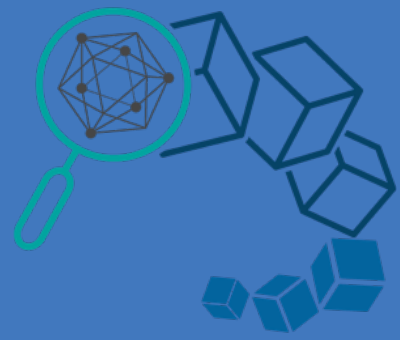


Hyperledger Overview and Fabric Setup

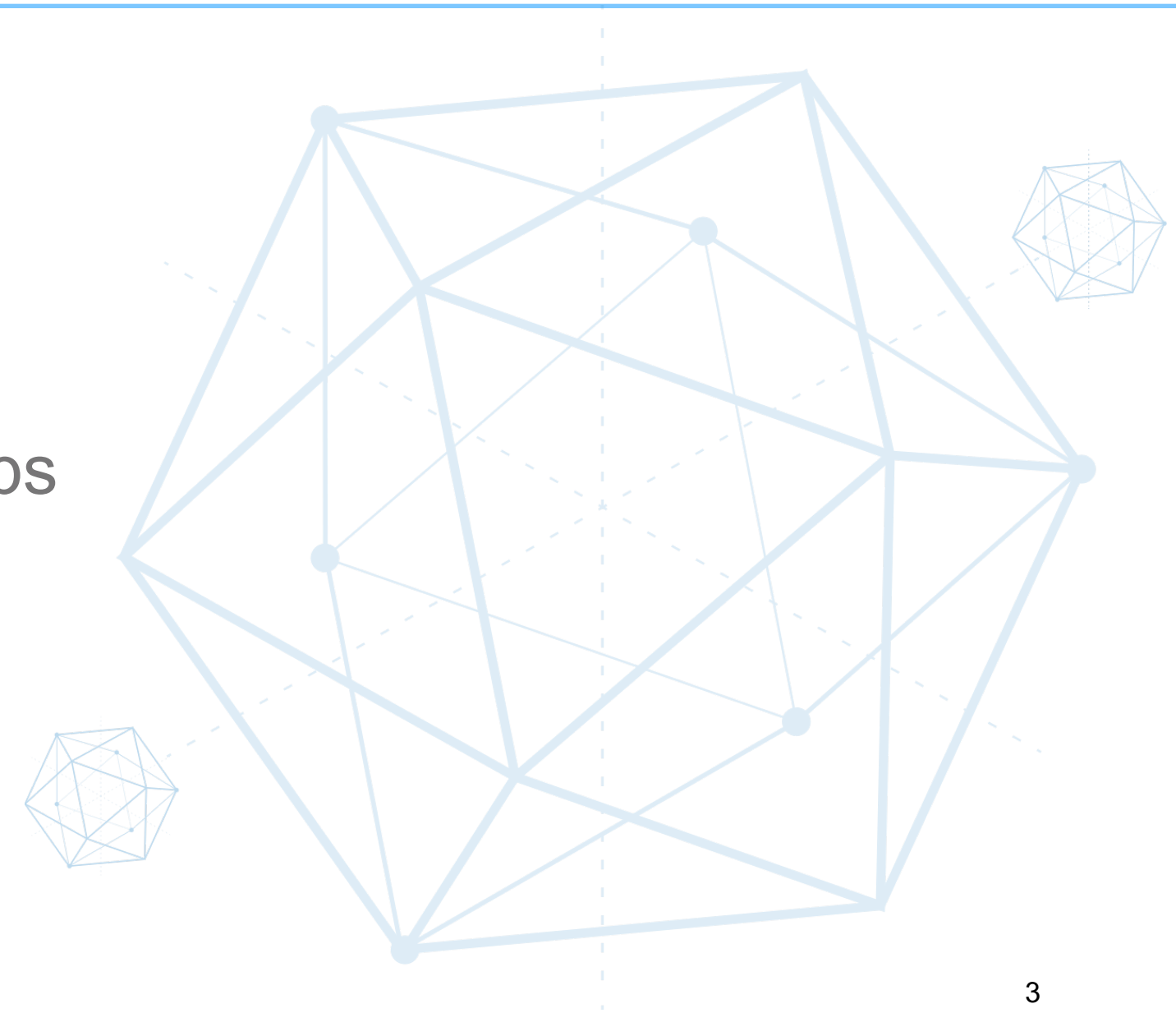
Baohua Yang
Jan 7, 2017

About Me

- **Researcher in IBM**
  - Fintech, Cloud and BigData
- **Open-Source contributor**
  - OpenDaylight, OpenStack, Hyperledger, etc.
- **Hyperledger fan**
  - Code committer to fabric, fabric-sdk-py, Cello etc.
  - PTL of Cello project and fabric-sdk-py project
  - Drafter of fabric sdk spec
  - Chair of Hyperledger Technical Working Group China

