HYPERLEDGER

BLOCKCHAIN TECHNOLOGIES FOR BUSINESS

Introduction to Blockchain Technology and Hyperledger

Chris Ferris (IBM) and Dan O'Prey (Digital Asset)

May 2017

Webinar May 17, 2017

Technical Steering Committee

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 Thursdays, 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

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Chris Ferris

TSC Chair

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

Marketing Committee

The Hyperledger Marketing Committee is open to all members of the project and is charged with defining and executing the marketing and outreach strategy.

To date, the Committee has established two standing Working Groups – Messaging and Events – and is exploring additional ones.

Dan O'Prey

Marketing Committee Chair

Digital Asset – CMO

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.

Prior to Hyperledger, Dan lived in Beijing where he founded and served as the CEO of MadeiraCloud (VisualOps), a visual cloud management and automation tool for Amazon Web Services.

Leadership

“

2016 has been 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

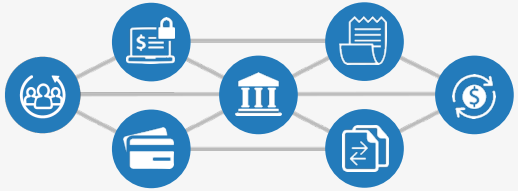
Digital Asset builds distributed, encrypted straight through processing tools to improve efficiency, security, compliance and settlement speed.

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.

