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## 90-minutes to Hyperledger Fabric
Crafting blockchain technology solutions

# WELCOME

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Github: https://github.com/TarantulaTechnology/OReilly-90-Minutes-to-Hyperledger-Fabric
O'Reilly Book (Jan 2021): Hands-on Smart Contract Development with Hyperledger Fabric V2

- **Mark Anthony Morris** has 30 years experience in enterprise application design and development
- Mark is a thought leader in blockchain & an expert in Hyperledger Fabric, Sawtooth, Besu / Ethereum and Bitcoin
- Mark's been an Independent Consultant & Contractor for IBM, Sun Microsystems, Big 6, Fortune 500, Federal & State Government clients for 20+ years
- Mark is currently a Senior Cybersecurity Architect at Lower Colorado River Authority (LCRA)
- Mark is bootstrapping two blockchain startups called Layered™ Blockchain & Hempchain™

# Topics

- **Hyperledger Blockchain Ecosystem**
- **Hyperledger Fabric Architecture & Installation Requirements**
- **Application Lifecycle Management**
- **LAB**
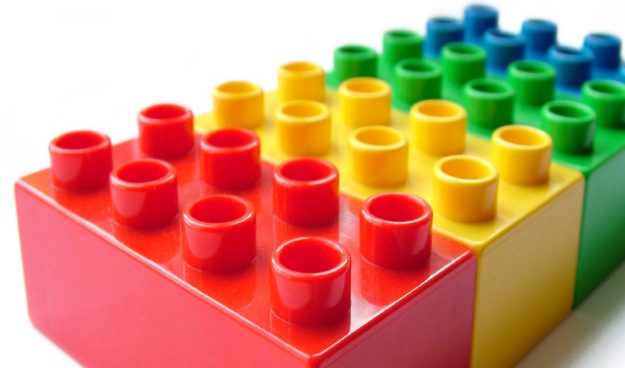
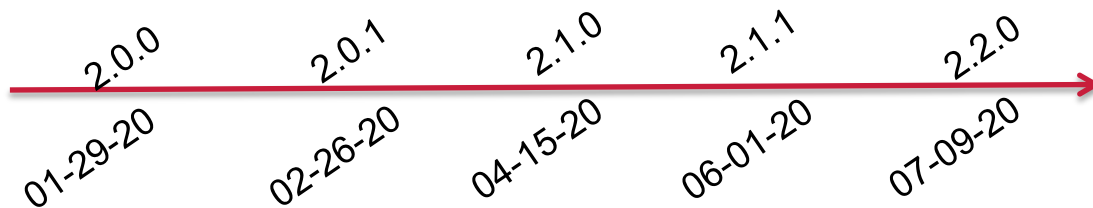# Hyperledger Blockchain Ecosystem

- Family Introduction
- Design philosophy
- Q&A

- Introduction to the Hyperledger family
    - Distributed Ledgers
    - Libraries
    - Tools
    - Domain-Specific projects

