

Hyperledger Overview and Fabric Setup

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Jan 7, 2017

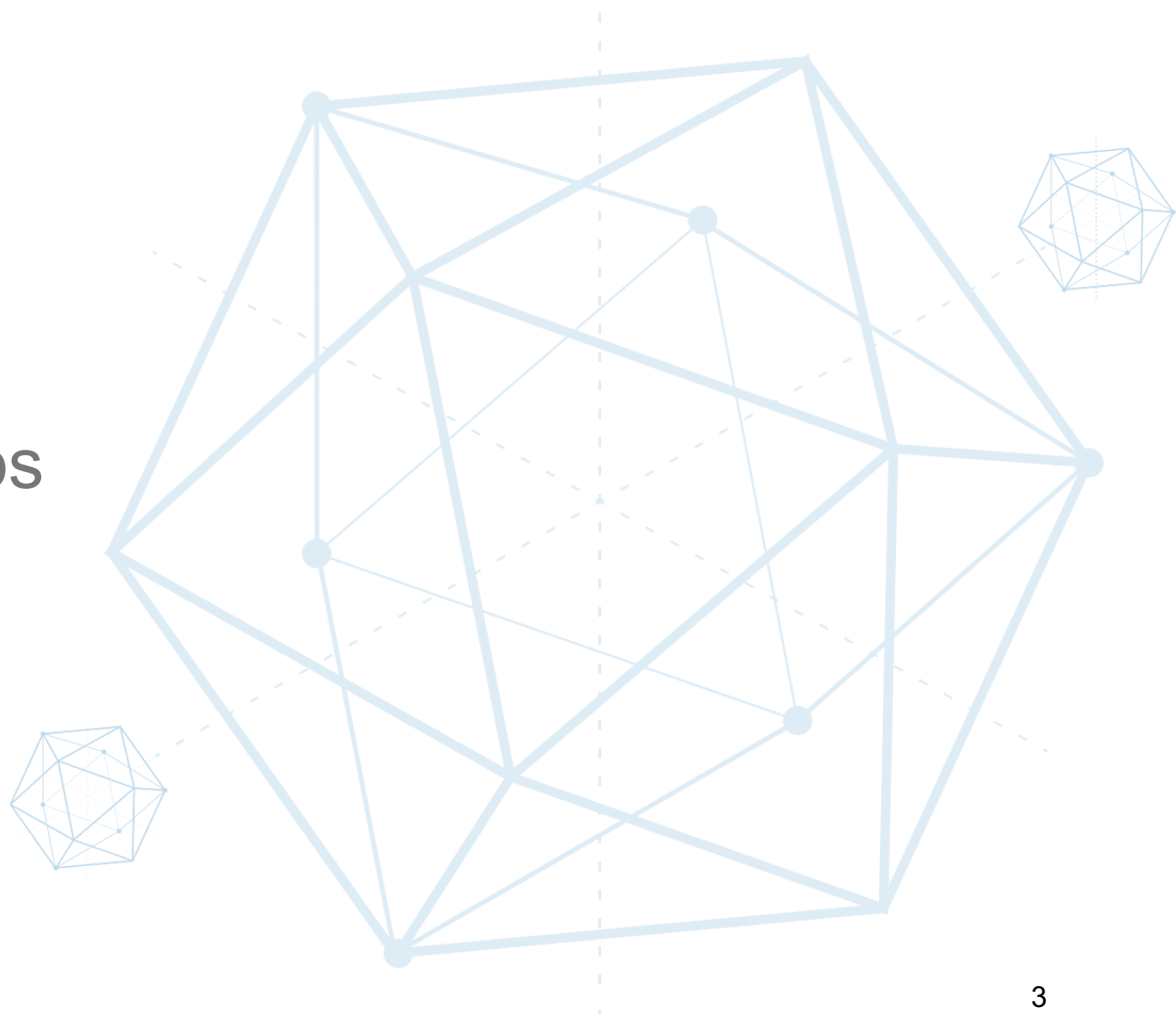
About Me

- **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

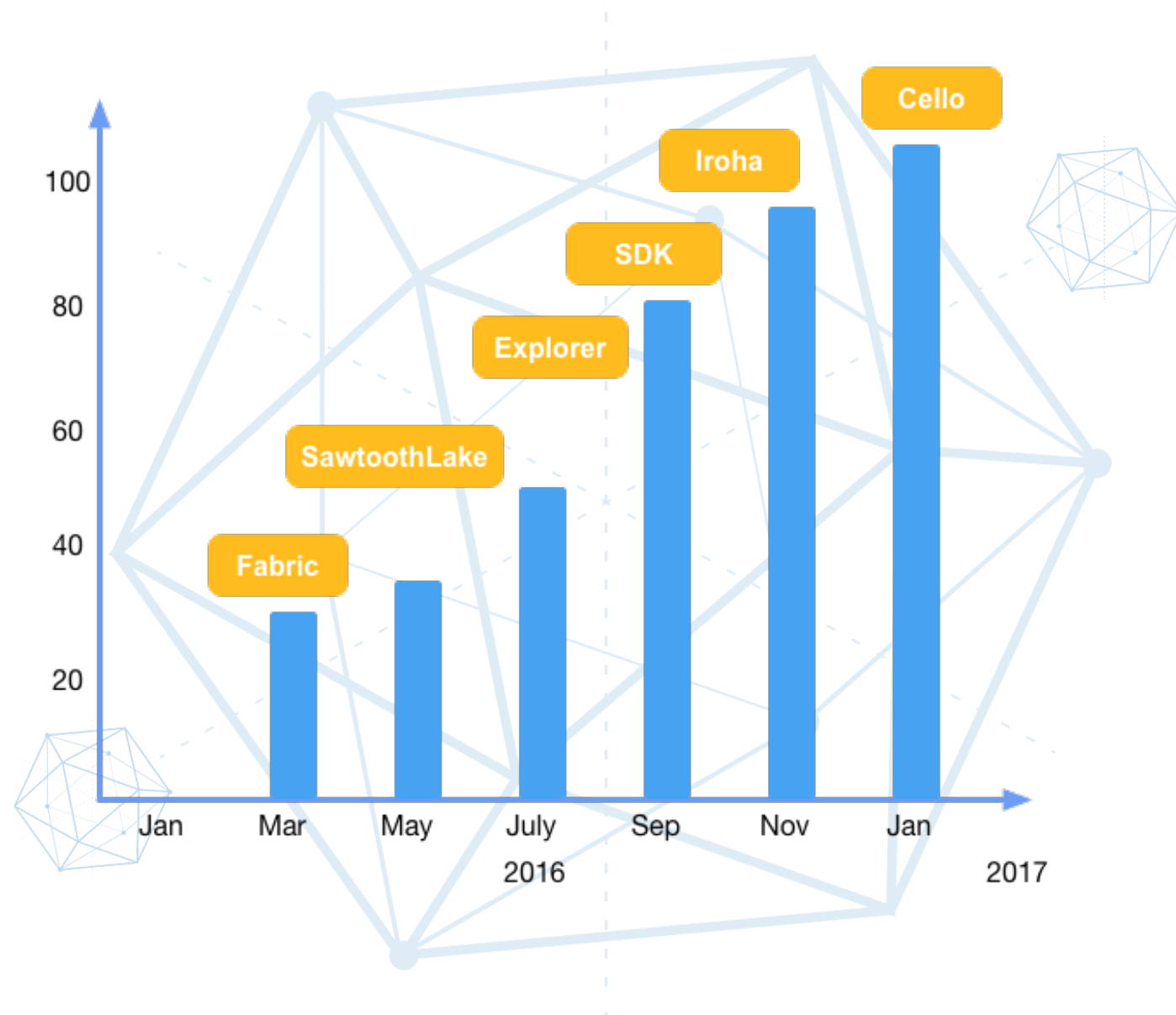
- Hyperledger Overview
