iTracker

@ InApp

Blockchain-based Collaborative
Document Management System

iTracker is a Blockchain-based secure, collaborative change management software developed by InApp, that permits the tracking of multiple changes made to a document by different collaborators in an organization. The application maintains a record of all the versions of the edited document and provides an interactive dashboard to compare any two versions.

iTracker uses Hyperledger Sawtooth framework which allows the developers to design blockchain-based applications in the form of two programs: a 'client' that interfaces with the external entities as well as the Sawtooth blockchain, and a 'transaction processor' that runs behind the blockchain executing custom chaincode. The Blockchain is used to store and retrieve all intermediate versions of the edited document as an HTML format in which the modified text is highlighted for better understanding. MySQL database is used to store all the essential details related to workflow, users, sender and receiver along with the filename, timestamps and so on. The application uses Jersey Framework in the Java client which allows the user to create transactions, form batches and send it to blockchain to prevent any malicious attempt to the file system server.

iTracker Application Capabilities

- Allows a document owner to work on a document with any number of collaborators sequentially.

- Stores every version of the document on the blockchain for tamper-proof retrieval later, with the facility for document comparison.

- Allows document owner to send email invitations to collaborators with an embedded link, through which the document can be viewed and edited.

- Allows collaborators to submit the edited version of the document back to the system, which then intimates the document owner.

- Ability to override an inactive or unresponsive collaborator.

- Offers an inbuilt text editor to modify the document within the application.

- Supports Text and DOC files.

Use Cases

- Establishing a secure sharing environment in which critical documents can be edited and revised by multiple collaborators.
- Maintaining a record of different versions of a document to better understand how the content is being modified.
- Storing the data in Blockchain by indexing it with certain key parameters.
- Access any uploaded document from Blockchain to read and compare its different versions.

Architecture
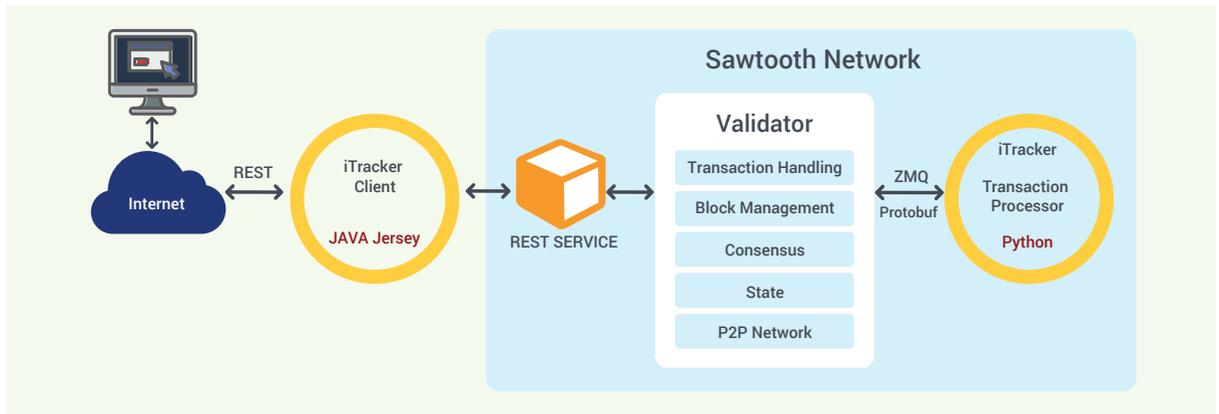
Workflow
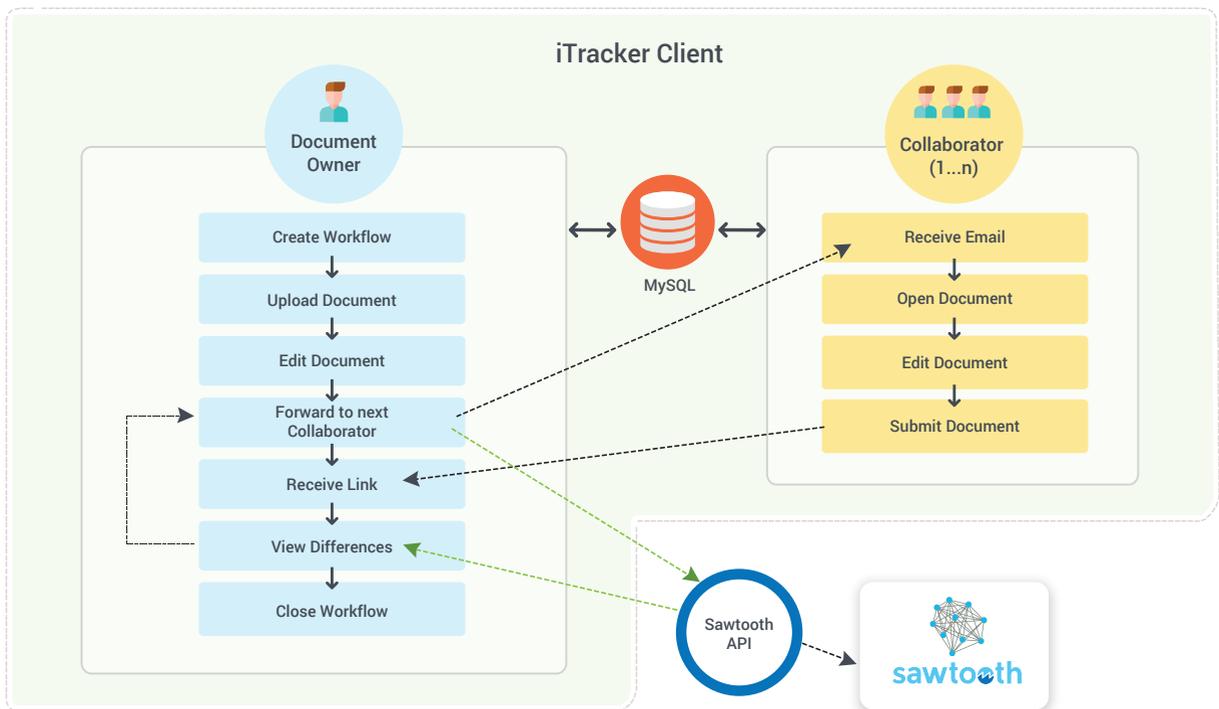
- Owner logs to a dashboard, where new workflows can be created with a name and description.

- A new workflow starts out by uploading document (text or .DOCX formats) to the system and editing it in a rich text editor.

- The document owner then forwards the document to a collaborator by specifying an email ID to the workflow.

- The collaborator receives an email with an embedded link notifying that a document is awaiting. Clicking the link opens the document in a browser window. After viewing/editing, the collaborator submits the saved version back to the system. Once the submission is accepted, the embedded link becomes invalid.

- The owner of the document is notified of the collaborator's submission by an email. Upon clicking the embedded link, the owner is provided with the workflow dashboard, where he can choose any two versions for displaying a side-by-side editor and difference views. The document owner can make edits to the collaborator's version (or revert the collaborator's edits) and forward it to the next collaborator. Alternatively, the owner can close the workflow.

- Upon completing all the editing process, the different versions of the document are displayed on a dashboard which is accessible to the owner, where he can select any two versions of the document for comparison and optionally save it as an intermediate version.

@InApp