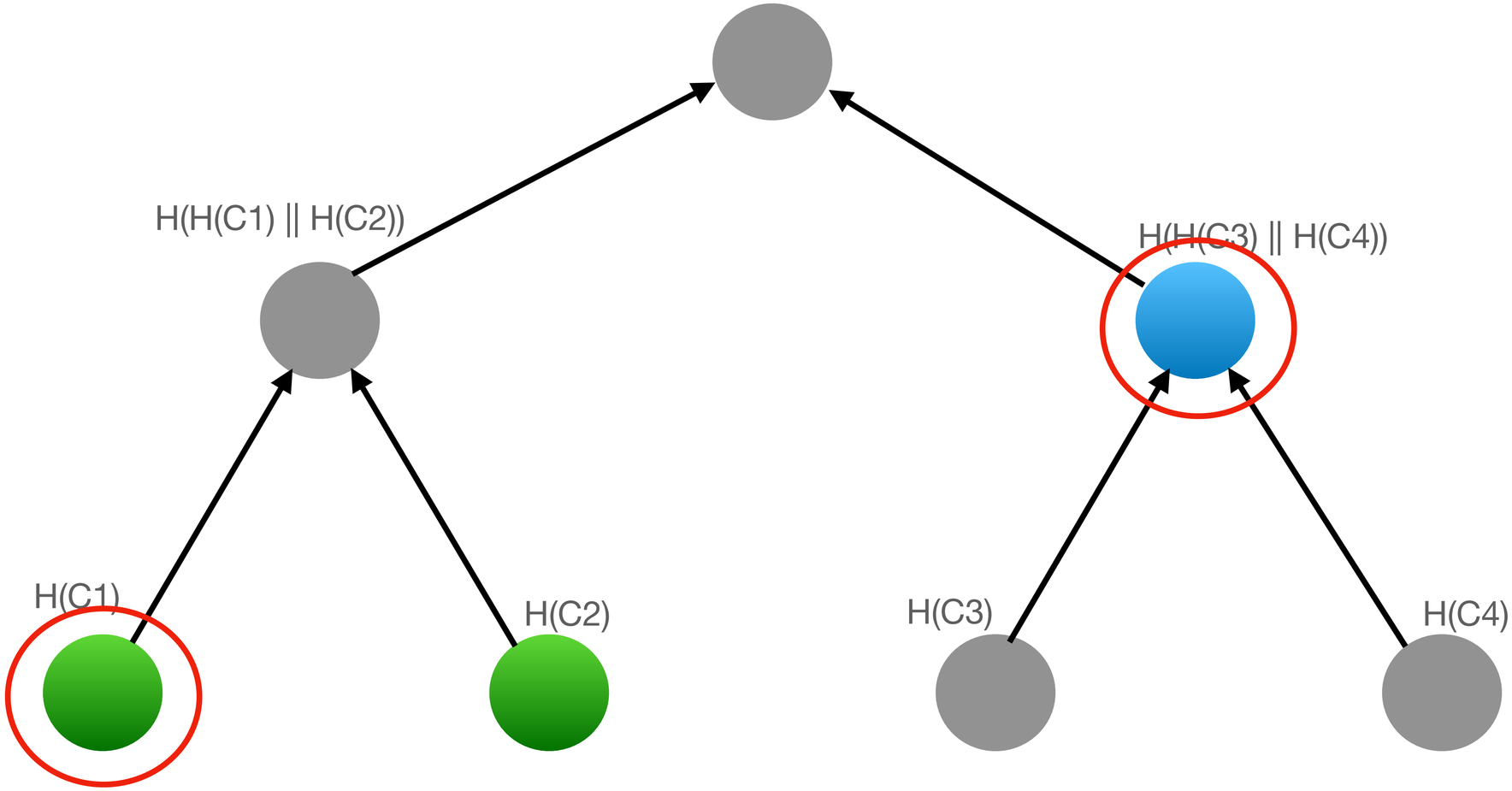
aCERT

Merkle Tree - Proof



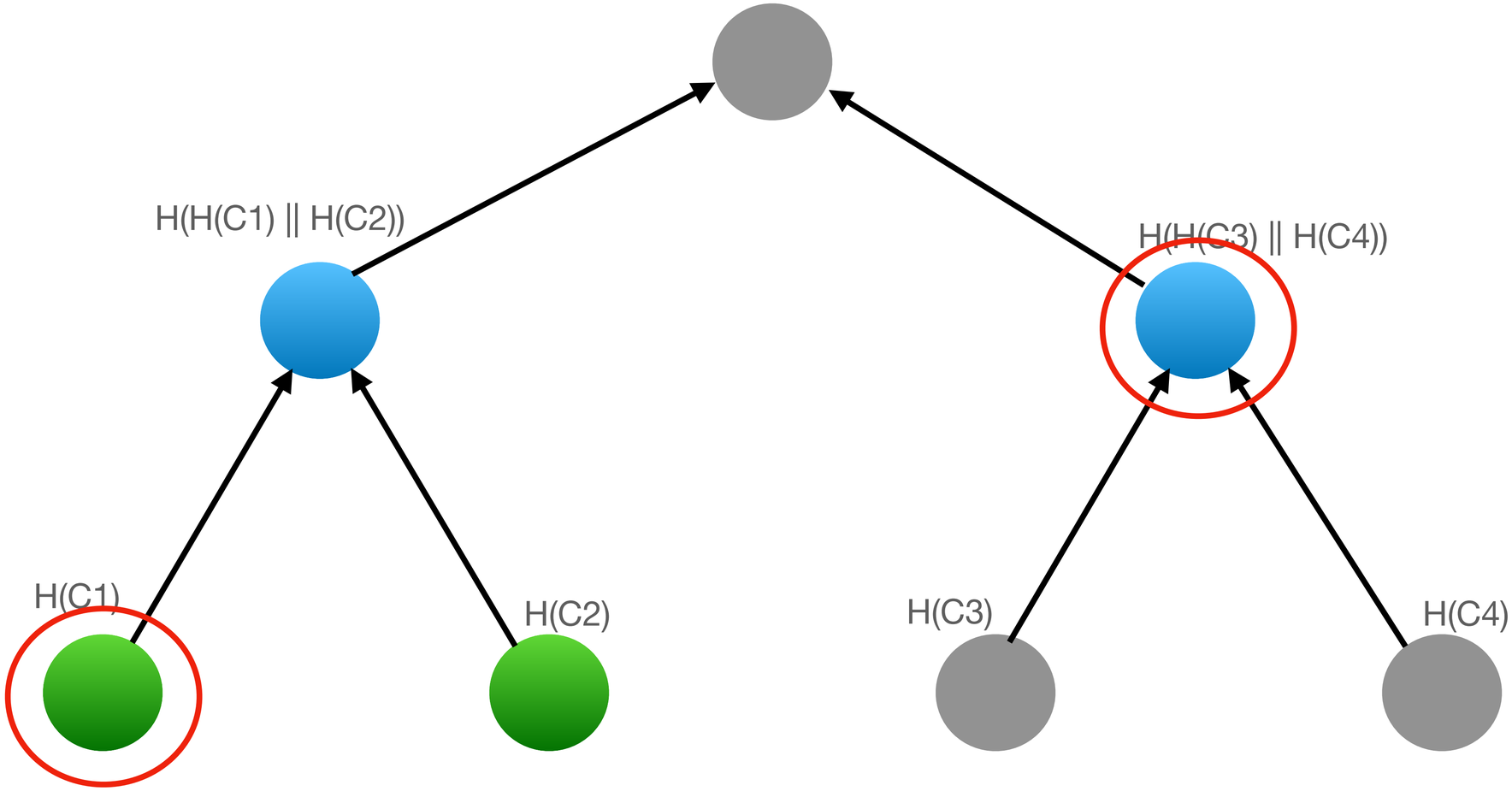
