Hyperledger Projects
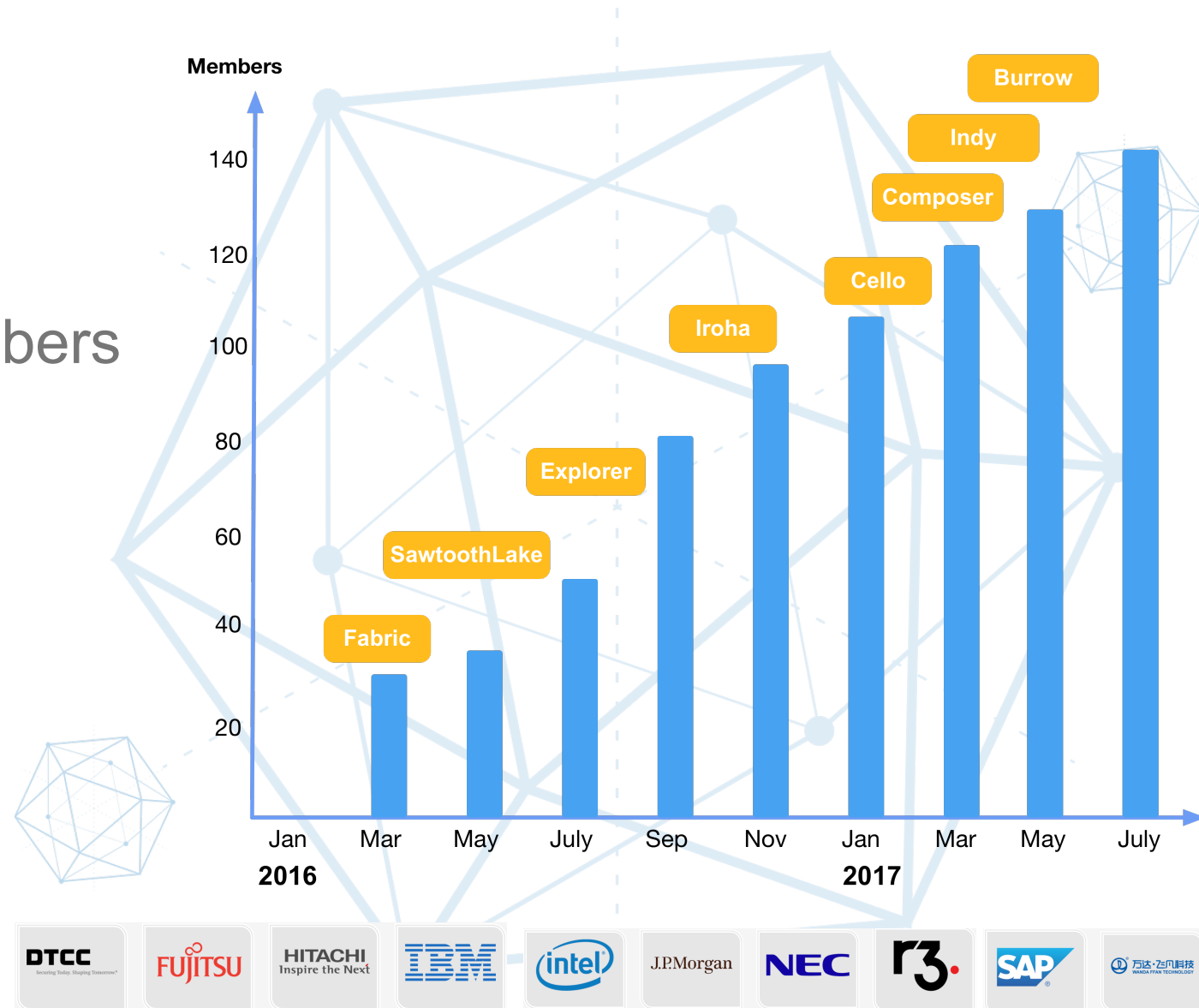
Baohua Yang
June, 2017

About Me

- **Senior Researcher in IBM**
  - Fintech, Cloud and Analytics
- **Open-Source Contributor**
  - [Hyperledger](), [OpenStack](), [OpenDaylight](), etc.
- **Hyperledger Developer**
  - Core designer & committer of [Fabric](), [Cello](), [sdk]() etc.
  - PTL of [Cello]() project and [fabric-sdk-py]() project
  - Chair of [Hyperledger Technical Working Group China]()

Hyperledger Projects

- Since Dec 17, 2015
- [Apache v2 License](#)
- 30 Founding Members
- 18/36/142 Premier/China/Members
- 8 Top Projects
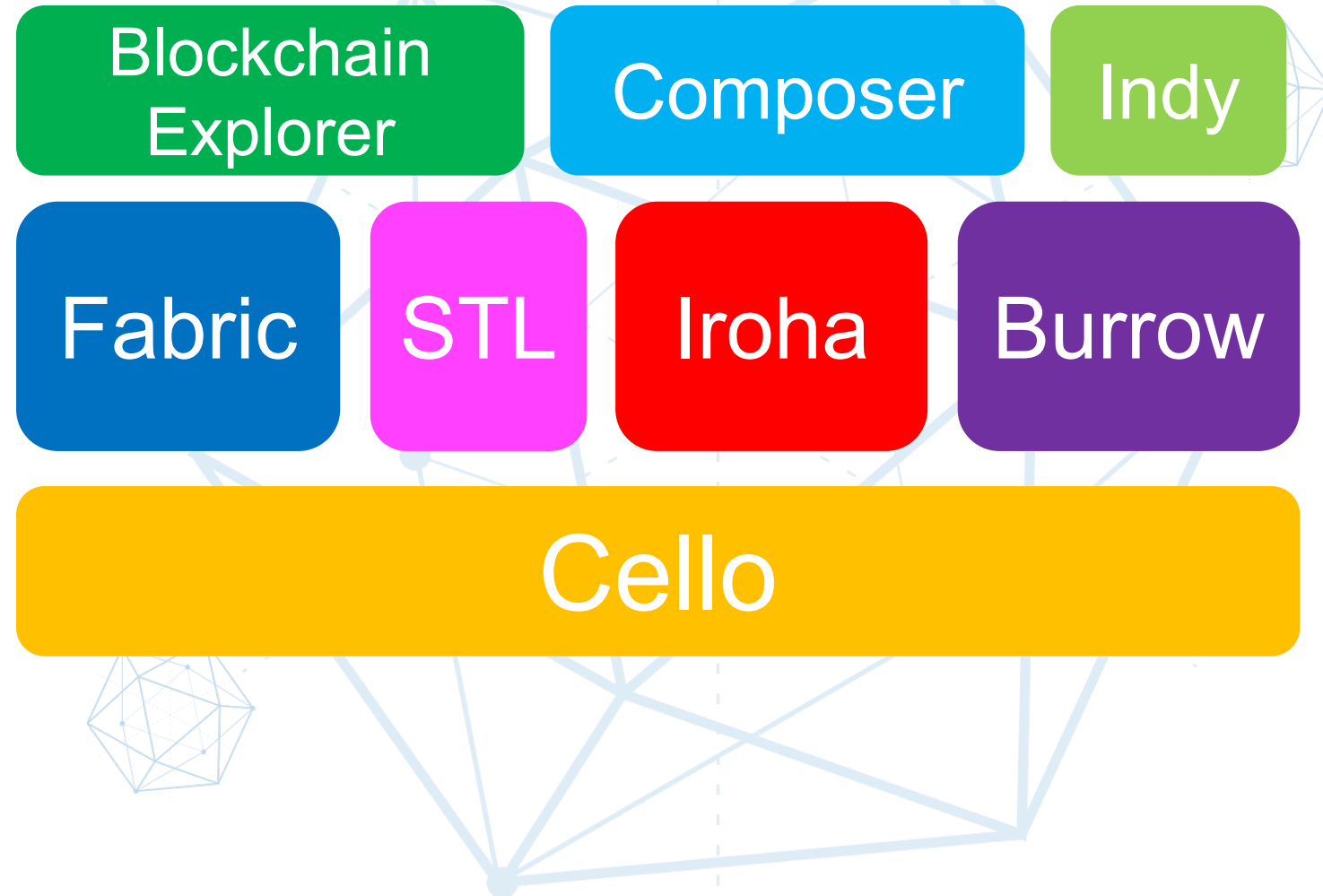- 200+ Contributors
- 10000+ Commits