- Fabric 1.0 Design
- Environment Setup
- Fabric Bootup in 3 steps
- Play Transactions
- Q&A



Hyperledger Overview

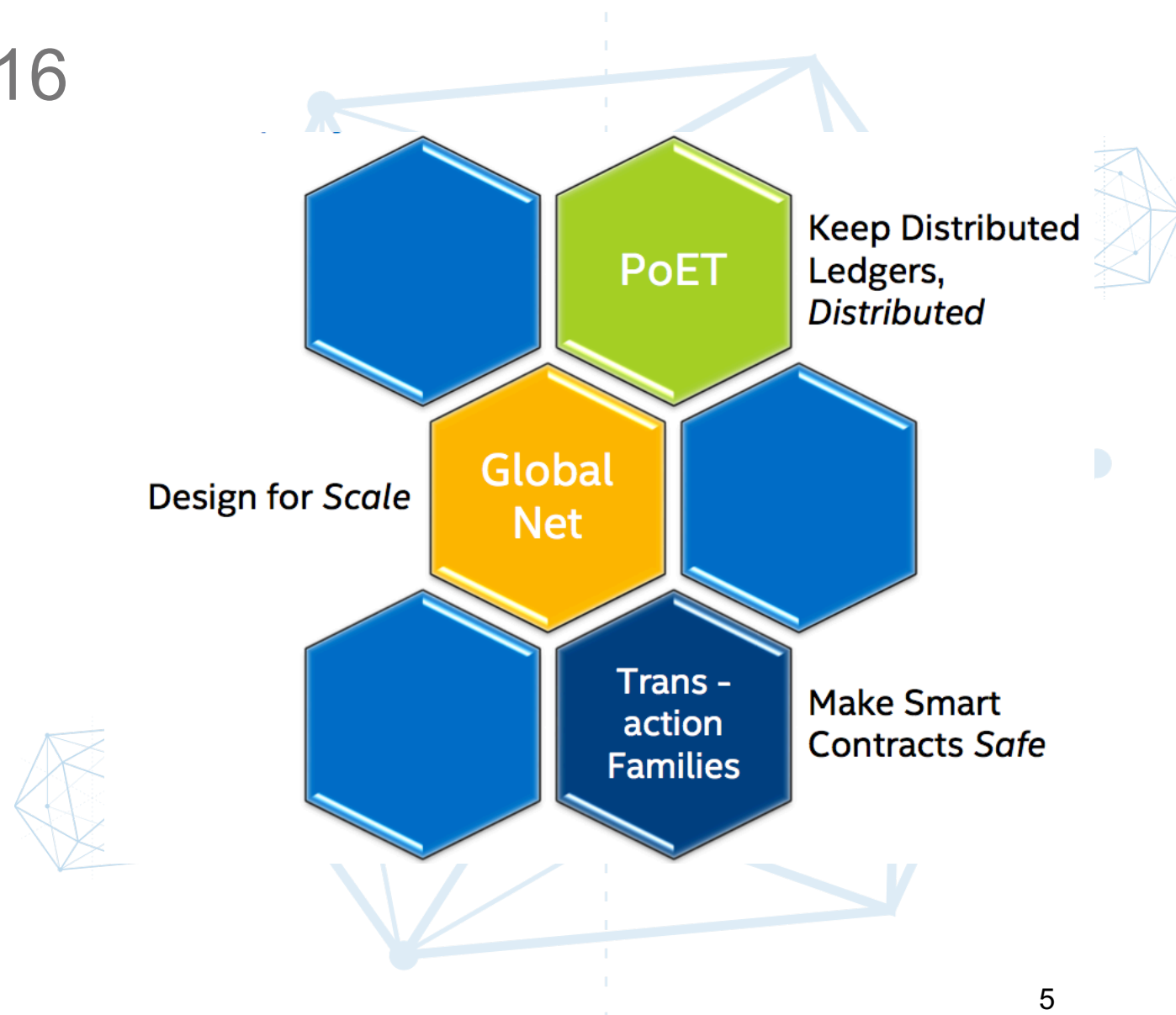
- Founded at Dec 17, 2015
- 30 founded members
- 26/108 (China) members
- 23 projects
- 150+ contributors
- 8000+ commits

