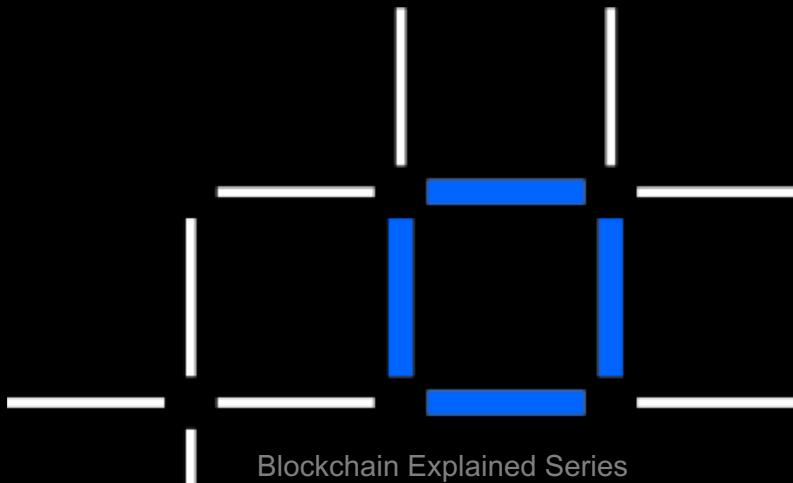


# Blockchain for climate action

## An Introduction to Blockchain for Business

*Presenter Information*  
Lennart Frantzell, IBM  
Developer Advocate



Blockchain Explained Series



[Blockchain Explained](#)



[IBM Blockchain Platform Explained](#)



[Solutions Explained](#)



[Garage Explained](#)



[Next Steps](#)

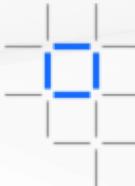
# CALL FOR CODE®

Answer the Call for Code by building global solutions for disaster preparedness.

The most impactful project will be implemented with the help of IBM, The Linux Foundation, UN Human Rights, and American Red Cross.

Get started

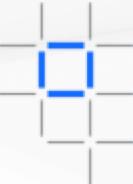
[Answer the call as an organization >](#)



