BLOCK CHAIN Arcitura Mini Case Study: Credly Advances Immutable Accreditation with Blockchain

Blockchain Technology & Architecture Lab











Arcitura Mini Case Study: Credly Advances Immutable Accreditation with Blockchain

Arcitura Education and Credly collaborated to document how Credly has enhanced its Acclaim platform using blockchain architecture.

About Credly

Credly is helping the world speak a common language about people's knowledge, skills, and abilities. Thousands of employers, training organizations, associations, certification programs and workforce development initiatives use Credly to help individuals translate their learning experiences into professional opportunities using trusted, portable, digital credentials. Credly empowers organizations to attract, engage, develop, and retain talent with enterprise-class tools that generate data-driven insights to address skills gaps and highlight opportunities through an unmatched global network of credential issuers. (Credly.com)

About Arcitura

Arcitura Education Inc. is a leading global provider of progressive, vendor-neutral training and certification programs. With a worldwide network of certified instructors, training partners and testing centers, Arcitura schools and accreditation programs have become internationally established. Arcitura has been responsible for certifying thousands of IT professionals in over 70 countries, across all types of industries, including numerous Fortune 500 companies, international government agencies, organizations in defense communities and academic institutions. (Arcitura.com)

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Historically, an individual with certifications from different vendors would often need to interact with each certification vendor independently to receive a link or profile information to be provided to the potential employer or organization that was required to verify the claims the individual made with regards to attained certifications. For example, if a certification holder had three certifications from three different vendors, the process of collecting the information required for a certification verifier to validate the accreditations could be lengthy and scattered.



The certification holder has several certifications from different certification vendors and must log in to each vendor's website separately (1) in order to retrieve a validation link (2). The certification holder then provides the validation link to the certification verifier that needs to confirm the accreditations (3). The certification verifier needs to validate each certification individually using each validation link with each certification vendor website (4).



Credly has established a web application, called the Acclaim platform, that provides a certification holder with a single account in which accreditation information from multiple certification vendors resides. This streamlines the process by which the certification holder can provide a certification verifier with accreditation information, as well as the process the certification verifier needs to carry out in order to perform the validation.



The certification holder accesses an online profile on Credly's Acclaim platform to retrieve a validation link for certifications from multiple certification vendors (1). The certification holder shares the validation link with the certification verifier (2). The certification verifier validates all of the certification holder's accreditations by accessing a single profile on the Acclaim platform (3).

Credly's Acclaim platform web application relies on a relational database to store vendor accreditation data. Certification holders need to be authenticated to access their profile information. Certification verifiers do not need to be authenticated to validate accreditation claims, as they use unique URLs provided to them by the certification holders.

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Credly has expanded their web application to incorporate blockchain technology in order to preserve the integrity and enhance the security of certification data that it stores and to further provide access to this data via digital wallets.



Credly's Acclaim platform captures metadata about each certification record and exports this data to the distributed ledger in the Acclaim blockchain application (1). The blockchain application sends this metadata to the blockchain network for consensus after which it is validated and written to the distributed ledger (2). The certification holder's digital wallet is updated with the corresponding accreditation profile information (3).

As Jarin Schmidt, Chief Experience Officer at Credly, explains, "What we're doing with blockchain right now is really just adding another layer of verification or trust under the digital credentials. If you have currency, it's printed on special paper with special ink and has holograms in it. All of those things are incremental verification trust mechanisms. You could make the same case about what we're doing with blockchain. There is the centralized database and that data gets surfaced to our infrastructure. Then you can click a button and verify it against a transaction on an immutable decentralized blockchain, or you can export it and use a third party tool to do a verification process."

The introduction of a blockchain application architecture improves the security, immutability and integrity of data stored by both certification vendors and certification holders. It helps prevent individuals from making false claims about their certification status and further prevents unauthorized data modification via the native immutability of the blockchain distributed ledger.

In the current implementation of the blockchain application, Credly acts as a central authority which reads and writes to a decentralized blockchain. Certification claims can be retrieved by the certification holder from the blockchain application in the format of a JSON file. This file can then be shared with the certification verifier who can use the provided validation tool to validate the claims against the same distributed ledger.





