



INTRO TO BLOCKCHAIN & HYPERLEDGER FOUNDATION

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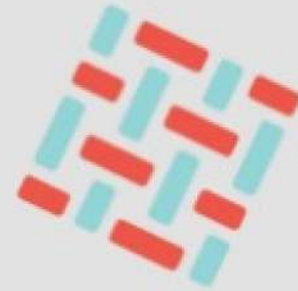
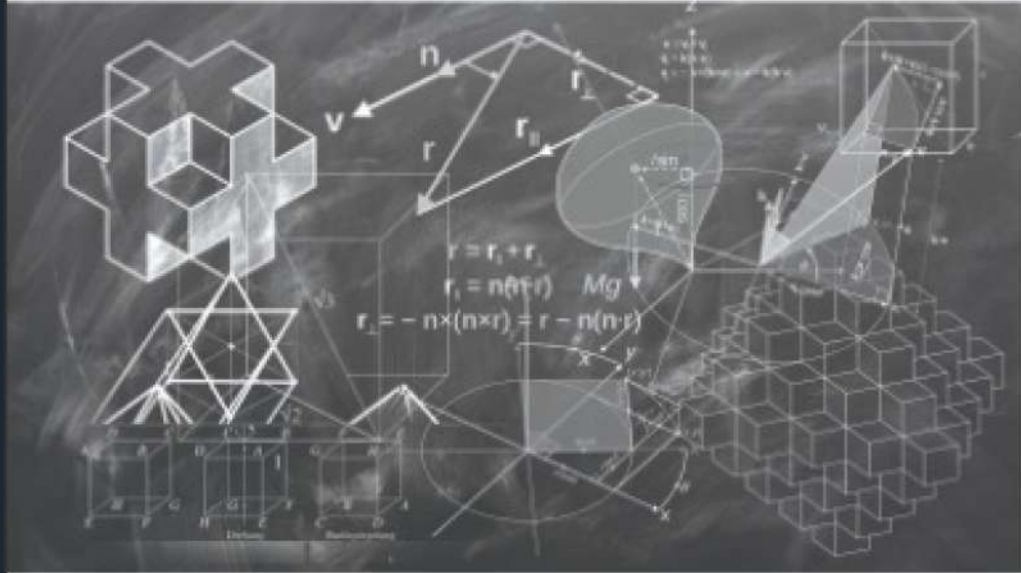
Event Organizers



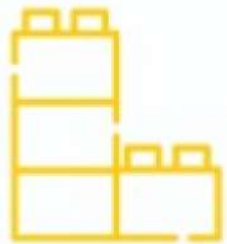
Event Supporters



PRACTICAL INSIGHTS INTO HYPERLEDGER WORLD



HYPERLEDGER
FABRIC



Foundation of
Blockchain &
Hyperledger



Ideation of
Blockchain
usecases

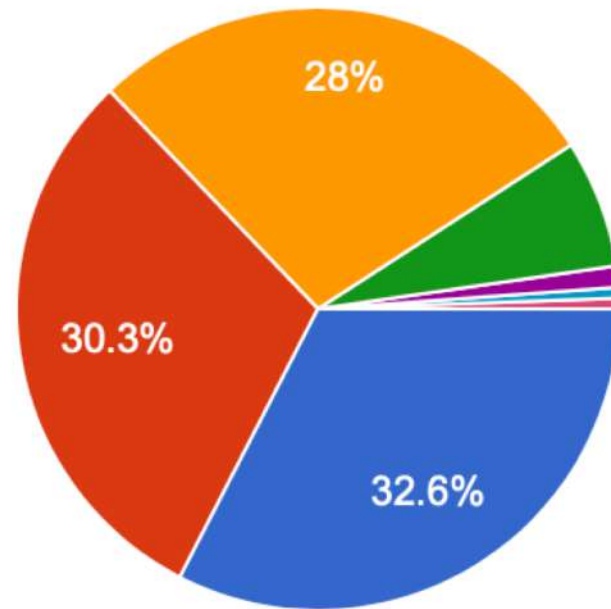


Showcase to
community
projects

Blockchain Journey Graph



Help us understand where you are on Blockchain Journey?

