

# IBM LinuxONE for On-Premises Blockchain

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# Topics

Overview of blockchain offerings from IBM

- IBM Blockchain Platform
- Remote Peer for IBM Blockchain Platform
- IBM Support for IBM Signed Docker Image

Use cases for blockchain on-premises

Why you should run blockchain on IBM LinuxONE™

Next steps

# Blockchain is creating extraordinary opportunities for businesses, organizations and governments to come together in new ways

## Create New Value

Exploit new business models and eliminate inefficiencies

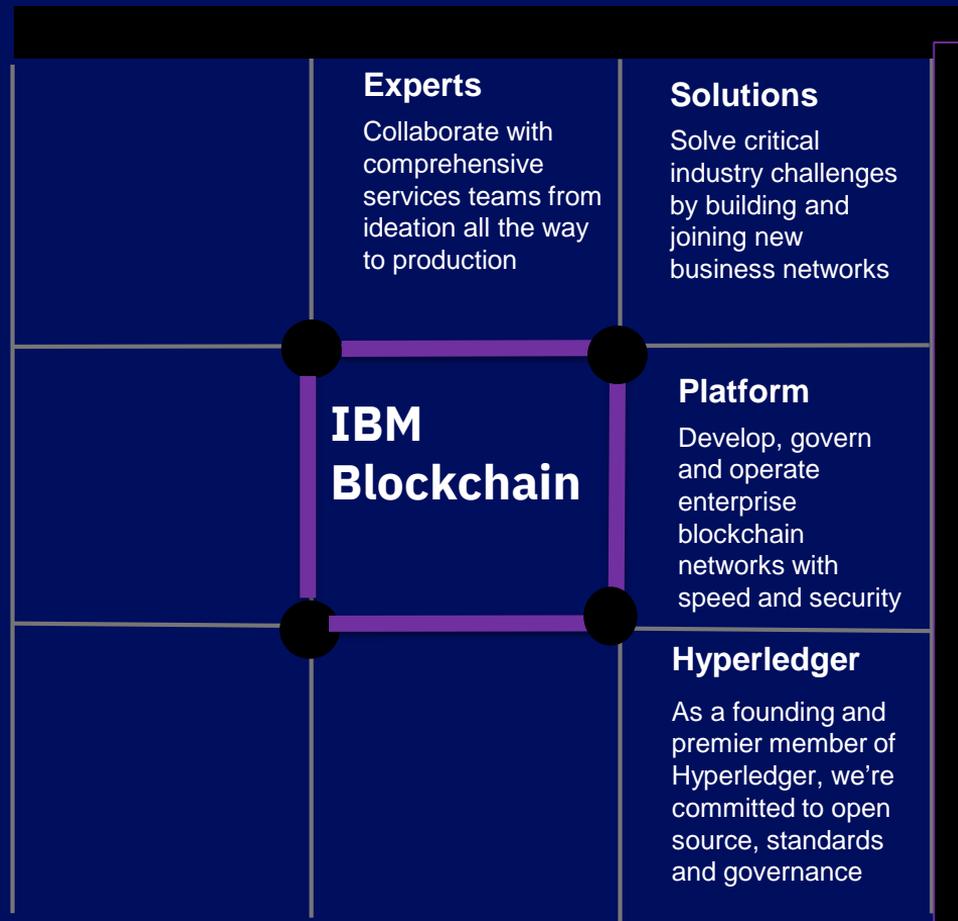
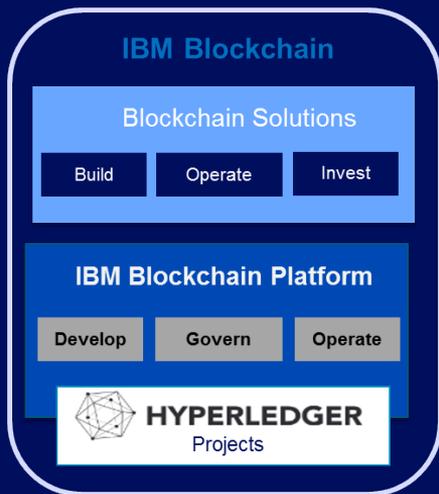
## Optimize Ecosystems