aCERT

Merkle Tree - Proof



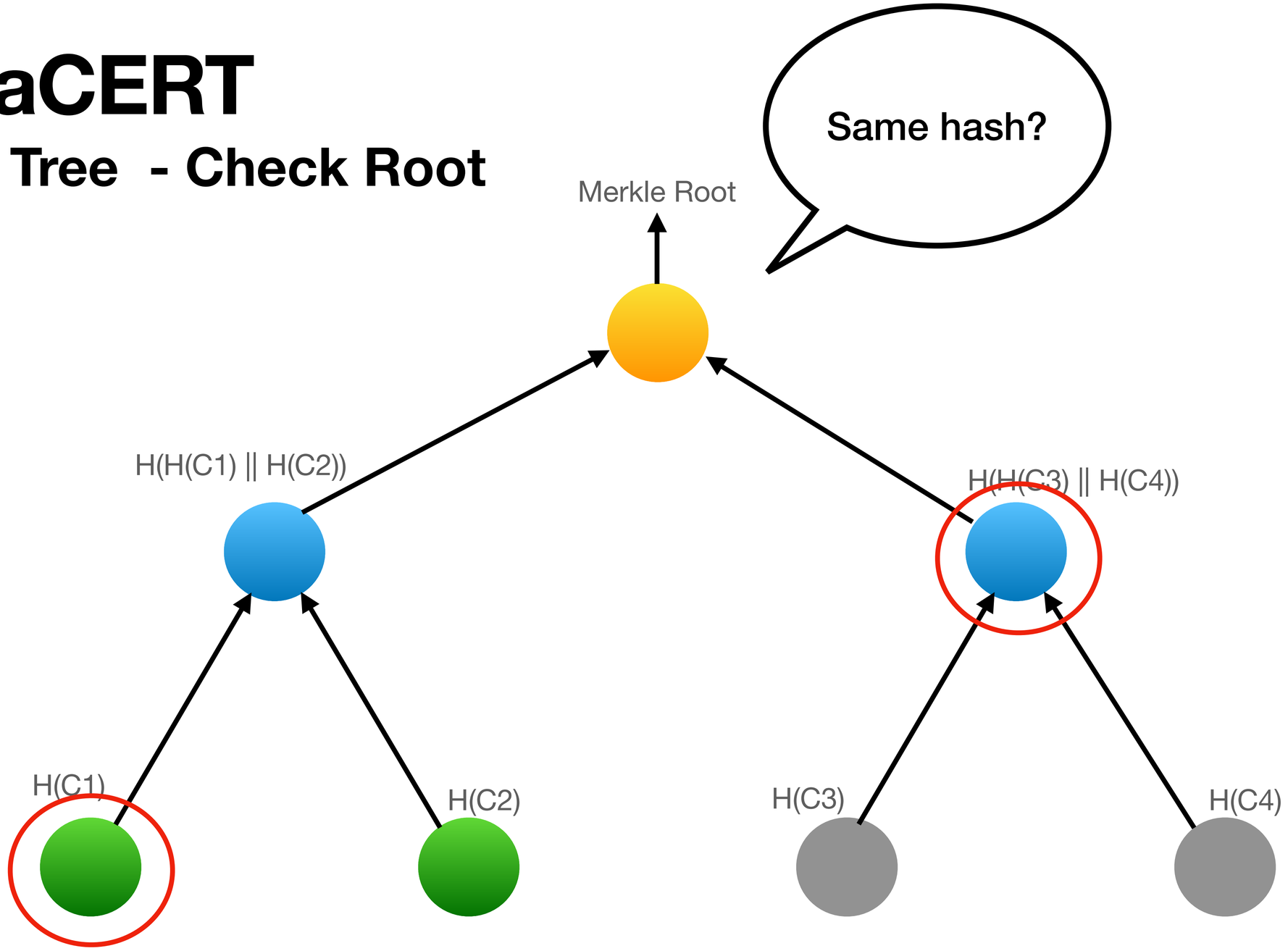
aCERT

Merkle Tree - Construct Root