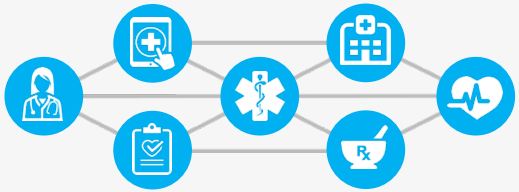
Shared Ledger Database

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



Finance

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



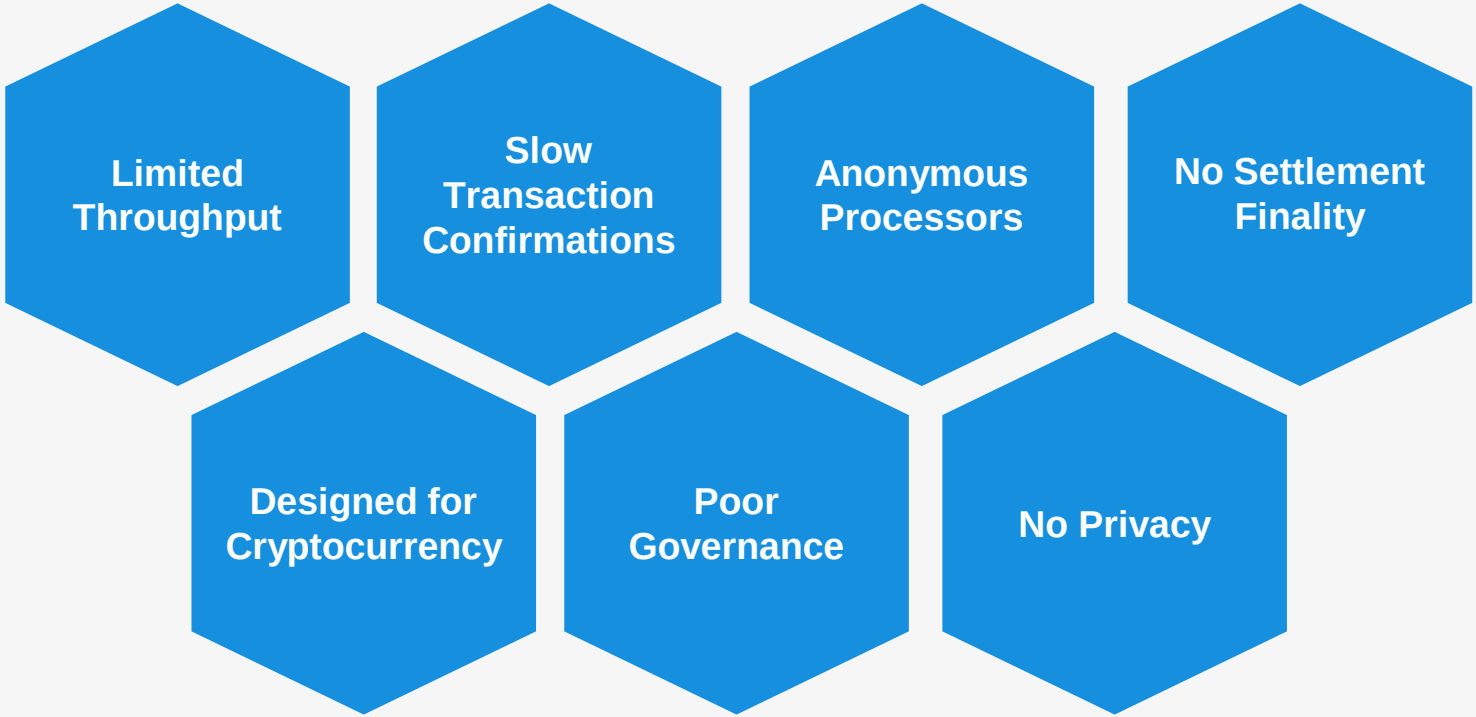
Healthcare

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

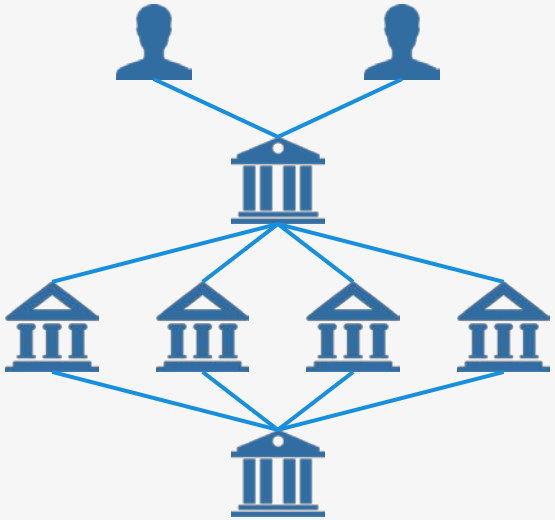
Problems with existing blockchains



Use Case: Clearing and Settlement

- Today's post trade clearing and settlement system's involved numerous parties, each keeping a copy of the same pieces of data.
- Blockchain enables this process to be simplified so that every participant can be confident they are seeing what their counterparties are seeing.

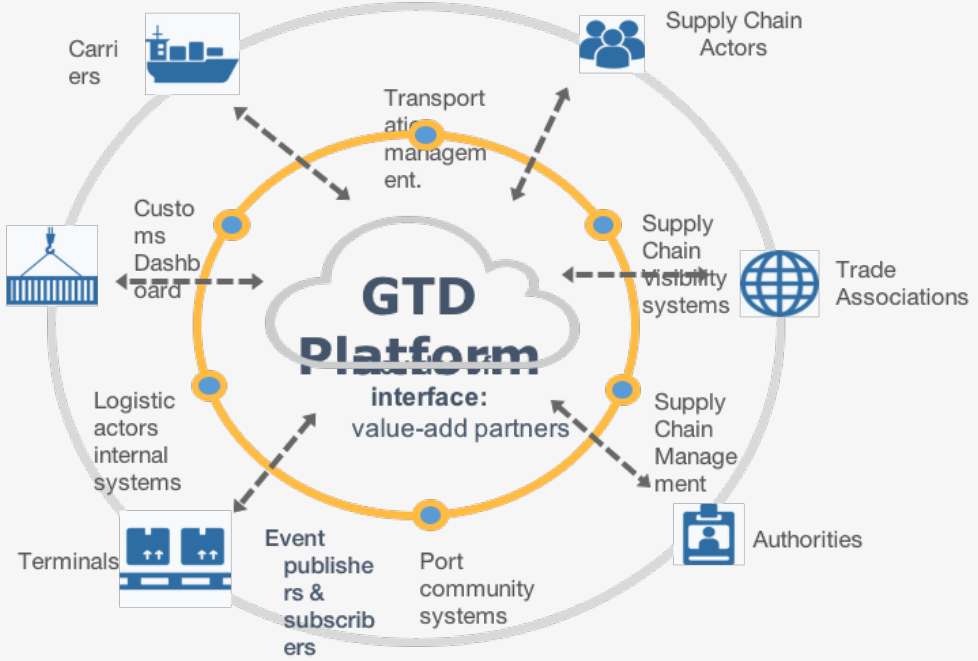
Today's Process:



Blockchain Process:

Use Case: Global Trade Digitization

- Provide trusted, tamper-proof, cross-border workflows for digitized trade documents
- Provide shared visibility and shared state for container shipments



Use Case: Supply chain management

Hyperledger Healthcare Working Group

Other Use Cases

Cross Border Payments

Letters of Credit

Securities Settlement

Trade Finance

Repurchase Agreements

Digital Rights Management

Land Registry

Voting

Identity

Internet of Things

THE LINUX FOUNDATION

Together with the global technology community, The Linux Foundation® is solving the world's hardest problems through open source and **creating the largest shared technology investment in history**.