Enterprise grade, open source distributed ledger framework!

Members

140

120

100

80

60

40

20

Burrow
Indy
Composer
Cello
Iroha
Explorer
SawtoothLake
Fabric

Jan Mar May July Sep Nov Jan Mar May July
2016 **2017**

accenture · AIRBUS · AMERICAN EXPRESS · CHANGE HEALTHCARE · CME Group · DEUTSCHE BÖRSE GROUP · DAIMLER · Digital Asset · DTCC · FUJITSU · HITACHI Inspire the Next · IBM · intel · J.P.Morgan · NEC · r3. · SAP · 万达·飞凡科技 WANDA FFAN TECHNOLOGY

Hyperledger Projects

- 8 Top Projects
  - Fabric
  - SawtoothLake
  - Iroha
  - Cello
  - Blockchain Explorer
  - Composer
  - Burrow
  - Indy

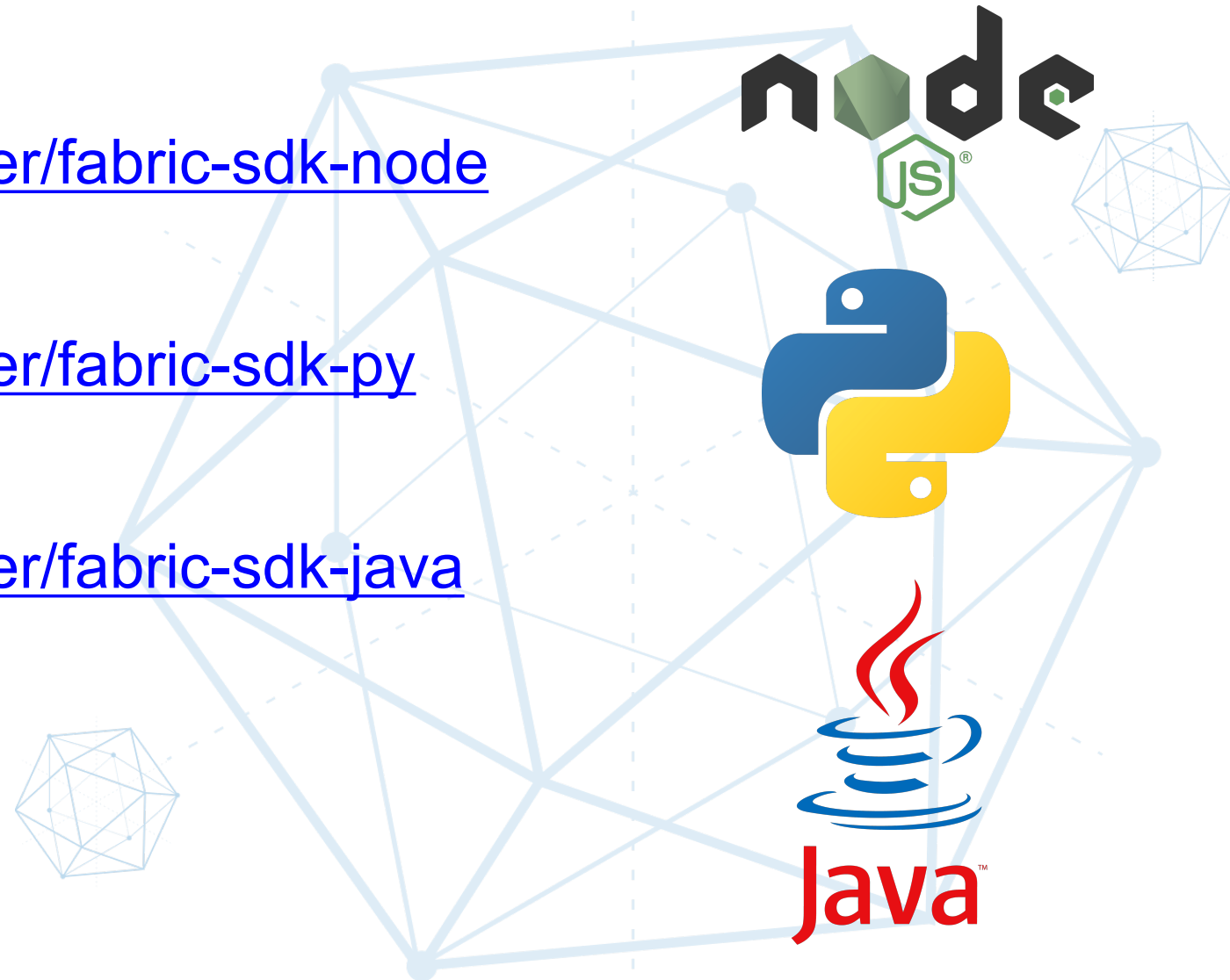| Blockchain Explorer	Composer	Indy
Fabric	STL	Iroha	Burrow