Outline

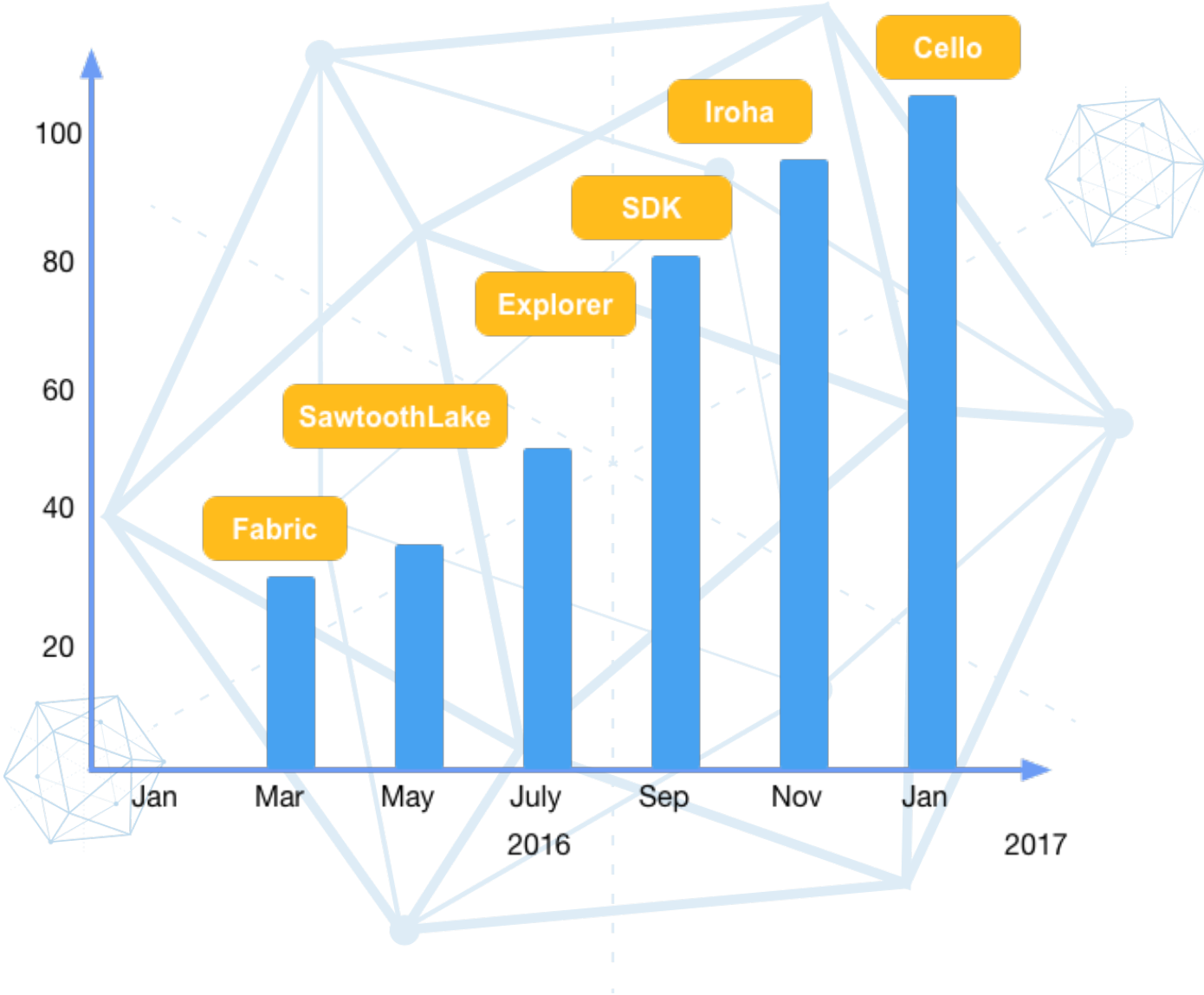
- Hyperledger Overview
- Fabric 1.0 Design
- Environment Setup
- Fabric Bootup in 3 steps
- Play Transactions
- Q&A



Hyperledger Overview

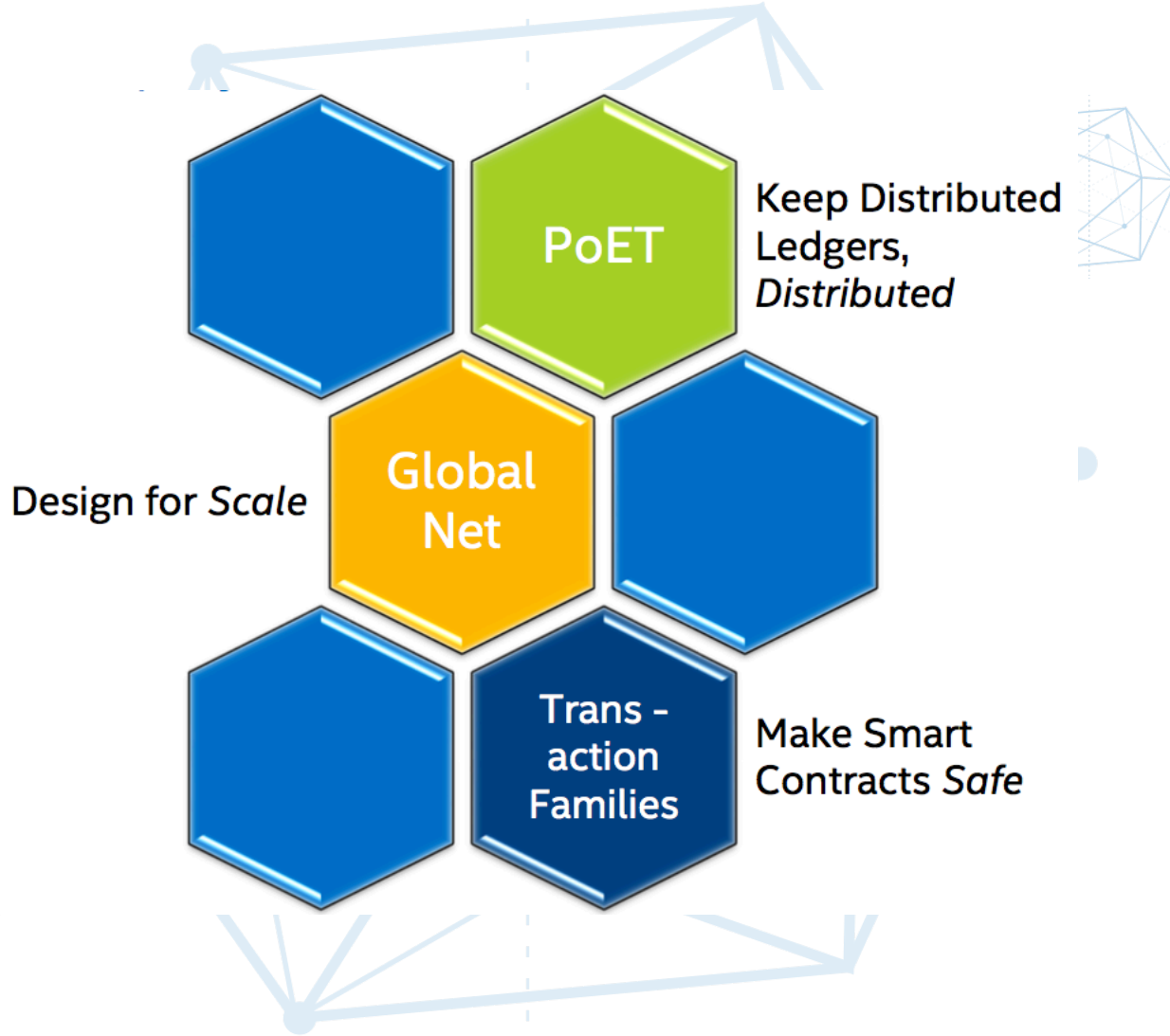
- Founded at Dec 17, 2015
- 30 founded members
- 26/108 (China) members
- 23 projects
- 150+ contributors
- 8000+ commits