Streamline business processes and the exchange of value along your ecosystem

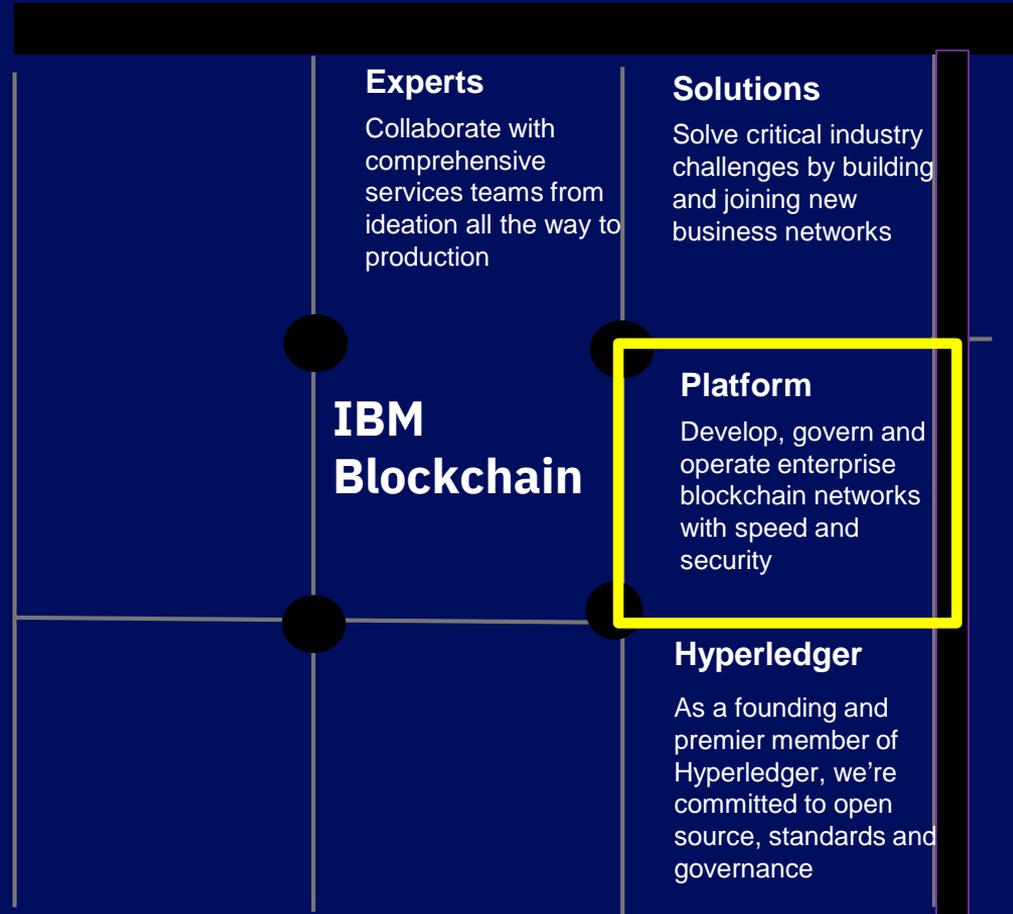
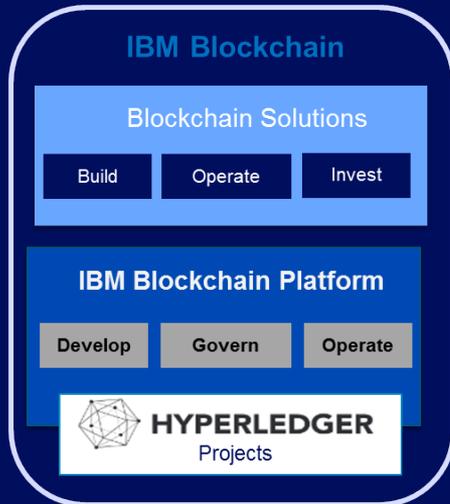
## Reduce Risk

