The Hyperledger

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THE HYPERLEDGER VISION

Introducing Hyperledger

A global, cross-industry community of communities advancing business blockchain technologies.

Hyperledger is advancing enterprise grade, open source business blockchain technologies, including distributed ledgers, smart contract engines, client libraries, graphical interfaces, utility libraries, and sample applications.

Hyperledger provides the underlying open source software, on top of which anyone can set up apps to meet business needs.

Built under technical governance and open collaboration, individual developers, service and solution providers, government associations, corporate members and end users are all invited to participate in the development and promotion of these game-changing technologies.

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Hosted By The Linux Foundation

For the last 16 years, The Linux Foundation® has provided unparalleled support for open source communities through financial and intellectual resources, governance structure, IT infrastructure, services, events, and training.

Dedicated to building sustainable ecosystems around open source projects, The Linux Foundation is working with the global technology community to solve the world's hardest problems through open source and **creating the largest shared technology investment in history**.

The Linux Foundation is the umbrella organization for **more than 60 open source projects** accelerating open technology development and commercial adoption. Some of the game-changing initiatives hosted by The Linux Foundation include:

Hyperledger Momentum

250+
Members
(50+ in China)

10+1
Hyperledger
projects

2
Production 1.0
releases

3.4M+
Lines of Code

44K+
Commits

1.4K+
Contributors

91K+
Enrolled in 1st Edx
course

**Hosted the most
popular webinar in
history of The
Linux Foundation
collaborative
projects on
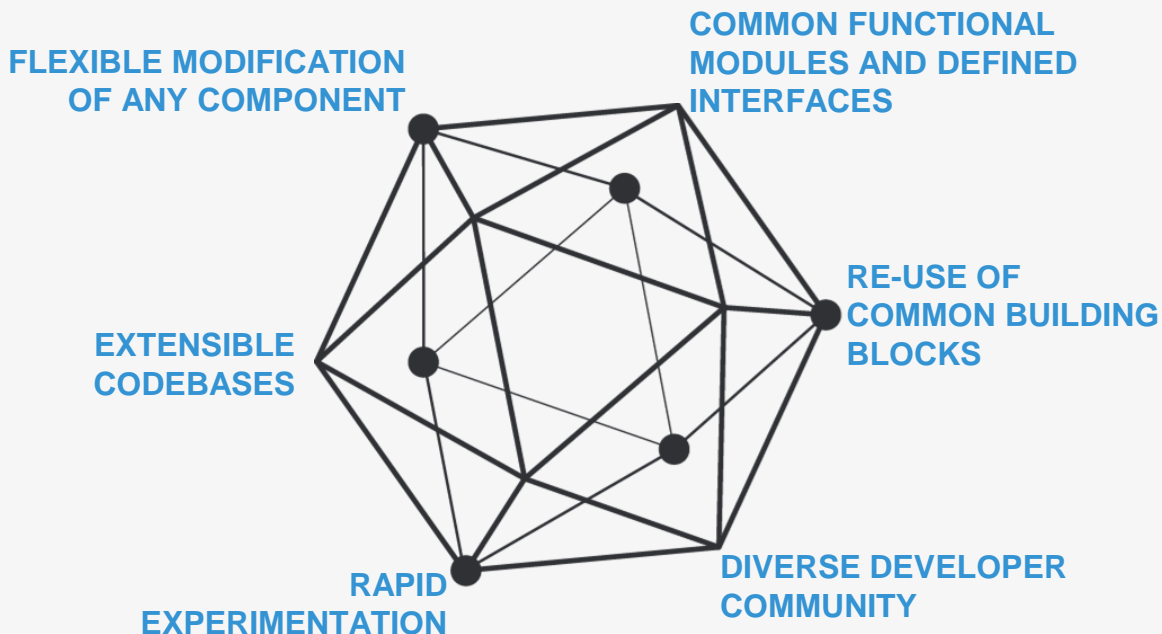Hyperledger
Fabric v1.0**

45K+
Twitter Followers

1.5K+
Avg. monthly press
mentions in 2017

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Hyperledger Modular Approach Benefits

Similar to The Linux Foundation, Hyperledger also has a modular umbrella approach. At the top level, The Linux Foundation and Hyperledger provide the infrastructure for open development to occur. This includes technical, legal, marketing, and organizational aspects.

Under Hyperledger's umbrella are frameworks and tools that take different approaches to creating blockchains for business.

There are many benefits to this modular approach.

FLEXIBLE MODIFICATION OF ANY COMPONENT

COMMON FUNCTIONAL MODULES AND DEFINED INTERFACES

RE-USE OF COMMON BUILDING BLOCKS

EXTENSIBLE CODEBASES

RAPID EXPERIMENTATION

DIVERSE DEVELOPER COMMUNITY

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Hyperledger Goals

Where open source teams build diverse approaches for business blockchain technology systems

Create enterprise grade, open source, distributed ledger frameworks & code bases

to support business transactions

Provide neutral, open, & community-driven infrastructures

supported by technical and business governance

Build technical communities

to develop blockchain and shared ledger POCs, use cases, field trials and deployments

Educate the public

about the market opportunity for blockchain technology

Promote our community of communities

taking a toolkit approach with many platforms and frameworks

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Join Your Industry Peers

Hyperledger Premier Members Serving on the Governing Board.