Enterprise grade, open source distributed ledger framework!



Hyperledger SawtoothLake

- Open-sourced at April, 2016
- Proposed by Intel
- Python
- 20+ contributors
- 2000+ commits
- Key features
  - PoET consensus
  - Transaction Families
  - Scalability

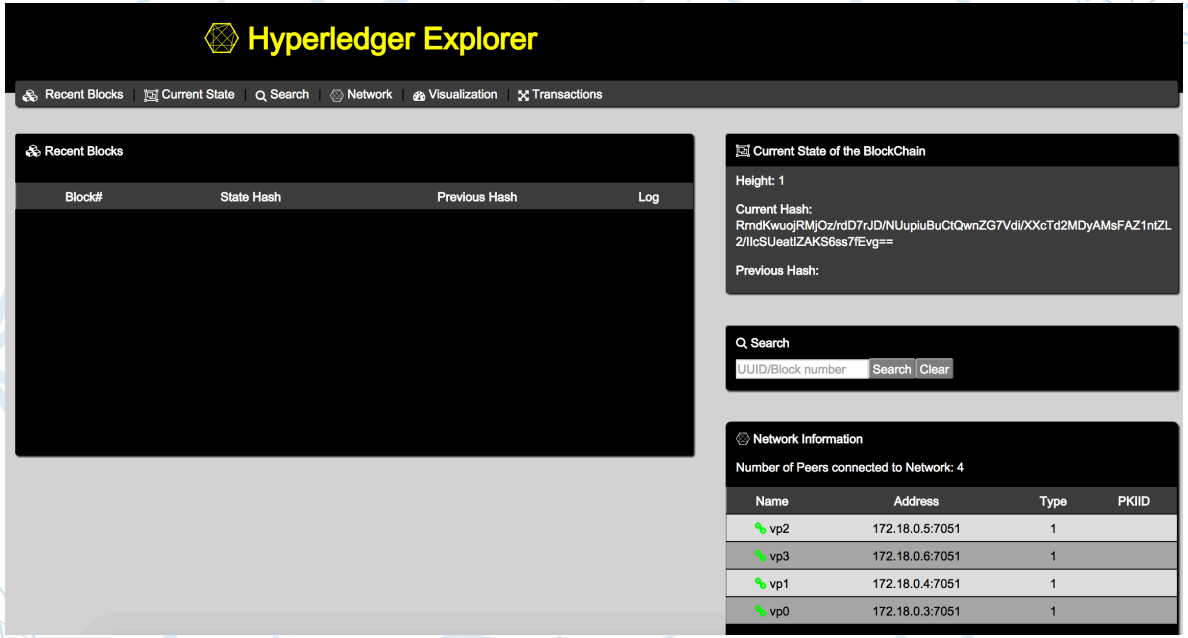


Hyperledger Iroha

- Open-sourced at Oct, 2016
- Proposed by Soramitsu
- C++
- 10+ contributors
- 1000+ commits
- Key features
  - C++ environment
  - Mobile and Web application Support
  - Sumeragi consensus