Cello

Hyperledger Fabric

- [Open-sourced](#) at Dec, 2015
- Proposed by IBM and DAH
- Written in Golang
- 90+ contributors
- 5000+ commits
- Core code (loc): v0.6: ~49k; v1.0: ~91k
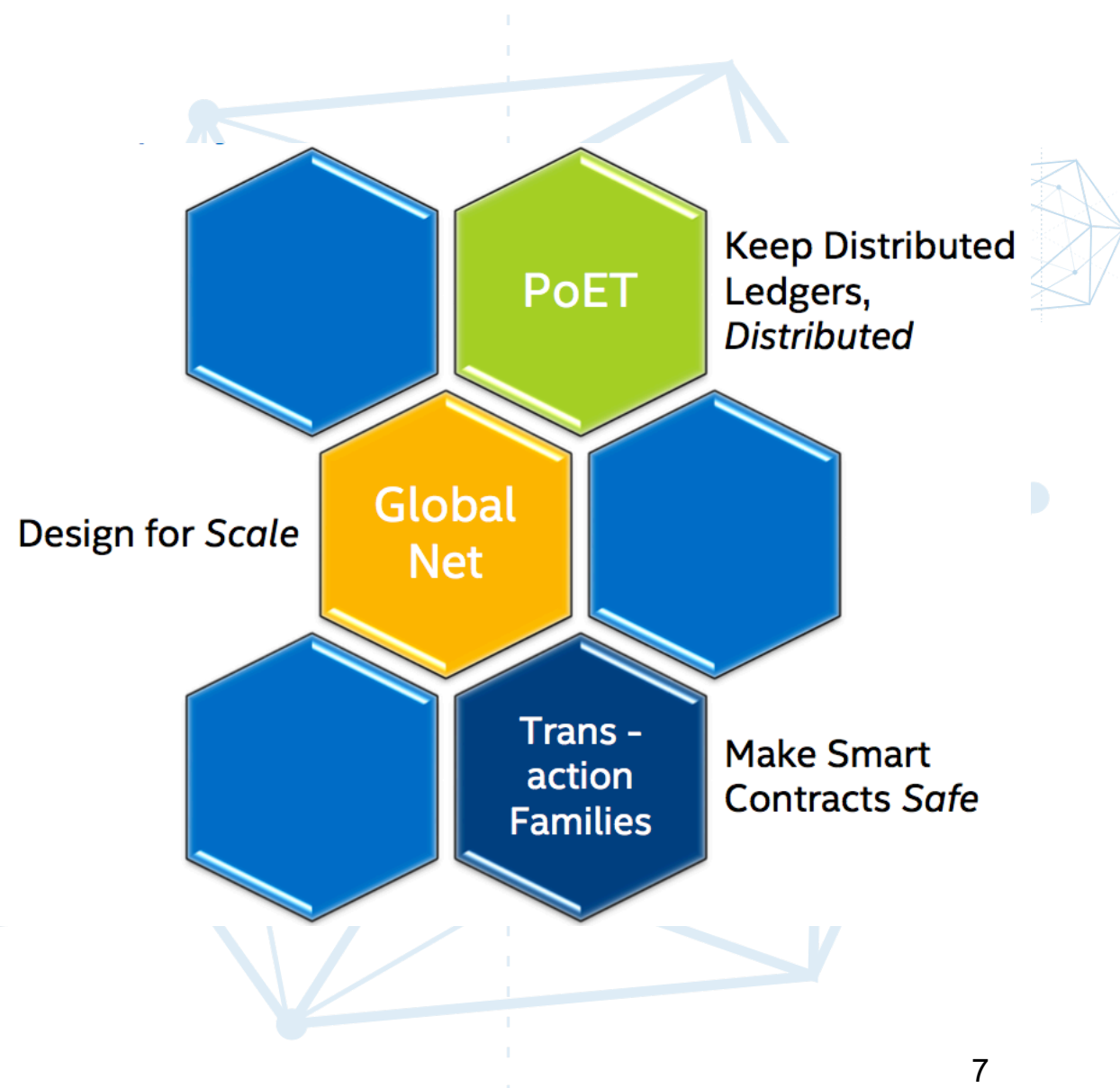
- Active now, in 1.0 rc1

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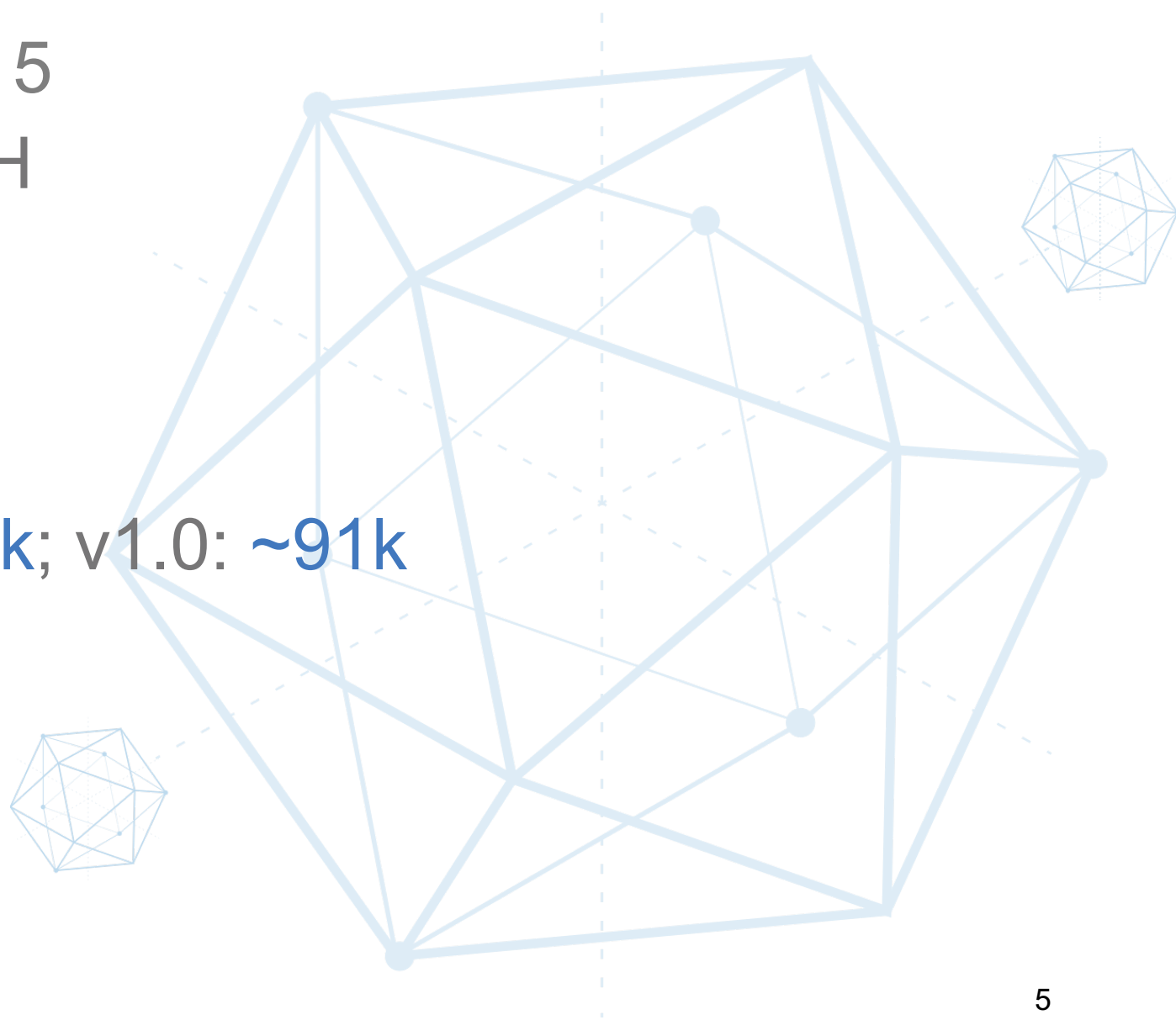
- Node.Js
  - https://github.com/hyperledger/fabric-sdk-node
- Python
  - https://github.com/hyperledger/fabric-sdk-py
- Java
  - https://github.com/hyperledger/fabric-sdk-java

