

How to stand up a Hyperledger Fabric network really fast?

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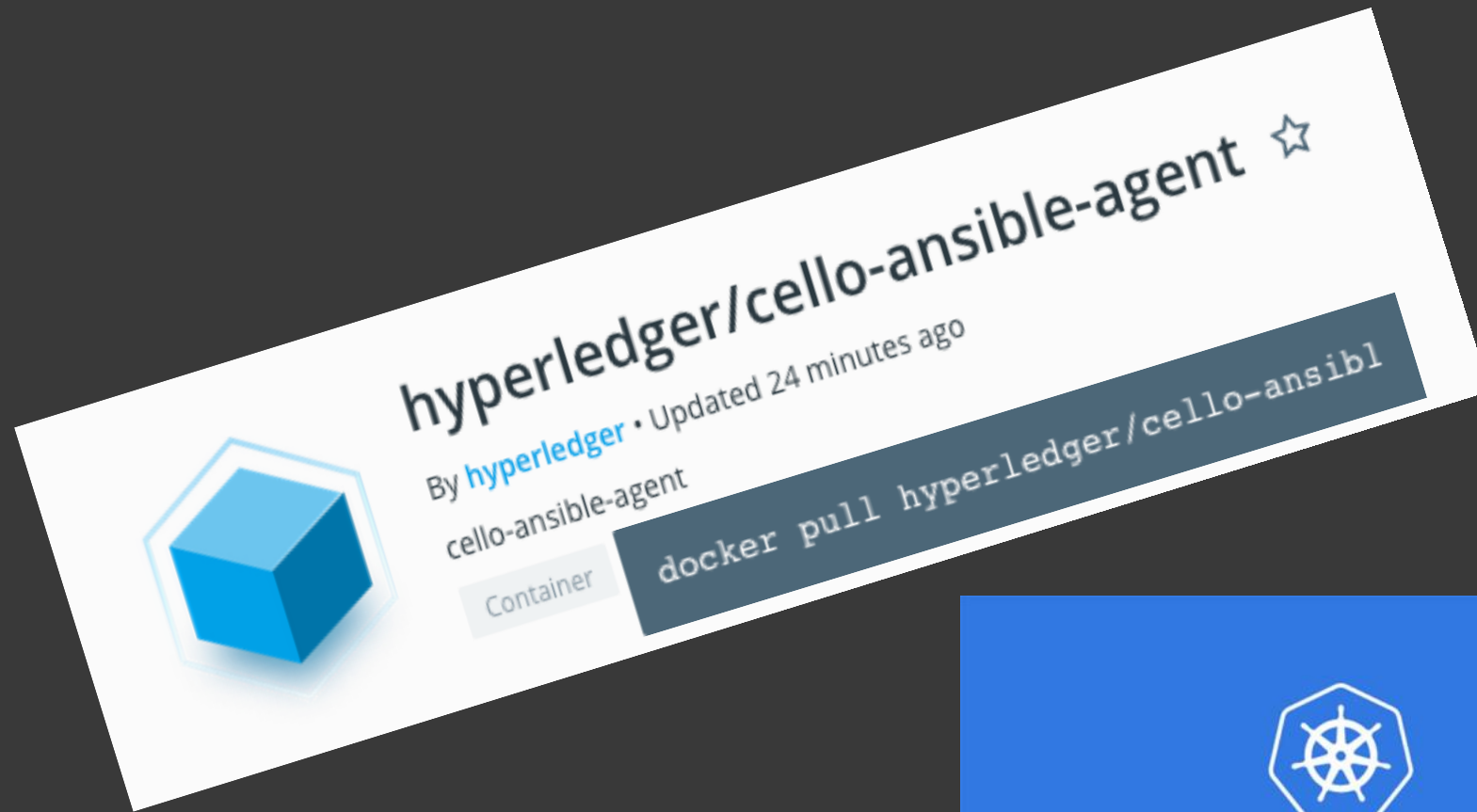
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About myself

- Tong Li, @email4tong
- Senior Software Engineer at IBM
- Developer advocator
- Focus on cloud, container and blockchain technology development in Open Source community
- Software application deployment and automation enthusiastic supporter
- Hyperledger Fabric Cello committer

Deploy a fabric network onto K8S

What do I need?



Deploy a fabric network onto K8S

How do I prepare?

```
ubuntu@u1710:~/ansible-agent$ pwd
/home/ubuntu/ansible-agent
ubuntu@u1710:~/ansible-agent$ tree
.
├── vars
│   ├── ca-dal13-tong-hfrd.pem
│   ├── kubeconfig
│   ├── networkspec.yml
│   └── resource.yml
```

Deploy a fabric network onto K8S

What do I do?

```
docker run --rm \
-v $(pwd)/vars:/opt/agent/vars \
hyperledger/cello-ansible-agent \
ansible-playbook \
-e "mode=apply env=networkspec" \
setupfabric.yml
```

Deploy a fabric network onto K8S

What is the magic in network spec file?

```
network:
  fabricnet:
    orderers: [orderer0.ordererorg, orderer1.ordererorg, orderer2.ordererorg]
    peers: [worker@peer1.org0, worker@peer2.org0, worker@peer1.org1,
            worker@peer2.org1, worker@peer1.org2, worker@peer2.org2]

baseimage_tag: "1.4.1"
helper_tag: "1.4.1"
ca:
  admin: "admin"
  adminpw: "adminpw"
  image_tag: "1.4.1"

repo:
  url: "hyperledger/"
  username: ""
  password: ""
```

Deploy a fabric network onto K8S

Magic in network spec file continued

```
fabric:
  peer_db: "goleveldb"
  tls: true
  consensus_type: "etcdraft"
  generate_certs: True
  logging_level: "ERROR"
  metrics: false
  k8s:
    cpu_limit: '6'
    cpu_req: '1'
    exposeserviceport: true
    mem_limit: 8Gi
    mem_req: 1Gi
    shared_storage: false
    storagecapacity: 20Gi
    storageclass: ibmc-file-gold
```

Deploy a fabric network onto K8S

What just happened in K8S cluster?

K8S services

- One service per peer, per orderer

K8S StatefulSet

- One stateful set per peer, per orderer node

K8S persistent volume claims

- One persistent volume claim shared across all the pods

Fabric network

- A test channel named “firstchannel” created
- All peers join that test channel
- A sample chaincode installed and instantiated.

Deploy a fabric network onto K8S
What do I do after I am done with it?

```
docker run --rm \
  -v $(pwd)/vars:/opt/agent/vars \
  hyperledger/cello-ansible-agent \
  ansible-playbook \
  -e "mode=destroy env=networkspec" \
  setupfabric.yml
```

Q&A



https://github.com/hyperledger/cello/blob/master/docs/worker_ansible_docker.md

<https://github.com/hyperledger/cello/tree/master/src/operator-dashboard/agent/ansible>