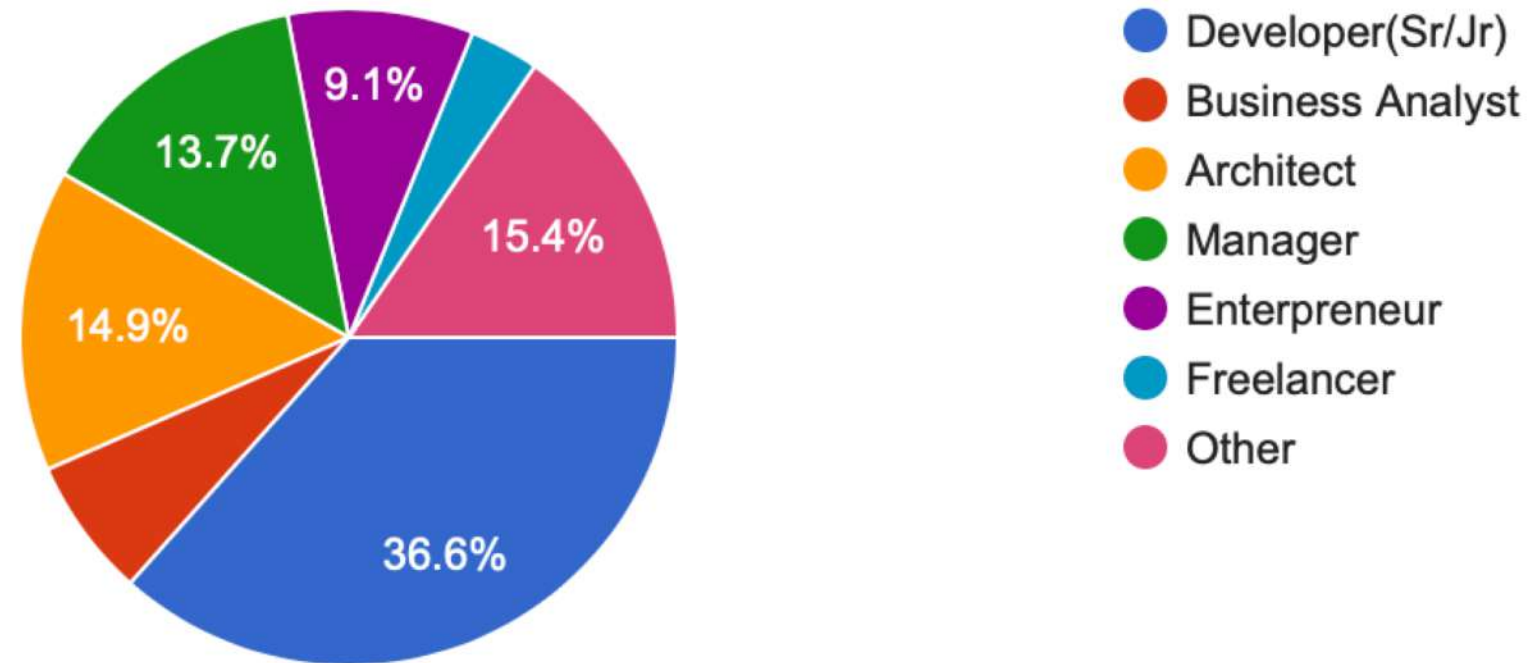


- Beginner
- Have basic knowledge but did not apply
- Applied the knowledge and built/helped build some prototype/demo...
- Involved in a Professional Project where Blockchain is used
- Implemented multiple Projects where...
- Director - Automation Solution
- Sales

Roles Graph



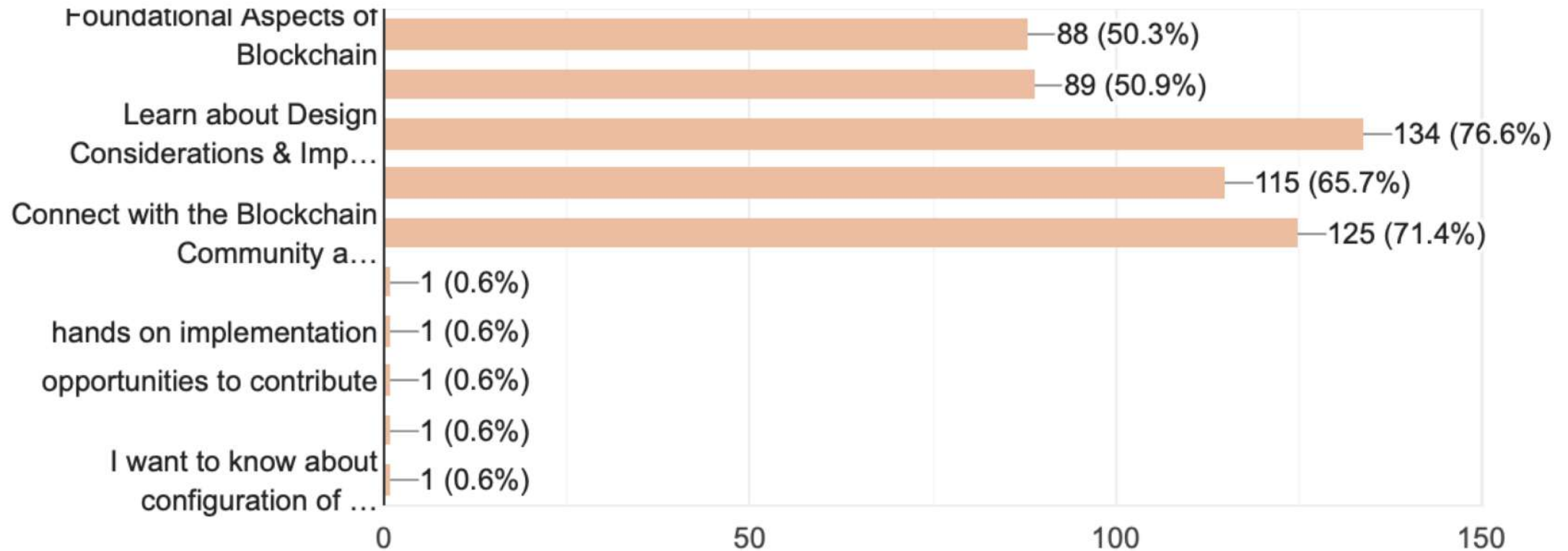
your current role



What do you want to Gain Graph



What do you want to gain out of the Hyperledger Workshop?