Replace uncertainty with transparency and a trusted decentralized ledger

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# Introducing the IBM Blockchain Platform

IBM **Blockchain**

## **The only fully integrated enterprise-ready blockchain platform designed to accelerate the development, governance, and operation of a multi-institution business network**

- Based on Hyperledger Fabric V1 runtime optimized for enterprise requirements
- Specialized compute for security, performance and resilience
- Delivered via the IBM Cloud on a global footprint with 24x7 Integrated Support
- Full lifecycle tooling to speed activation and management of your network

### Develop

Explore and accelerate development time with tools that ensure close alignment between business leaders and developers

### Govern

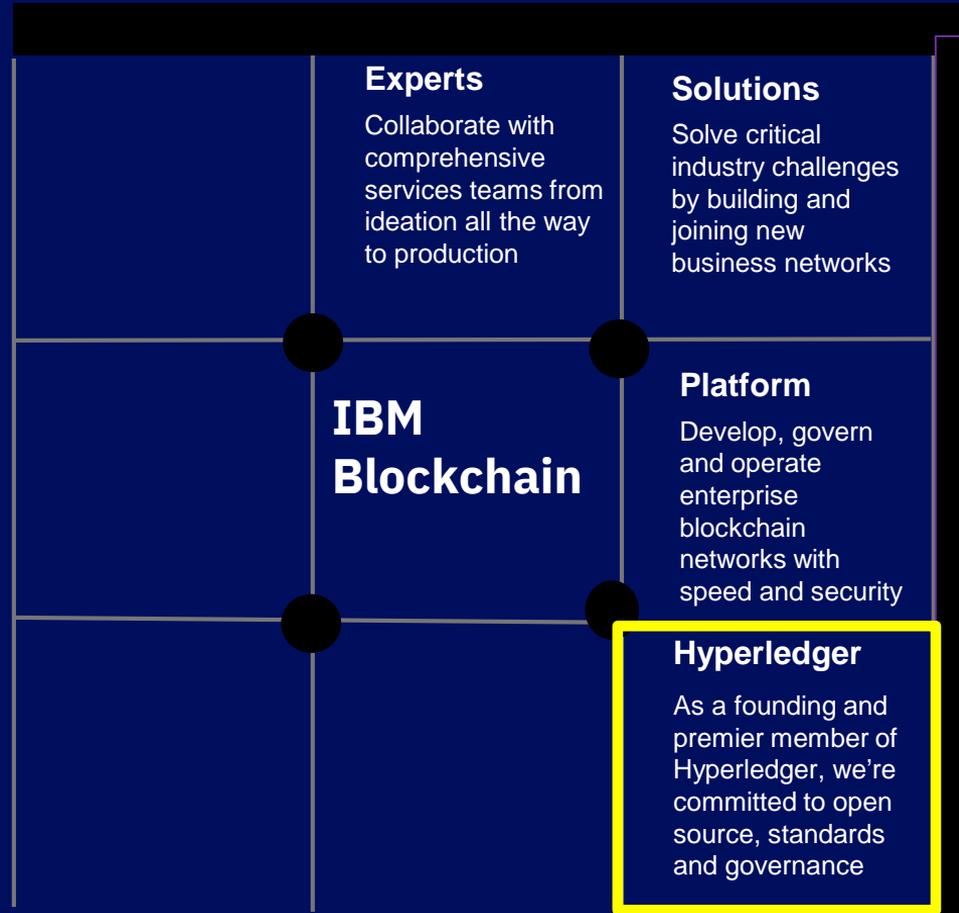
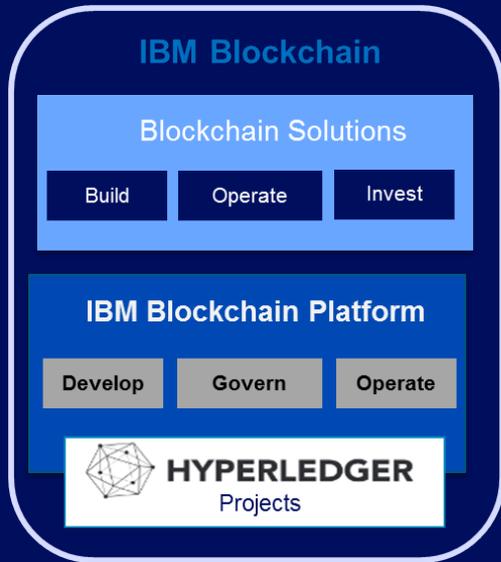
Speed activation, customization and management of your business network with democratic, multi-party governance tooling

