Hyperledger Caliper Visualization
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Hyperledger Caliper Visualization

› Introduction

› **Name:** Jason You
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› **Mentors:** Attila Klenik, Feihu Jiang
› **Hyperledger project:** Hyperledger Caliper Visualization
Hyperledger Caliper Visualization

› Project Description

› Overview & Goals

1. Building a GUI (Graphical User Interface) with two main functionalities:
2. Generating customizable configuration files for Caliper and Hyperledger Blockchains.
3. Visualizing main benchmarks from Caliper in real time: e.g. latencies and throughputs.

› Technologies/Tools/Frameworks

1. MERN Stack for GUI (React), API (Application Programming Interface), DB (MongoDB), and data processing Server (Node & Express) implementations.
2. Chart.js and Plotly.js for visualizations.
3. Socket.io for real-time data transmission
4. Different versions of Fabric and Sawtooth configuration files, and their architectures.
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» Project Structure (My Contributions)
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- **Project Objectives**
  - **Obj 1**: Building GUI that integrates with Caliper-CLI from scratch.
  - **Obj 2**: Generating configuration files for major Hyperledger frameworks: Fabric, Sawtooth, Burrow, Iroha, etc.
  - **Obj 3**: Building real time benchmark data visualizations based on Caliper-CLI testing results.
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› Project Deliverables

› **Deliverable 1: Caliper-GUI** (NPM package, or make it a Docker container)

› **Deliverable 2: Documentation** for the GUI configuration

› **Deliverable 3: Screen cast** to help Caliper user to learn the GUI.
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Project Execution & Accomplishments

Completed

- The GUI application and the documentations for its usage.
- Real time visualizations and configuration file generating functionalities.

Remaining Tasks

- User friendly installation scripts for users to run/connect the Caliper-GUI with Blockchain.
- **Resource utilization visualizations** (now only the benchmarks).
- **One-click button** to connect/disconnect the Caliper-GUI with the Blockchain Server.

Most Proud Of

- Completing a full stack project **from scratch**, and **learned lots of new tools** by doing.
- Integrating **a new component into a large project**, and solved a few configuration issues.
- **Confidence** to develop **Blockchain apps** with new technologies acquired.
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› Recommendations for future work

› Improvements
› Automating the configuration between the Caliper-GUI and -CLI, so that it can be used like Truffle Ganache (TestRPC) for the Ethereum Blockchain.
› Cloud service supporting for updating and querying benchmark history of Caliper.

› Extensions
› Supporting **more frameworks**: currently we are only focusing on Fabric and Sawtooth.
› Adding more visualization options.
› Completing the **real-time Blockchain network topology** graph visualization.
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- GUI Design
- Benchmark Overviews
- Read & Tx. Throughput Visualization
- Sidebar: More details
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› GUI Design

› Test Generator

› User Friendly

› Fast Generation
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› GUI Design

› Editable Output

› One-click Copy

› Direct Usage
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› References

› Sample GUI Link (Not the full version)

› URL: http://zstarter.tech:3000
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