Agenda

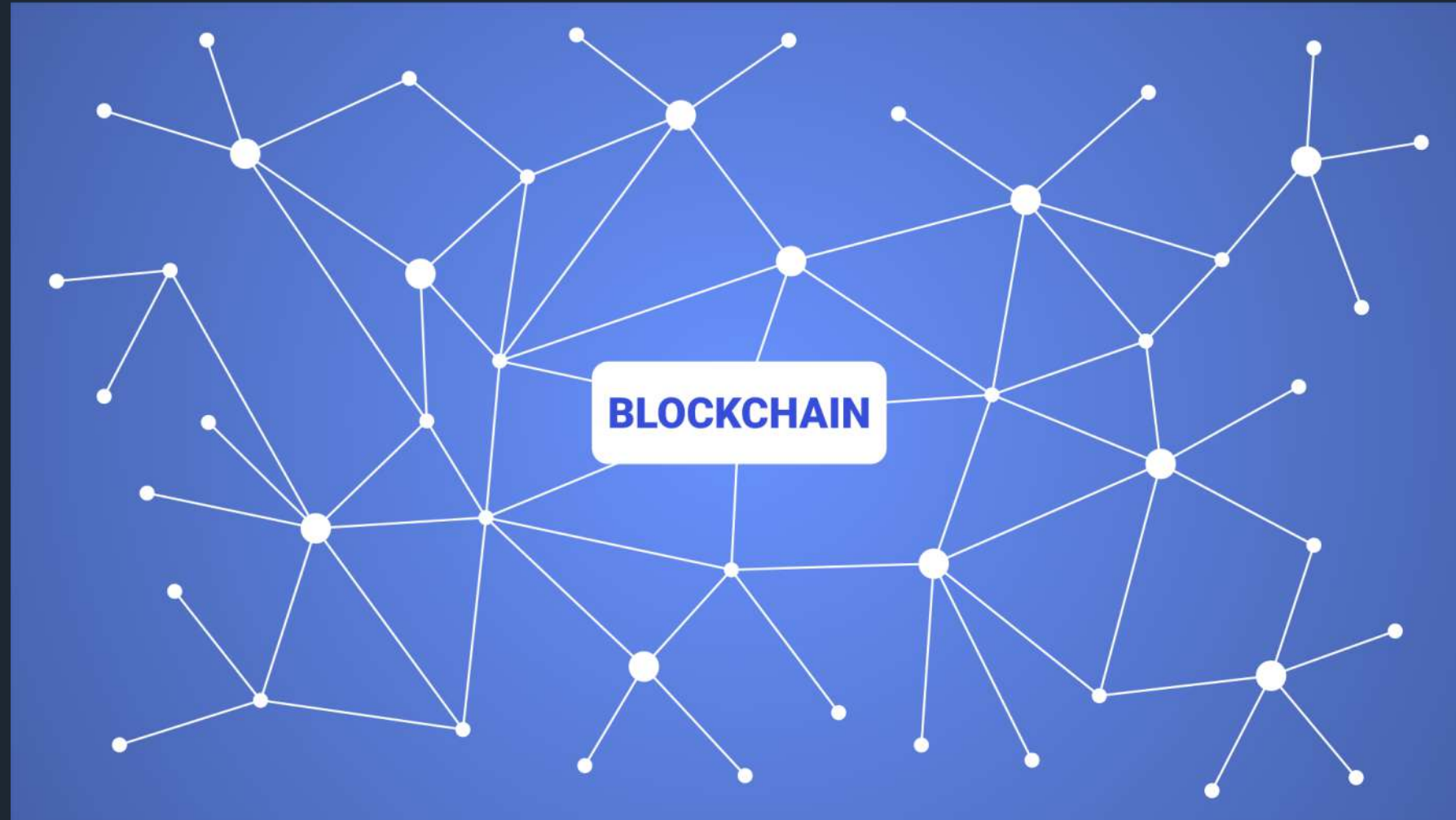


- ❑ Why is it called a 'Block'chain?
- ❑ What is a Distributed Ledger?
- ❑ Types of Blockchain
- ❑ Key Components
- ❑ What is Hyperledger and Fabric?
- ❑ Hyperledger Fabric Transaction Flow
- ❑ Blockchain Becoming Real