Hyperledger SawtoothLake

- [Open-sourced](#) at April, 2016
- Proposed by Intel
- Python
- 40+ contributors
- 4000+ commits
- Key features
  - PoET consensus
  - Transaction Families
  - Scalability

Keep Distributed Ledgers, *Distributed*

Design for *Scale*

Make Smart Contracts *Safe*

PoET

Global Net

Trans-action Families

Hyperledger Iroha

- [Open-sourced](#) at Oct, 2016
- Proposed by [Soramitsu](#)
- C++
- 20+ contributors
- 2000+ 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
- UI to interact with ledger
- Node.js
- Under-development
- Key features
  - Web UI to explorer a blockchain
  - Single-Page Application
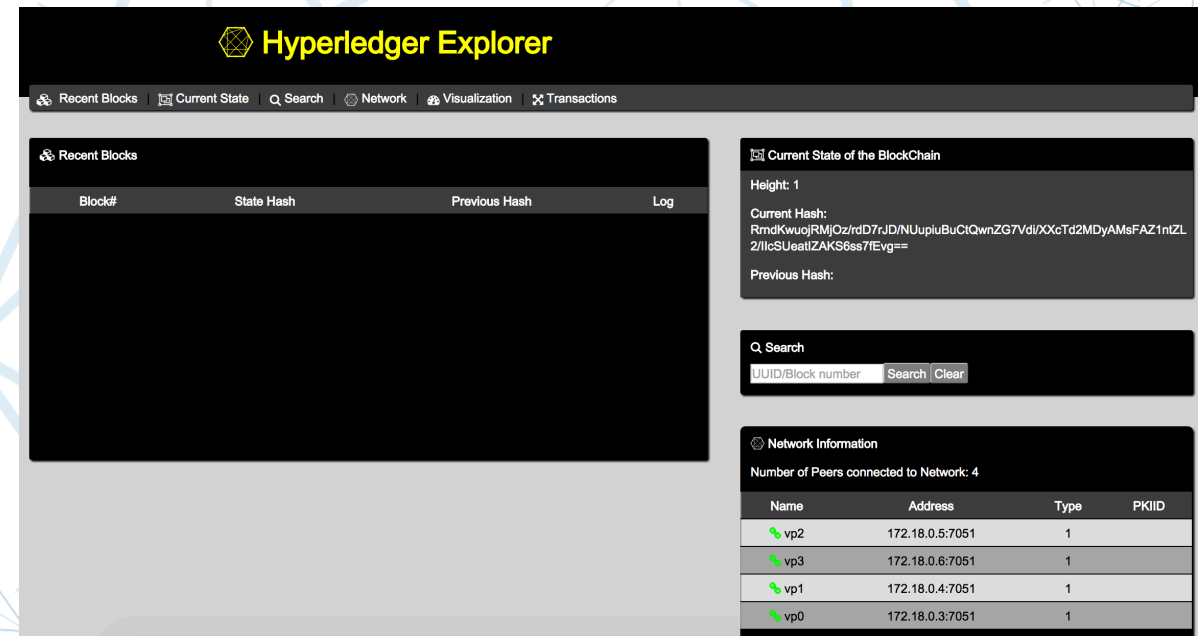
Hyperledger Cello

- [Open-sourced](#) at Jan, 2017
- Proposed by IBM
- Python, JavaScript
- 400+ commits
- Key features
  - Blockchain as a Service
  - Support various infrastructures
  - High-performance
  - Scalability
  - Pluggability
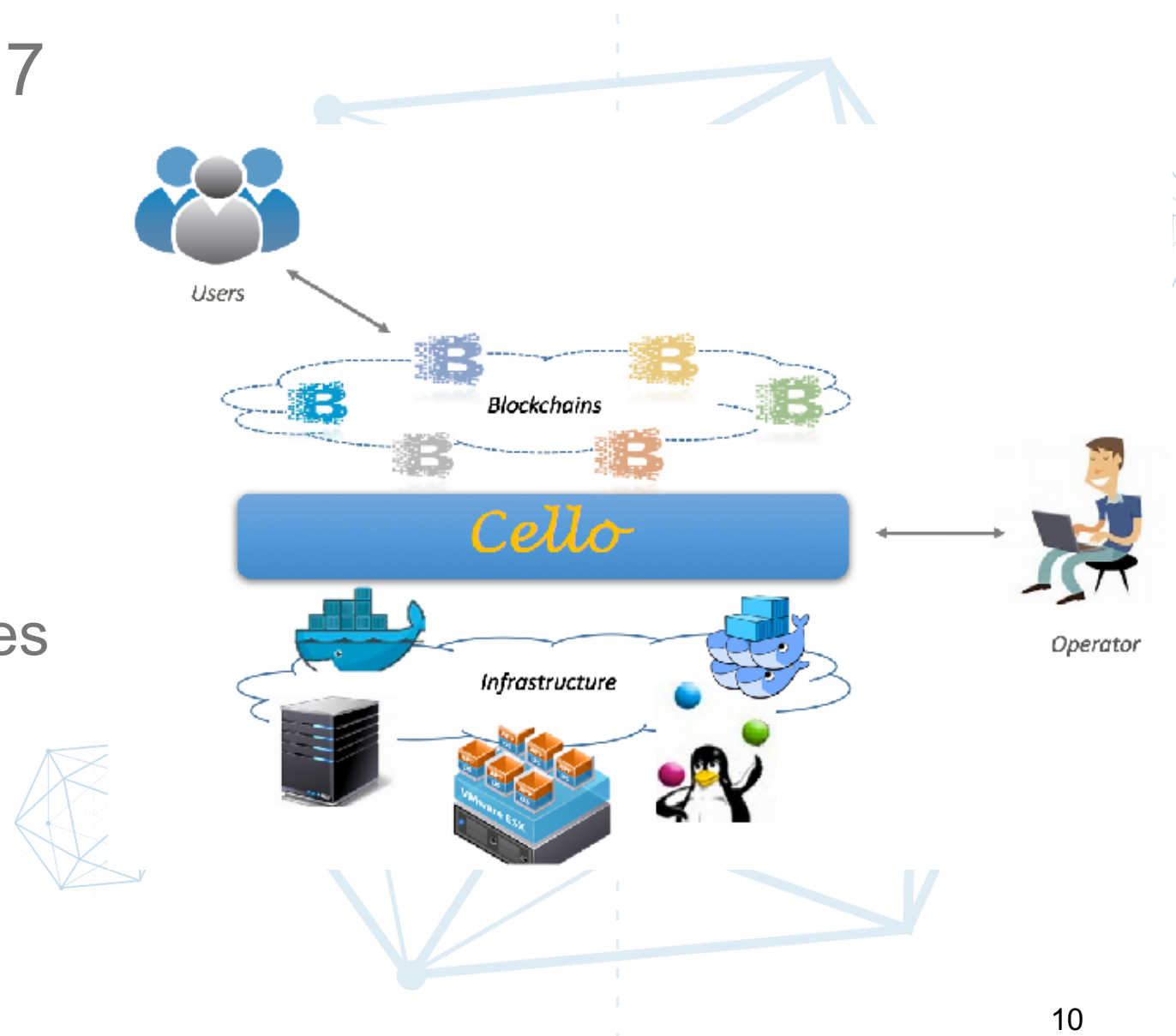
Hyperledger Composer