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



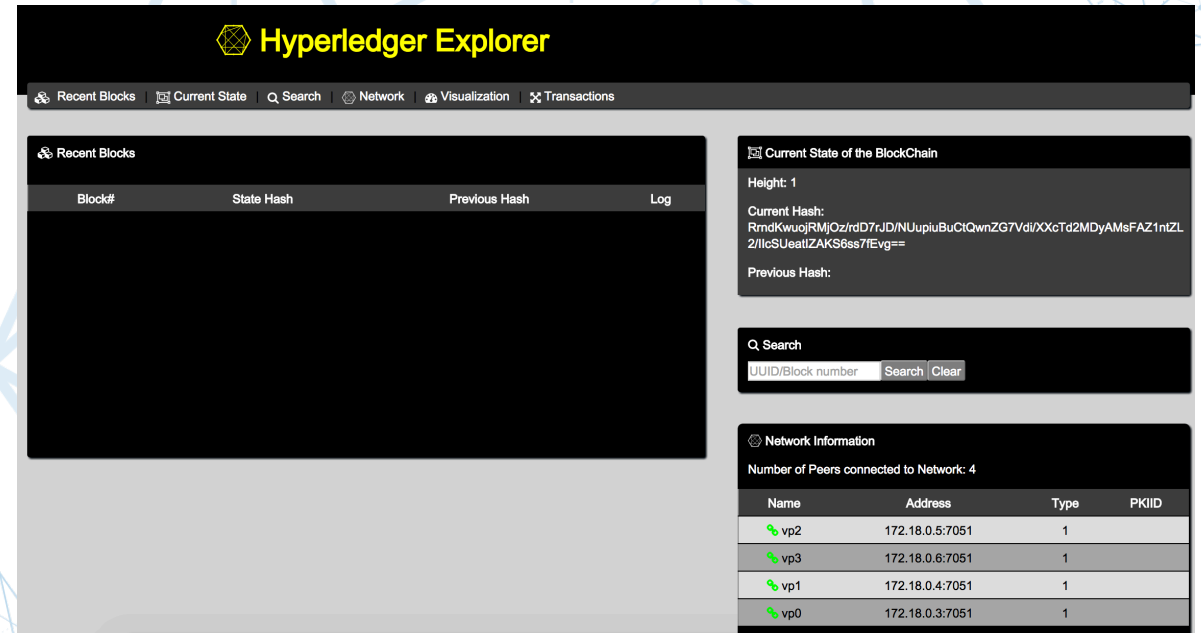
Hyperledger Iroha

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



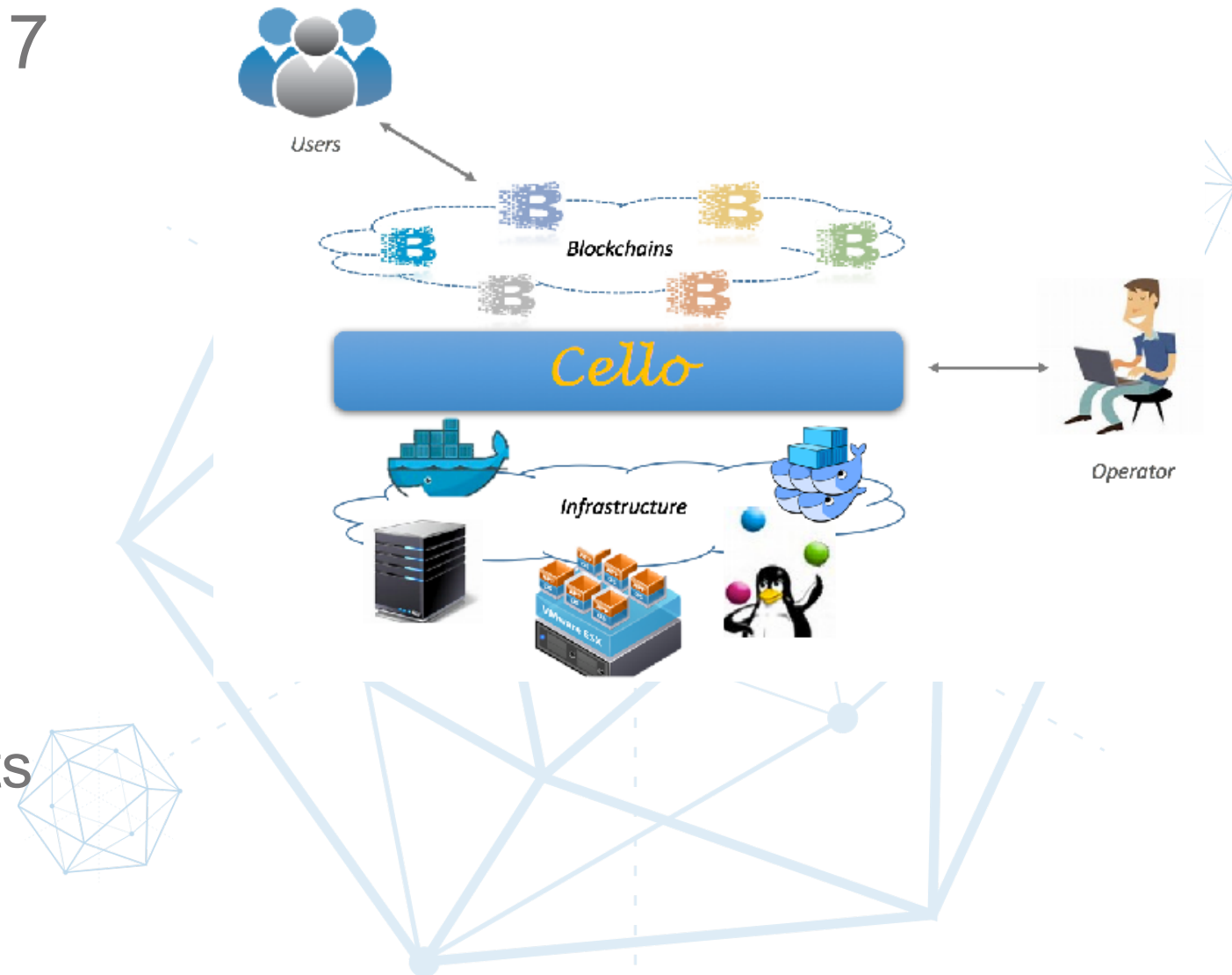
Hyperledger Blockchain-Explorer

- 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