### Operate

Deploy and operate always-on networks with production-ready enterprise performance and security for most demanding use cases

[\[http://ibm.biz/Platform\\_Demo\]](http://ibm.biz/Platform_Demo)

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# For some use cases, it makes sense to implement blockchain on-premises

- “Remote Peer” of IBM Blockchain Platform, connecting to a consortium hosted on LinuxONE in IBM Cloud
- IBM Support services for free download of IBM Signed Docker image of Hyperledger Fabric

## 1. Regulatory

Requirement to keep data in-country, and there is no in-country IBM Cloud presence

Remote Peer on LinuxONE, connected to IBM Cloud

## 2. Provenance

Component elements can be hard to track, but blockchain can track the manufacturer production date, batch number, and more.

Remote Peer on LinuxONE to IBM Cloud or stand-alone Docker image on LinuxONE

## 3. Dispute resolution

For an enterprise with many suppliers, to track interactions and resolve disputes, using immutable record of transactions, and no need for a consortium.

Remote Peer on LinuxONE to IBM Cloud or stand-alone Docker image on LinuxONE

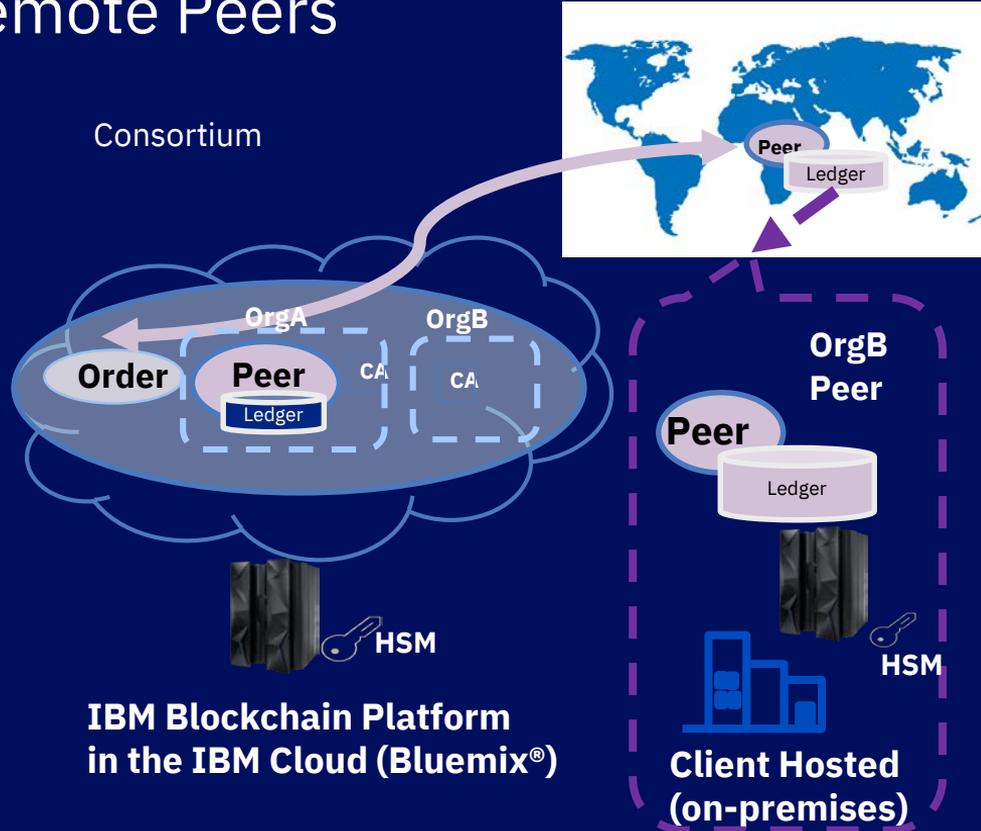
## 4. Service Offering

Offer a blockchain capability to your clients on the proven, secure and scalable LinuxONE hardware

Stand-alone Docker image on LinuxONE

# Hybrid Blockchain Networks with Remote Peers

Note: plans are still in draft



Example Consortium: Major Banks

## Remote Peers

- Connect as a members to an IBM Blockchain Platform network in the Cloud
- Quickly address data residency requirements
- Quickly integrate with existing system of record
- Steppingstone to cloud

## Why LinuxONE for Remote Peer?

- Highly secure with HSM certified to FIPS 140-2 Level 4
- Consistently delivers a highly secure service, as it does in IBM Cloud

# IBM Support for Hyperledger Fabric

For enterprises and organizations that:

- Want an on-prem /self-managed Hyperledger Fabric network, and want technical support from IBM
- Have data residency requirements in a location not currently serviced by IBM cloud

IBM's industry leading support available in different plans up to 24x365

IBM certified images with additional tests run by IBM on community code

