

# IBM开源技术微讲堂

## 区块链和HyperLedger系列

### 第九讲

## Hyperledger Fabric SDK解析

更多信息，请访问：<http://ibm.biz/opentech-ma>



# “区块链和HyperLedger Fabric”系列公开课

- 每周四晚8点档
  1. 区块链商用之道
  2. HyperLedger项目与社区概览
  3. HyperLedger Fabric架构解读
  4. ChainCode实战
  5. HyperLedger Fabric中的共享账本
  6. HyperLedger Fabric中的共识机制
  7. HyperLedger Fabric中的隐私与安全
  8. HyperLedger Fabric应用案例赏析
  - 9. HyperLedger Fabric SDK解析**

课程Wiki：<http://ibm.biz/opentech-ma>

往期视频：<http://list.youku.com/albumlist/show?id=49106065>



Q&A环节

扫码入群，与讲师互动



# 讲师介绍—翁书涵

- IBM中国系统实验室区块链项目组负责人
- IBM区块链服务HSBN QA组技术负责人
- IBM Blockchain 技术支持
- 参与多家国内金融保险行业Blockchain PoC



# 议程

- What is Hyperledger Fabric SDK
- Fabric SDK Deep Dive
- Play with SDK
- E2E Demo using Fabric NodeSDK