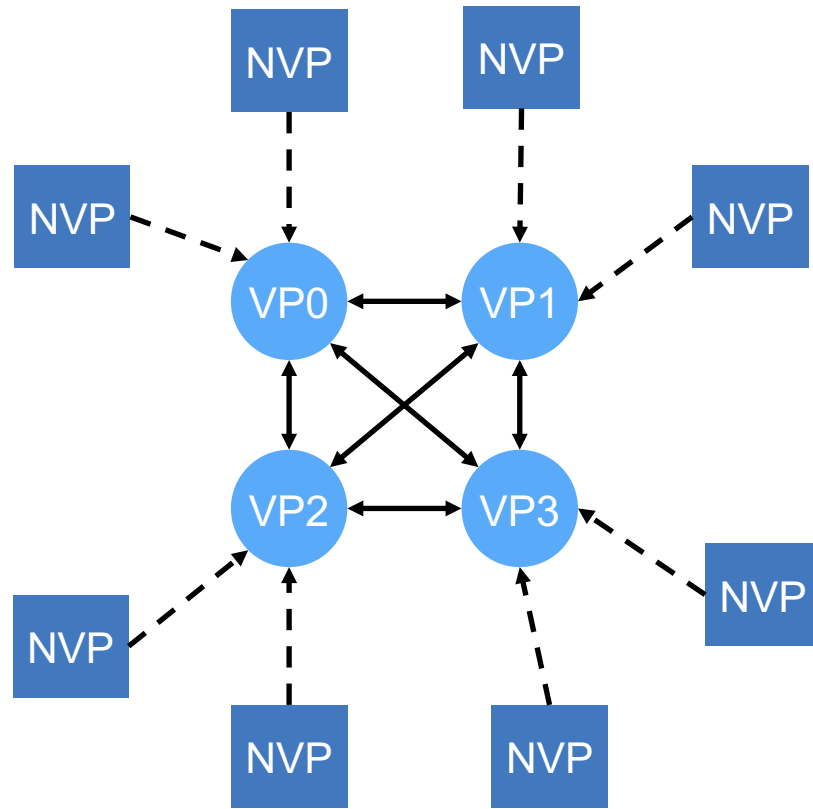
- Open-sourced at Dec, 2015
- Proposed by IBM
- Golang
- 20+ contributors
- 4000+ commits
- ~79k loc in v0.6

- New design for 1.0

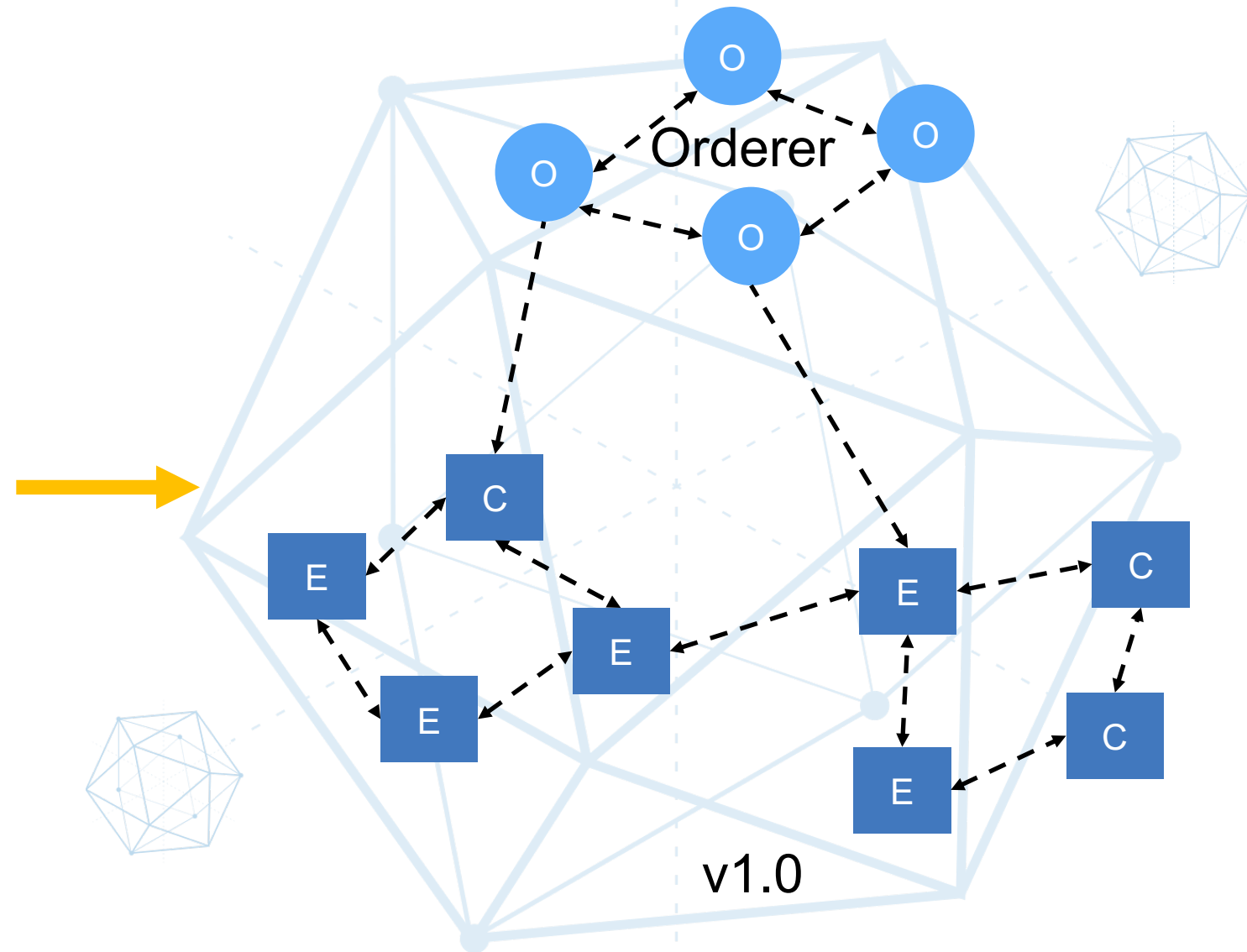
- Performance
- Scalability
- Security/Isolation
- Pluggability
- Operability