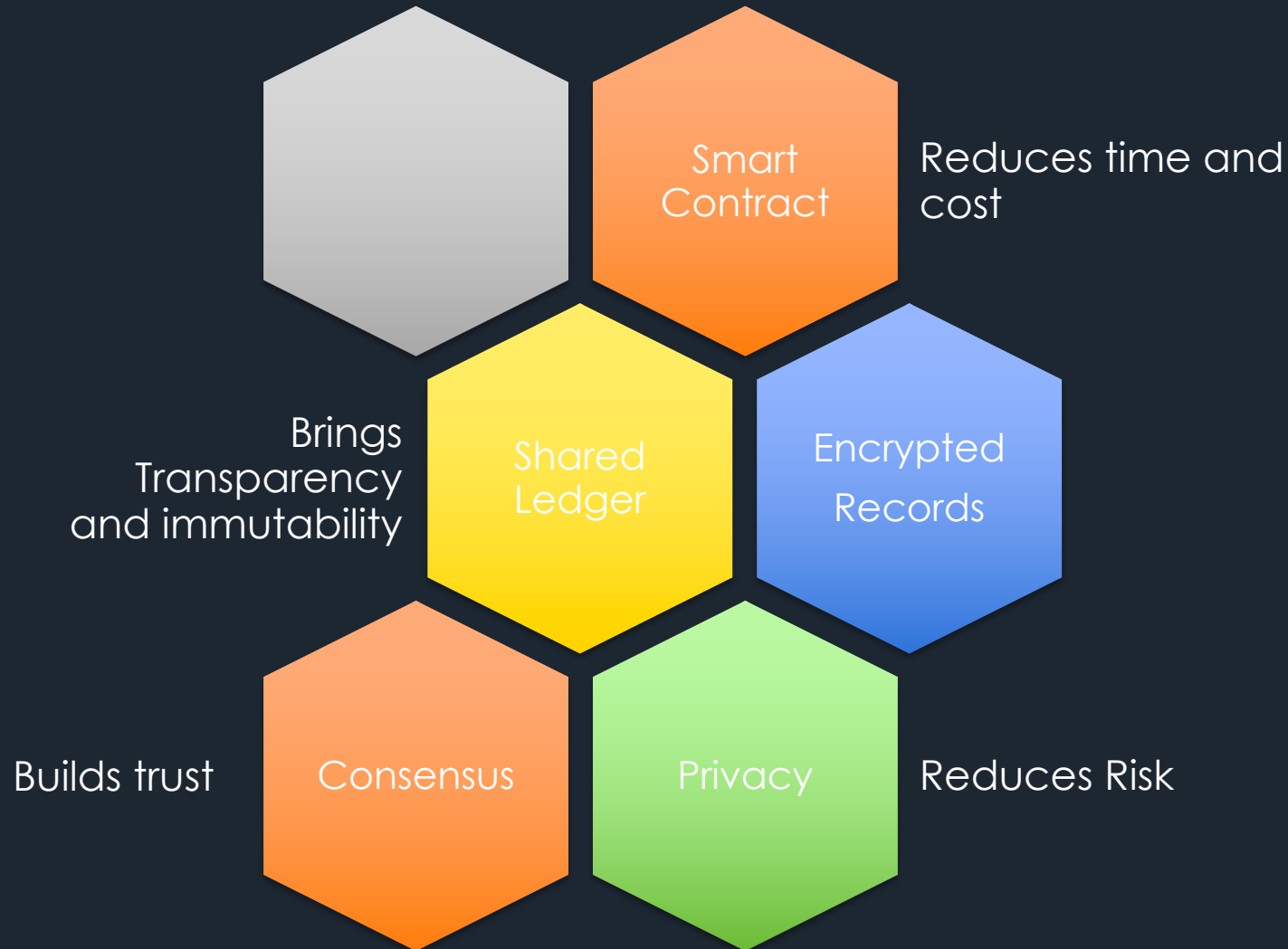
Why is it called a 'Block'chain?