- [Open-sourced](#) at Mar, 2017
- Proposed by IBM
- JavaScript
- 4000+ commits
- Key features
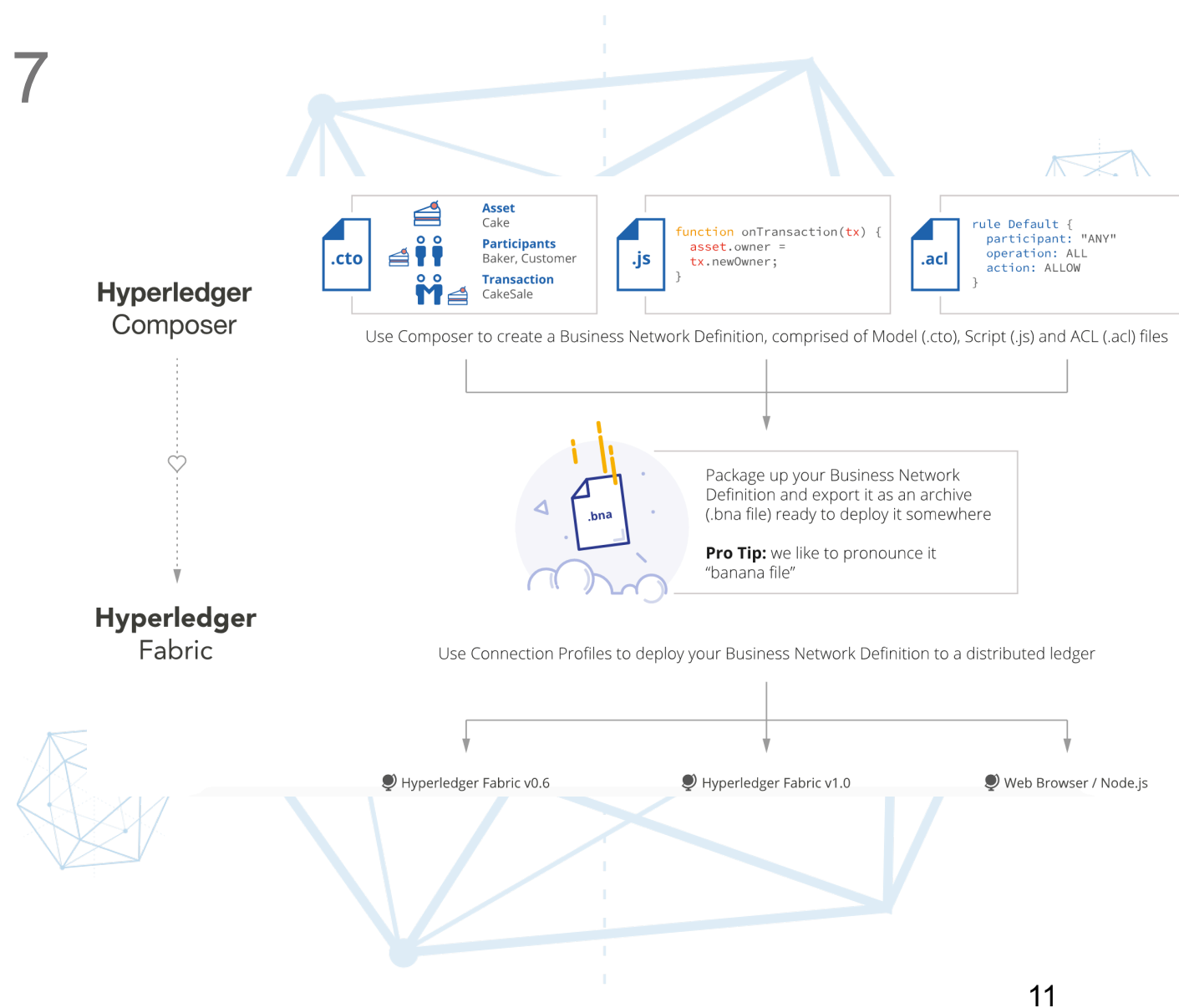 - For fabric
  - Simplify application creation

Hyperledger Composer

Hyperledger Fabric

Asset
Cake
Participants
Baker, Customer
Transaction
CakeSale

```
.cto
```

```
.js    function onTransaction(tx) {
           asset.owner =
           tx.newOwner;
       }
```

```
.acl   rule Default {
           participant: "ANY"
           operation: ALL
           action: ALLOW
       }
```

Use Composer to create a Business Network Definition, comprised of Model (.cto), Script (.js) and ACL (.acl) files

.bna

Package up your Business Network Definition and export it as an archive (.bna file) ready to deploy it somewhere

Pro Tip: we like to pronounce it "banana file"

Use Connection Profiles to deploy your Business Network Definition to a distributed ledger