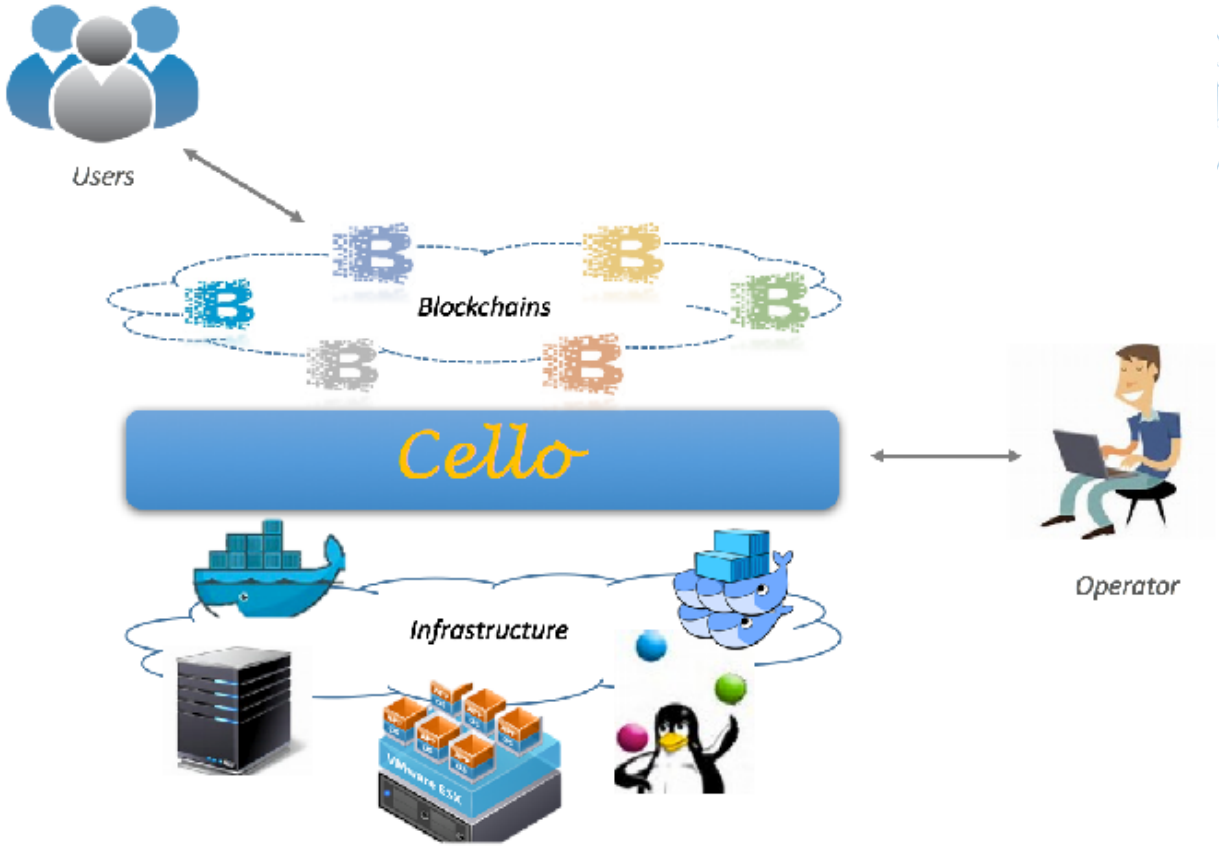
Hyperledger Blockchain-Explorer

- Open-sourced at Aug, 2016
- Proposed by Intel, DTCC, IBM
- Node.js
- Under-development
- Key features
  - Web UI to explorer a blockchain
  - Single-Page Application



Hyperledger Cello

- Open-sourced at Jan, 2017
- Proposed by IBM
- Python, JavaScript
- 260+ commits
- Key features
  - Blockchain as a Service
  - High-performance
  - Support various environments
  - Scalability
  - Pluggability



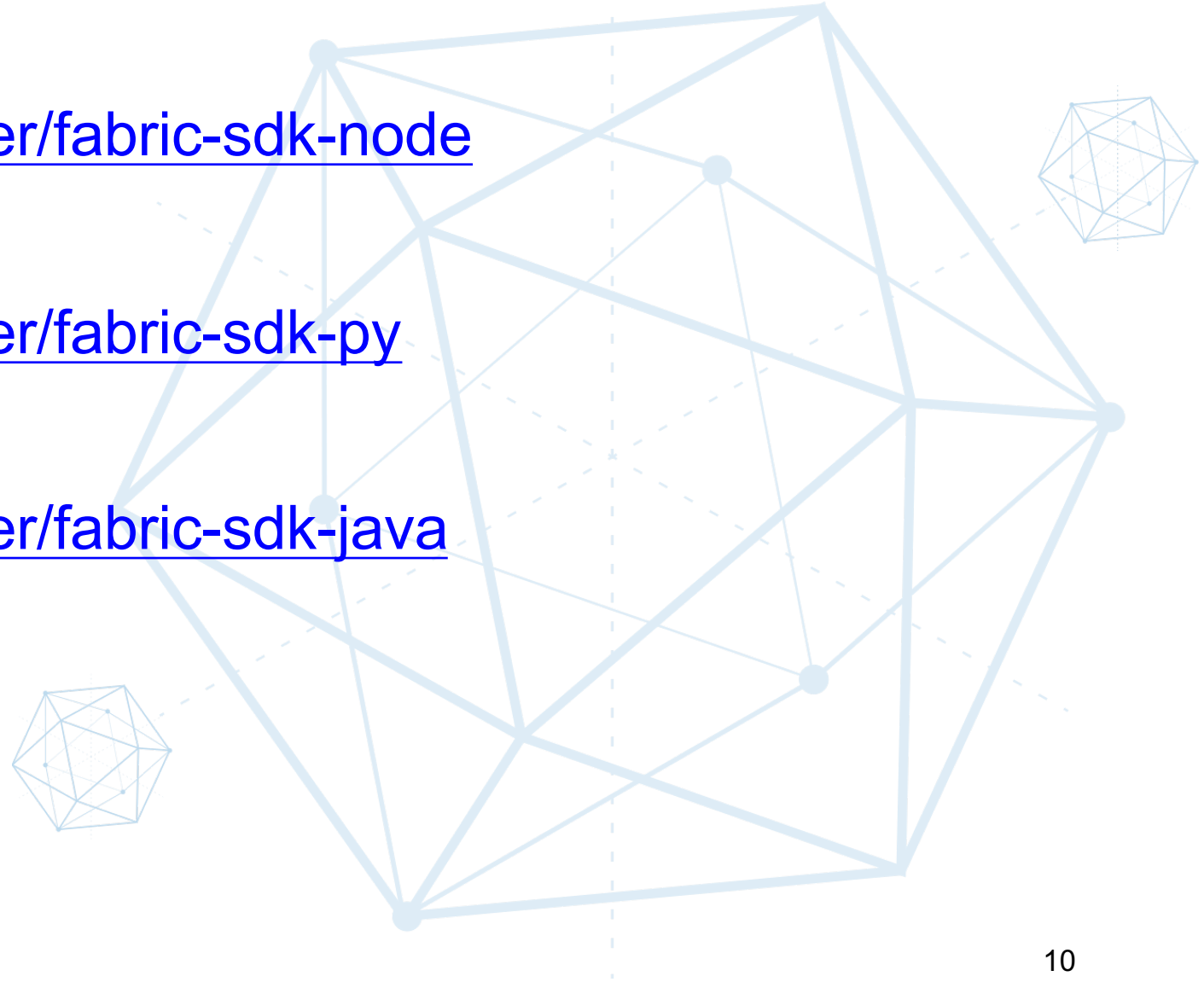
Hyperledger Fabric

- Open-sourced at Dec, 2015
- Proposed by IBM
- Golang
- 20+ contributors
- 4000+ commits
- ~79k loc in v0.6