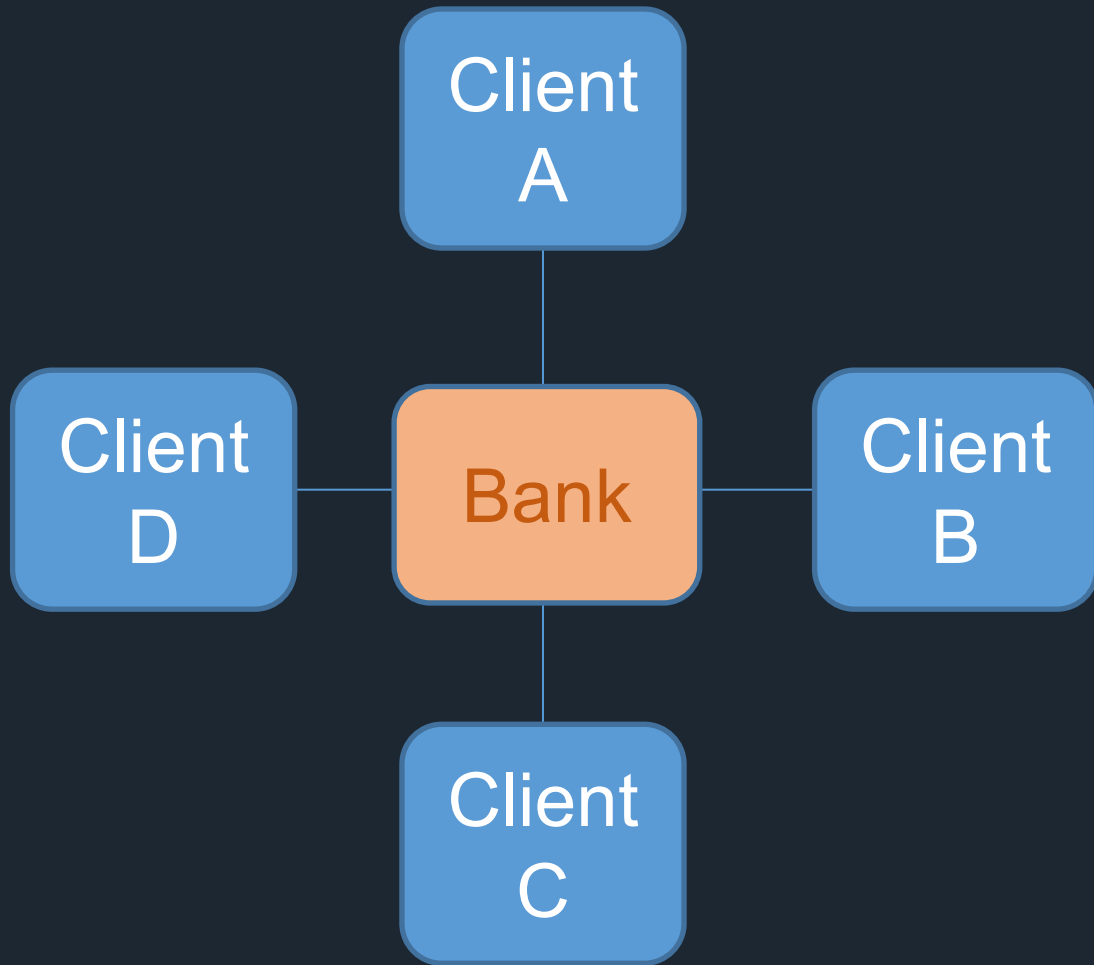
Are
Blockchain
Bitcoin
synonyms?