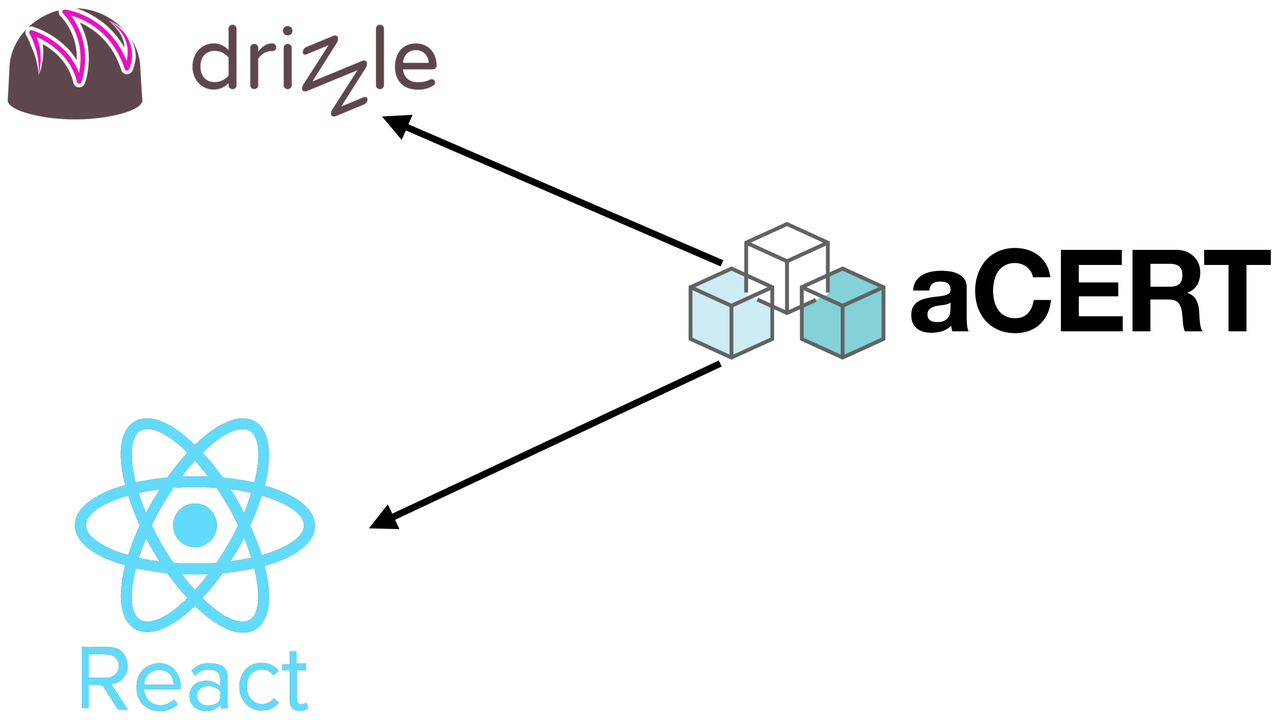
aCERT

Merkle Tree - Check Root

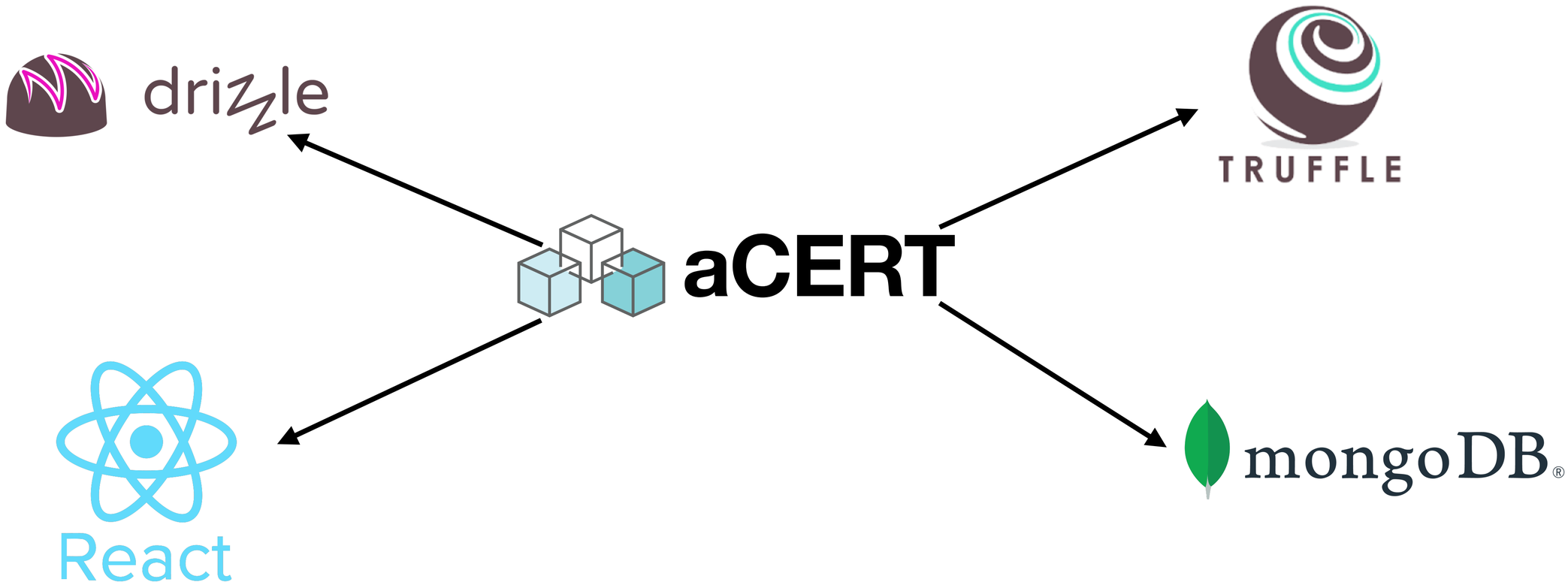


Implementation Overview

Implementation Overview



Implementation Overview



Implementation Overview