The certification holder makes certification status claims based on the accreditation data received by the digital wallet from the blockchain application (1). The certification verifier wants to validate the certification holder's claims and receives a JSON file from the certification holder's digital wallet with the accreditation data (2). The certification verifier submits the JSON file to Credly's Acclaim platform validation tool (3), which verifies its contents against the Acclaim platform web application database (4).

Alexander Hripak, Vice President, Technology at Credly, elaborates, "The primary use cases that we see from our implementation of blockchain are timestamping of the data and allowing third parties to perform additional forms of verification against it. We are a central authority, but separate parties are able to attest the transaction that lives in the blockchain to verify that the data an employer or other reviewer is looking at is what it was when that transaction was written. Immutability and timestamping are important attributes that we glean from it."

Jarin adds, "An earner of a credential will come to our platform, and that credential will have been enabled to be published on the blockchain by the issuing organization. The earner gets to decide if that data is written to the blockchain or not, and if they choose to do so, we generate a hash against the data – the underlying JSON representation of the badge –and we insert that hash into the transaction metadata. We get back a transaction ID and we store that alongside the credential in our system. When someone wants to perform a third-party validation, they take those two data points and do those steps."

In addition to empowering certification verifiers to validate immutable certification holder data,



Credly is planning to leverage the blockchain platform to allow individuals to store accreditation data in digital wallets that can provide people with secure private key management.

"A founding principle of Credly was giving credit where credit was due, and that includes making sure that you can represent a diverse set of experiences, which is something that we care deeply about," Jarin explains. "We are building towards a future where everything from an experience to a learning event, a test to an industry certification will all be represented in rich data structures that can be verified and trusted."



A Certified Blockchain Architect has demonstrated proficiency in Blockchain architecture, mechanisms and practices.





The Blockchain Architect track is comprised of three courses that develop skills in Blockchain functions, architectural models, technology and security. The final course module consists of a series of lab exercises that require participants to apply their knowledge of the preceding courses in order to fulfill project requirements and solve real world problems. Completion of these courses as part of a virtual or on-site workshop results in each participant receiving an official digital Certificate of Completion, as well as a digital Training Badge from Acclaim/Credly.

To achieve the Blockchain Architect Certification, Exam BC90.01 must be completed with a passing grade. A Certified Blockchain Architect can identify the business value and technology architecture behind Blockchain, as well as the inner workings of Blockchain technologies and solutions. In addition to a proven understanding of the distributed ledger, immutable data storage and consensus processing, a Certified Blockchain Architect has proficiency with Blockchain architectural models, distributed ledger co-existence models and Blockchain security threats and countermeasures. Those who achieve this certification receive an official digital Certificate of Excellence, as well as a digital Certification Badge from Acclaim/Credly with an account that supports the online verification of certification status.

MORE INFO

For curriculum information, visit www.arcitura.com/blockchain.

BLOCKCHAIN ARCHITECT CERTIFICATION

NEXT-GEN IT ACADEMY



MODULE 01 | Fundamental Blockchain

This course provides a clear, end-to-end understanding of how blockchain works. It breaks down blockchain technology and architecture into easy-to-understand concepts, terms and building blocks. Industry drivers and impacts of blockchain are explained, followed by plain English descriptions of each primary part of a blockchain system and step-by-step descriptions of how these parts work together.





MODULE 02 | Blockchain Technology & Architecture This course delves into blockchain technology architecture and the inner workings of blockchains by exploring a series of key design patterns, techniques and related architectural models, along with common technology mechanisms used to customize and optimize blockchain application designs in support of fulfilling business requirements.





MODULE 03 | Blockchain Technology & Architecture Lab This course module presents participants with a series of exercises and problems that are designed to test their ability to apply their knowledge of topics covered in previous courses. Completing this lab will help highlight areas that require further attention and will help prove proficiency in blockchain technologies, mechanisms and security controls as they are applied and combined to solve real-world problems.





Blockchain courses are available via in-person or virtual instructor-led delivery and via full-color printed or eLearning study kits.

Arcitura

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