Advanced Blockchain Support for Tracking Liquid Fuel Distribution

Group Members:
Anish Katkamwar
Atharva Agade
Shubhankar Gaikwad

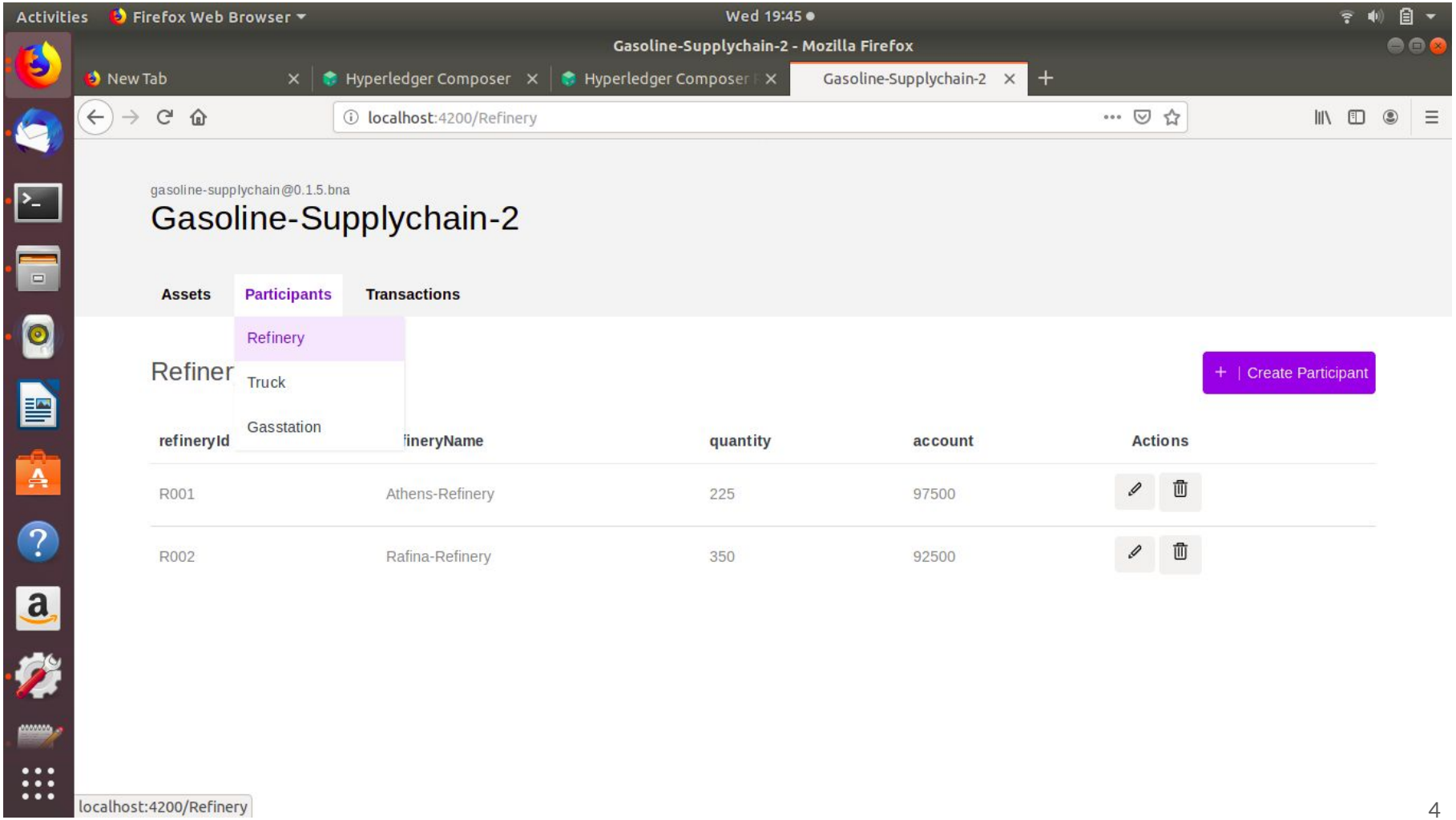
Under guidance of:
Dr. Sofoklis Efremidis