IBM

IBM Blockchain

<https://callforcode.org/>

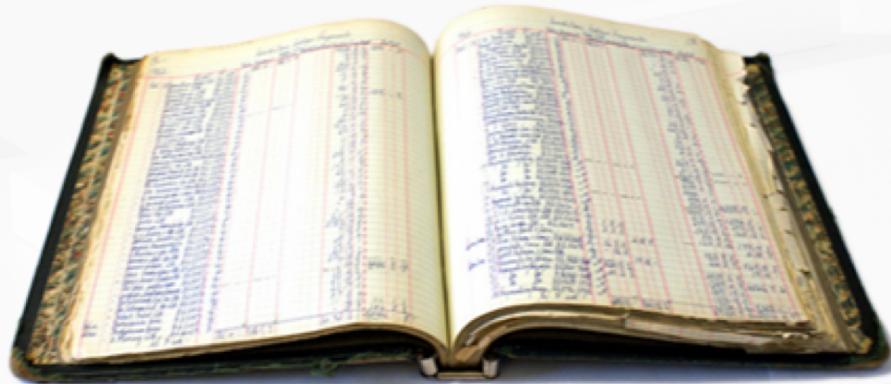


# Ledgers are key

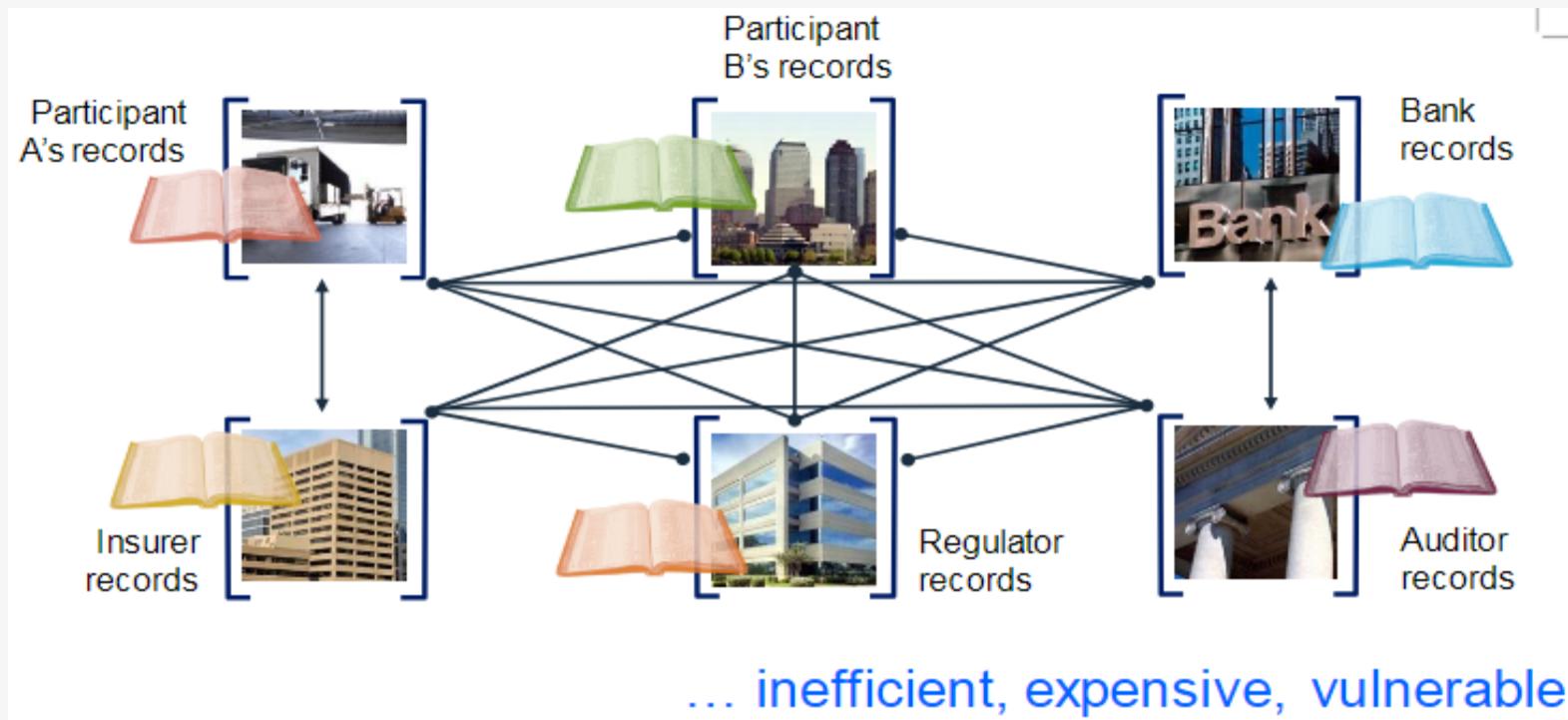
Ledgers are THE system of record for a business.

Businesses will have multiple ledgers for the multiple business networks in which they participate.

- **Transaction:** an asset transfer onto or off the ledger
  - John gives a car to Anthony (simple)
- **Contract:** the conditions for a transaction to occur
  - If Anthony pays John money, then car passes from John to Anthony (simple)
  - If car won't start, funds do not pass to John (as decided by third party arbitrator) (more complex)



