Hyperledger Overview

April 2018
Introducing Hyperledger

Open source collaborative effort to advance cross-industry blockchain technologies

Hosted by The Linux Foundation, fastest-growing project in LF history

Global collaboration spanning finance, banking, IoT, supply chains, healthcare, manufacturing, technology and more.
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:
The Linux Foundation has achieved an unbelievable feat in bringing together a community of traditionally competitive institutions. To facilitate such extensive collaboration between startups, financial and nonfinancial corporations and technology giants is an enormous win for the whole distributed ledger industry as firms look to leverage mutually beneficial code for the common good.”

– Blythe Masters

CEO, Digital Asset,
Governing Board Chair, Hyperledger
The Linux Foundation 2016 Annual Report
Shared Ledger Database

Blockchain allows multiple different parties to securely interact with the same universal source of truth

Finance
Streamlined settlement, improved liquidity, increased transparency and new products/markets

Healthcare
Unite disparate processes, increase data flow and liquidity, reduce costs and improve patient experience and outcomes

Supply Chain
Track parts and service provenance, ensure authenticity of goods, block counterfeits, reduce conflicts
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
Hyperledger Modular Approach

**Infrastructure**
Technical, Legal, Marketing, Organizational

Ecosystems that accelerate open development and commercial adoption

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

**Tools**
Typically built for one framework and ported to other frameworks through common license and community approach
Hyperledger Business Blockchain Frameworks

- **Hyperledger Fabric**: Intended as a foundation for developing applications or solutions with a modular architecture, Hyperledger Fabric allows components, such as consensus and membership services, to be plug-and-play.

- **Hyperledger Iroha**: A business blockchain framework designed to be simple and easy to incorporate into infrastructural projects requiring distributed ledger technology.

- **Hyperledger Sawtooth**: A modular platform for building, deploying, and running distributed ledgers. Hyperledger Sawtooth includes a novel consensus algorithm, Proof of Elapsed Time (PoET), which targets large distributed validator populations with minimal resource consumption.

- **Hyperledger Burrow**: A permissionable smart contract machine. The first of its kind when released in December, 2014, Burrow provides a modular blockchain client with a permissioned smart contract interpreter built in part to the specification of the Ethereum Virtual Machine (EVM).

- **Hyperledger Indy**: Tools, libraries, and reusable components for providing digital identities rooted on blockchains or other distributed ledgers so that they are interoperable across administrative domains, applications, and any other silo.
## Hyperledger Technical Scope

<table>
<thead>
<tr>
<th>Out of Scope</th>
<th>Custom Applications</th>
<th>App Layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Scope</td>
<td>API libraries and GUIs</td>
<td>Value Added Systems</td>
</tr>
<tr>
<td></td>
<td>Specialized consensus algos</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Membership policies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gateway</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operations dashboard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Core APIs</td>
<td>Core APIs</td>
</tr>
<tr>
<td></td>
<td>Code execution environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ledger data structures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modular consensus framework</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modular identity services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network peers</td>
<td>Shared Ledger</td>
</tr>
</tbody>
</table>
Leadership

“2016 was full of growth for the organization and community. Not only did we exceed 100 members, Hyperledger met significant development milestones across our several Umbrella projects, thanks to the community’s hard work. As 2016 was a year of exploration, R&D and prototyping, we’re excited for 2017 to be the year we start to see case studies of Hyperledger Business Blockchain Technologies in production environments.”

Brian Behlendorf
Executive Director

Apache Web server – Primary developer
Apache Software Foundation – Founding member
Mozilla Foundation – BOD since 2003
Electronic Frontier Foundation – BOD since 2013
CollabNet – Founding CTO
World Economic Forum – CTO
Most recently, managing director at Mithril Capital Management LLC, a global technology investment firm
Governing Board

Comprised of one voting representative from each Premier Hyperledger member and attended by the TSC and Marketing Committee Chairs, the Governing Board’s responsibilities include:

• Approving a budget
• Electing a Chair to preside over Governing Board meetings, authorize expenditures approved by the budget and manage any day-to-day operations
• Overseeing all Project business and marketing matters

Blythe Masters
Governing Board Chair

Digital Asset – CEO

Digital Asset builds distributed, encrypted straight through processing tools to improve efficiency, security, compliance and settlement speed.

Blythe was previously a senior executive at J.P. Morgan, which she left in 2014 after a career spanning 27 years, following the successful sale of the bank’s physical commodities business which she built.

Named J.P. Morgan's head of Global Commodities in 2007, Blythe was responsible for building an integrated physical and financial commodity business, including market-making, structuring, risk management, financing and warehousing capabilities across the full spectrum of commodity asset classes.
The TSC is the technical governance heart and soul of the project. As new code bases get contributed to the project they get reviewed and approved by this committee.

Committing members appoint and vote the TSC Chair annually.

Meets weekly on Thursday, 10:00 AM to 11:30 AM ET

All are invited to attend these calls and encouraged to join the TSC mailing list for more information:
https://lists.hyperledger.org/mailman/listinfo/hyperledger-tsc

IBM Distinguished Engineer and CTO Open Technology in the IBM Cloud organization

Involved in the architecture, design, & engineering of distributed systems for most of his 36+ year career

Actively engaged in open standards and open source development since 1999

Overall technical responsibility for all of IBM’s strategic open technology initiatives, including OpenStack, Cloud Foundry, Hyperledger Project, Open Container Initiative, Cloud Native Computing Foundation, Mesos, Node.js, Docker, and more
The Hyperledger Marketing Committee is open to all Hyperledger members and is charged with defining and executing the marketing and outreach strategy.

To date, the Committee has established these standing Working Groups – PR, Messaging & Events – member only by request/invitation.