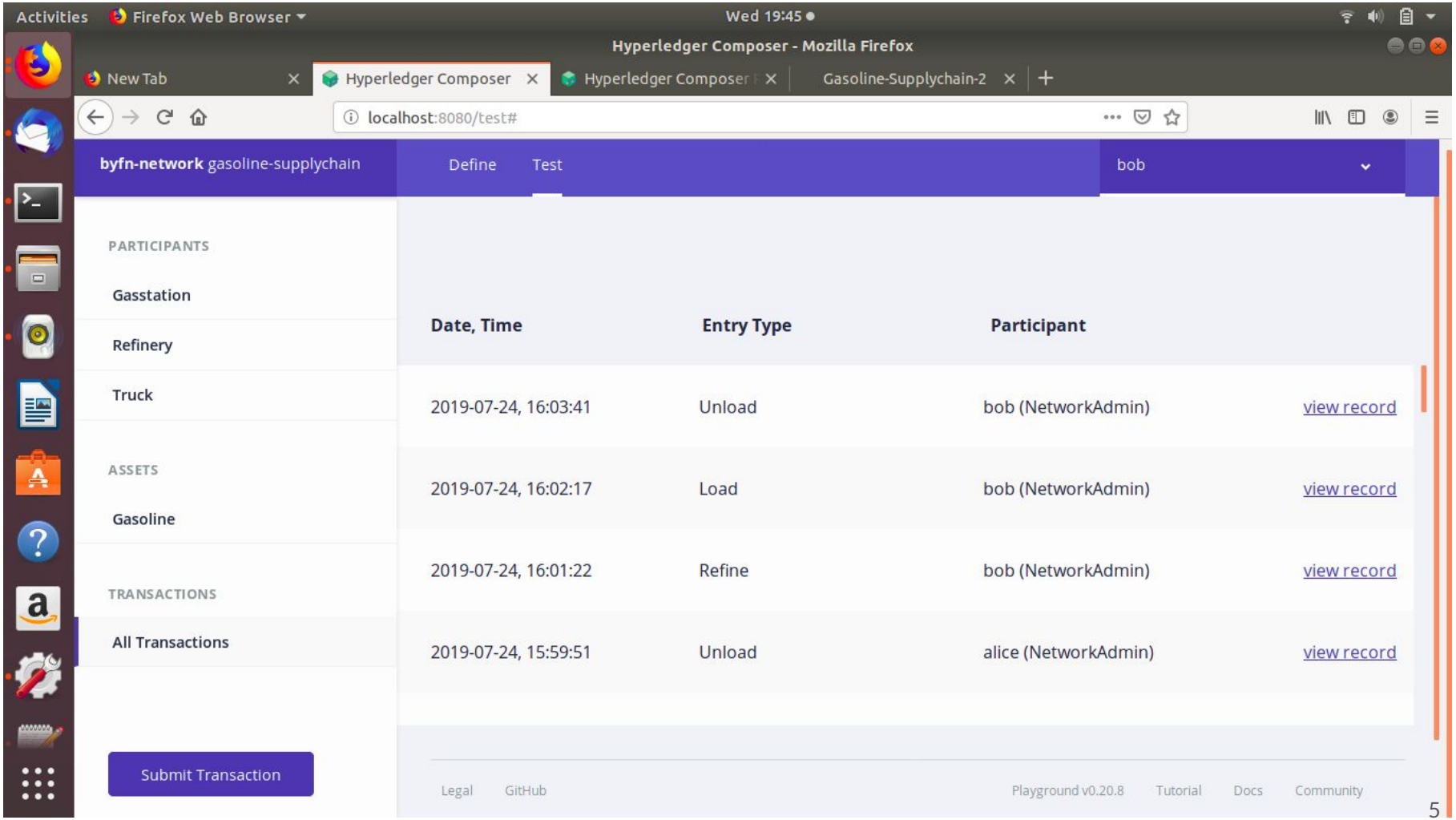
Previous Work

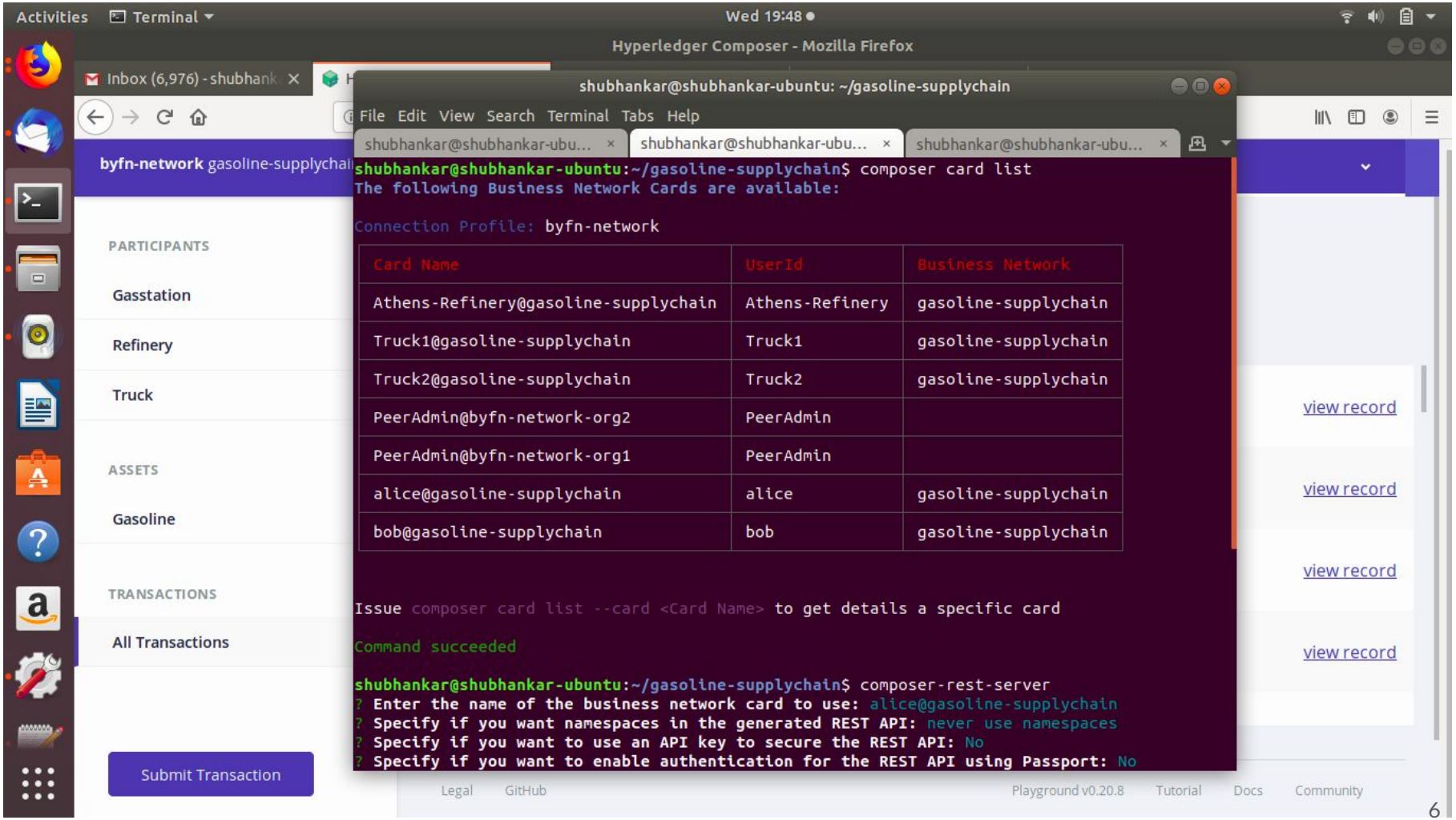
- Designed a smart contract for the transportation of liquid fuel
- Created a business network for a single organization
- Deployed the business network to hyperledger fabric

Current Work

- Smart contract for automation of payments
- Display transaction records on hyperledger playground
- Created a multi organization business network
- Deployed the multi organization network on fabric


Activities
Firefox Web Browser
Wed 19:45
Gasoline-Supplychain-2 - Mozilla Firefox
New Tab
Hyperledger Composer
Hyperledger Composer
Gasoline-Supplychain-2
localhost:4200/Refinery
gasoline-supplychain@0.1.5.bna
Gasoline-Supplychain-2
Assets
Participants
Transactions
Refinery
Truck
Gasstation
Refiner
Create Participant
refineryId
fineryName
quantity
account
Actions
R001
Athens-Refinery
225
97500
R002
Rafina-Refinery
350
92500
localhost:4200/Refinery


