

# Scaling Real World Hyperledger Fabric Deployments August, 2019



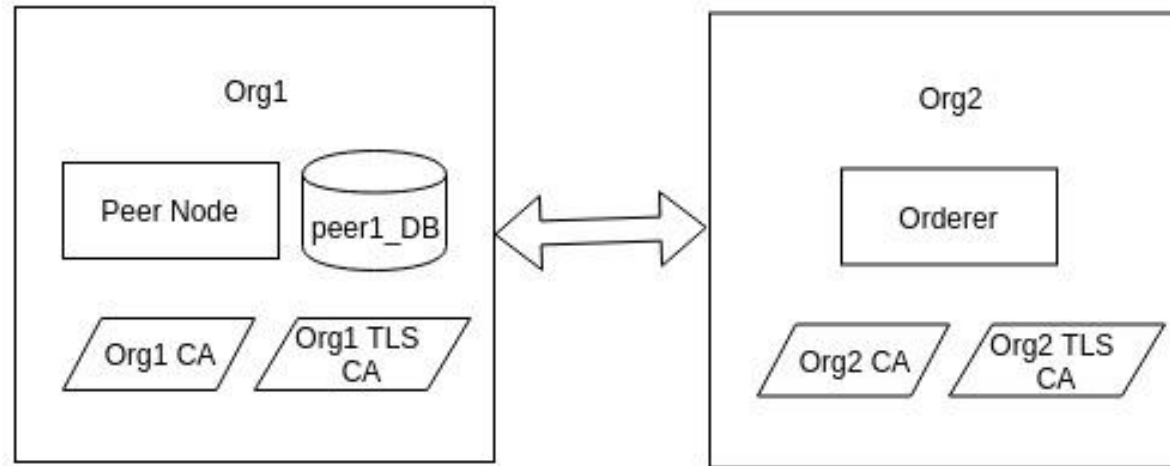
# Scaling Real World Hyperledger Fabric Deployments

## Introduction

- **Name:** Inzamam Iqbal
- **Location:** Colombo, Sri Lanka
- **University:** University of Moratuwa, Sri Lanka
- **Mentor(s):** Nicola Paoli, Vicente Grabovetsky and Niall Dennehy
- **Hyperledger project:** **Scaling Real World Hyperledger Fabric Deployments**

# Scaling Real World Hyperledger Fabric Deployments

- Deploying and maintaining Hyperledger fabric in kubernetes is challenging.



# Scaling Real World Hyperledger Fabric Deployments

- Nephos - Open source tool under hyperledger-labs which is used to deploying hyperledger fabric networks.
  - Makes deploying and maintaining fabric networks much easier and faster.
  - Faster prototyping and testing.
- Technologies used:
  - Python
  - Kubernetes
  - Helm charts
  - Docker

# Scaling Real World Hyperledger Fabric Deployments

## Project Objectives:

- Obj 1: Stabilizing
- Obj 2: Support for multiple organizations
- Obj 3: Support for multiple channels
- Obj 4: Support for fabric 1.4
- Obj 5: Support for TLS communication within nodes.

# Scaling Real World Hyperledger Fabric Deployments

## Project Deliverables:

- Deliverable 1: Code and documentation to achieve above objectives.

<https://github.com/hyperledger-labs/nephos/pulls?q=is%3Apr+author%3Ainzamam-iqbal+is%3Aclosed>

- Deliverable 2: updated/created example projects to demonstrate the features.
  - Dev, Dev-TLS, QA, QA-TLS, Production, Production - TLS

<https://github.com/hyperledger-labs/nephos/tree/master/examples>

- Deliverable 3: Demo to exhibit the work during the internship and nephos.

- Deliverable 4: Medium article on nephos.

<https://medium.com/@inzamam.15/my-contribution-to-nephos-through-hyperledger-internship-9e64972ecb51>

<https://medium.com/@inzamam.15/deploying-hyperledger-fabric-networks-using-nephos-2edad3f7ef3f>

# Scaling Real World Hyperledger Fabric Deployments

## Project Execution & Accomplishments:

- All Objectives are done
- All deliverables are done

## Things learnt and experience gained:

- Hyperledger fabric
- Kubernetes and Helm charts
- Open source culture



# Scaling Real World Hyperledger Fabric Deployments

## Best parts

- Mentors
- Being part of Open source





# Scaling Real World Hyperledger Fabric Deployments

```
1 core:
2   chart_repo: stable
3   dir_config: ./examples/prod/config
4   dir_crypto: ./examples/prod/crypto=
5   dir_values: ./examples/prod/helm_values
6 cas:
7   ca:
8     namespace: cas
9     tls_cert: ./nephos/extras/Lets_Encrypt_Authority_X3.pem
10  ca-tls:
11    namespace: cas-tls
12    tls_cert: ./nephos/extras/Lets_Encrypt_Authority_X3.pem
13
14 ordering:
15   secret_genesis: hlf--genesis
16   tls:
17     enable: true
18     tls_ca: ca-tls
19   kafka:
20     msp: AlphaMSP
21     name: kafka-hlf
22     pod_num: 4
23
```

```
24 msp:
25   AlphaMSP:
26     ca: ca
27     name: AlphaMSP
28     namespace: alpha
29     org_admin: alphaadmin
30     # org_passwd: # Set implicitly
31     orderers:
32       domain: alpha.svc.cluster.local
33       nodes:
34         alpha-ord1: {}
35         alpha-ord2: {}
36   BetaMSP:
37     ca: ca
38     name: BetaMSP
39     namespace: beta
40     org_admin: betaadmin
41     # org_passwd: # Set implicitly
42     orderers: {}
43     peers:
44       domain: beta.svc.cluster.local
45       nodes:
46         beta-peer1: {}
47         beta-peer2: {}
48 channels:
49   foochannel:
50     msp:
51       - BetaMSP
52     channel_name: foochannel
53     channel_profile: "FooChannel"
54     secret_channel: hlf--foochannel
```

# Scaling Real World Hyperledger Fabric Deployments

## Recommendations for future work:

- Some stability related work has to be done
- Prometheus support
- Examples for different scenarios (ex: nodes in different clusters)

Milestones are documented



**Thank you**