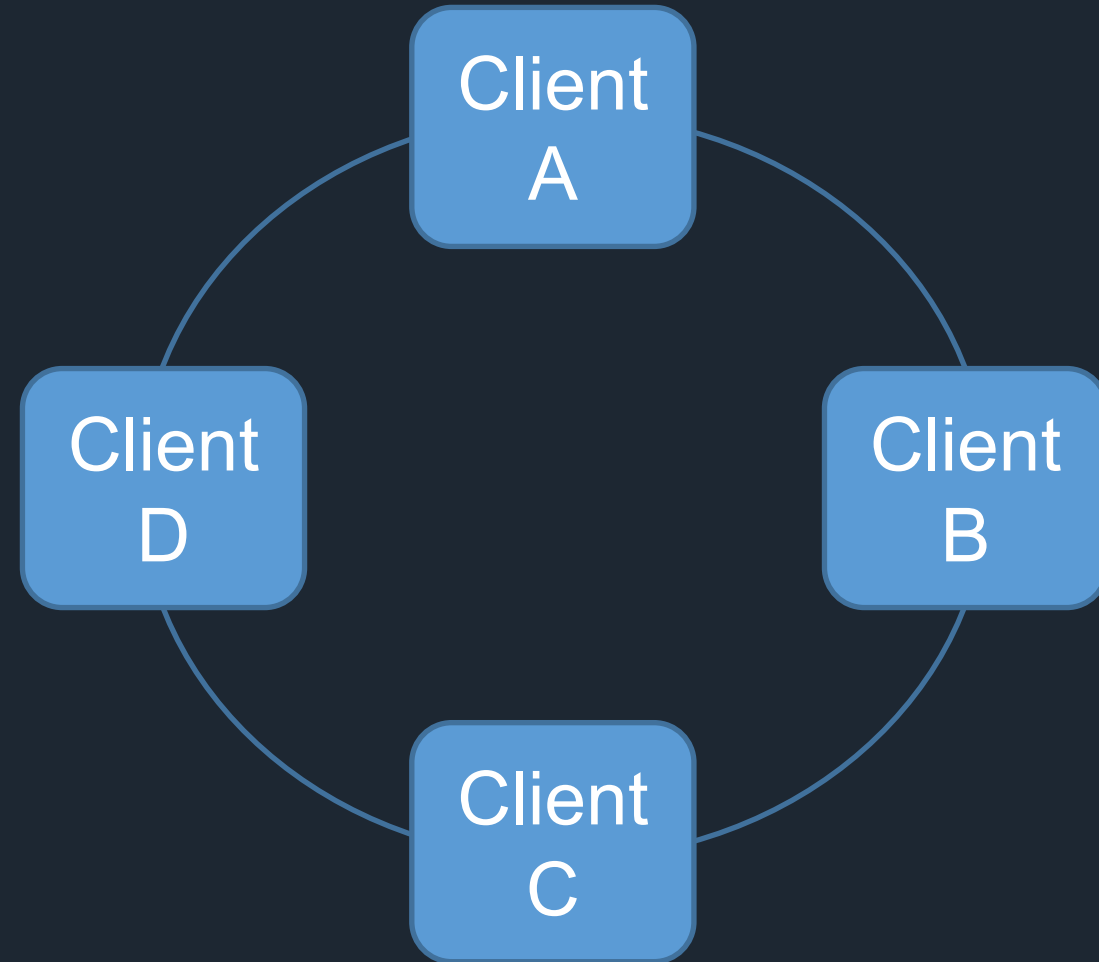
Decentralization Key Characteristics



What is a Distributed Ledger?



Centralised Ledger



Distributed Ledger

What are Blocks in Blockchain?



Is Blockchain only
for financial
transactions?

Block: # 1

Nonce: 139358

Tx:

\$	25.00	From:	Darcy	->	Bingle
\$	4.27	From:	Elizab	->	Jane
\$	19.22	From:	Wickha	->	Lydia
\$	106.44	From:	Lady C	->	Collin
\$	6.42	From:	Charlc	->	Elizab

Prev: 00

Hash: 00000c52990ee86de55ec4b9b32beefd745d71675

Mine

Block: # 2

Nonce: 39207

Tx:

\$	97.67	From:	Ripley	->	Lamber
\$	48.61	From:	Kane	->	Ash
\$	6.15	From:	Parker	->	Dallas
\$	10.44	From:	Hicks	->	Newt
\$	88.32	From:	Bishop	->	Burke
\$	45.00	From:	Hudson	->	Gorman
\$	92.00	From:	Vasque	->	Apone

Prev: 00000c52990ee86de55ec4b9b32beefd745d71675

Hash: 000078be183417844c14a9251ca246fb15df10740

Mine

Understand using a live DEMO

Blockchain Types



Public	Permissioned	Private
Organization does not have any say in where and how the data is stored,	An Organization or consortium can setup the ledger and share it with business partners.	Operated by a single organization
Anyone can be a user or run a node and mining is necessary for transactions to go through	Only members trusted by the organization can run a node or transactions. Mining is not necessary.	Only members within an organization will run the node and transactions.
Value anonymity, immutability, and transparency over efficiency	Value immutability and efficiency over anonymity and transparency	Value efficiency over anonymity, immutability and transparency
Eg: Crypto currencies like Bitcoin	Eg: Industry bodies like Banks to settle international transactions	Eg: Limited use cases , can be used within an Organization

Hyperledger Umbrella

Frameworks & Tools



**HYPERLEDGER
FABRIC**





What is Hyperledger?

An open source collaborative effort created

- to advance cross-industry Blockchain technologies.
- It is a global collaboration,
- hosted by The Linux Foundation,
- including leaders in
 - finance, banking,
 - Internet of Things,
 - supply chains,
 - manufacturing, and Technology.



HYPERLEDGER

*Note: Hyperledger does not support **Bitcoin** or any other **cryptocurrency**. But the platform is inspired by Blockchain technology.*

Hyperledger Frameworks Explained



Fabric	Fabric is Hyperledger's most active project to date. IBM initiated the Fabric project. It's intended as a foundation for developing blockchain distributed ledger applications with a modular architecture. It allows components, such as consensus and membership services, to be plug-and-play.
Sawtooth	The Sawtooth project originally came from Intel. It includes a novel consensus algorithm called Proof of Elapsed Time. Consensus is a critical element of all blockchains. Generally, it is the technique by which new information is reviewed and confirmed before being accepted as the next entry in the ledger.
Indy	The Indy project was originally the brainchild of the nonprofit group the Sovrin Foundation. The idea is to provide digital identities for individuals and give them the power to share their identity with whom they chose.
Burrow	The Burrow project includes a permissioned, smart-contract interpreter built in part to the specification of the Ethereum Virtual Machine (EVM).
Iroha	The Iroha project is a bit of an outlier within Hyperledger. It originated with some developers in Japan who had built their own blockchain technology for a couple of mobile use cases. It's implemented in C++ which can be more high performance for small data and focused use cases.
Composer	This is the most actively developed and powerful tool. One could call it a framework for Hyperledger Fabric. The use of Composer brings along simpler concepts for Fabric, called Business Network Definitions.
Explorer	The name of this tool is already very meaningful. The Explorer can also be used in conjunction with Fabric. It is to be configured for one or multiple channels in a Fabric network. From then on, a web interface can be used to make the state and history visible in the distributed ledger.
Cello	Cello is a tool to efficiently provision and manage blockchain networks. It can also handle homogeneous infrastructure: bare metal, virtual clouds, and container orchestration clusters such as Kubernetes and Docker Swarm. It can manage multiple blockchain networks, not just one. So far only Fabric 1.0 networks are supported in Cello.