Dan was the co-founder and CEO of Hyperledger, a San Francisco-based technology firm that developed an innovative distributed ledger to allow financial institutions to clear and settle transactions in real-time.

Hanna Zubko has over 10 years of experience in technology for the financial services industry.

She is the founder of IntellectEU, an integration and development company,
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
Hyperledger Momentum

190+ Members (30+ in China)

10 Hyperledger projects

2 Production 1.0 releases

3.6M+ Lines of Code

47K+ Commits

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

77K+ Enrolled in 1st Edx course (2k+ completed)

10 Active Community Working Groups

40K+ Twitter Followers

1.5K+ Avg. monthly press mentions in 2017
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
Hyperledger Global Meetups

Hyperledger Meetups

We are **28k+ members** across **110+ Meetups**
Join Your Industry Peers

Hyperledger Premier Members Serving on the Governing Board.
Join Your Industry Peers

General Members

- 8base
- 8Common
- ABN Amro
- Aetna
- Agavon
- AlphaPoint
- Altoros Americas LLC
- Aktiaseits Eurostep Digital
- AMIHAN Global
- ANNE
- ANZ
- ArcBlock
- B9lab
- BBVA
- Beijing Botuzongheng Science & Technology Co., Ltd.
- Beijing RZXT Technology Development
- Beijing Truth Technology
- Beijing Xiaomi Mobile Software
- Belink Technologies
- Bitmark
- BitSE
- Blockchain
- Blockchain Technology Partners
- Blockchain Training Alliance
- BLOCKO Inc.
- Bloq
- BNP Paribas
- Broadridge Financial Solutions
- BTS
- CA Technologies
- Calastone
- Capgemini
- Centra Tech
- ChainNova
- China Merchants Bank
- China Minsheng Bank
- CITIC
- Clause, Inc
- Cloudsoft Corporation Ltd.
- CLS Bank International
- CME Group
- Cognition Foundry
- Coinplug
- CollectorIQ Inc.
- CU Ledger
- Data Deposit Box
- Dealer Market Exchange
- Deloitte Consulting LLP
- Deutsche Börse Group
- DLT Labs
- Easy Visible Supply Chain Management
- EBPI BV
- Elementrem
- Eli Lilly & Company
- Embleema
- Energy Blockchain Labs
- Ernst & Young
- Factom Foundation
- Filament
- FORFIRM
- ForgeRock
- FZG360 Network Co. Ltd
- GameCredits
- Gem
- Gibraltar Stock Exchange (GSX)
- Global Blockchain Technologies
- Global Peersafe Technology Corp.
- GM Financial
- Greenstream Technology
- GXChain
- Hangzhou Fuzamei Technology
- Hashed Health
- Huawei
- Hyperchain Technologies
- Information Builders
- Inspur
- IntellectEU
- Kaiser Permanente
- KompiTech
- Korea Exchange
- Korea Security Depository
- Koscom
- KrypC Corp
- LedgerDomain
- Libra
- Loyyal Corporation
- Lykke
- MadHive
- Majid Al Futtaim
- MATRIX Foundation
- Medicalchain
- MetaX
- MIRACL UK Limited
- Monax Industries Limited
- MonetaGo
- Moscow Exchange
- Murphy & McGonigle, P.C.
- National Stock Exchange of India
- New H3C Technologies
- NEX Optimisation
- Nexiot
- Norbloc
- NTT Data
- Oracle
- Orange Magic Cube
- Patientory
- Paxos
- PetroBloq
- PDX Technologies
- Pravici
- PwC
- R3
- RadarWin Cyber Technology
- Red Hat
- REMME
- Reve lyr Labs
- Ripple
- Robert Bosch
- Samsung SDS
- Sberbank
- ScanTrust SA
- Schroder Investment Management Limited
- SecureKey Technologies
- sedna GmbH
- Sempre IT
- Shanghai Ginkoo Financial Technology
- Shanghai Onechain Information Technology
- Shenzhen Forms Syntron Information Shenzhen
- Shenzhen Rongxun Technology
- Sinolending Ltd
- Smart Block Laboratory
- Smart Link Lab
- Soramitsu
- Spin Systems
- State Street
- SWIFT
- Swisscom AG
- Tai Yi Yun
- Tencent Cloud
- Thales
- Thomson Reuters
- TMX Group Limited (TSX)
- TradeIX Limited
- Turkcell
- United Traders
- Versia
- VitalHub Corp.
- VMware
- Wipro
- Xiilab Co.
- Xinguodu Technology CO., LTD
- YDreams Global
- Yuphant Blockchain
- Zhejiang Shuqin Technology
- Beijing Smart Card Technology Research Institute
- Ziggurat Technology
## Associate Members

- Accord Project
- Bank of England
- Blockchain Research Institute
- Cambridge Centre for Alternative Finance (University of Cambridge)
- Chamber of Digital Commerce
- Cloud Security Alliance
- Colored Coins
- IC3
- IFSE
- Infrachain
- Kerala Blockchain Academy
- Mercy Corps
- Ministry of Finance of the Republic of Lithuania
- Nxt Foundation
- OSCRE
- Peking University
- Produce Marketing Association
- ShareIT.io
- Sovrin Foundation
- Smart Dubai Office
- Taiwan Fintech Association
- Tecnalia Research & Innovation
- TNO
- University College London
- University of Luxembourg
- University of Rome Tor Vergata/Inuit Foundation
- Vilnius Gediminas Technical University
- VSP Global
- Zhejiang University
- The Illinois Blockchain Initiative

[View the complete list of Hyperledger members.](#)
Get Involved!

Ensure the strength and longevity of a core technology to your business.

Publicly proclaim your leadership in the blockchain space.

Work with other blockchain leaders to develop and promote Hyperledger blockchain for business technologies.

Visit hyperledger.org/about/join or email info@hyperledger.org.