Why is IBM Blockchain based on Hyperledger@LinuxFoundation

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FUTURE
1. sejem inovativnih digitalnih rešitev
Celjski sejem, 19.–21. oktober 2017

There is not one blockchain protocol

Multiple implementations of blockchain related protocols :
- Hyperleger Project @ Linux Foundation
- R3 Corda
- Ethereum
- Ripple
- Stellar
- Factom
- …and many more

Key differentiating elements between blockchain protocols:
- Permission model (private vs. public)
- Consensus approach
- Smart contracts
- Extensibility & programmability
- APIs
- Scalability & latency
- Resource consumption

IBM R&D and Blockchain

Jan 2015　　　ADEPT: IBM/Samsung Blockchain-powered IoT-oriented PoC

Aug 2015　　　OpenBlockChain (OBC) project kicks off within IBM

Feb 2016　　　Linux Foundation Hyperledger open-source blockchain project kicks-off

- IBM donates 40k lines of OBC code to Hyperledger
- Hyperledger Fabric (HLF) project is born

June 2016　　　HLF v0.5-developer-preview release

- First production deployments (IBM Global Finance, still in operation)
- IBM Blockchain beta available on IBM BlueMix

July 2017　　　HLF v1 release

- Complete blockchain architecture overhaul

Do you need a blockchain?

K. Wüst & A. Gervais
eprint.iacr.org/2017/375

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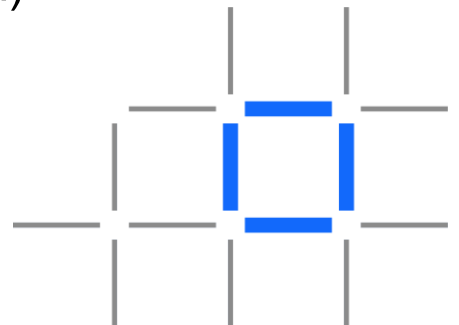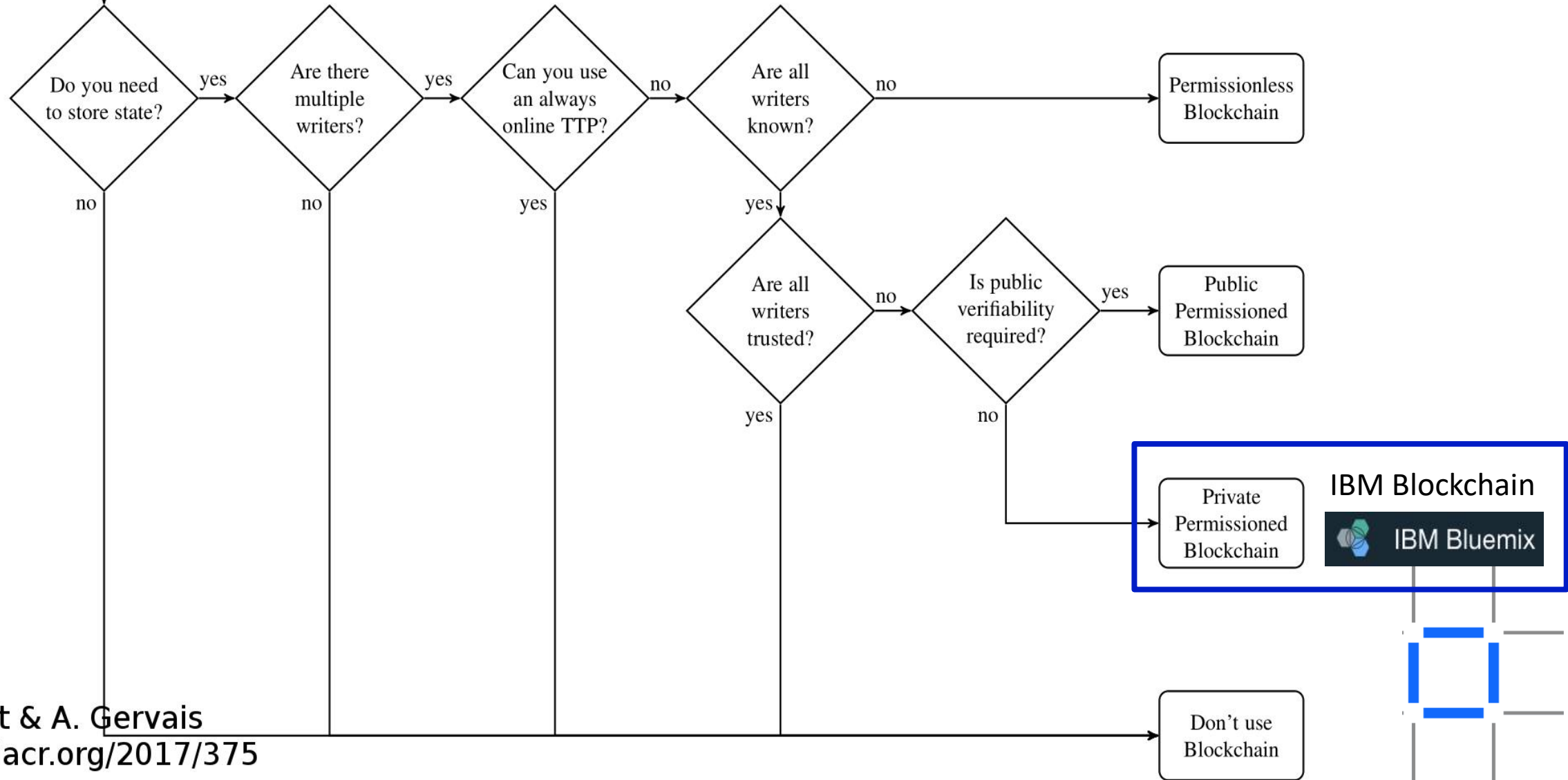
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Are Your Supply Chain Peers Already Implementing Blockchain?