Hyperledger Fabric v0.6   Hyperledger Fabric v1.0   Web Browser / Node.js
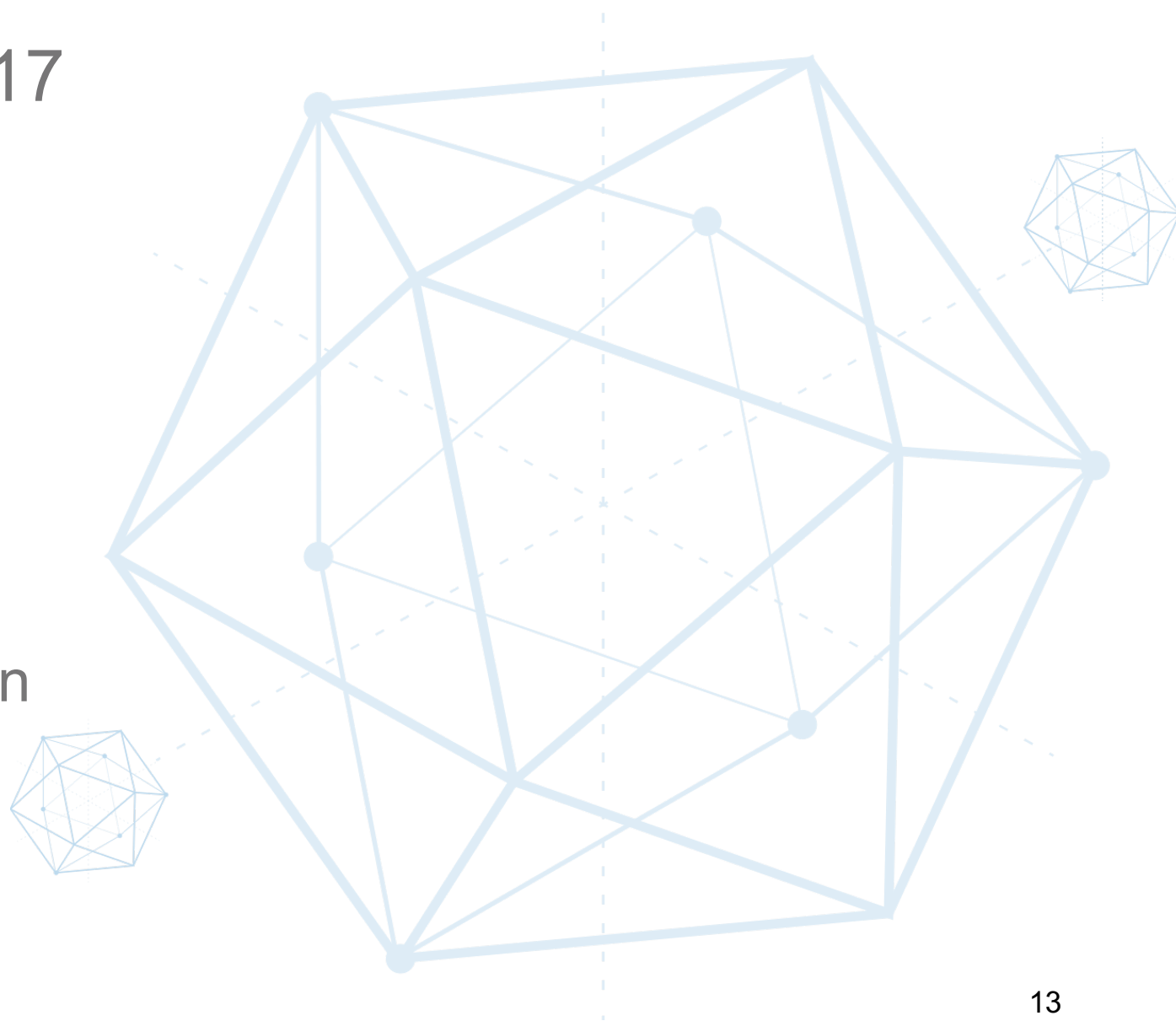
Hyperledger Burrow