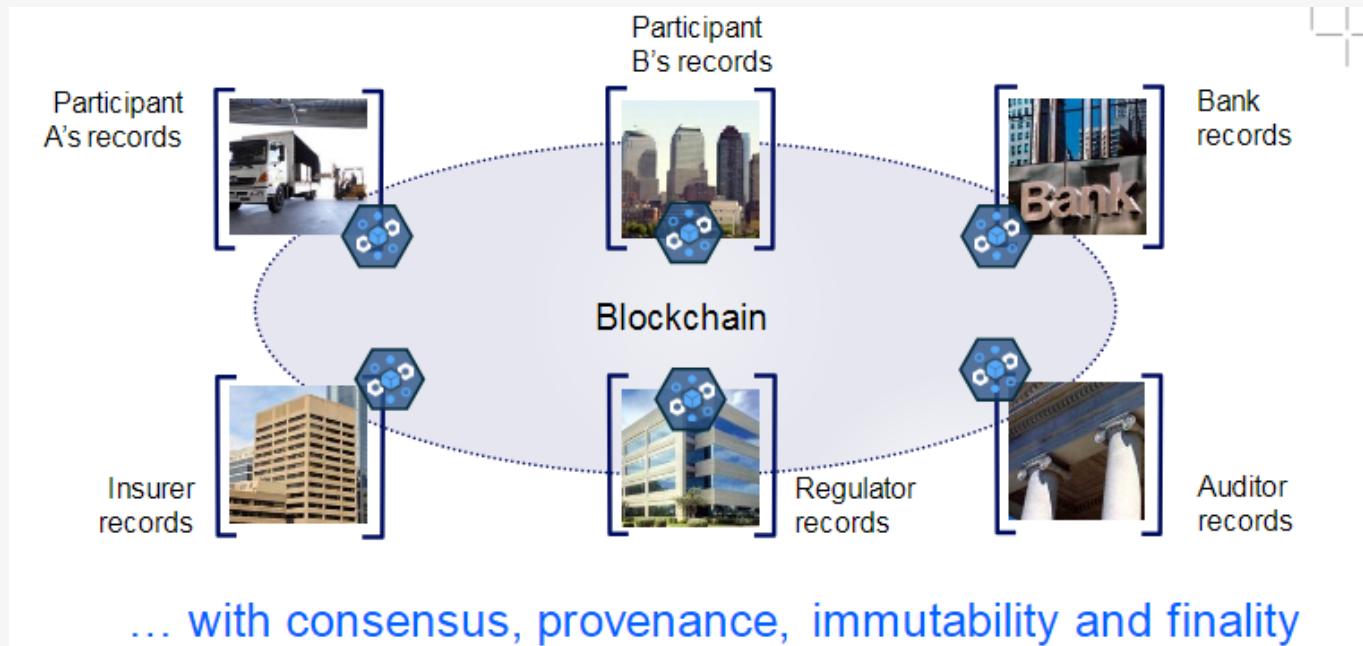
# From the multiple Ledger Database and Double Entry Bookkeeping



# To the shared, replicated, permissioned ledger