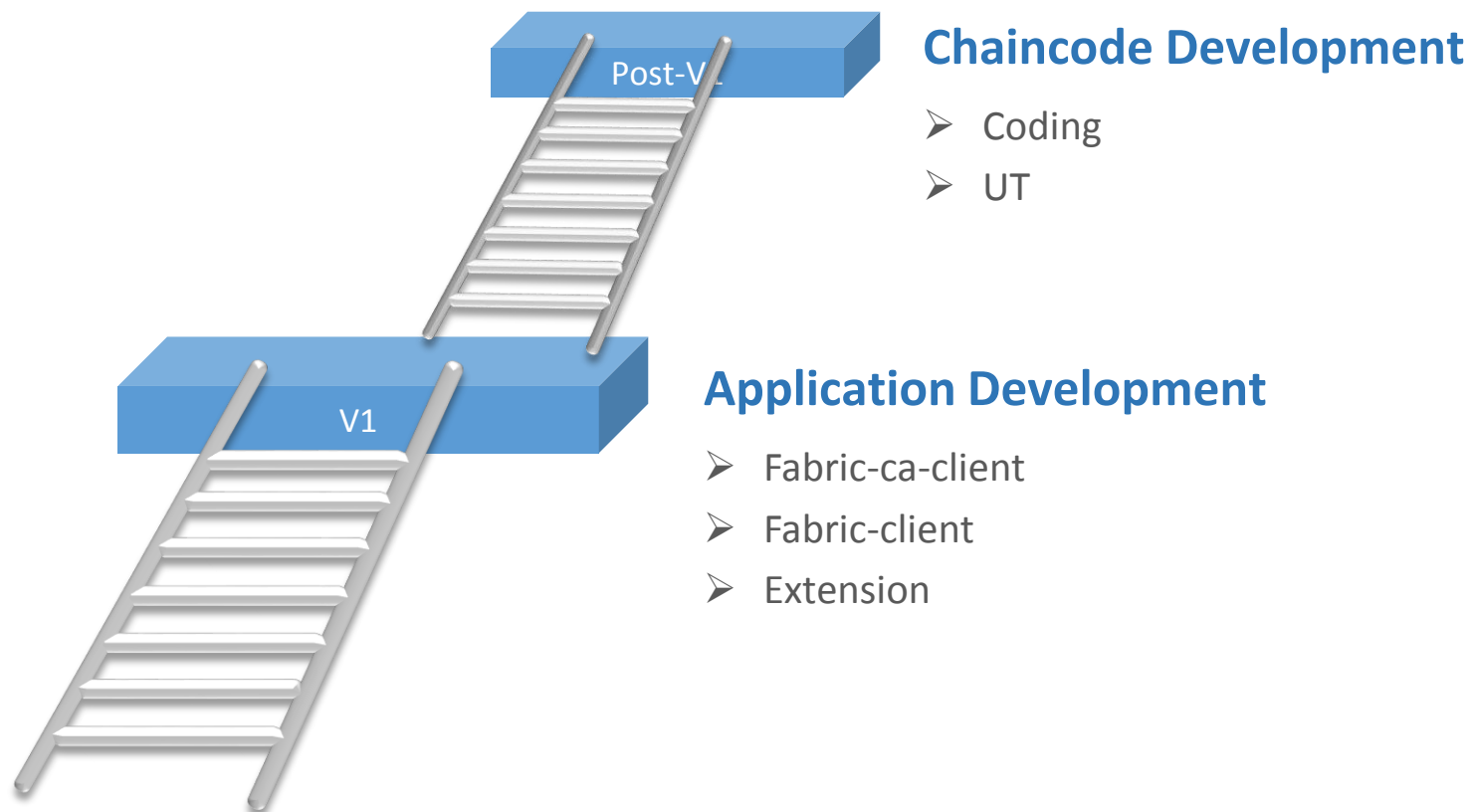


# What is Hyperledger Fabric SDK

- SDK (Software Development Kit)
  - Java SDK, Android SDK, etc...
- Hyperledger Fabric SDK:
  - Node : <https://github.com/hyperledger/fabric-sdk-node>
  - Python : <https://github.com/hyperledger/fabric-sdk-py>
  - Java : <https://github.com/hyperledger/fabric-sdk-java>
  - Go : <https://github.com/hyperledger/fabric-sdk-go>