Hyperledger Members

Premier

Associate

General

Associate (Academia)

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Hyperledger Technical Scope

Out of Scope	Custom Applications	App Layer
	API libraries and GUIs Specialized consensus algos Membership policies Gateway Operations dashboard	**Value Added Systems**
In Scope	Core APIs	**Core APIs**
	Code execution environment Ledger data structures Modular consensus framework Modular identity services Network peers	**Shared Ledger**

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Hyperledger Modular Umbrella Approach

Infrastructure
Technical, Legal, Marketing, Organizational

Ecosystems that accelerate open development and commercial adoption

THE LINUX FOUNDATION

| Cloud Foundry | Node.js | **Hyperledger** | Open Container Initiative |

Frameworks
Meaningfully differentiated approaches to business blockchain frameworks developed by a growing community of communities

| Hyperledger **Indy** | Hyperledger **Fabric** | Hyperledger **Iroha** | Hyperledger **Sawtooth** | Hyperledger **Burrow** |

Tools
Typically built for one framework and ported to other frameworks through common license and community approach

| Hyperledger **Quilt** | Hyperledger **Composer** | Hyperledger **Explorer** | Hyperledger **Cello** | Hyperledger **Caliper** |

Hyperledger **Ursa**

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Hyperledger Fabric

Business Blockchain Framework

- First project that was contributed to Hyperledger

- Contributed by Digital Asset and IBM

- Smart contracts called "chaincode" are written in Golang and Javascript

- Run in secure Docker containers

- Channels ensure that only the participants involved in a transaction see the transaction

Hyperledger Sawtooth

Business Blockchain Framework

- Hyperledger second project contributed by Intel

- Supports both permissioned and permissionless deployments

- Includes a novel consensus algorithm, Proof of Elapsed Time (PoET), which mimics proof of work without the high energy consumption

- Uses the secure enclave on an Intel chip to provide a random wait timer to each of the validators (nodes) on the network

- First validator whose timer expires generates the next block

- Supports the EVM through a collaboration with the Hyperledger Burrow community

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Hyperledger Iroha

Business Blockchain Framework

- Contributed by Soramitsu, Hitachi, NTT Data and Colu

- Written in C++

- Emphasis on mobile application development

- Provides both Android and iOS SDKs

Hyperledger Indy

Business Blockchain Framework

- Contributed by the Sovrin Foundation

- Focuses on identities rooted on blockchains

- Utilizes zero-knowledge proofs to provide verifiable claims

- These verifiable claims can be used to prove something about the identity without providing access to the underlying data

Hyperledger Burrow

Business Blockchain Framework

- Contributed by Monax

- The first permissioned ledger with support for the Ethereum Virtual Machine (EVM)

- Originally named ErisDB

- Uses Tendermint as its consensus mechanism

Hyperledger Composer

Business Blockchain Tool

- Contributed by IBM and Oxchains

- Suite of tools to quickly develop your blockchain business networks

- Modeling language allows you to have your business people specify the participants, assets, and transactions

- Developers write transaction logic in JavaScript

- Ability to generate a REST API and Angular application from the model

Hyperledger Cello

Business Blockchain Tool

- Contributed by IBM, with sponsors from Soramitsu, Huawei and Intel

- Used for DevOps

- Allows you to quickly deploy your blockchain networks

- Provides the ability to monitor your blockchain networks

- Blockchain network can be deployed on baremetal, virtual machine, or cloud

Hyperledger Explorer

Business Blockchain Tool

- Originally contributed by IBM, Intel and DTCC. Recent release contributed by OneChain

- Allows you to visualize the blockchain

  - Blocks

  - Transactions

  - Network information

  - Chaincodes or Transaction families

Hyperledger Quilt

Business Blockchain Tool

- Contributed by NTT Data and Ripple

- Java implementation of the Interledger protocol

- Interledger protocol provides:
  - atomic swaps between ledgers (even non-blockchain or distributed ledgers)
  - a single account namespace for accounts within each ledger

Hyperledger Caliper

Blockchain benchmark framework

- Allows users to measure the performance of a specific blockchain implementation

- Reports containing a number of performance indicators:
  - TPS (Transactions Per Second)
  - Transaction latency
  - Resource utilization
  - etc.

- Support Fabric, Sawtooth, Iroha

Hyperledger Ursa

Cryptographic Library

- Shared cryptographic library

- The library would be an opt-in repository for projects to place and use crypto.

- Newer Project, Started in November 2018

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Additional Community Working Groups

Working Groups are open to the public

Technical Working Group, China (TWG - China)	**Requirements Working Group**	**Identity Working Group**
Architecture Working Group	**Whitepaper Working Group**	**Healthcare Working Group**

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Community and Ecosystem

Community and Ecosystem Engagement

Behlendorf is a regular keynoter and Hyperledger exhibits at cross-industry events.

Hyperledger Member Summit and first annual Hyperledger Global Forum.

Active engagement with technology and finance journalists and analysts to continue educating the market on Hyperledger. hyperledger.org/news

Technical Steering Committee hosts regular online and face-to-face hackathons. Join our mailing lists to learn about these and other technical activities. hyperledger.org/community

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Hyperledger Global Meetups

Hyperledger Meetups

We are **34K+ members** across **130+ Meetups**

Hyperledger Brazilian Meetups

Fortaleza

Belo Horizonte

São Paulo

Curitiba

Porto Alegre

www.meetup.com/pt-BR/Hyperledger-Porto-Alegre

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Help us shape the future of blockchain.

Subscribe to Hyperledger Mailing Lists

Attend Hyperledger Hackfests and upcoming blockchain events

Get the **latest development updates** from the wiki

Engage in the discussion on Rocket.Chat

Search for Open Bugs, or Report a New One, in Our Bug Database

Start or join a local Hyperledger Meetup

Participate in the Working Group meetings

Check out all the Hyperledger business blockchain technologies and

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Thank you!

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or email info@hyperledger.org.