Sony Global Education Chooses Hyperledger Fabric for a Next-Generation Credentials Platform
Developing a Next-Generation Credentials Platform

Sony Global Education provides new educational experiences that stimulate learners’ curiosity. It has identified the need in Japan to create a more comprehensive, open, and trusted system for recording the education and training credentials of Japanese citizens. In doing so, it has also identified that this need exists across the globe.

Just think of the credentials one must have to enroll in higher education or apply to a skilled occupation. These credentials sit in silos and each require a different process for validation. Sony Global Education has a vision that will bring this siloed data into one system that accurately records how individuals perform in academic and training settings and then controls access to this recorded information. This will give businesses and educational institutions a more complete picture of candidates’ backgrounds and help them pick the most qualified individual for each job opportunity and program admission.

Working with a Consortium of Collaborators

In selecting the technology for the credentials platform, Sony Global Education required several capabilities that would enable a consortium of government agencies and private organizations to collaborate via a single system for storing and retrieving education and
training data. Most importantly, it required the ability to keep some information hidden and the ability to manage data access.

These capabilities would then empower three main use cases.

1. It would allow education and training organizations to contribute data to the system
2. It would tie together all education and training data about each individual and make it verifiable.
3. It would make it possible for organizations with sufficient permissions to analyze the data in order to identify education and training trends among the population and to evaluate the effectiveness of different education and training programs.

Paving the Way to a Production Operation with a Phased Approach

In phase one, Sony and a selected technology partner researched permissioned blockchains that could support a consortium of collaborators. They identified the need to use smart contracts for managing data access, data partitioning to keep some information hidden from some collaborators while exposing it to others, and an open source platform to avoid vendor lock in. This phase concluded with a decision to use Hyperledger Fabric, which is a blockchain framework and one of the Hyperledger projects hosted by The Linux Foundation.

The evaluation team selected Hyperledger Fabric because it is a general-purpose business platform and open source project that can support smart contracts via chaincode and data partitioning via channels. The team had considered other platforms, but eliminated them from the running over concerns about security aspects like data access control as well as concerns about being ready to withstand actual operation. Hyperledger Fabric was also selected because it allows for more flexible data models and business logic compared to other blockchain solutions. When Hyperledger Fabric v1.0 was released, the team was confident that it could meet all of the team’s requirements.

Hyperledger Fabric also had strong support from executives including Mr. Masaaki Isozu, President and CEO of Sony Global Education. Mr. Isozu says, “We were considering various different blockchains, but then in looking into Hyperledger Fabric, we found that it could support our plan to work with a consortium of collaborators as well as provide a very highly stable blockchain.”

In phase two, Sony Global Education created a prototype of the credentials platform using Hyperledger Fabric hosted on a secure cloud within a short period of time. A proven agile methodology was used to flexibly incorporate the requirements and implement a variety of use cases. This prototype, diagrammed in figure 1 below, helped the evaluation team determine that the technology did indeed provide all the functionality necessary for building a next-generation credentials platform.
Now in phase three, Sony Global Education plans to put the credentials platform to the test by using it to manage educational data generated by 250,000 participants in a world-wide math competition called Global Math Challenge, which is held online and hosted by Sony Global Education. This competition, now in its 4th year, is the world’s first widely accessible, global-scale mathematics contest. The data it generates includes transcripts, global rankings, and test analysis that gives participants unique insights into their thinking process and actionable advice on how to improve. The authenticity of the transcript from this challenge will be checked on the credentials platform.

**Modelling Innovation with the Japanese Ministry of Internal Affairs and Communications**

Sony Global Education is collaborating with the Japanese Ministry of Internal Affairs and Communications to demonstrate a next-generation school ICT environment for managing digital transcripts based on the prototyped and tested blockchain solution. The
goal of the project is to secure the authenticity of transcripts and allow them to be safely shared within a trusted network. Key features of the project include:

- Highly reliable data storage
- Tamper-free records of learning history
- Data sharing with multiple organizations
- Flexible access control

With this project, Japan is taking a leading role in demonstrating the value of consolidated access to education and training data. Other nations can follow Japan’s lead. Mr. Isozu says, “This is starting in Japan, but can be used in other countries as well. We’re looking ahead at the next 300 years and creating a system that can improve education and training by basing improvements on comprehensive and trustworthy data.”

**About Sony Global Education**

Sony Global Education is a subsidiary of Sony Corporation and Sony Computer Science Labs, Inc. Founded in 2015, its mission is “to provide a range of unifying, non-traditional services that inspire a passion for learning across the world and that offer the opportunity to act on this passion, and to create a new educational infrastructure for a connected society.” In order to make this a reality, Sony Global Education will continue to roll out new educational experiences that stimulate learners’ curiosity and will continue to actively pursue partnerships with others who share its passion for education. To learn more, visit: [https://www.sonyged.com/](https://www.sonyged.com/)

**About Hyperledger**

Hyperledger is an open source collaborative effort created to advance cross-industry blockchain technologies. It is a global collaboration including leaders in finance, banking, Internet of Things, supply chain, manufacturing and Technology. The Linux Foundation hosts Hyperledger under the foundation. To learn more, visit: [https://www.hyperledger.org/](https://www.hyperledger.org/)