# Fabric SDK Design

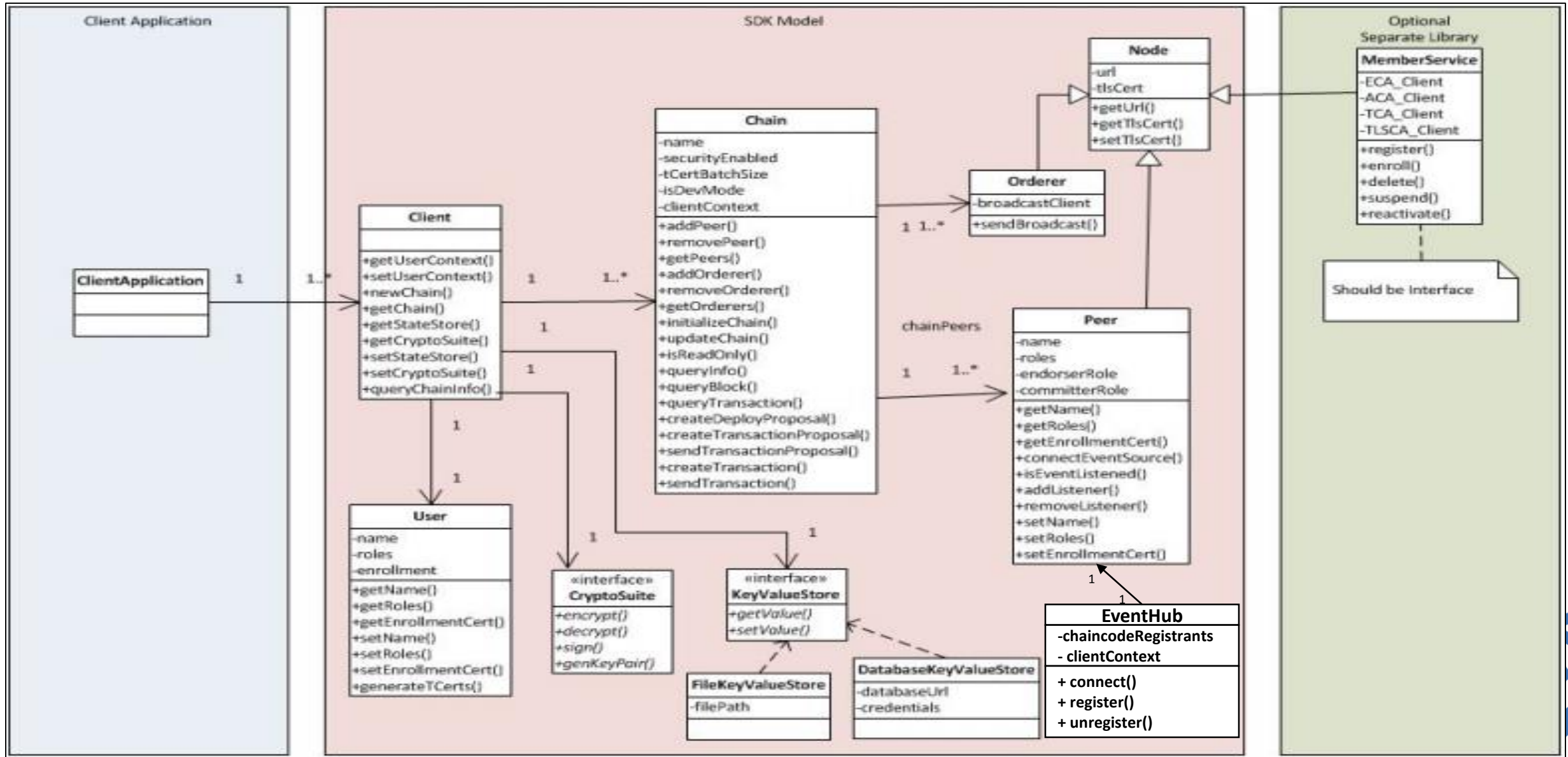


# Fabric-ca-client

- CA
  - Fabric-ca or External CA
- Common API:



# Fabric-client





# Extension

- **CryptoSuite**

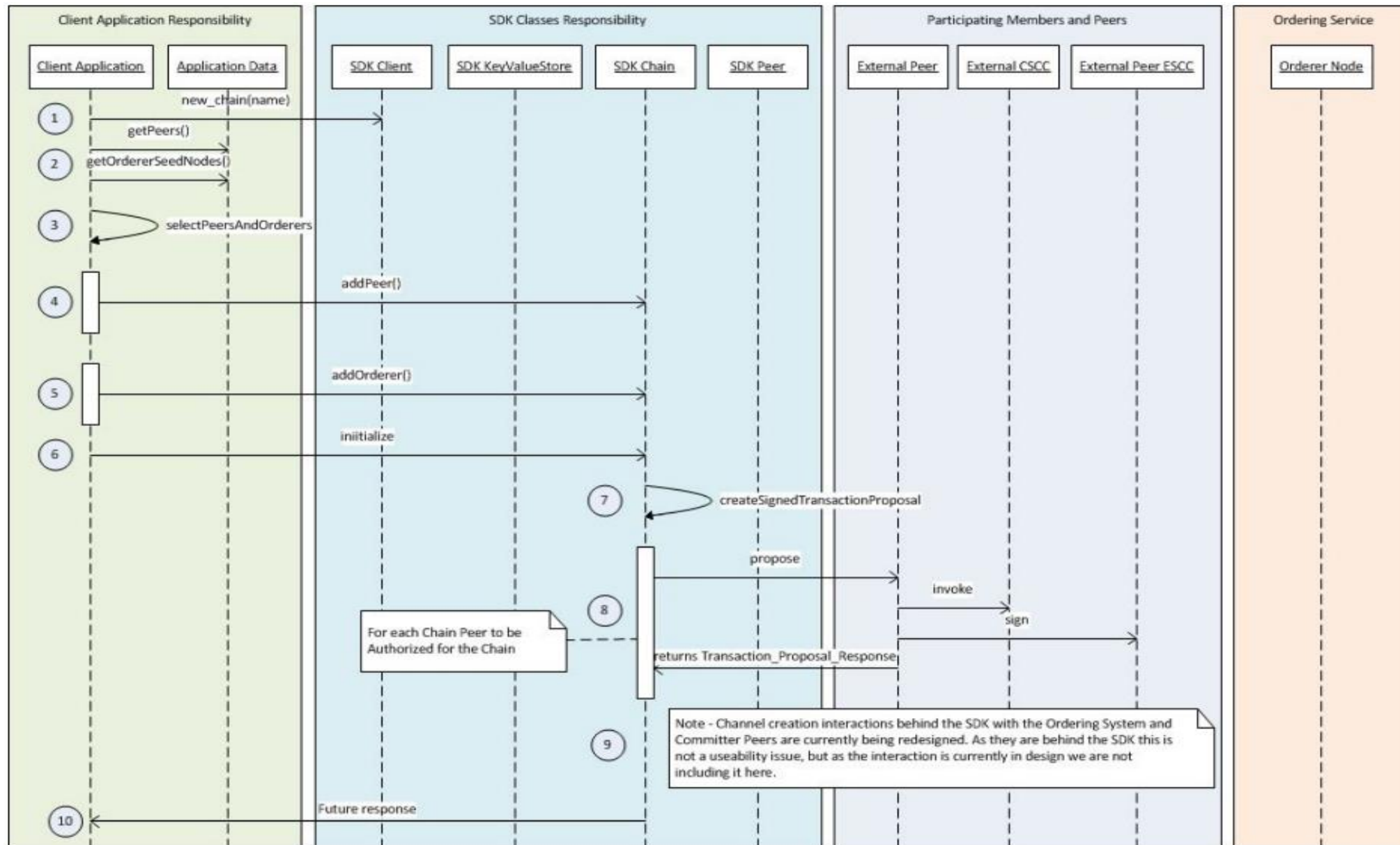
- A suite of crypto algorithms used by the SDK to perform encryption decryption and secure hashing for Asymmetric keys (such as ECDSA or RSA) ,Symmetric keys (such as AES) and Secure hash (such as SHA2/3)....