Activities
Firefox Web Browser
Wed 19:45
Hyperledger Composer - Mozilla Firefox
New Tab
Hyperledger Composer
Hyperledger Composer
Gasoline-Supplychain-2
localhost:8080/test#
byfn-network gasoline-supplychain
Define
Test
bob
PARTICIPANTS
Gasstation
Refinery
Truck
ASSETS
Gasoline
TRANSACTIONS
All Transactions
Submit Transaction
Date, Time
Entry Type
Participant
2019-07-24, 16:03:41
Unload
bob (NetworkAdmin)
view record
2019-07-24, 16:02:17
Load
bob (NetworkAdmin)
view record
2019-07-24, 16:01:22
Refine
bob (NetworkAdmin)
view record
2019-07-24, 15:59:51
Unload
alice (NetworkAdmin)
view record
Legal
GitHub
Playground v0.20.8
Tutorial
Docs
Community


Activities
Terminal
Wed 19:48
Hyperledger Composer - Mozilla Firefox
Inbox (6,976) - shubhank
byfn-network gasoline-supplychai
PARTICIPANTS
Gasstation
Refinery
Truck
ASSETS
Gasoline
TRANSACTIONS
All Transactions
Submit Transaction
shubhankar@shubhankar-ubuntu: ~/gasoline-supplychain
File Edit View Search Terminal Tabs Help
shubhankar@shubhankar-ubu...
shubhankar@shubhankar-ubu...
shubhankar@shubhankar-ubu...
shubhankar@shubhankar-ubuntu:~/gasoline-supplychain$ composer card list
The following Business Network Cards are available:
Connection Profile: byfn-network
Card Name | UserId | Business Network
Athens-Refinery@gasoline-supplychain | Athens-Refinery | gasoline-supplychain
Truck1@gasoline-supplychain | Truck1 | gasoline-supplychain
Truck2@gasoline-supplychain | Truck2 | gasoline-supplychain
PeerAdmin@byfn-network-org2 | PeerAdmin |
PeerAdmin@byfn-network-org1 | PeerAdmin |
alice@gasoline-supplychain | alice | gasoline-supplychain
bob@gasoline-supplychain | bob | gasoline-supplychain
Issue composer card list --card <Card Name> to get details a specific card
Command succeeded
shubhankar@shubhankar-ubuntu:~/gasoline-supplychain$ composer-rest-server
? Enter the name of the business network card to use: alice@gasoline-supplychain
? Specify if you want namespaces in the generated REST API: never use namespaces
? Specify if you want to use an API key to secure the REST API: No
? Specify if you want to enable authentication for the REST API using Passport: No
view record
view record
view record
view record
Legal
GitHub
Playground v0.20.8
Tutorial
Docs
Community

Summary

Successfully deployed a blockchain application for supply of Gasoline which -

- Reduces cash cycle time
- Makes transaction more efficient
- Reduces cost intermediaries
- Increases transaction visibility & reduces fraud and crime

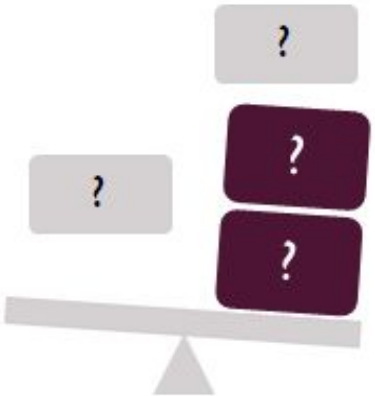
Future Scope

- Deploying to multiple machines
- Integrating with financial accounts
- Adapting to realistic conditions

Conclusion

- Blockchain has the potential to generate substantial benefits for companies in the chemicals and petroleum industry.
- Blockchain technologies enable faster, permissioned, immutable, transparent and auditable business-to-business transactions among participants in the network and their suppliers, distributors and partners.
- Blockchain adoption across the chemicals and petroleum industry and strategic ecosystem suppliers has the potential to transform how companies work across operations on a global industry scale, delivering meaningful value for every participant in the supply chain network.

THANK YOU



ANY QUESTIONS?

18