

Blockchain based eVerify services, ICTA (ICT Regulator) of Mauritius

Impetus for change

There is an increasingly global problem around the world of physical and digital credentials like driving licences and university degrees being forged. This risk of forged licences or use of revoked licence issued by the ICT Authority also exists.

Purpose and objectives of the change

The two main purposes for coming up with this project is to:

1. keep pace with emerging technologies, the ICT regulator must first become technologically savvy by itself adopting these new technologies. It is only then that it will be able to take informed decisions on the regulatory framework required for these new technologies, bearing in mind that regulation should not stifle innovation.
2. mitigate the risk of forged, fake or invalid ICTA licences in circulation which are being used fraudulently is a reality.

To address this problem, the ICT Authority has launched on 14 September 2023 a new verification service which gives added assurance to the different stakeholders and the public using licences issued by the Authority.

In this context, the Authority has come up with an innovative blockchain based licence verification system which is characterised by its highly user friendliness and major cost-effective aspects. This verification system makes use of smart contracts on the Ethereum blockchain to store cryptographic proof of the ICTA licences on the blockchain. These digital documents are tamper-proof documents which prove who issued them. Additionally, one collateral benefit reaped by the Authority is that it did not have to incur any upfront capital expenditure or software licensing costs to deploy this project. This is because the underlying verification system is based on the use of the existing public Ethereum blockchain and on the use of open source software for the smart contract development component. Moreover, with the use of QR code technology as its user interface, the end user or verifier does not get bogged down with the intricacies of the blockchain technology which operates in the background unknowingly to the end user.

How was it done?

After a thorough research work undertaken by the inhouse IT department of the ICT Authority during the past six months, it has opted for a service which will be based on the use of OpenAttestation (OA) - an open-source framework for the endorsement and verification of documents developed by the Government Technology Agency of Singapore. OA endorses and verifies documents using the blockchain technology based on the functioning principles described above. It simplifies the endorsement and verification of documents using the blockchain by allowing an entity to prove the existence and authenticity of a digital document. It makes use of smart contracts on the Ethereum blockchain to store cryptographic proof of individual documents on the blockchain.

These digital documents are tamper-proof documents which cryptographically proves who issued it. They are the electronic equivalent of the physical documents which we all possess today, such as: ID cards, passports, driving licences, qualifications and awards, etc.

Results achieved to-date

The online verification system has been deployed for issuance of Dealer's Licences by the ICTA. These licences are used for various business-related activities where verification and authenticity of the dealers' licence and certificates need to be ascertained.

The ICTA blockchain based verification service has enabled the quick and easy verification of the authenticity of ICTA's Dealer's Licences and certificates.

Potential implications for other organisations

Because of its relevance and ease of replication in other domains within the public or private sector, it is foreseen that other agencies will get inspired to emulate similar blockchain based projects in their respective organisations.

This blockchain based verification service can easily be replicated for different public agencies in Africa so that their respective documents can also be verified independently by anyone else.

One such possible agency would be the transport sector for the issuance of driving licences where the prevalence of fake paper-based driving licences is a common issue.

Another interesting use case is for the academia where prevention of Certificate Fraud in Education and Training can be enabled with Blockchain.

Yet another very relevant use case is for the streamlining of the verification processes in the healthcare industry which are plagued with inefficiencies due to paper-based licenses and certificates, coupled with manual verification processes and gatekeepers.

On a general note, verifiable credentials are a new type of unique identifier with linked verifiable information that can be controlled solely by the user. Furthermore, these verifications can be done using selective disclosure (e.g. to prove your age, you need only disclose your date of birth versus showing your entire drivers' license). This makes it possible for users to not have to compromise on neither the user experience nor on their anonymity within the Web3 ecosystem. In fact, blockchain is the foundational stone for what is known as Web 3.0 also known as Web3. The fundamental premise for Web3 is democratisation, that is, making the user experience more dynamic while giving data privacy control to internet users themselves rather than to the select corporations which control Web 2.0.