- **KeyValueStore**

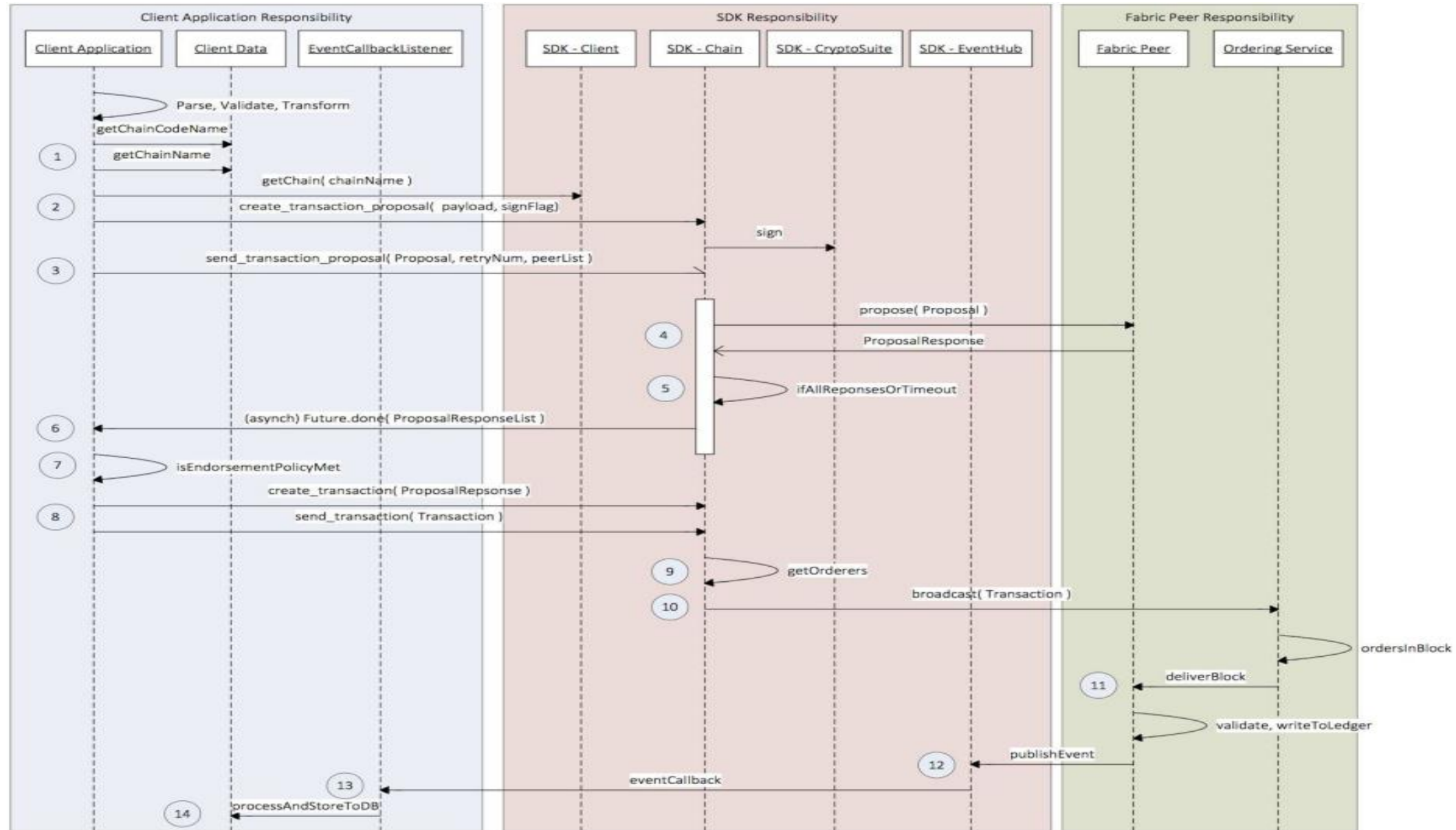
- **FileKeyValueStore**
- **DatabaseKeyValueStore**