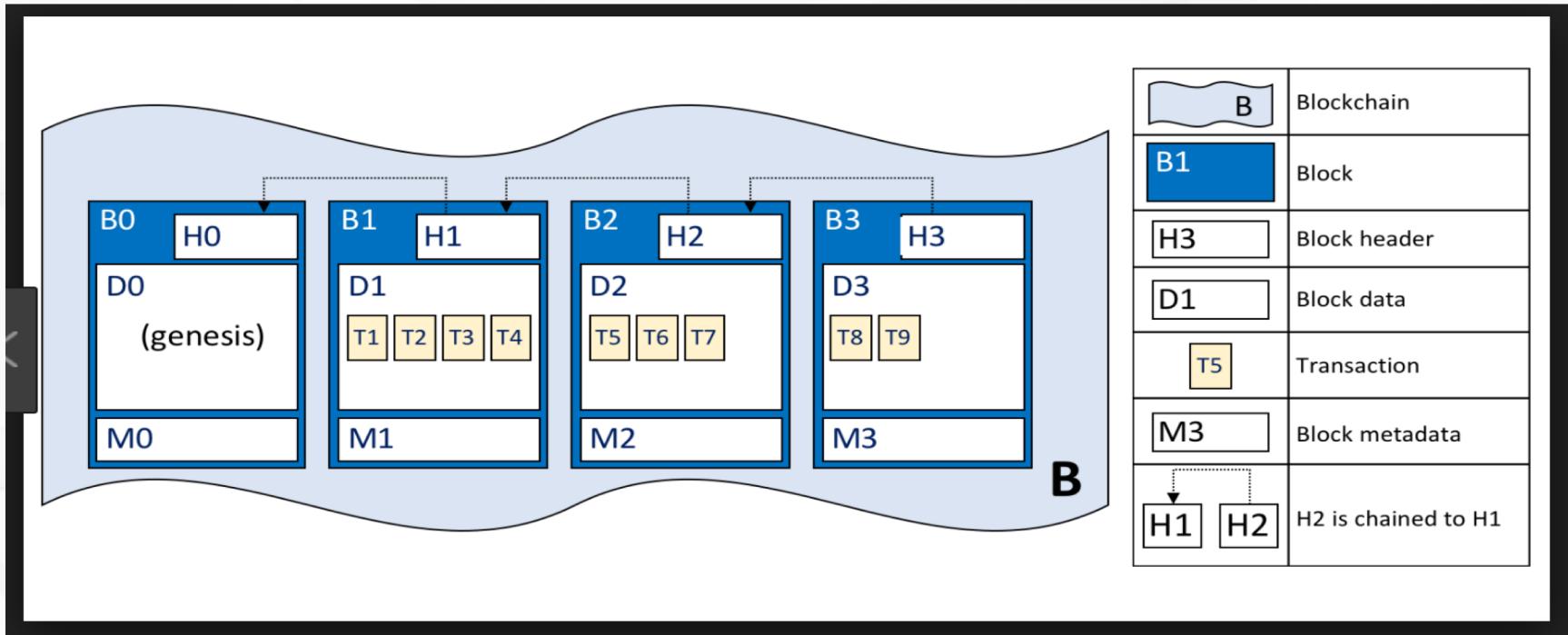
No central,  
third-party  
mediator,  
such as a  
financial  
institution  
or  
clearinghouse,  
is involved