With 16 years experience providing **governance structure, IT infrastructure and ecosystem development**, The Linux Foundation is the umbrella organization for **more than 50 open source projects** accelerating open technology development and commercial adoption.

Some of the game-changing initiatives hosted by The Linux Foundation include:

OPENCHAIN · Let's Encrypt · JS Foundation · OPEN CONTAINER INITIATIVE · CLOUD NATIVE COMPUTING FOUNDATION · Xen Project · Core Embedded Linux Project

OPEN DAYLIGHT · CORD · CORE INFRASTRUCTURE INITIATIVE · OPNFV · CLOUD FOUNDRY · node JS · yocto PROJECT

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What is Hyperledger? What Makes it Unique?

Open Source not-for-profit accelerating the development and adoption of **business blockchain technologies.** Businesses with the most stringent blockchain requirements **Trust Hyperledger** because:

Hosted by **The Linux Foundation**, the experts at accelerating open technology development and commercial adoption

Neutral and collaborative, Hyperledger will always:

- be open to all who wish to participate
- produce open source technologies
- remain immune to the commercial interests of any single company

Industry-standard blockchains **by business for business**

Hyperledger blockchain technologies emphasize key enterprise requirements:

- Support for differing levels of access
- Sub-universal validation
- Cross-chain transactions
- Modularity

“The most valuable role Hyperledger can play is to serve as a trusted source of innovative, quality-driven open source software development community;

creating modular, open source components and platforms;

all focused on distributed ledger and smart contract technologies. If Hyperledger can forge a brand that is widely seen as the accepted default ‘safe’ deployment platform for enterprise teams, and be seen as a great home for active collaboration around new technologies, then I think we can say ‘mission accomplished’.”

Brian Behlendorf
Executive Director
Hyperledger

photo: https://www.linux.com/news/hyperledger-source-truth

You say businesses with the most stringent requirements Trust Hyperledger? Like Who?

These 16 Hyperledger Premier Members, over 100 General Members and several Associate Member regulators, advocates and academics are working with the global open source community to co-create industry-standard business blockchain technologies.

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“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

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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

How is Hyperledger Set-up?

Infrastructure

Technical, Legal, Marketing, Organizational

Ecosystems that accelerate open development and commercial adoption

THE LINUX FOUNDATION

CloudFoundry | Node.js | **Hyperledger** | Open Container Initiative

Frameworks

Meaningfully differentiated approaches to business blockchain frameworks developed by a growing community of communities from the entire industry

Fabric | **Iroha** | **Sawtooth** | **Burrow**

Modules

Typically built for one framework, and through common license and community of communities approach, ported to other frameworks

Indy | **Chaintool** | **Explorer** | **Cello**

Hyperledger Blockchain Frameworks

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

2. **Hyperledger Iroha:** **Distributed ledger project** designed to be simple and easy to incorporate into infrastructural projects requiring distributed ledger technology.

3. **Hyperledger Sawtooth:** **Distributed ledger technology** with potential in many fields, from IoT to Financials, and an architecture that recognizes the diversity of requirements across that spectrum. Support for both permissioned and permissionless deployments.

4. **Hyperledger Burrow:** Permissioned Ethereum **smart contract blockchain** implementation

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For complete list of Blockchain projects in incubation, including sub-projects, visit www.Hyperledger.org/community/projects.

Hyperledger Blockchain Tools

5 **Hyperledger Indy**: **distributed ledger** purpose-built for decentralized identity solution

6 **Hyperledger Composer**: **collaboration tool** for building businesss networks, accelerating development and deployment of smart contracts.

7 **Hyperledger Cello**: aims to bring the on-demand “as-a-service” deployment model to blockchain and reduce the effort required to **create and manage a decentralized blockchain network**.

8 **Hyperledger Explorer**: a tool to **view, invoke, deploy or query** blocks, transactions and associated data stored on the ledger.

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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**	**Blockchain Protocol Working Group**

How can I get involved?

1. If high-quality, industry-standard business blockchain technologies are critical to your business, please consider joining: Visit: www.hyperledger.org/about/join or email info@hyperledger.org

2. Developers and tech leaders, engage with any of our open community channels: www.hyperledger.org/community

3. Stay up to date on all the latest Hyperledger news
   Follow us on twitter: @Hyperledger and sign up for our newsletter

Hyperledger Global Meetups

Hyperledger Meetups

We are **12,000+ members** across **53 Meetups**

Join Us!

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.

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