Hyperledger Mentorship Project Presentation

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Support Clique Consensus for Besu on HL Labs Blockchain Automation Framework

- **Introduction**
  - **Name**: Roshan Raut
  - **Location:** Pune, India
  - **University:** (PVG-COET- Pune) University of Pune, India
  - **Mentor(s):** Sownak Roy - UK
  - **Hyperledger Project**: Blockchain Automation Framework

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Project Description:

Blockchain Automation Framework (BAF) – A tool to deploy different DLT platforms automatically on a given Kubernetes cluster. BAF supports multi cloud and multi - DLT deployments and already supports HL Fabric, HL Besu, Quorum, R3 Corda. For HL Besu only IBFT2 Consensus was supported by BAF.

The **aim** of the project was **to add a support for the Clique consensus for Hyperledger Besu**, so that BAF can be used to deploy and operate a HL Besu network with Clique consensus. This also include upgrading BAF to support the latest stable Besu version.

Tools/Technologies used : Ansible, Helmcharts, Molecule and Kubernetes, GitOps

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- **Project Objectives**:
  - To understand the Architecture of Besu and BAF
  - To write Ansible scripts to automate the deployment of Besu with Clique
  - Testing the scripts, and successfully deploy the Besu network using Clique on Kubernetes cluster
  - To learn production grade architecture
  - To understand DevOps in Blockchain Development

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- **Project Deliverables:**

  - Ansible scripts to automate the generation of Helm value files
  - Testing the Besu network getting successfully deployed using clique consensus
  - Documentation on how to use BAF for deploying HL Besu with Clique consensus
  - Documented, upgrade of Besu to latest stable on BAF
  - Present the work to the community

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- **Project Execution & Accomplishments**:

- I was able to add the support for Besu Clique consensus and Document changes
- All the project objectives and deliverables were accomplished
- Working with the best developers was really a great experience
- Most challenging part was to understand requirements for clique support, and also to make the Local setup of all tools, Docker, Git, GKE environment, Ansible, Hashicorp Vault

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- **Recommendations for future work:**

  - Add new node on Ethash and Clique network
  - Testing ethash consensus
  - Test the supply chain application on Ethash and Clique network

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- **Project Output or Results**:

  - Merged Pull Request:

    Issue 510 : [besu] added clique consensus

    Issue 1295 : [besu] added GCP- storageclass

    Issue 510 : [besu] updated the documents and added doc changes for clique

  - Project plan Link: project plan with deliverables, reports, accomplishments
  - GitHub Repo: BAF GitHub Repository
  - Documentation: BAF Doc , Clique Doc

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- **Insights Gained:**
  - Understanding the large codebase
  - Writing production grade code with better readability documentation
  - Working together in an open-source community and spread open source culture
- **Advice:**
  - Make plan before coding, ask queries and clear doubts with mentors
  - Trying new things, approaches, ways to complete task
  - Take your time to know, learn and understand the things


THANK YOU!