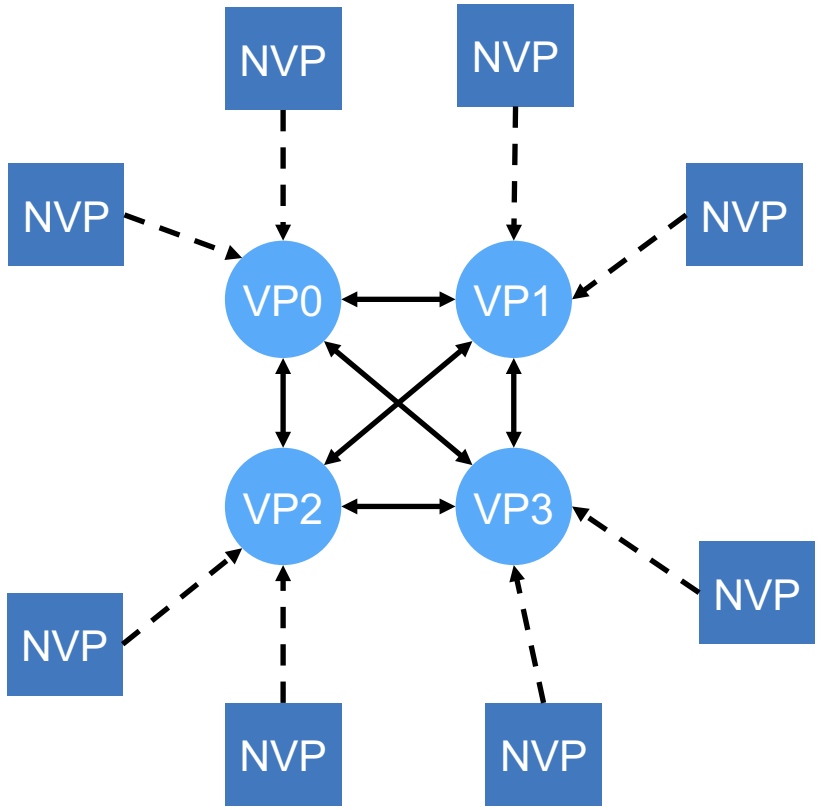
- New design for 1.0
  - –Performance
  - –Scalability
  - –Security/Isolation
  - –Pluggability
  - –Operability

Fabric SDK

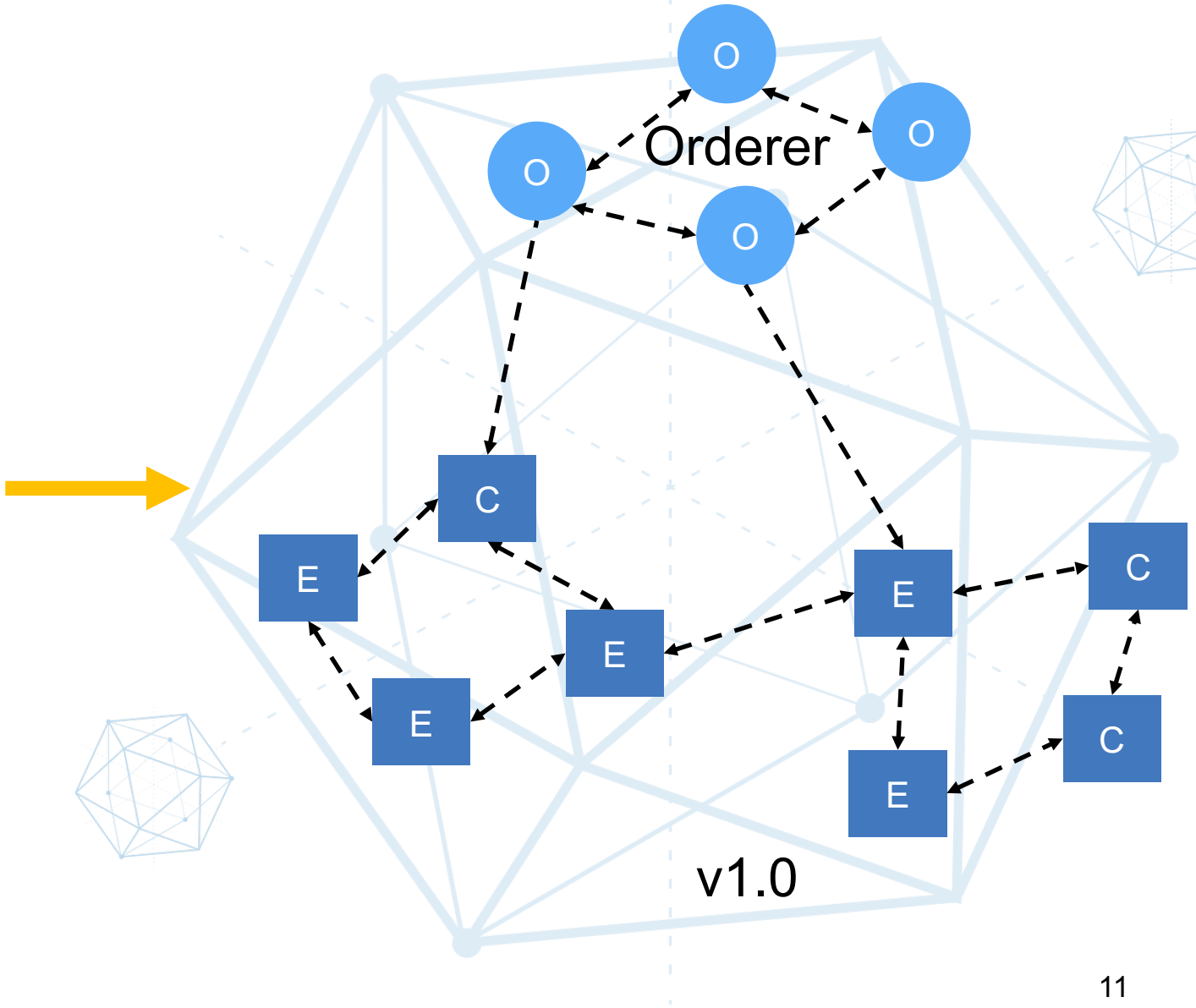
- Node.Js
  - https://github.com/hyperledger/fabric-sdk-node
- Python
  - https://github.com/hyperledger/fabric-sdk-py
- Java
  - https://github.com/hyperledger/fabric-sdk-java