Why 'Hyper'leger Platform



- Distributed Ledger Technology
- Open Platform
- Permissioned blockchain (Built in permissions).
- Supports smart contracts
- Pluggable consensus mechanism
- Transaction Consensus
- Wide support for programming languages
- No cryptocurrency needed
- No Proof of work/proof of stake



HYPERLEDGER
FABRIC

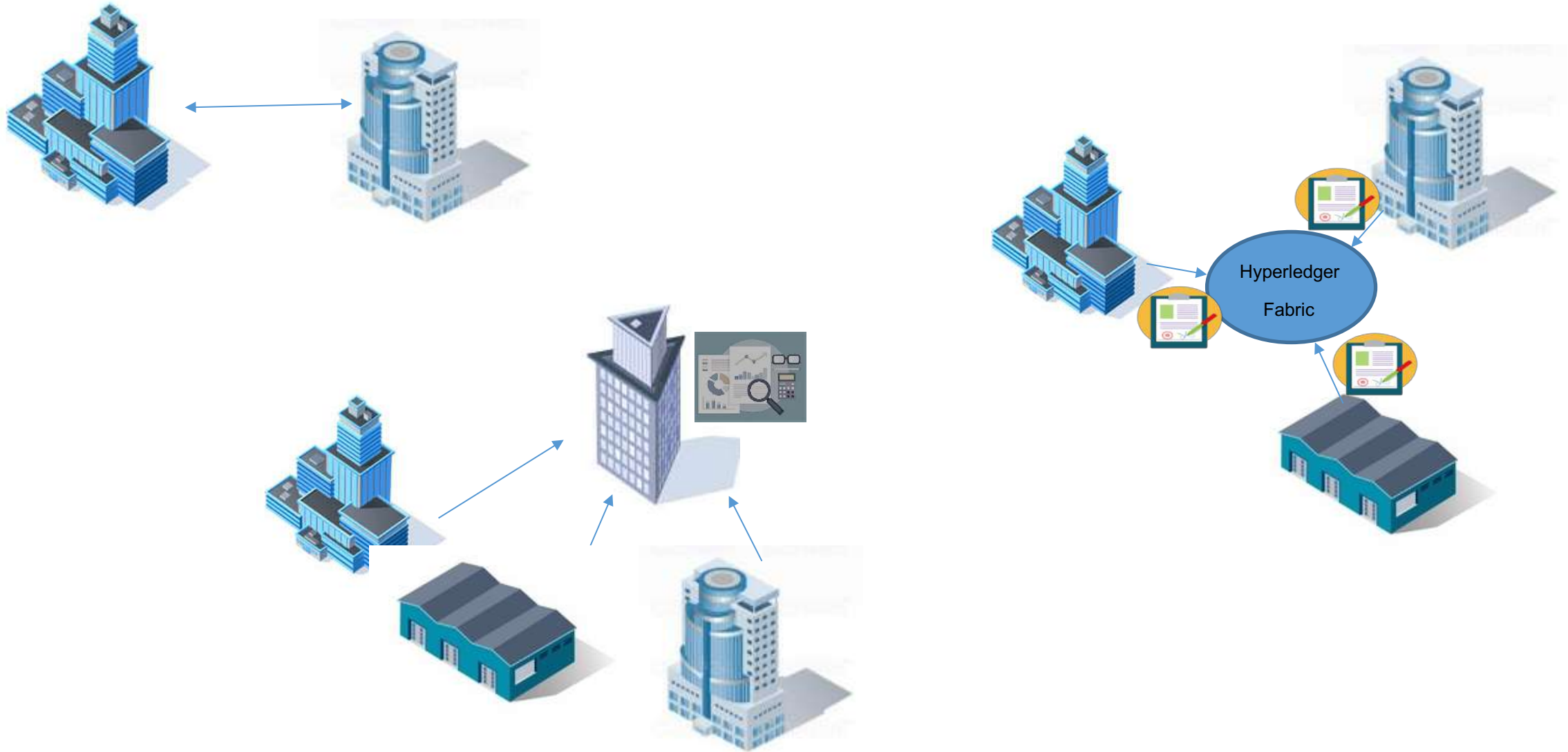


What is Hyperledger Fabric?