No  
reconciliation  
needed



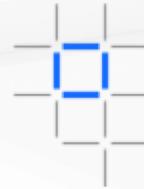


# The chain of transaction blocks in the Blockchain



Each block is made up of a number of transactions, the result of chain code invocations

# Different types of blockchain



- All blockchains aim to provide **irrefutable proof** that a set of transactions occurred between participants
- Different types of blockchain exist:



is an example of an unpermissioned, public blockchain

- The first blockchain application
- Defines a shadow-currency and its ledger
- Resource intensive



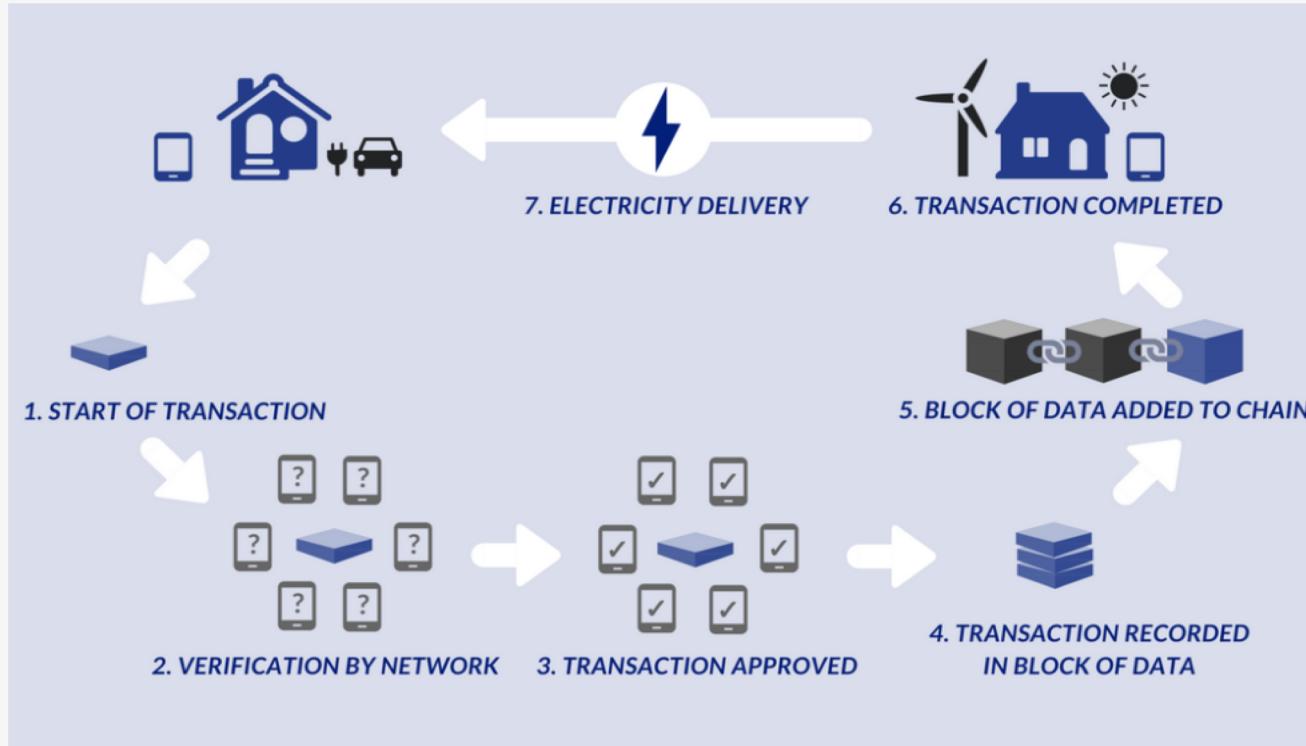
**HYPERLEDGER**

- Blockchains for business are generally permissioned and private, and prioritize
  - Identity over anonymity | Selective endorsement over proof of work | Assets over cryptocurrency

# How Blockchain Technology could Boost Climate Action

- Experts meeting at the recent UN Climate Change Conference in Bonn in May have said that a new technology called **“Blockchain” could play a major role in tackling climate change.**
- ”...Blockchain could contribute to greater stakeholder involvement, transparency and engagement and help bring trust and further innovative solutions in the fight against climate change, leading to enhanced climate actions,” said Alexandre Gellert Paris, Associate Programme Officer at the UNFCCC.

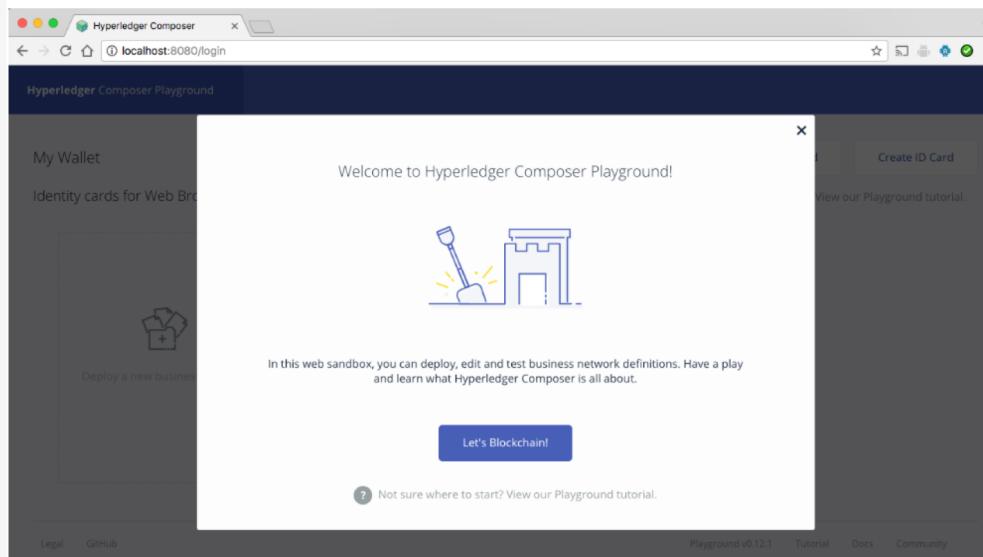
**Blockchain technology can be used to develop peer-to-peer trade of clean energy, for certified and facilitated transactions among consumers.**



For climate action, Blockchain technology could be used in the following specific ways:

- Improved carbon emission trading
- Facilitated clean energy trading
- Enhanced climate finance flows
- Better tracking and reporting of greenhouse gas (GHG) emissions reduction and avoidance of double counting

# Hyperledger Composer Playground



<https://composer-playground.mybluemix.net/>

<https://medium.com/coinmonks/hyperledger-from-scratch-50a2535e26b6>

# Hyperledger Composer sample networks

basic-sample-network    empty-business-network    Drop here to upload or [browse](#)

Samples on npm

 animaltracking-network	 bond-network	 carauction-network	 digitalproperty-network	 fund-clearing-network
 letters-of-credit-network	 marbles-network	 perishable-network	 pii-network	 trade-network
 vehicle-lifecycle-network	 vehicle-manufacture-network			

# Basic Sample Business Network

## Basic Sample Business Network

*This is the "Hello World" of Hyperledger Composer samples, which demonstrates the core functionality of Hyperledger Composer by changing the value of an asset.*

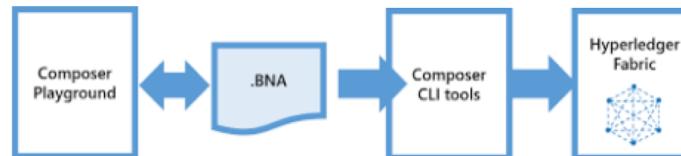
This business network defines:

**Participant** SampleParticipant

**Asset** SampleAsset

**Transaction** SampleTransaction

**Event** SampleEvent



SampleAssets are owned by a SampleParticipant, and the value property on a SampleAsset can be modified by submitting a SampleTransaction. The SampleTransaction emits a SampleEvent that notifies applications of the old and new values for each modified SampleAsset.

To test this Business Network Definition in the **Test** tab:

# Hyperledger Fabric



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GET THE CODE

BUILD YOUR FIRST NETWORK



<https://www.hyperledger.org/projects/fabric>

<https://hyperledger-fabric.readthedocs.io/en/release-1.2/>

# Blockchain resources

## IBM Blockchain 101: Quick-start guide for developers

Build a kick-starter blockchain network and start coding with the IBM Blockchain Platform Starter Plan

Mark Parzygnat and Don Thibeau

Published on June 22, 2018



<https://www.ibm.com/developerworks/cloud/library/cl-ibm-blockchain-101-quick-start-guide-for-developers-bluemix-trs/index.html>

**July 20, 2018 11:00AM EDT**

# Build secure, resilient, traceable, and transparent supply networks with blockchain.

**With Oliver Rodriguez**

[Join the Call for Code](#)

<https://developer.ibm.com/code/techtalks/build-secure-resilient-traceable-transparent-supply-networks-blockchain/>

CODE PATTERN

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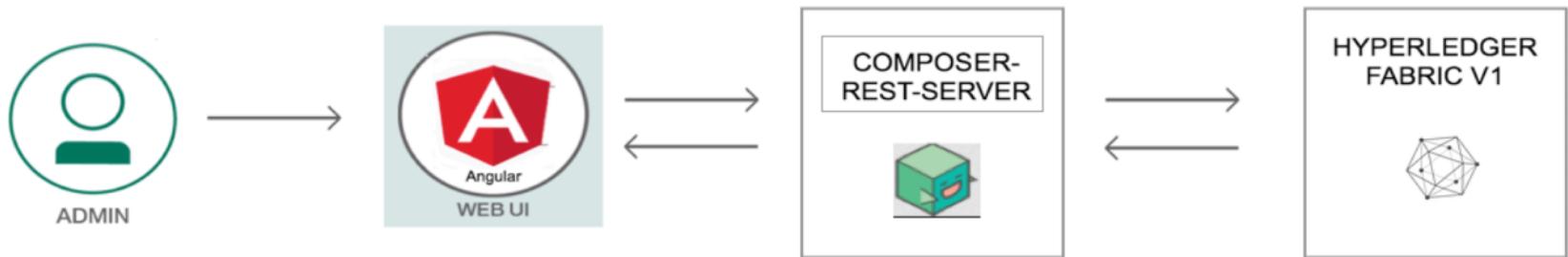
# Track donations with blockchain

