IBM Software Services

Workshop Blockchain: Hyperledger Fabric 1.4

Laboratório 04

Versão: 1.0

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Summary

Data	Versão	Autor	Descrição
10/10/2019	1.0	Richard Marques	Criação do documento

1. Introdução

Este documento tem o objetivo de guiar o participante do workshop nas tarefas propostas no laboratório de número 04 do workshop de blockchain: Hyperledger Fabric 1.4.

Este e os demais laboratórios foram testados em um servidor Ubuntu 18.04 c/ 4 Cores de CPU e 8 GB de memória RAM.

Este laboratório tem como pré-requisito que o laboratório anterior (número 03) tenha sido concluído com sucesso.

2. Proposta do laboratório

A proposta deste laboratório será:

- Criar 2 instâncias de Peers
- Criar o canal
- Adicionar os Peers a esse canal
- Criar uma nova organização / Peer
- Adicionar essa nova organização a rede / canal

3. Execução

Siga atentamente todos os passos para concluir o laboratório:

3.1. Criar Recursos Peer interno

Para esta atividade navegue até a pasta “lab04” e execute o script “./criarRecursos.sh”

```
blockchain@ubuntu:~/workshop/lab04$ ./criarRecursos.sh
Criando os bancos de dados couchDb para armazenar o ledger em cada peer
statefulset.apps/couchdb-peer1-pod created
statefulset.apps/couchdb-peer2-pod created
service/couchdbpeer2 created
service/couchdbpeer1 created
Criando os Pods dos Peers da organizacao IBM
service/peer1 created
service/peer2 created
statefulset.apps/peer-pod1 created
statefulset.apps/peer-pod2 created
Criando os clientes para os Peers da ogranizacao IBM
pod/cli-peer1-pod created
pod/cli-peer2-pod created
Criando o canal pelo peer1
2019-10-15 13:05:54.849 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:05:54.893 -03 [cli.common] readBlock -> INFO 002 Got status: &{SERVICE_UNAVAILABLE}
2019-10-15 13:05:54.898 -03 [channelCmd] InitCmdFactory -> INFO 003 Endorser and orderer connections initialized
2019-10-15 13:05:55.100 -03 [cli.common] readBlock -> INFO 004 Got status: &{SERVICE_UNAVAILABLE}
2019-10-15 13:05:55.102 -03 [channelCmd] InitCmdFactory -> INFO 005 Endorser and orderer connections initialized
2019-10-15 13:05:55.305 -03 [cli.common] readBlock -> INFO 006 Received block: 0
2019-10-15 13:05:55.352 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:05:55.354 -03 [cli.common] readBlock -> INFO 002 Received block: 0
2019-10-15 13:05:55.355 -03 [cli.common] readBlock -> INFO 003 Received block: 0
2019-10-15 13:05:55.417 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:05:55.533 -03 [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
2019-10-15 13:05:55.584 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
Blockchain info: {"height":1,"currentBlockHash":"TIk/pPtk4ssRa9fSpkxIGiFryQyMJcEwJT4XHETyyJw="}
Adicionando peer2 ao canal
2019-10-15 13:05:55.984 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:05:55.988 -03 [cli.common] readBlock -> INFO 002 Received block: 0
2019-10-15 13:05:55.989 -03 [cli.common] readBlock -> INFO 003 Received block: 0
2019-10-15 13:05:56.047 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:05:56.192 -03 [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
2019-10-15 13:05:56.241 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:05:56.262 -03 [channelCmd] update -> INFO 002 Successfully submitted channel update
```

Ao final do processo, execute o comando “kubectl get pods” e verifique se existem os 6 pods adicionais, 2 peers, 2 cli e 2 couchdb, como na imagem a seguir:

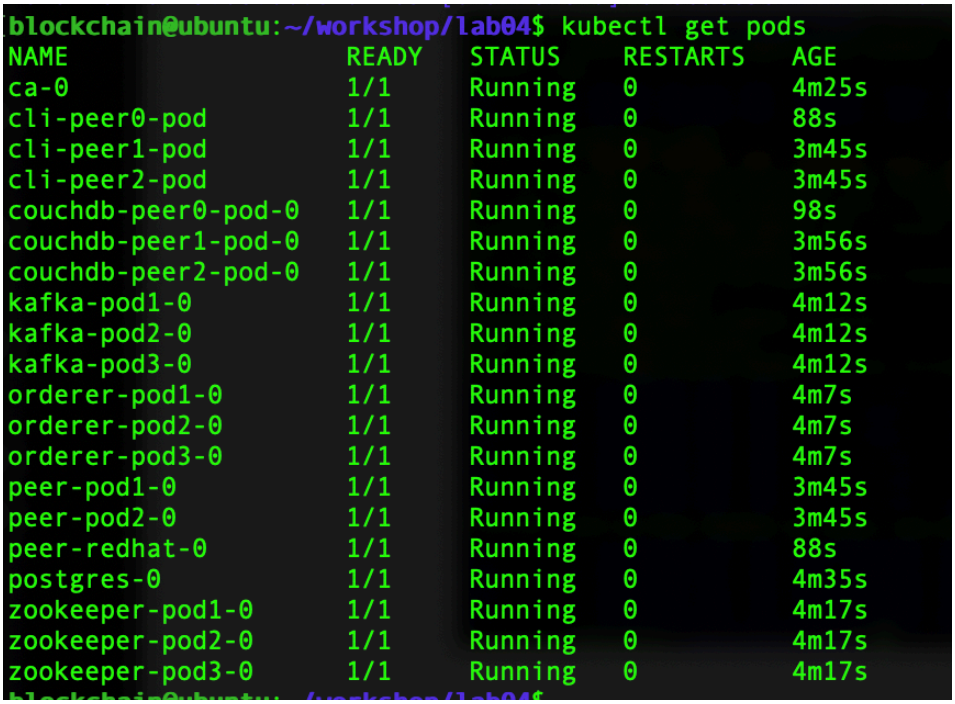
```
blockchain@ubuntu:~/workshop/lab04$ kubectl get pods
NAME                   READY   STATUS    RESTARTS   AGE
ca-0                   1/1     Running   0          104s
cli-peer1-pod          1/1     Running   0          64s
cli-peer2-pod          1/1     Running   0          64s
couchdb-peer1-pod-0    1/1     Running   0          75s
couchdb-peer2-pod-0    1/1     Running   0          75s
kafka-pod1-0           1/1     Running   0          91s
kafka-pod2-0           1/1     Running   0          91s
kafka-pod3-0           1/1     Running   0          91s
orderer-pod1-0         1/1     Running   0          86s
orderer-pod2-0         1/1     Running   0          86s
orderer-pod3-0         1/1     Running   0          86s
peer-pod1-0            1/1     Running   0          64s
peer-pod2-0            1/1     Running   0          64s
postgres-0             1/1     Running   0          114s
zookeeper-pod1-0       1/1     Running   0          96s
zookeeper-pod2-0       1/1     Running   0          96s
zookeeper-pod3-0       1/1     Running   0          96s
```

3.2. Criar Recursos do Peer externo

Para esta atividade navegue até a pasta “lab04” e execute o script “./criarRecursosPeerExterno.sh”

```
blockchain@ubuntu:~/workshop/lab04$ ./criarRecursosPeerExterno.sh
Criando a estrutura da Organizacao Redhat
redhat.com
2019-10-15 09:07:50.613 PDT [common.tools.configtxgen] main -> INFO 001 Loading configuration
2019-10-15 09:07:50.624 PDT [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 002 Loaded configuration: /tmp/cryptoRedhat/crypto-config/configtx.yaml
2019-10-15 09:07:50.627 PDT [common.tools.configtxgen.encoder] NewOrdererOrgGroup -> WARN 003 Default policy emission is deprecated, please include policy specifications for the orderer org group redhat in configtx.yaml
Criando a base de dados couchDB para o Peer da Redhat
statefulset.apps/couchdb-peer0-pod created
service/couchdbpeer0 created
Criando o Peer externo da organizacao RedHat
service/peer0 created
statefulset.apps/peer-redhat created
pod/cli-peer0-pod created
Incluindo a organizacao RedHat a Rede Blockchain IBM
2019-10-15 13:08:02.234 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:08:02.266 -03 [cli.common] readBlock -> INFO 002 Received block: 1
2019-10-15 13:08:02.268 -03 [cli.common] readBlock -> INFO 003 Received block: 1
2019-10-15 13:08:03.139 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:08:03.219 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:08:03.263 -03 [channelCmd] update -> INFO 002 Successfully submitted channel update
Fazendo Join no Peer RedHat ao canal ibm-channel
2019-10-15 13:08:06.670 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:08:06.672 -03 [cli.common] readBlock -> INFO 002 Received block: 0
2019-10-15 13:08:06.743 -03 [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2019-10-15 13:08:06.879 -03 [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
blockchain@ubuntu:~/workshop/lab04$
```

Após a execução execute o comando “kubectl get nodes” e verifique se foram criados 2 pods adicionais, o peer0 e o couchDb para suportar o ledger, como na imagem abaixo:


blockchain@ubuntu:~/workshop/lab04$ kubectl get pods
NAME READY STATUS RESTARTS AGE
ca-0 1/1 Running 0 4m25s
cli-peer0-pod 1/1 Running 0 88s
cli-peer1-pod 1/1 Running 0 3m45s
cli-peer2-pod 1/1 Running 0 3m45s
couchdb-peer0-pod-0 1/1 Running 0 98s
couchdb-peer1-pod-0 1/1 Running 0 3m56s
couchdb-peer2-pod-0 1/1 Running 0 3m56s
kafka-pod1-0 1/1 Running 0 4m12s
kafka-pod2-0 1/1 Running 0 4m12s
kafka-pod3-0 1/1 Running 0 4m12s
orderer-pod1-0 1/1 Running 0 4m7s
orderer-pod2-0 1/1 Running 0 4m7s
orderer-pod3-0 1/1 Running 0 4m7s
peer-pod1-0 1/1 Running 0 3m45s
peer-pod2-0 1/1 Running 0 3m45s
peer-redhat-0 1/1 Running 0 88s
postgres-0 1/1 Running 0 4m35s
zookeeper-pod1-0 1/1 Running 0 4m17s
zookeeper-pod2-0 1/1 Running 0 4m17s
zookeeper-pod3-0 1/1 Running 0 4m17s