Hyperledger Fabric 1.0 Design

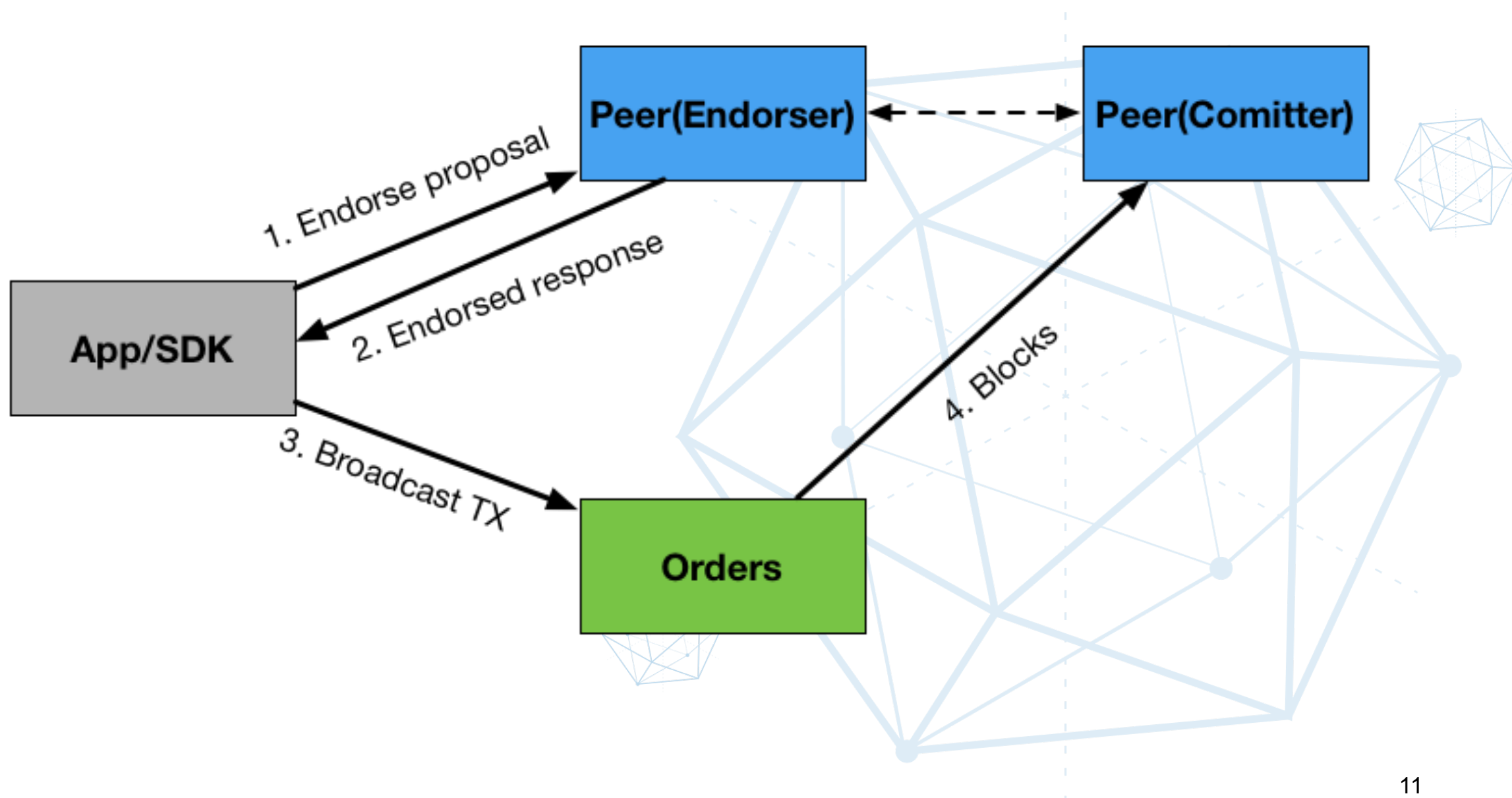


v0.6

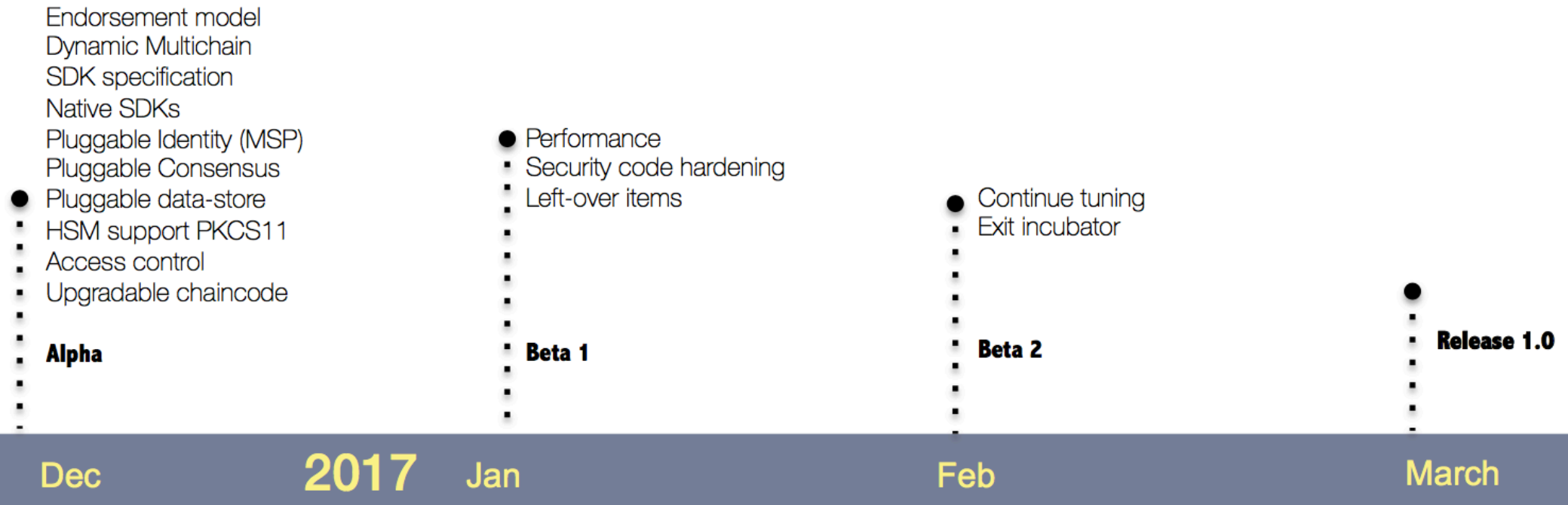


v1.0

Fabric 1.0 Workflow

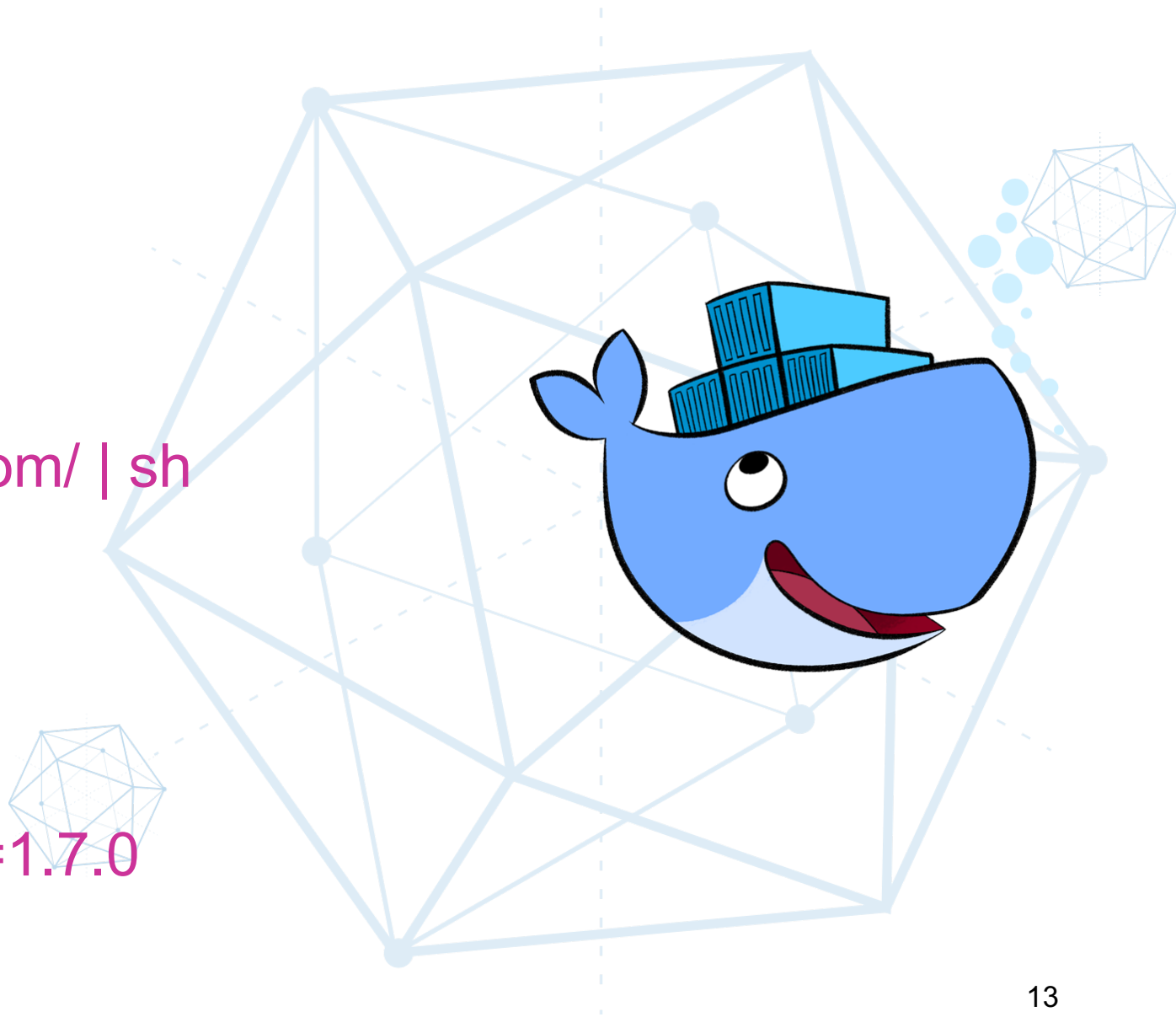


