State of Hyperledger, Current usecases

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Agenda







Introduction to Blockchain Technologies

The Linux Foundation and Hyperledger Sample Use Cases



What are Blockchain Technologies?



Encompasses both **distributed ledgers** and **smart contracts**.



What is a Distributed Ledger?



An append-only system

of record or log of transactions.



Distributed Ledgers in Action



All businesses participating in a commercial ecosystem need a ledger to contain a record of transactions. It is vitally important to know that your copy of the ledger is identical to others' in the network.



Example Scenario



Everyone in a room has a book with the instructions to write down entries as they get called out.



Someone calls out item number one and everyone writes it down.



Then two people call out item

number two at the same time, but the item number differs.



There needs to be a process for who wins, and the loser gets to try to call out item number three.



When all agree on the outcome of an entry, the next link in that ledger can be written.



Whether this happens in a small scale or the size of the internet, that is the spectrum for how a distributed ledger can work.



What is a Smart Contract?



The code or any complex program stored and executed on a blockchain.



Smart Contracts in Action



Imagine a farmer based in Sacramento, California buys an insurance agreement that protects them from extreme weather condition. If temperatures reach more than 100 degrees for 100 days, they get reimbursed 10,000 USD.





With today's ledgers, the insurer might find a way to back out of, procrastinate or dispute this agreement.





If a Smart Contract is in place, the script in the ledger would rule that on that 100th day of 100+ degrees, the 10,000 USD would be automatically withdrawn. With an automated process, like it or not, the insurer cannot back out.



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The Linux Foundation is Much More than Linux



Security

X

Networking

We are helping global privacy and security through a program to encrypt the entire internet.





Cloud

We are creating a portability layer for the cloud, driving de facto standards and developing the orchestration layer for all clouds.



Automotive

We are creating the platform for infotainment in the auto industry that can be expanded into instrument clusters and telematics systems.



Web

We are providing the application development framework for next generation web, mobile, serverless, and IoT applications.



Blockchain

We are creating a permanent, secure distributed ledger that makes it easier to create cost-efficient, decentralized business networks.













We are regularly adding projects; for the most up-to-date listing of all projects visit tlfprojects.org





Introducing HYPERLEDGER

BLOCKCHAIN TECHNOLOGIES FOR BUSINESS





Open source collaborative effort to advance crossindustry blockchain technologies Hosted by The Linux Foundation, fastest-growing project in LF history



Global collaboration

spanning finance, banking, IoT, supply chains, manufacturing and technology



The Hyperledger Vision



Blockchain promises to change the way business is conducted and transactions are executed across industries. Precisely how, and the pace at which, each of these industries adopts blockchain will surely vary. There will never be one global chain-of-all chains that all industries convert to.





Similar to The Linux Foundation, Hyperledger also has a modular approach to hosting projects. Think of Hyperledger as a greenhouse growing and sustaining business blockchain projects from seed to fruition. The Linux Foundation and Hyperledger provide the infrastructure for open development to occur among a diverse and thriving community.







Hyperledger Momentum





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The Linux Foundation and Hyperledger



Sample Use Cases



Deployments & Use Cases



Hyperledger embraces the full spectrum of industry use cases, especially enterprise scenarios with widely varied requirements for decentralization, trust, continuity and confirmation times. Each represents a potentially unique optimization point for the technology.



Interstate Medical Licensing

Interstate Medical Licensing



The Challenge

Interstate medical licensing is complex, and the provider directories and claims adjudication processes need increased trust and transparency.



The Collaboration

Hyperledger members Hashed Health and the State of Illinois have implemented a pilot program to identify opportunities to improve the efficiency and accuracy of these processes in Illinois.



The Technology

A blockchain-based registry, built using Hyperledger Fabric, streamlines the sharing of smart contracts and medical credential data to automate workflow associated with interstate and multistate licensure.





Digital Identity

Digital Identity



The Challenge

As of 2017, only 44% of Filipinos were utilizing bank accounts, hampered by inefficient "Know Your Customer" laws.



The Collaboration

The Bankers Association of Philippines (BAP), in partnership with Hyperledger member Amihan and a coalition of major banks, undertook a POC to test a nation-wide selfsovereign ID system.



The Technology

The POC used Hyperledger Indy to develop a platform that streamlines new account onboarding, allowing consumers to enter information once in a digital and privacy-preserving way.





Green Assets Management

Green Assets Management



The Challenge

Generating carbon assets more efficiently, helping to build a green, low-carbon and environmentallyfriendly future in China.







The Collaboration

General Hyperledger member Energy Blockchain Labs partnered with Premier member IBM on the world's first blockchain-based green assets management platform, based on Hyperledger Fabric.



The Technology

Blockchain technology, like the use of Hyperledger Fabric here, is expected to become an important means for effective control of carbon emissions in China, the world's largest source of carbon emissions. Carbon asset development, is one of the most popular ways of encouraging enterprises to decrease emissions and use low carbon emission technology.

Real Estate Transactions

Real Estate Transactions



The Challenge

In some cases of corruption, the move to government-owned centralized databases backfired, and digital histories of land titles were eradicated, properties seized and handed over to oil companies.



The Collaboration

The winning team at the Consensus 2017: Building Blocks Hackathon, built an online property banking and acquisition game utilizing Hyperledger Fabric with IBM Bluemix.



The Technology

HyperProperty shows that Hyperledger Fabric can be used to guarantee who owns what properties. Decentralizing databases and turning to DLTs track land titles could keep governments accountable and create a more trustworthy system, even in instances where the individual actors

may not be trusted.



Letters of Credit

Letters of Credit



The Challenge

The LOC process is a difficult one to automate due to the sheer number of network participants involved.



The Collaboration

Institutions in Singapore, including Monetary Authority of Singapore, several banks and Standard Chartered, as well as China CITIC Bank and Minsheng bank have come together to use blockchain to create a LOC system. One of the first transactions of this kind in China saw a 100 million letter of credit

transaction be completed without a hitch.



The Technology

Asian markets have been deploying and developing various solutions for LOC based on Hyperledger Fabric. Blockchain provides a common ledger for LOC and presents a modernized opportunity; the LOC is stored on the blockchain, and once spent, is marked as such so that the value of the letter cannot be spent again.



Digital Trade Chain



The Challenge

Today, banks live in a competitive world. Small and mid-sized businesses generated 85% of employment growth in Europe in recent years, but only "50% of them have access to formal credit. The Digital Trade Chain exemplifies how blockchain can bring the required trust and transparency to a new business network and associated business model.





The Collaboration

A consortium of major world banks including: Deutsche Bank, HSBC, KBC, Natixis, Rabobank, Société Générale, Santander, UniCredit and Nordea



The Technology

we.trade is a blockchain-based international trading system that enables accurate trading posture information, order to settlement control, risk coverage, track and trace options

Resources







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Blockchain for Business - An Introduction to Hyperledger Technologies

A primer to blockchain and distributed ledger technologies. Learn how to start building blockchain applications with Hyperledger frameworks.

https://www.edx.org/course/blockchain-business-introduction-linuxfoundationx-lfs171x





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Questions?

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