Access to IBM deep expertise as a significant Hyperledger Fabric contributor to reduce risk in keeping your blockchain deployment up

Includes a Docker Compose script to set up a blockchain network in a known, supported configuration

Available for **IBM LinuxONE**, IBM Z®, IBM POWER®, x86

# Regardless of the venue, LinuxONE™ provides the capabilities that benefit the IBM Blockchain Platform

Enables highly secure service, protecting blockchain networks

- Secure Service Container (in IBM Cloud now, on-prem in 3Q2018) provides a virtual lockbox around the service, protecting from misuse
- Cryptographic keys stored in LinuxONE HSM, which is certified to FIPS 140-2 Level 4

Performance capabilities allow for scaling blockchain transactions better than x86

- Faster cores, huge processor cache, massive I/O capability
- Faster & more efficient in-core cryptographic coprocessor
- Crypto Express card for even faster and more complex cryptographic processing

# Use Case : IBM Global Financing

<b>What</b>	Improve Dispute Resolution for IBM Global Financing IGF Finances 2.9M Invoices, \$41B / Year for 4000+ Partners & Suppliers ~\$100M capital tied up at any given time in disputes (25,000 per year, 44 Days on avg to resolve, \$31K avg disputed value)
<b>How</b>	Blockchain enables Comprehensive View of all operational data: Purchase Order > Transaction Approval > Shipments > Invoices > Remittances
<b>Value</b>	Fewer disputes & faster settlement promotes freer flow of capital between parties

<b>Phase 1 Solution</b>	Shadow ledger integrated with but running independently from existing IGF systems, providing data for dispute resolution
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Approach	Deliverables	Plan
<ul style="list-style-type: none"><li>• Work with Lenovo US (key Supplier) and key Partner in US for initial scope of solution</li><li>• Expand to additional Suppliers, Partners &amp; Geos once operational</li></ul>	<ul style="list-style-type: none"><li>• Integration with IGF systems and external sources of data</li><li>• Capture of TA, Shipment and Invoice data to Blockchain</li><li>• User Interface for Dispute Resolution</li></ul>	<ul style="list-style-type: none"><li>• Development: WRC, IGF</li><li>• Initial Scope: 1 supplier, 1 partner</li></ul>