Fabric 1.0 Roadmap



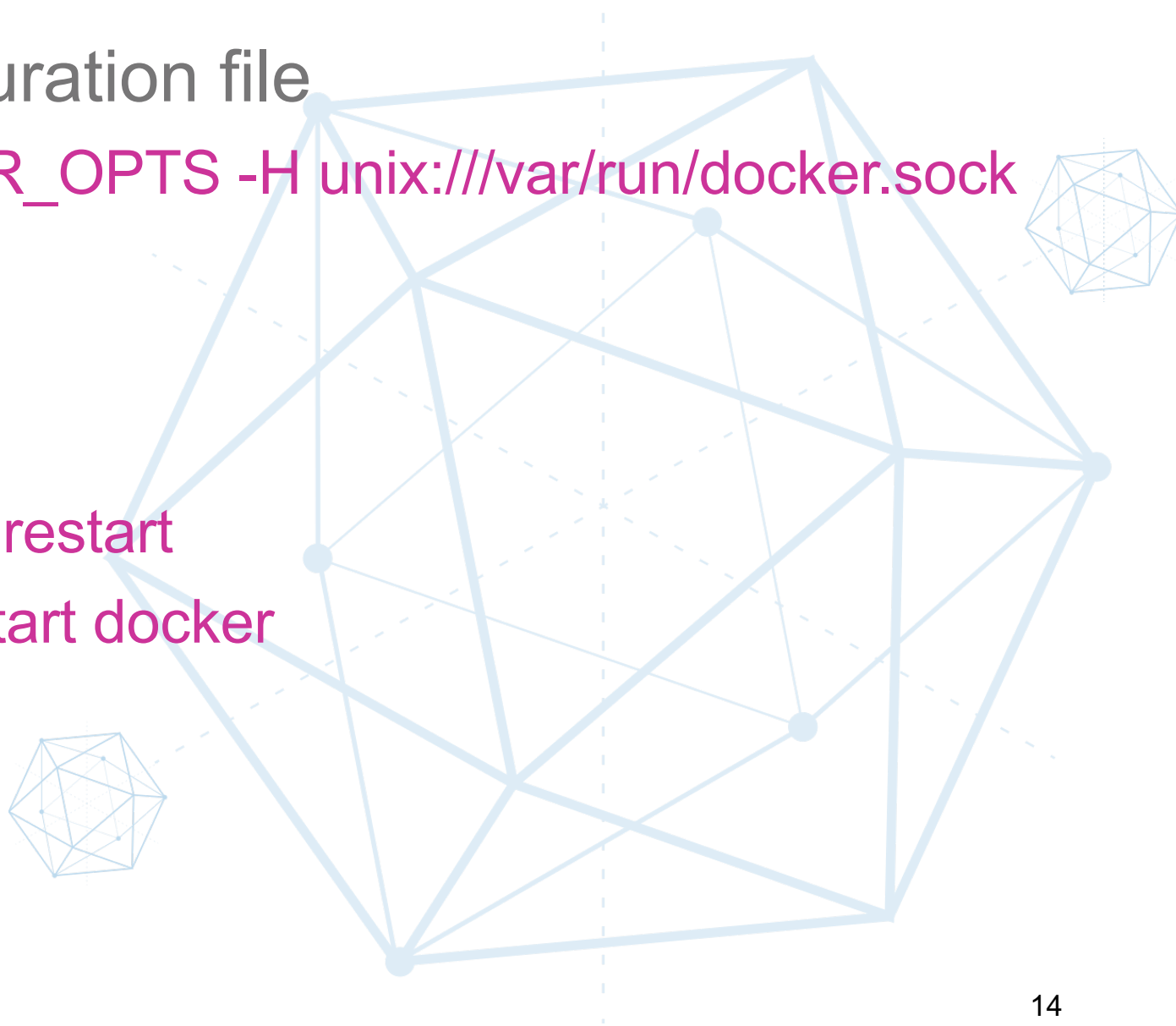
Environment Setup – Docker Installation

- 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`

