Hyperledger Mentorship Project Presentation

November 2021

Fabric – Aries integration to support Fabric as a ledger

› **Introduction**

  › **Name**: Harsh Multani

  › **Location:** Nagpur, India

  › **University:** VIT University

  › **Organization**: AyanWorks

  › **Mentor(s):** Kamlesh Nagware

  › **Hyperledger Project**: Fabric and Aries

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Project Description:

› Aries is a framework around indy-sdk, that contains the logic that enables SSI.

› In this the identities of the user is preserved and at the same time the verifier is able to verify the user's credentials through ZKP.

› Aries currently only supports Indy as a ledger.

› Most businesses use Fabric as the platform to develop their Blockchain solutions, and these businesses want to verify some or the other type of identity. Now, they don't want to use 2 separate ledger – Fabric for solution specific transactions and Indy for Identity Verification. This is where the aries – fabric wrapper would come in play, and then they would only use Fabric as a ledger.

› Tech Stack – Fabric, Aries, Typescript, Docker, Express

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› **Project Objectives**:

    › Obj 1: Integrate Aries framework Javascript (AFJ) with a chaincode deployed in a Fabric Network.

    › Obj 2: Write test cases in AFJ that would test the transaction support with Fabric as a Ledger

    › Obj 3: Demo the Issuance and Verification flows with Fabric as a Ledger.

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› **Project Deliverables:**

  › Deliverable 1: Code a chaincode that would contain the logic to create domain transactions (did, attrib, schema, credential definition, revocation registry entry, revocation registry definition)

  › Deliverable 2: Code a module in AFJ that would contain the logic that would interact with chaincode that was developed above.

  › Deliverable 3: Create test cases to test the above 6 transactions with Fabric

  › Deliverable 4: Create a demo to depict the issuance and verification flows with Fabric.

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› **Project Execution & Accomplishments**:

› We have completed writing the chaincode, module and test cases. And we are currently working on preparing the issuance – verification demo.

› This project gave me an ability to explore Fabric and AFJ more deeply.

› It also motivated me to understand how the Indy ecosystem works.

› We faced initial challenges in establishing a connection from AFJ to Fabric and this gave me more clarity on how the fabric network and docker network works.

› We also ran the AFJ test cases through a docker container and this also gave me a better understanding on how docker networks work.

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› **Recommendations for future work:**

› Currently AFJ only supports did, schema and credential definition as domain transactions. Once revocation and attrib transactions are added, we would add support for those as well in the chaincode and module.

› Now there are 2 separate wallets – indy wallet for agent and fabric wallet for client application, we would try to integrate that into one.

› We would also try to add support such that AFJ works with other ledger as well.

› The Chaincode (aries-fabric) would be submitted as a proposal to Hyperledger Labs and Module would be added to AFJ.

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› **Project Output or Results**:

› Test cases demo.

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› **Insights Gained**:

› Before implementing a feature, docuement it, create a plan and then go for development.

› Try to have regular meetings with your mentor and be very specific with your points during meeting. Also send Minutes of meeting, so that it keeps everyone in loop of what is being implemented and what implementation would there be in the future.

› If you are facing any issue, try to debug it and if it gets complicated, approach the open source community either through github issues or through rocketchat. They are easily approachable and very helpful.

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- Thanks to my Mentor (Kamlesh Nagware) and the AFJ Team.

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Q & A

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THANK YOU!