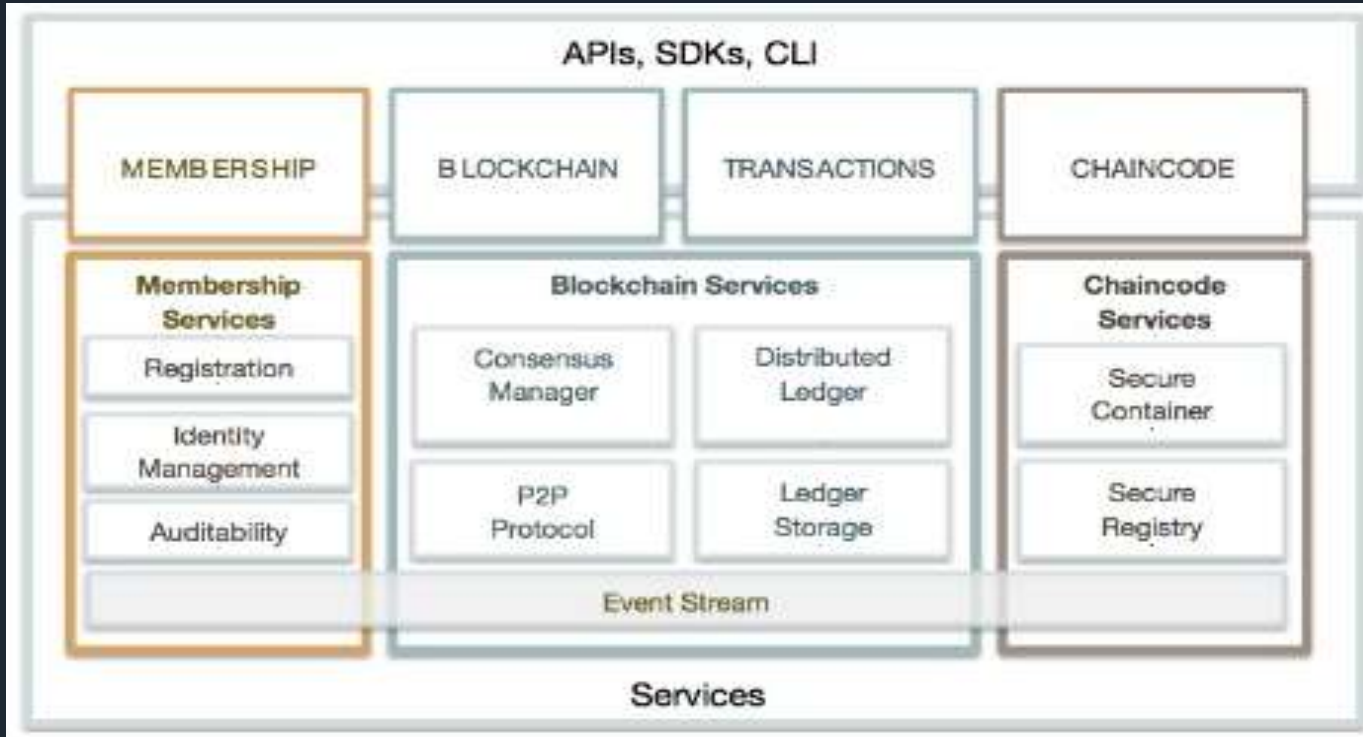
Hyperledger fabric is intended as a foundation for developing applications or solutions with a modular architecture, Hyperledger fabric allows components such as consensus and membership services, to be plug-and-play. Hyperledger Fabric leverages container technology to host smart contracts called “chaincode” that comprise the application logic of the system.



How Hyperledger Fabric Solves Problems?



Hyperledger Fabric Architecture



IDENTITY

Pluggable, Membership, Privacy and Auditability of transactions.

LEDGER | TRANSACTIONS

Distributed transactional ledger whose state is updated by consensus of stakeholders

SMART-CONTRACT

“Programmable Ledger”, provide ability to run business logic against the blockchain (aka smart contract)

APIs, Events, SDKs

Multi-language native SDKs allow developers to write DLT apps

Blockchain Becoming Real



HSBC has launched a trade finance platform. The bank issued a letter of credit for Cargill.



MAERSK

Maersk introduced the Trade Lens platform, a blockchain-enabled shipping solution designed to promote more efficient and secure global trade



TRAI

Telecom Regulator in India has announced a blockchain based regulation for pesky calls problem in the country



Walmart introduced Blockchain technology to create unprecedented visibility and accountability in the food supply chain

What's coming up?



- **Hands on**
 - Install Hyperledger Fabric
 - Run a sample solution (may use composer)
- **Understanding**
 - Fabric Components
 - Fabric Architecture
 - Architectural Decision Making
- **Understanding on what qualifies to be good use case for Hyperledger**



Additional Resources



[Bitcoin White Paper](#) – Satoshi Nakamoto

[Blockchain Demo](#) – Anders Brownworth

[Blockchain for Business - An Introduction to Hyperledger Technologies](#) - edX.org

[Ethereum White Paper](#)

[Guardtime](#) – Blockchain *like* official site

[Hyperledger Fabric official site](#) - Linux Foundation



Event Supporters



THINKING BREAKTHROUGHS



Community Friends



WHY? WHO? WHERE? WHICH? WHEN? WHAT?