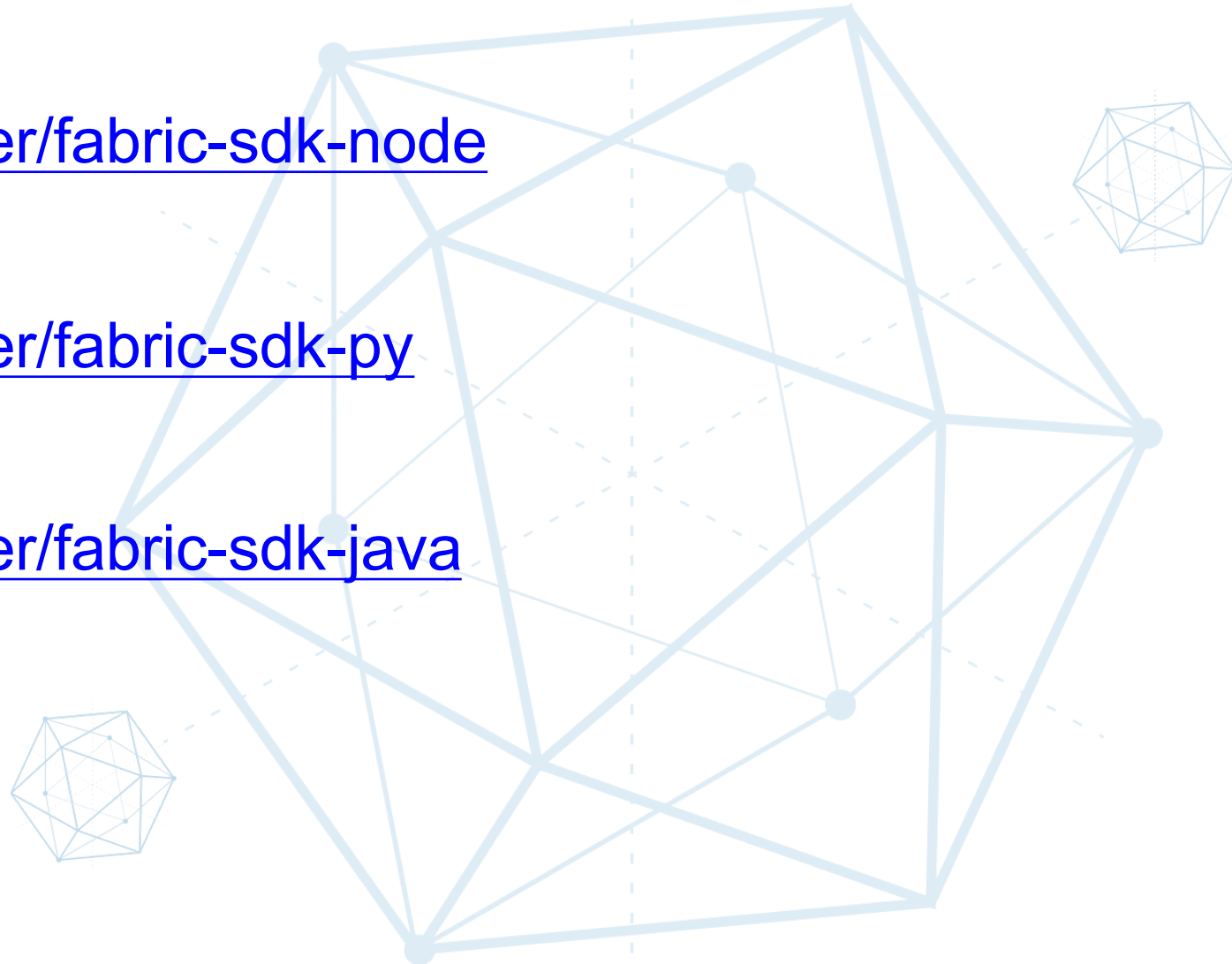


Play Transactions

- 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"]}'`

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>