- Distributed Ledgers

- Libraries

- Tools

- Domain-Specific projects

- Linux Foundation / Hyperledger Foundation
- Hyperledger design philosophy

250+ member companies

15 project codebases

Highly modular technologies

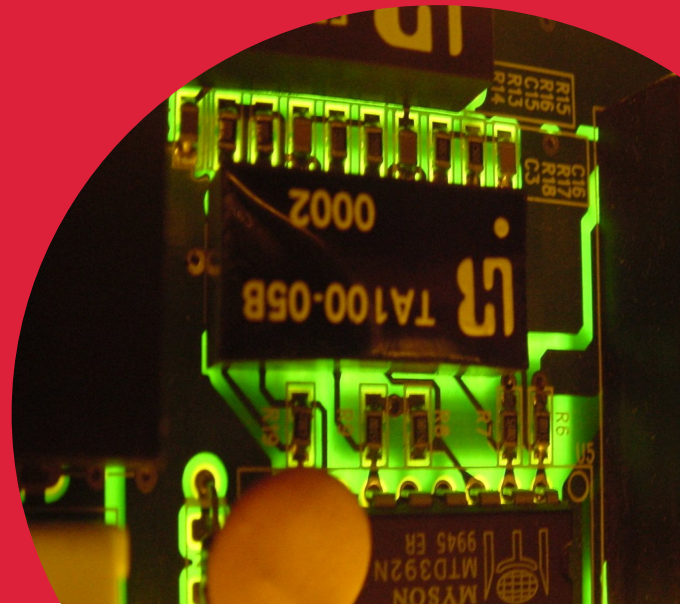170+ Meetup groups in 76 countries

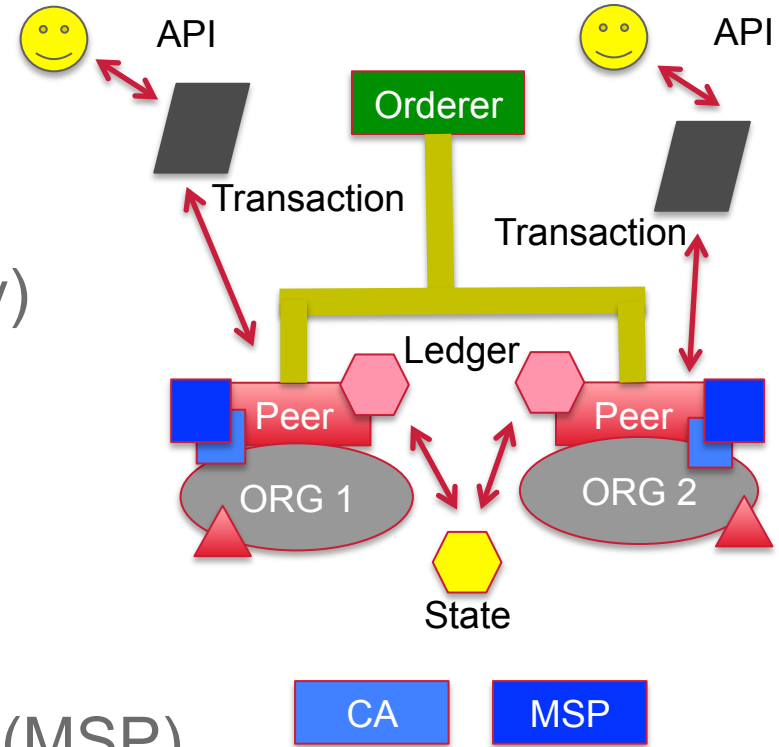Open, transparent governance

- Family Introduction
- Design philosophy

# Hyperledger Fabric Architecture & Installation Requirements

1. Peer
2. Ordering service
3. Fabric CA (Credential Authority)
4. Fabric ledger
5. Channel
6. Organization
7. Endorsement policy
8. Membership services provider (MSP)

- Installation Requirements
  - Git
  - cURL
  - Docker & Docker Compose
  - GO
  - Node.js & NPM
  - Python
  - *** Windows Extras ***

https://hyperledger-fabric.readthedocs.io/en/release-2.1/prereqs.html

- Architecture
- Installation Requirements

# Application Lifecycle Management

- Install and instantiate chaincode package
- Configure endorsement policy
- Define collection policy for private data
- Modify or upgrade chaincode
- Q&A

- Install and instantiate chaincode package

  - peer chaincode install

    ```
    peer chaincode install \
    -n mycc -v v0 -p github.com/chaincode_example02/go
    ```

  - peer chaincode instantiate

    ```
    peer chaincode instantiate \
    -o $ORDERER -C mychannel -n mycc -v v0 \
    -c '{"Args":["init","a","100","b","200"]}' \
    --cafile /opt/home/managedblockchain-tls-chain.pem –tls
    ```

- ## Configure endorsement policy

   By default, endorsement policies are specified in the chaincode definition, which is agreed to by channel members and then committed to a channel (that is, one endorsement policy covers all of the state associated with a chaincode).

   Configure it in configtx.yaml for Organizations, Applications

- ## Define collection policy for private data

Beginning with the Fabric chaincode lifecycle introduced with Fabric v2.0, the collection definition is part of the chaincode definition. The collection file needs to be the same for all channel members.

Sample definition: {
  "name": "collectionMarblePrivateDetails",
  "policy": "OR('Org1MSP.member')",
  "requiredPeerCount": 0,
  "maxPeerCount": 3,
  "blockToLive":3,
  "memberOnlyRead": true,
  "memberOnlyWrite":true,
  "endorsementPolicy": {
   "signaturePolicy":
"OR('Org1MSP.member')" } }

- Modify or upgrade chaincode

You can upgrade a chaincode using the same Fabric lifecycle process as you used to install and start the chaincode.

peer chaincode ...

- Install and instantiate chaincode package
- Configure endorsement policy
- Define collection policy for private data
- Modify or upgrade chaincode

# LAB:
# Hyperledger Fabric Links
# Install Fabric Network
# Smart Contract Development

- Hyperledger Fabric Links


- ReadTheDocs: https://hyperledger-fabric.readthedocs.io
- Releases: https://github.com/hyperledger/fabric/releases
- Fabric: https://github.com/hyperledger?q=Fabric
- Wiki: https://wiki.hyperledger.org/display/fabric
- Samples: https://wiki.hyperledger.org/display/fabric

- Install Fabric Network


- ReadTheDocs: https://hyperledger-fabric.readthedocs.io
- Getting Started
  - prerequisites
  - install samples, binaries, and docker images
  - using test network

- Smart Contract Development


- ReadTheDocs: https://hyperledger-fabric.readthedocs.io
- Writing Your First Application
  - Fabcar

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### Crafting blockchain technology solutions

# THANK YOU



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blockchain.dcwebmakers.com