Introduction

- **Name:** Sara Ghaemi
- **Current Role:** Technology Specialist at TELUS, Canada

- **This Project:**
  - A Pub-Sub Architecture to Promote Blockchain Interoperability
  - Part of the Hyperledger internship program
  - Mentors and co-authors: Sara Rouhani, Rafael Belchior, Prof Rui Cruz, Dr. Hamzeh Khazaei, Dr. Petr Musilek
Project Objectives

› Obj 1: Design a blockchain interoperability solution that can be used by Hyperledger technologies.

› Obj 2: Implement a proof of concept for the design

› Obj 3: Compare with other interoperability solutions

› Obj 4: Analyze performance
Architecture and Message Flow

- **Publisher Blockchain**
  - Application
  - **Connector**
    - (1) Enroll as a publisher
    - (2) Create a new topic
    - (3) Enroll as a subscriber
    - (6) Publish to the created topic
    - (7) Fetch subscribers
    - (8) Notify subscriber

- **Broker Blockchain**
  - Connector Smart Contract
  - Topics Smart Contract

- **Subscriber Blockchain**
  - Application
  - **Connector**
    - (4) Subscribe to a topic
    - (9) Topic is updated
Implementation

› Broker Blockchain:
  ○ Implementation → Hyperledger Fabric v2.2
  ○ Performance Analysis → Hyperledger Caliper
  ○ Monitoring → Hyperledger Explorer

› Publisher Blockchain:
  ○ Implementation → Hyperledger Fabric v2.2

› Subscriber Blockchains:
  ○ Implementation → Hyperledger Fabric v1.4
  ○ Implementation → Hyperledger Besu

https://github.com/hyperledger-labs/pubsub-interop
Performance Analysis
Next Steps

- Adding support for other permissioned blockchains
- Adding an access control layer
- Enhancing the performance
- Enhancing transaction verification
- Possible integration with Hyperledger Cactus
THANK YOU!