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](#)



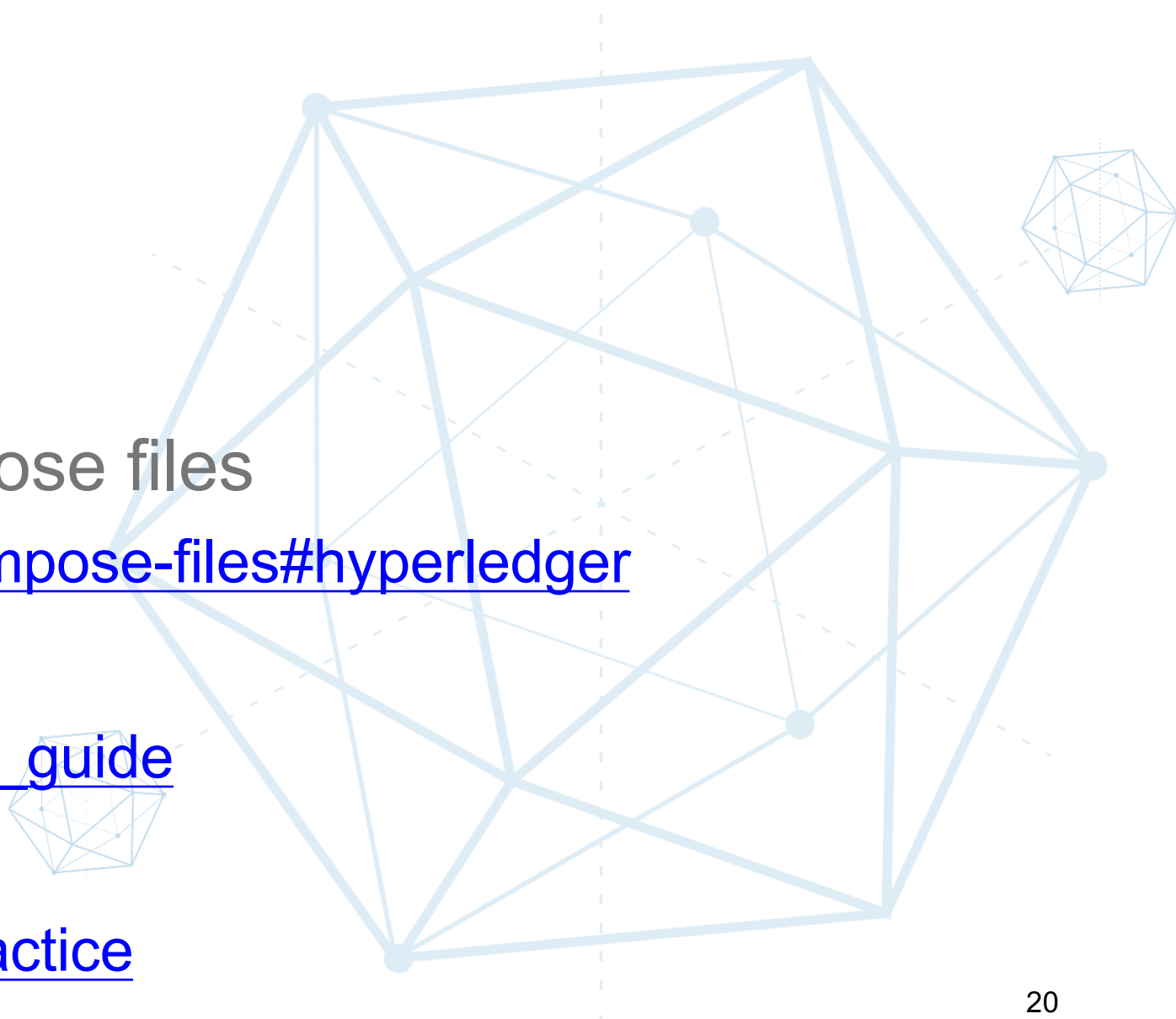
Technical Working Group China

- 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