Hyperledger Fabric 1.0 Design

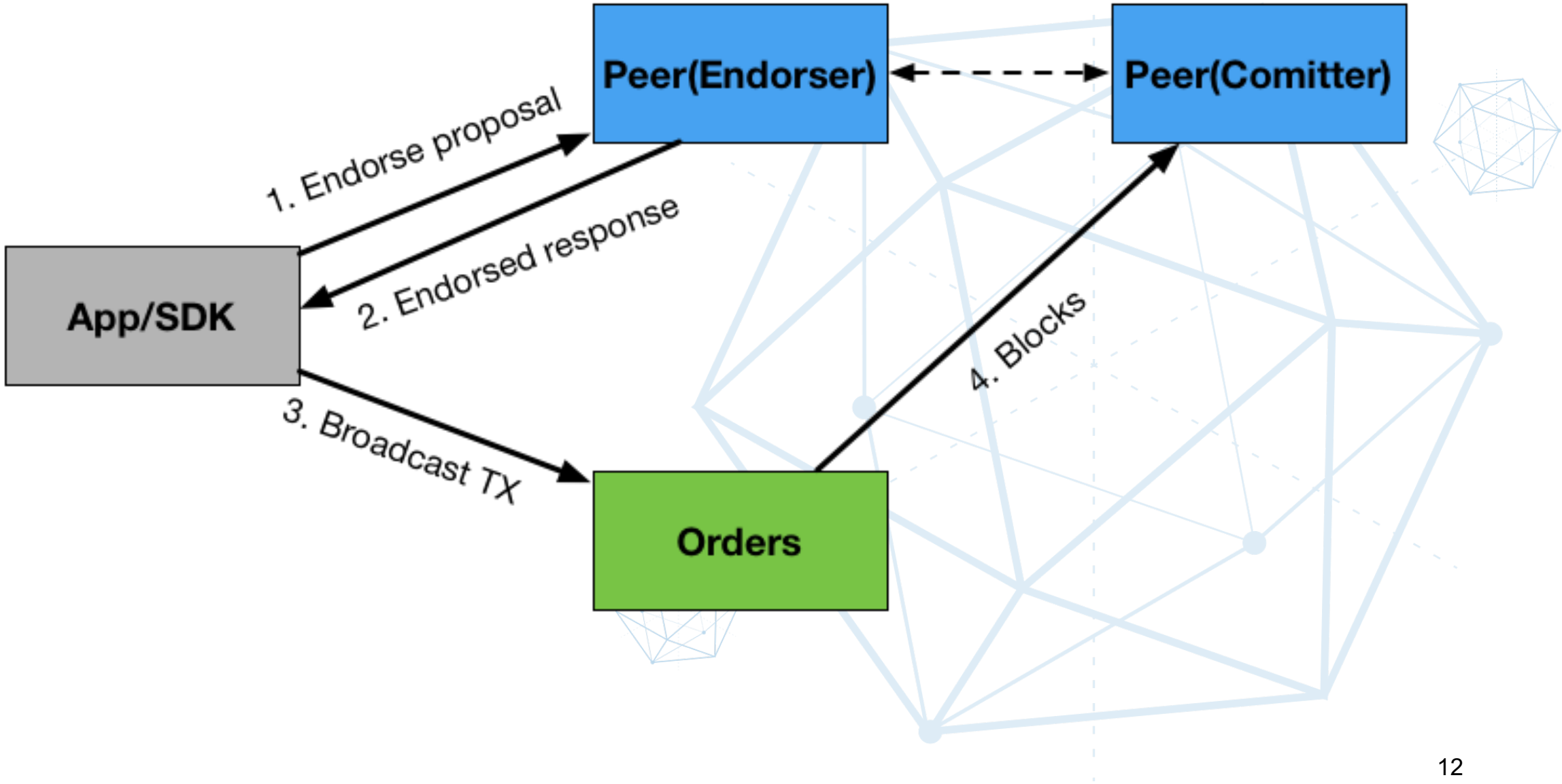


v0.6

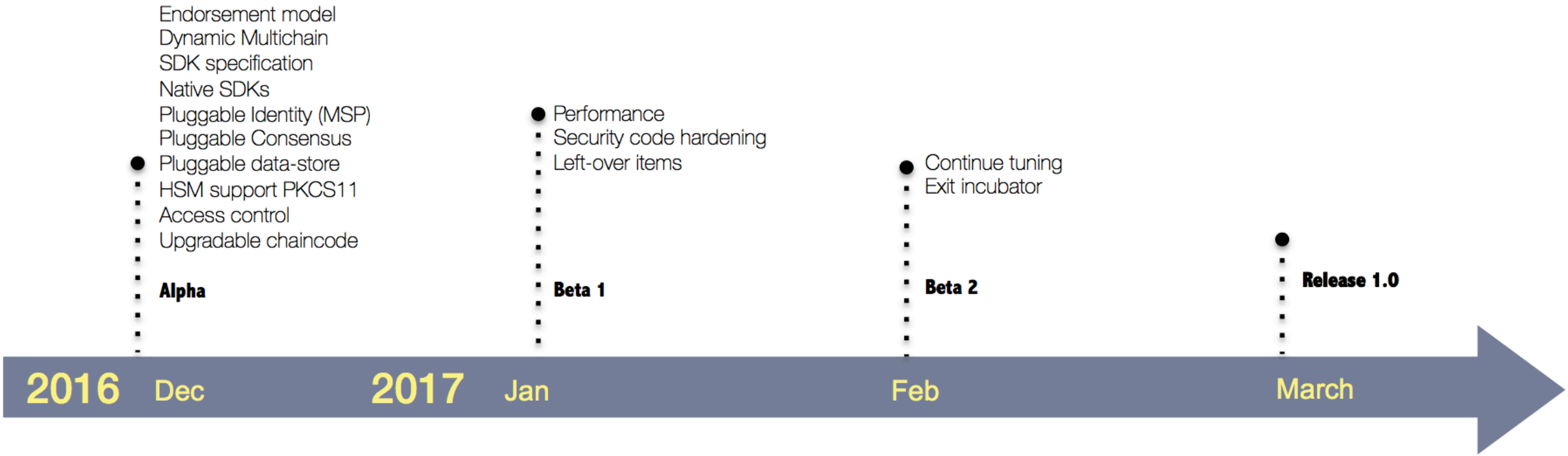


v1.0

Fabric 1.0 Workflow

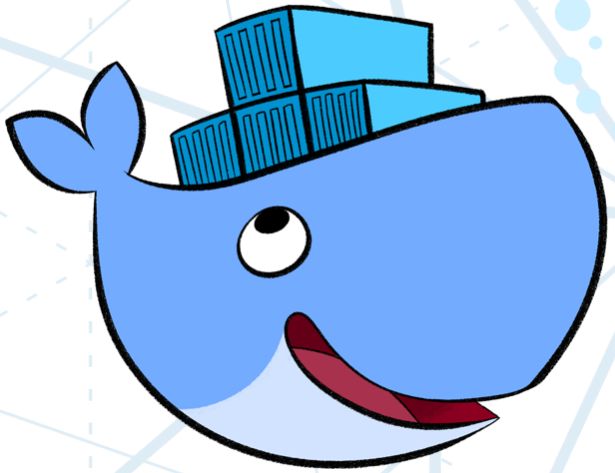


Fabric 1.0 Roadmap



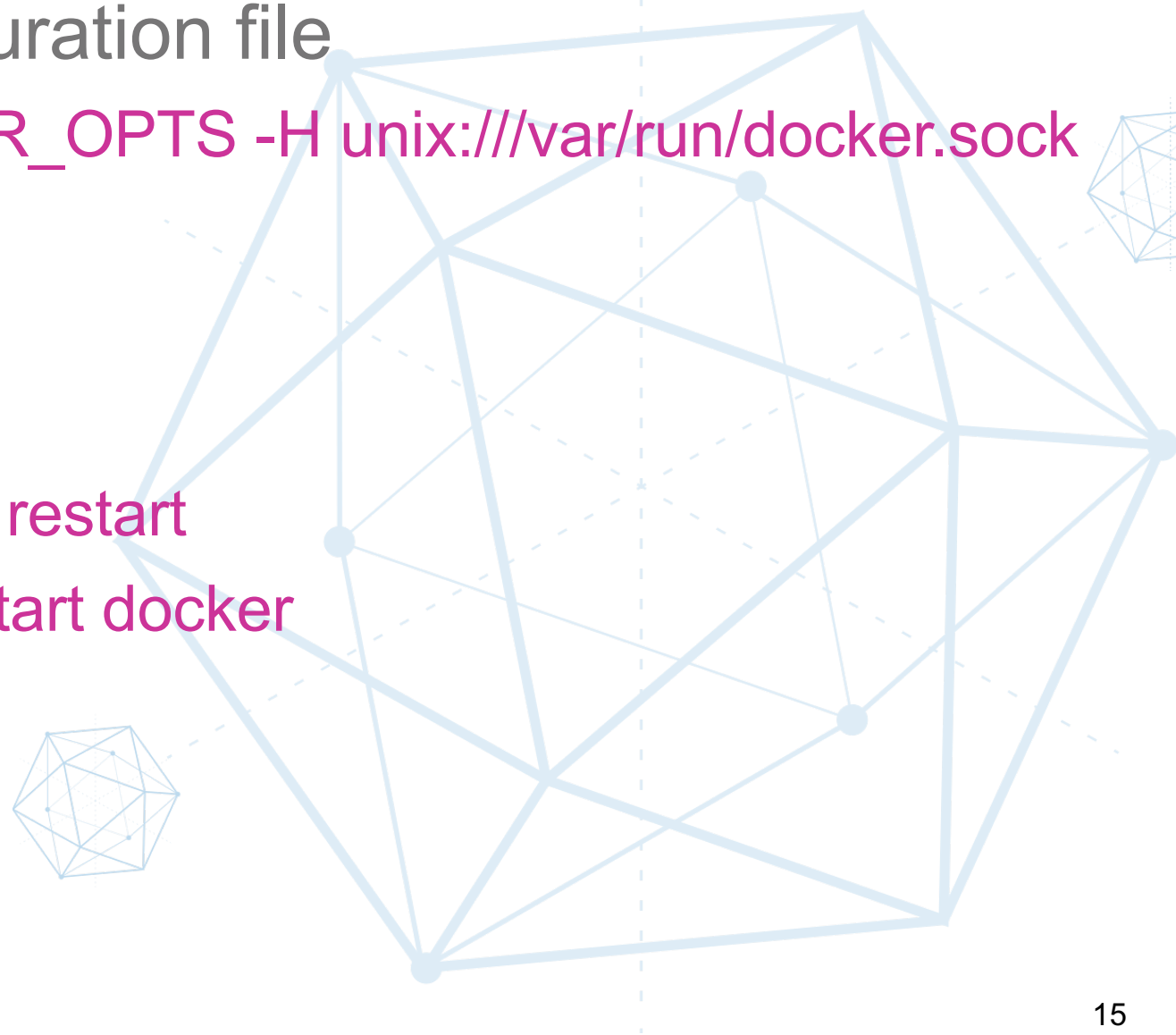
Environment Setup – Docker Installation

- Docker 1.12+
- Linux
  - 64 bit
  - kernel 3.10+
  - curl -sSL https://get.docker.com/ | sh
- Mac
  - Docker for Mac
- Docker-Compose 1.7.0+
  - pip install docker-compose>=1.7.0



Environment Setup - Configuration

- Update the Docker configuration file
  - DOCKER_OPTS="$DOCKER_OPTS -H unix:///var/run/docker.sock -H tcp://0.0.0.0:2375"
- Restart Docker Daemon
  - Upstart: sudo service docker restart
  - Systemd: sudo systemctl restart docker