Create, configure, and interact with the IBM Blockchain Platform using Hyperledger Composer  
Playground and Hyperledger Composer REST server

 Get the code

 View the demo

# Decentralized Energy Composer



<https://github.com/IBM/Decentralized-Energy-Composer>

# Blockchain Patterns

The grid displays 20 blockchain code patterns:

- Row 1:** Load test your blockchain network (APR 23, 2018), Develop an IoT asset tracking app using Blockchain (APR 22, 2018), Integrate RabbitMQ and Redis Cluster with a blockchain network (APR 18, 2018), Track donations with blockchain (APR 18, 2018), Build your first blockchain application (OCT 17, 2017).
- Row 2:** Deploy Hyperledger Fabric network on IBM Cloud (MAY 26, 2018), Explore Hyperledger Fabric through a complete set of APIs (MAY 16, 2018), Automate business processes via blockchain events (FEB 02, 2018), Build a blockchain Insurance app (DEC 11, 2017), Model FDA Foreign Supplier Verification Program requirements (OCT 10, 2017).
- Row 3:** Create a fair-trade supply network (AUG 06, 2018), Create an Android app with Blockchain integration (JUL 25, 2018), Leverage blockchain monitoring (JUL 18, 2018), Create and deploy a blockchain network using Hyperledger Fabric SDK for Java (JUL 27, 2018), Run blockchain technology on a Linux mainframe (JUL 24, 2017).
- Row 4:** Implement asset securitization on a blockchain ledger (JUN 25, 2018), Interacting with a blockchain network (JUN 13, 2018), Create a customer loyalty program with blockchain (MAY 25, 2018), Use IoT dashboards to analyze data sent from a Blockchain network (APR 30, 2018), Create a blockchain network (AUG 29, 2017), Create a decentralized energy network with Hyperledger Composer (AUG 16, 2017).

# Developer tutorial for creating a Hyperledger Composer solution

This tutorial will walk you through building a Hyperledger Composer blockchain solution from scratch. In the space of a few hours you will be able to go from an idea for a disruptive blockchain innovation, to executing transactions against a real Hyperledger Fabric blockchain network and generating/running a sample Angular 2 application that interacts with a blockchain network.

This tutorial gives an overview of the techniques and resources available to apply to your own use case.

*Note:* This tutorial was written against the latest Hyperledger Composer build on Ubuntu Linux running with Hyperledger Fabric v1.2 where referenced below and also tested for a Mac environment.

**<https://hyperledger.github.io/composer/latest/tutorials/developer-tutorial.html>**

# Blockchain Service in the IBM Cloud

IBM Cloud   Catalog   Docs   Support   Manage   Lennart Frantzell's A...

View all   Blockchain   IBM

IBM Blockchain Platform is a flexible software-as-a-service offering that is delivered via the IBM Cloud. It enables network members to quickly get started developing and easily move to a collaborative environment. The platform simplifies your blockchain journey of developing, governing, and operating a network. Choose a membership plan based on your ecosystem needs.

[View Docs](#)   [Terms](#)

AUTHOR   IBM  
PUBLISHED   09/07/2018  
TYPE   Service  
LOCATION   Sydney, Germany, United Kingdom, US South

Service name: Blockchain-65  
Choose a region/location to deploy in: US South   Choose an organization: aif@us.ibm.com   Choose a space: dev

**Features**

Use the IBM Blockchain Platform to simplify the developmental, governmental, and operational aspects of creating a blockchain solution. The following plans enable you to easily migrate from POC to pilot, all the way through to production on a secure, high performance, and fully scalable production network that you can't outgrow.

For more information on developing, governing, and operating your blockchain network, see <https://ibm.biz/bcdocumentation>.

- Get \$500 towards your first network with Starter Plan, featuring an easy-to-use UI to reduce network administration and governance time, an iterative development platform and basic service levels for pilot evaluation or pre-production POCs.\* <http://ibm.biz/credits>
- Enterprise Plan offers a secure production environment and advanced service levels for production grade deployment, application development, and production testing.

