Applying Blockchain to Energy Delivery Systems

Project Plan

Team: sdmay20-12
Client: Grant Johnson
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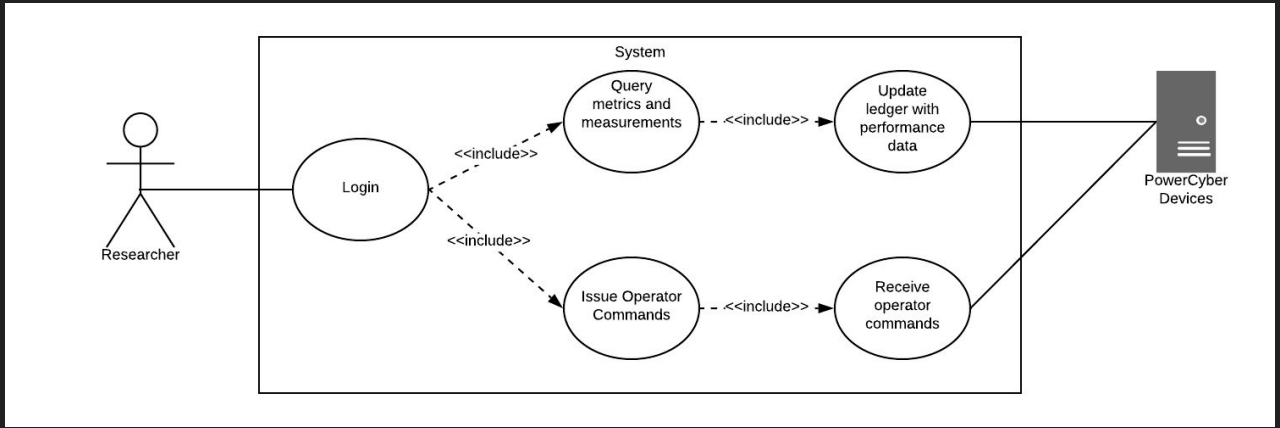
Team Members

Anthony Cosimo - Test Engineer
Jacob Dawson - Report Manager
Keegan Bloedel - Meeting Facilitator
Katherine Ringgenberg - Meeting Scribe
Steven Rein - Software Architect
Dakota Moore - Cybersecurity Manager

Introductory

- Problem Statement:
  - Energy Delivery Systems are deployed in an environment that is geographically distributed utilizing public internet infrastructure for communications. The integrity of measurements, commands, and authenticity of control devices performing communication are critical for trusted operations.
- Use Cases



Introductory

Technical Tasks

1. Gather requirements
2. Gain domain knowledge
3. Implement a functional five node Blockchain Network
4. Implement the Smart Contract Layer
5. Implement the API
6. Implement the UI
7. Integrate with PowerCyber Devices
8. Implement system-level testing

Expected End Products/Deliverables

1. A fully functional blockchain node system
2. Authenticate calls from API to the Blockchain Network
3. Web-based user interface
4. Project documentation
5. Continuous integration and deployment infrastructure

Assumptions and Limitations

Assumptions

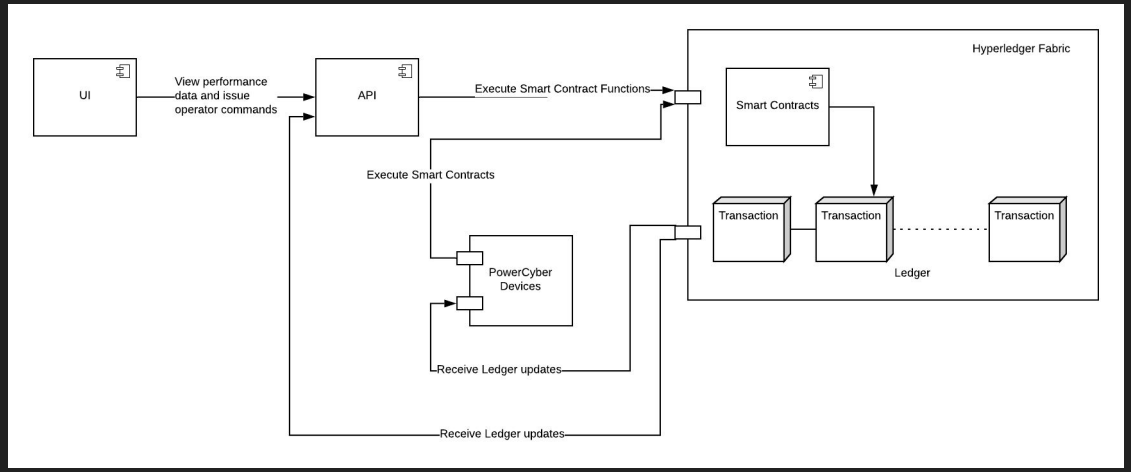
- Server hardware and operating system environment will be made available through PowerCyber and these resources will be sufficient for the development.
- We will be provided access to devices that use PowerCyber.

Limitations

- There is no budget for the project, thus, we are constrained to using PowerCyber resources.
- If the PowerCyber resources are found to be insufficient, the sponsor will either arrange for different resources or modify the scope to work with the existing resources.
- Hyperledger Fabric must be used as the permission-based distributed ledger framework.
- All Hyperledger Fabric related code must be written in JavaScript.

Proposed Approach and Statement of Work

- Objective: Develop a blockchain energy delivery system that adds security and reliability.
- Assessment of Proposed Design



Timeline Walkthrough

Tasks	Sept 3rd - Oct 14th	Oct 15th - Oct 28th	Oct 29th - Nov 11th	Nov 12th - Dec 9th	Dec 10th - Jan 6th	Jan 7th - Jan 27th	Jan 28th - Feb 24th	Feb 25th - Mar 23rd
Requirements Gathering								
Gaining Domain Knowledge								
Prototyping								
Blockchain Network								
Smart Contract Layer								
Implement the API								
Implement the UI								
PowerCyber Integration								
System-level testing								