# Use Case: Provenance

What	Tracking Provenance of parts, goods/supplies or any physical/digital assets from their creation until decommission; initial market sizing of 6 industries is \$2.1T
How	Physical/Digital Assets are represented as digital signatures and stored on the Blockchain; creation, transfer & deletion are all tracked as txns on Blockchain
Value	Applicability in multiple industries: automotive, defense, food-packaging, pharmaceuticals, gem, consumer goods, aerospace, etc.

MVP	Asset tracking capabilities that will demonstrate provenance information across the supply-chain
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Approach	Deliverables	Plan
<ul style="list-style-type: none"><li>• <b>Anchor customer:</b></li><li>• Build Core Provenance layer</li><li>• customer specific logic on top</li></ul>	<ul style="list-style-type: none"><li>• Core Provenance Chain-code Library that stores on the Blockchain</li><li>• customer and use-case specific logic that will demonstrate the applicability</li></ul>	<ul style="list-style-type: none"><li>• Development: Watson Res Lab</li><li>• Scope: Asset History and specific Query Capabilities</li></ul>

# IBM Blockchain Platform membership plans

Plans	Key Features	Availability
Entry	Hourly charges w/basic services levels	Coming soon
Enterprise	Monthly subscription with advanced service levels	<b>Available Now</b>
Enterprise Plus	Monthly subscription with the highest performance and isolation for even the most demanding use cases and regulated industries	Coming soon
Self-Managed	Remote Peer – Signed and certified images of the Hyperledger Fabric you can install in a location of your choosing <b><u>including LinuxONE!</u></b>	Coming soon

Each membership plan includes all the platform tools to develop and govern a complete blockchain network, and the tools to operate 1 blockchain peer.

# IBM Support for IBM “Signed” Docker Images

## IBM Support offering for “IBM Signed” Docker images of the Hyperledger Project fabric

- ❖ prospects can download for on-premises deployments
  - Images for IBM Z, LinuxONE, Power Systems™ and x86
- ❖ Supported configuration “Recipes”: one or four peer networks
- ❖ IBM support only applies to IBM signed Docker images

## What we offer

Two Support Tiers →	Entry	Elite
Program no./ Part no.	5737-C27/D1QVKLL	5737-C26/D1QVKLL
Subscription term	1 year	1 year
Monthly cost	\$2000 USD	\$8000 USD
Support hours	Mon-Fri 8am-5pm	24x365
Response target	8 business hours	2 business hours
Technical contacts	1	unlimited
Developer assistance	none	5 assists

Official levels of support are defined in the IBM Support Handbook Appendix A. You must refer to the table of support-only offerings, under the heading *IBM Selected Support options*.

<https://www-304.ibm.com/support/customer/sas/f/handbook/appendixa.html>

## Where to find the Docker images and setup:

- ❑ IBM signs and uploads them to **ibmblockchain-Docker Hub**.  
<https://hub.docker.com/r/ibmblockchain/>
- ❑ Refer to the website for instructions  
<https://hub.docker.com/r/ibmblockchain/hyperledger-fabric/>
  - How to setup a supported blockchain network configuration.
  - Hardware/software requirements  
Required software, minimally:
    - Docker Engine & Docker Compose

Customers use **IBM Service Request** to open problems:

<https://www-946.ibm.com/support/servicerequest/help/srHelp.action>



Let's get started!

## Next steps:

1. Conduct a ½-day workshop to determine your use case(s)
2. Conduct a 1- to 2-day Design Thinking workshop to create your blockchain vision
3. Order your LinuxONE

[ibm.com/linuxone/solutions/blockchain-technology](https://ibm.com/linuxone/solutions/blockchain-technology)



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