**Images**

Click an image to enlarge and view screen captures, slides, or videos. Screen caps show the user interface for the service after it has been provisioned.



<https://hackernoon.com/deploy-a-business-network-on-free-ibm-blockchain-starter-plan-93fafb3dd997>

# IBM Cloud accounts and Blockchain

The Blockchain service in the IBM Cloud comes with a Starter Plan

[https://console.bluemix.net/docs/services/blockchain/starter\\_plan.html#overview](https://console.bluemix.net/docs/services/blockchain/starter_plan.html#overview) which is not part of the Free Plan in the IBM Cloud. To use the Blockchain Starter Plan one must use the standard PayGo plan for the IBM Cloud,

Which is free for three months and comes with a credit of \$500.

The Starter Plan membership option provides many of the same blockchain capabilities as Enterprise Plan membership options, but at a lower cost. IBM Blockchain Platform offers \$500 of cloud credits to new users of Starter Plan. These credits allow you to provision a blockchain network with basic network resources for free for one month. See [Starter Plan considerations](#) for more details.

[https://console.bluemix.net/docs/services/blockchain/starter\\_plan.html#starter-plan-considerations](https://console.bluemix.net/docs/services/blockchain/starter_plan.html#starter-plan-considerations)



Horea Blockchain [Follow](#)

Tennis coach. Tech addict. Millenial. Speculative investor. Cryptocurrency nut. UCSD Men's tennis. IBMer. More at <https://horeaporutiu.github.io/>.

Apr 17 · 10 min read

# Deploy a business network on (free) IBM Blockchain Starter Plan

<https://hackernoon.com/deploy-a-business-network-on-free-ibm-blockchain-starter-plan-93fafb3dd997>

# Thank you

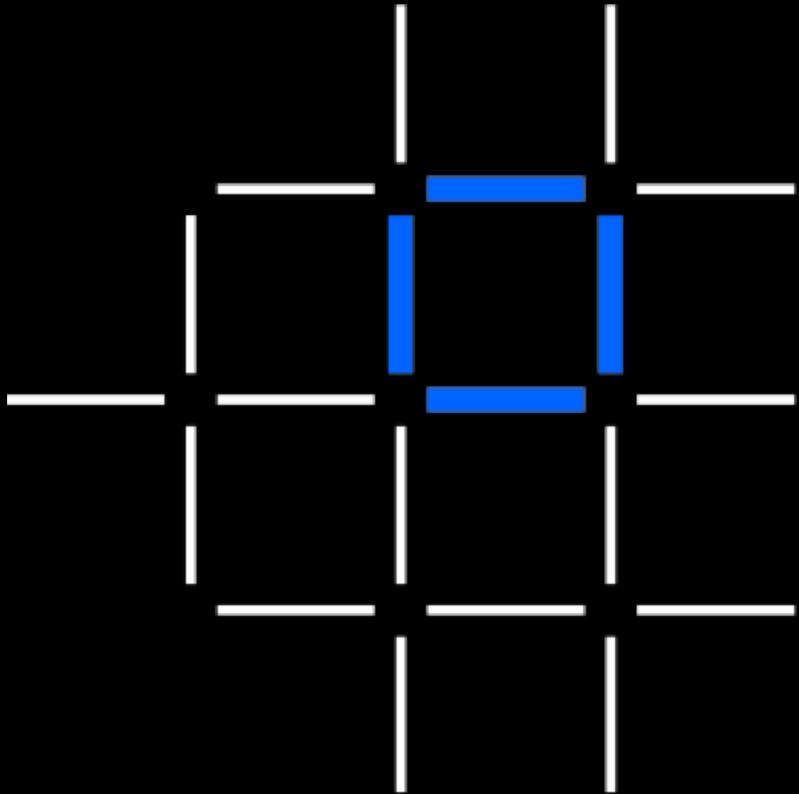
*Presented Information  
Lennart Frantzell*

**Questions? Tweet us or  
go to [ibm.com/blockchain](http://ibm.com/blockchain)**

 @IBMBlockchain

 IBM Blockchain

 IBM Blockchain





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