Fabric Bootup in 3 steps

- Get Docker images
  - https://github.com/yeasy/docker-compose-files/tree/master/hyperledger/1.0
  - http://ibm.com/ibm/cn/blockchain/
- Get Compose file
  - git clone https://github.com/yeasy/docker-compose-files
- Start fabric
  - cd hyperledger/1.0
  - docker-compose up

Play Transactions

- Check container status
  - watch docker ps
- Enter peer container
  - docker exec -it fabric-vp0 bash
- Deploy/invoke/query chaincode
  - peer chaincode deploy -n test_cc -p github.com/hyperledger/fabric/examples/chaincode/go/chaincode_example02 -c '{"Args":["init","a","100","b","200"]}'
  - peer chaincode invoke -n test_cc -c '{"Args":["query","a"]}'
  - peer chaincode invoke -n test_cc -c '{"Args":["invoke","a","b","10"]}'

Technical Working Group China

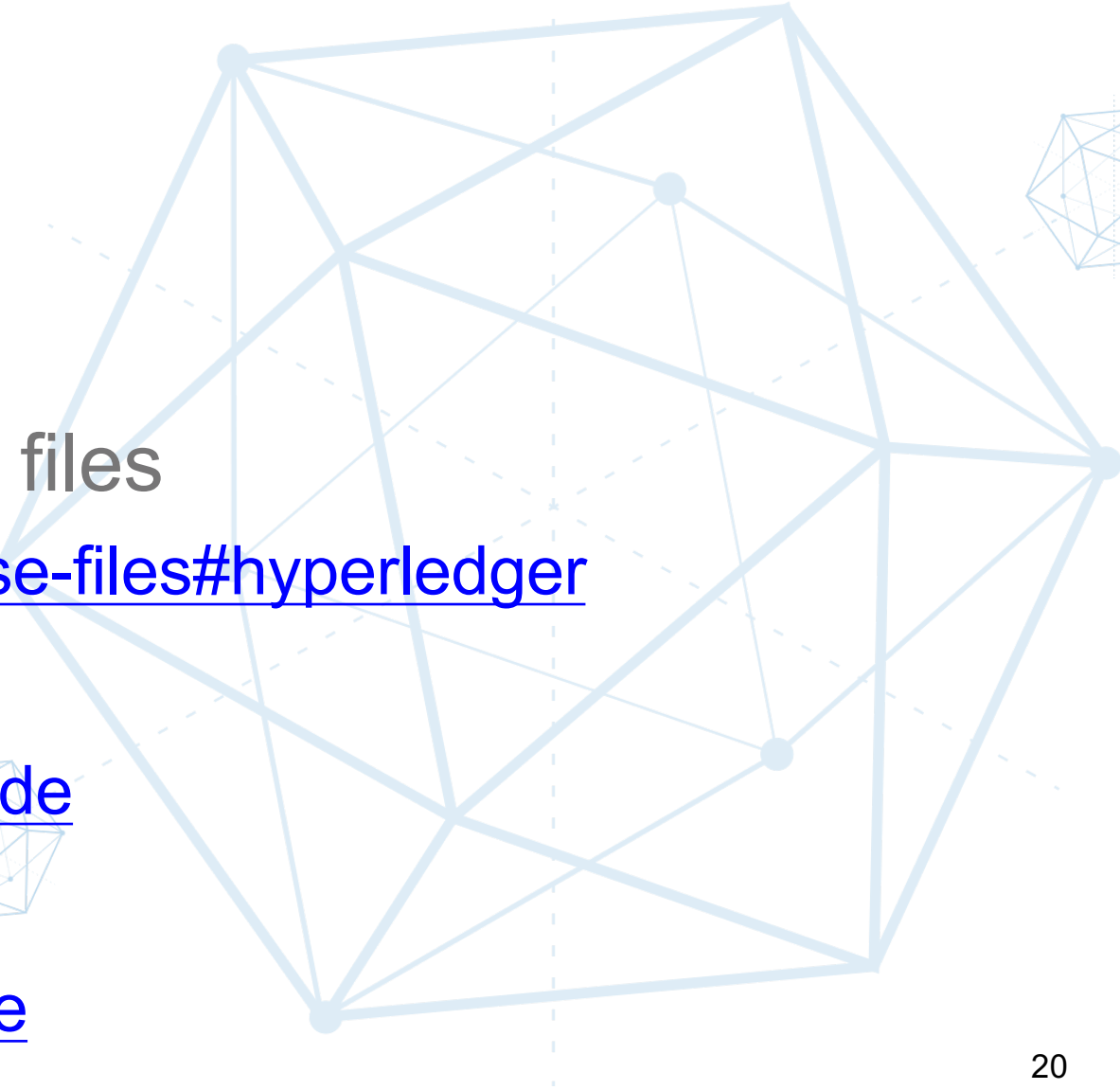
- About TWG-China
  - https://wiki.hyperledger.org/groups/tsc/technical-working-group-china
- Email
  - https://lists.hyperledger.org/mailman/listinfo/hyperledger-twg-china
  - hyperledger-twg-china@lists.hyperledger.org
- Slack
  - twg-china

Technical Working Group China

- Hyperledger Hackathon in Asia
  - Mar 11/12, 2017, Shanghai
- Recent meetups
  - Dec 25, 2016, Beijing
  - **Jan 7, 2017, Shenzhen**
  - Feb/Mar, 2017, Shanghai
- Educations/Trainings

Reference

- Hyperledger Wiki
  - wiki.hyperledger.org
- IBM 区块链
  - ibm.com/ibm/cn/blockchain/
- Hyperledger Fabric Compose files
  - github.com/yeasy/docker-compose-files#hyperledger
- 《区块链技术指南》
  - github.com/yeasy/blockchain_guide
- 《Docker 从入门到实践》
  - github.com/yeasy/docker_practice



Questions?

Thank You!
@baohua

Slides available at tinyurl.com/hl-meetup-sz