# Scenario 1: Chain Construction



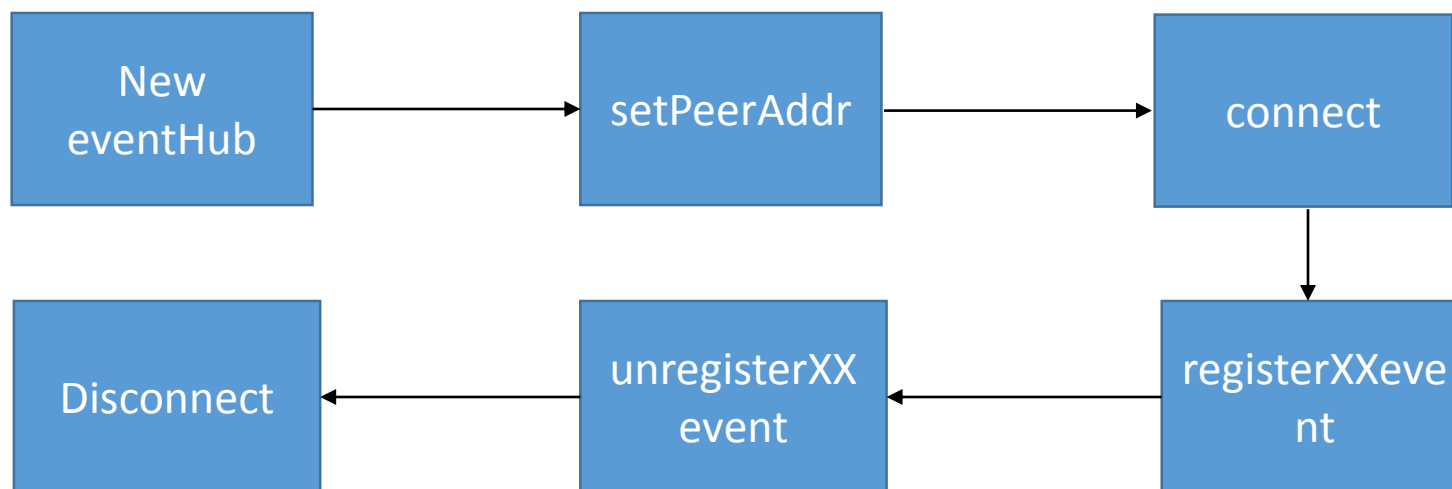
## Scenario 2: Transaction Lifecycle



# Transaction confirmation

- **EventHub**

- ❖ **Block Event**
- ❖ **Transaction Event**
- ❖ **Chaincode Event**



# Endorsement Policy

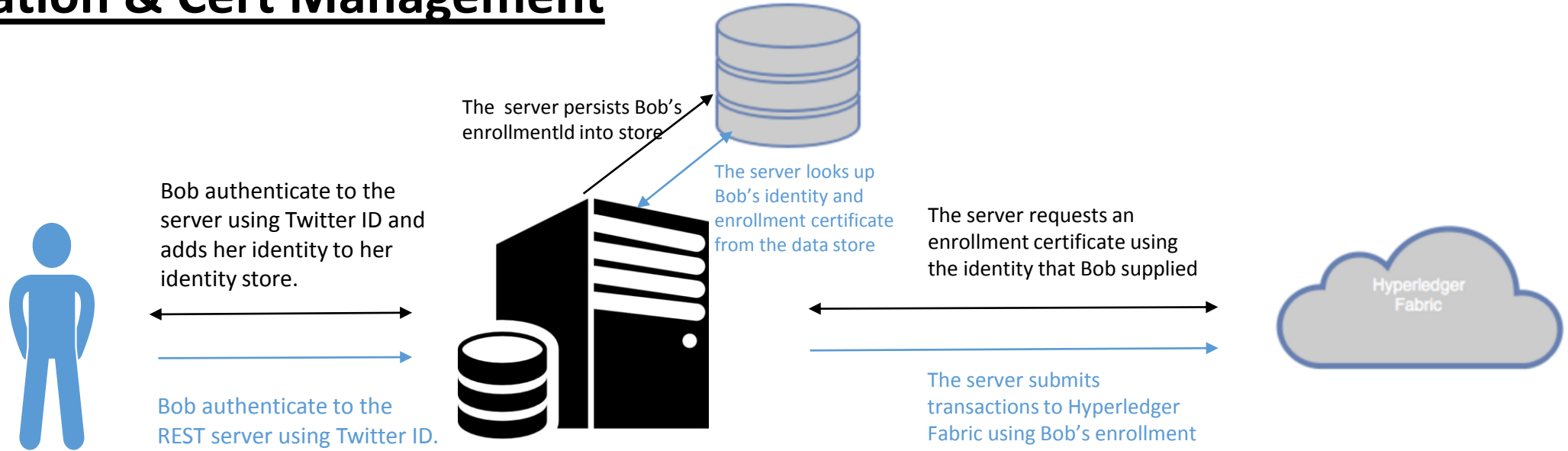
- **Build Policy**
- **Endorsement validation**
  - Are the certificate in the endorser field valid (signed by trusted CAs)
  - Are the signatures in the endorsements valid (matches the payload hash)
  - Are the writesets in all the responses consistent

```
{  
  identities: [  
    { role: { name: "member", mspId: "peerOrg1" } },  
    { role: { name: "member", mspId: "peerOrg2" } },  
    { role: { name: "member", mspId: "peerOrg3" } }  
  ],  
  policy: {  
    "1-of": [  
      { "signed-by": 2 },  
      { "1-of": [{ "signed-by": 0 }, { "signed-by": 1 }] }  
    ]  
  }  
}
```

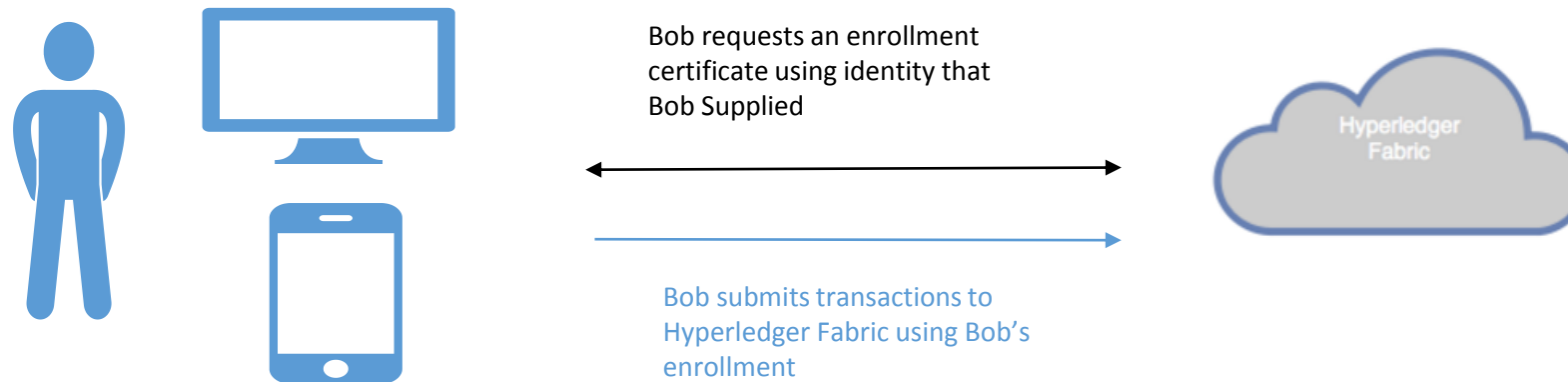


# Application & Cert Management

Web Application



Standalone App



# Demo



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