- [Open-sourced](#) at April, 2017
- Proposed by Monax, Intel
- Written in Golang
- 1000+ commits
- Key features
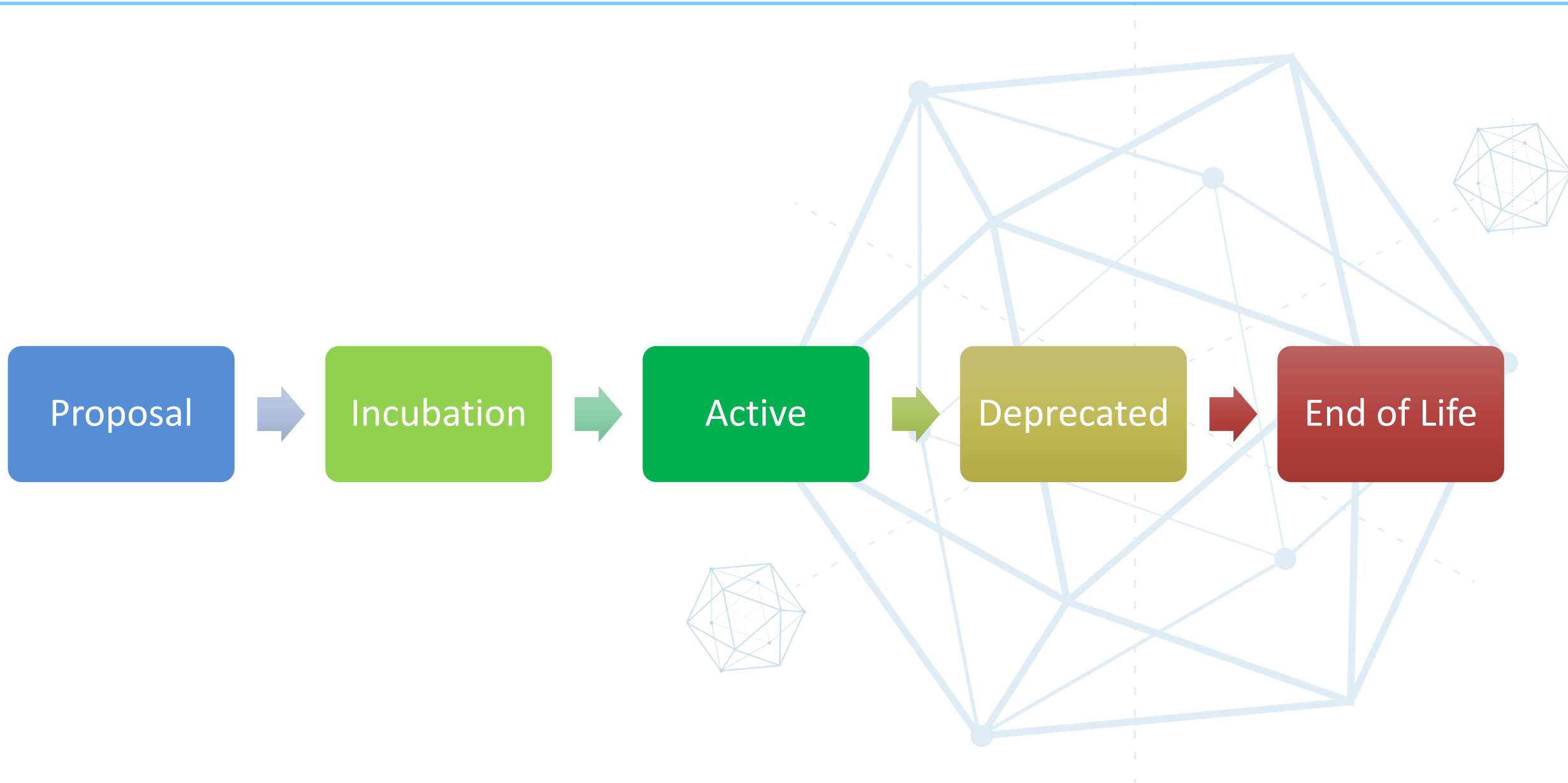 - From eris-db
  - Ethereum vm support
  - Proof-of-Stake
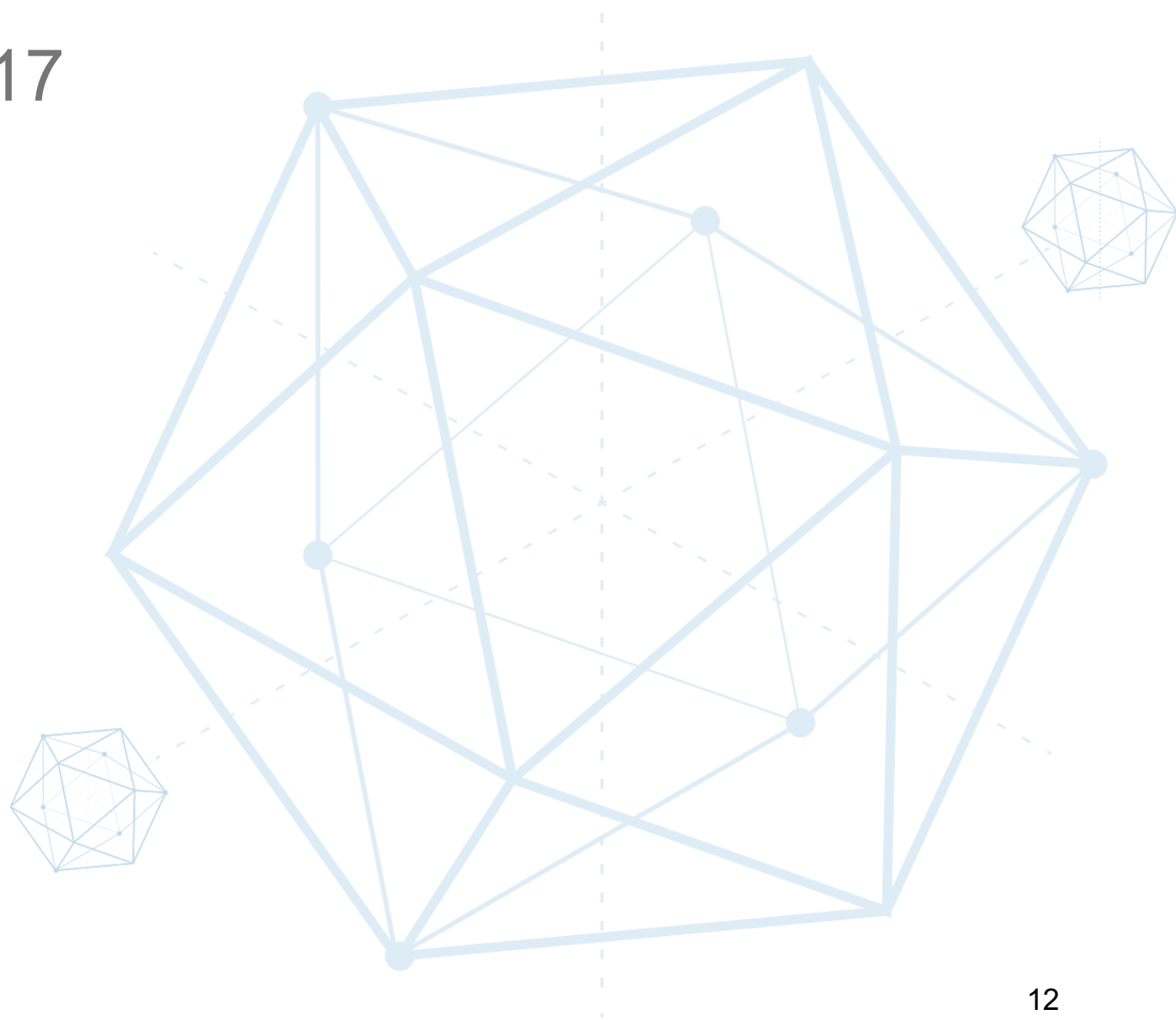
Hyperledger Indy

- Open-sourced at April, 2017
- Proposed by Sovrin
- Written in Python
- 1000+ commits
- Key features
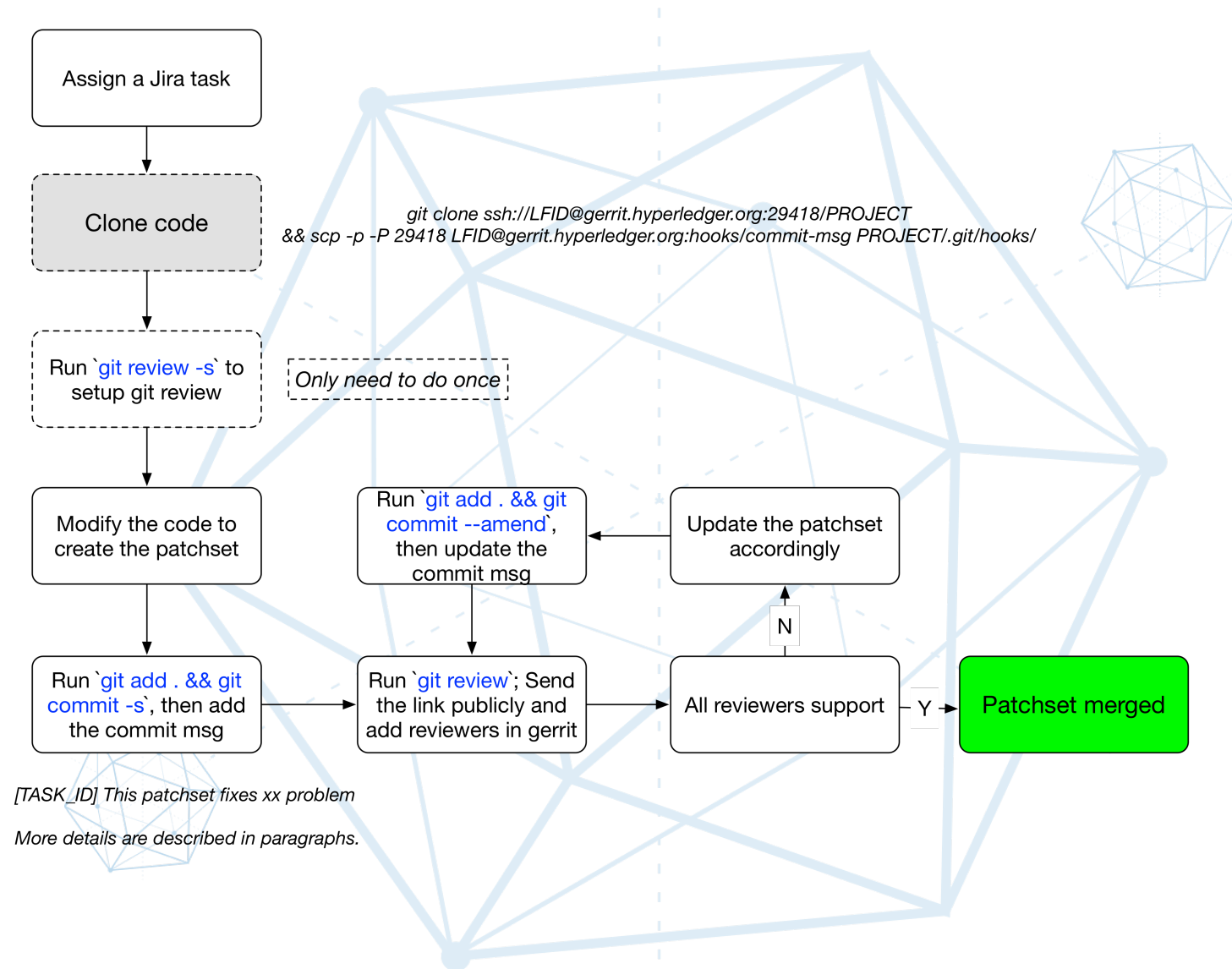 - Digital ID management
 - Cross-chain, cross-application

Hyperledger Projects Lifecycle

Proposal → Incubation → Active → Deprecated → End of Life

How to Contribute

- [Linux Foundation ID](#)

- [Jira](#) to manage tasks

- [Gerrit](#) to host code

- [RocketChat](#)


```
Assign a Jira task
        |
        v
    Clone code
        |
        v
Run `git review -s` to    Only need to do once
setup git review
        |
        v
Modify the code to        Run `git add . && git      Update the patchset
create the patchset       commit --amend`,           accordingly
        |                 then update the
        v                 commit msg                        ^ N
Run `git add . && git          |                            |
commit -s`, then add           v                            |
the commit msg      -->  Run `git review`; Send  -->  All reviewers support  -Y->  Patchset merged
                        the link publicly and
                        add reviewers in gerrit
```

git clone ssh://LFID@gerrit.hyperledger.org:29418/PROJECT
&& scp -p -P 29418 LFID@gerrit.hyperledger.org:hooks/commit-msg PROJECT/.git/hooks/

[TASK_ID] This patchset fixes xx problem

More details are described in paragraphs.

Reference

- Hyperledger Wiki&Documentation
  - wiki.hyperledger.org
  - hyperledger-fabric.readthedocs.io
- 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
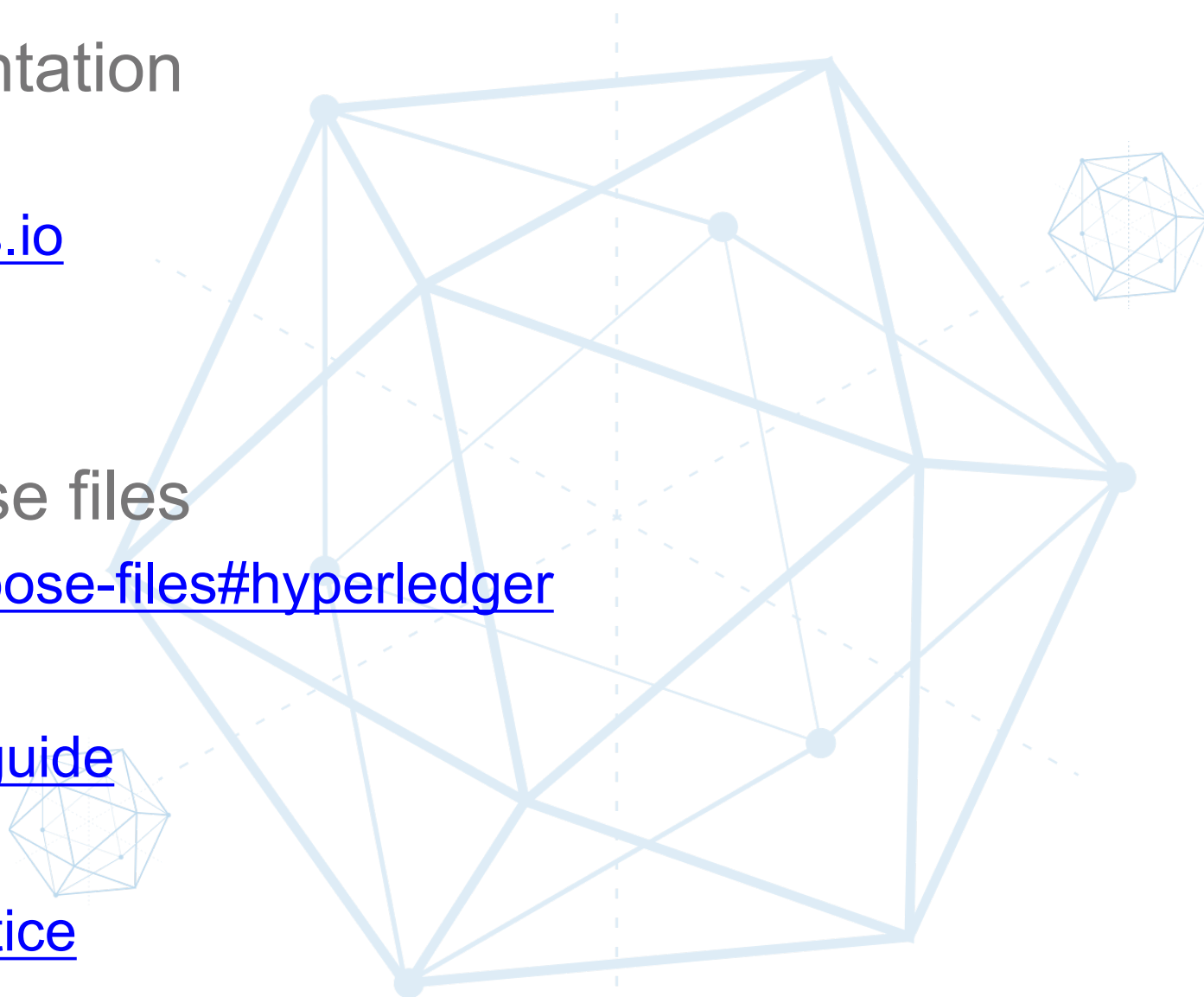
Questions?

Thank You!
@baohua

Slides available at github.com/yeasy/seminar-talk#hyperledger