SYDNEY LAZARUS - June 7, 2017 6:00 AM |

Chain Business Insights recently released a benchmark survey of 42 supply chain professionals from companies of various sizes and revenues, and more than a third of the respondents indicated that they're piloting or using blockchain in their organizations. (A "1" in the chart below signifies no knowledge of blockchain, whereas a "5" signifies that the organization is already implementing the technology.)
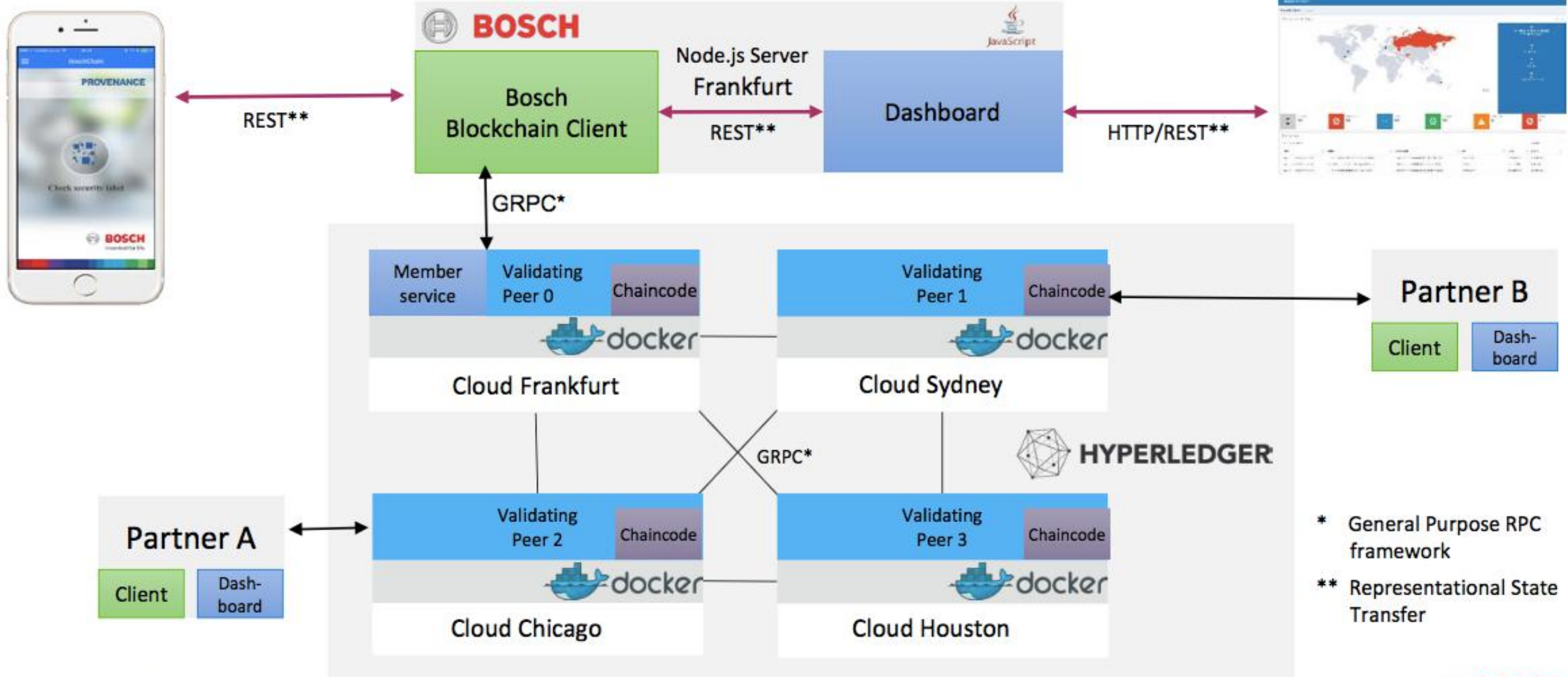
35.7% already implementing blockchain

4.80%
35.70%
11.90%
23.80%
23.80%

■1 ■2 ■3 ■4 ■5
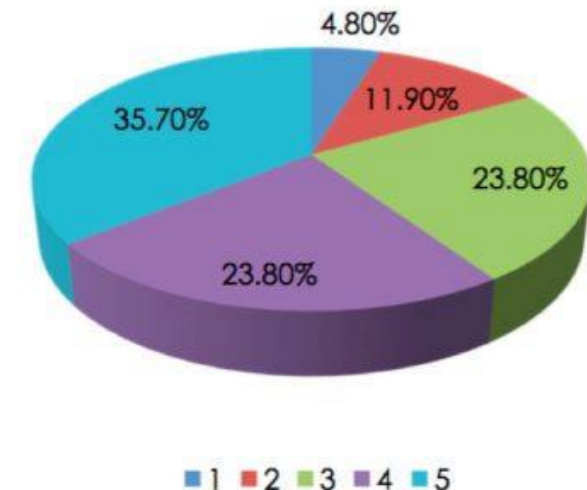
Blockchain – A single technology with many applications
Architecture Proof of Concept

Hyperledger Fabric: a step in blockchain evolution

2009
Bitcoin

- **Hard-coded cryptocurrency application w. limited stack-based scripting language**
- **Proof-of-work-consensus**
- **Native cryptocurrency (BTC)**
- **Permissionless blockchain system**

Blockchain 1.0

2014
Ethereum

- **Distributed applications (smart contracts) in a domain-specific language (Solidity)**
- Proof-of-work-consensus
- Native cryptocurrency (ETH)
- Permissionless blockchain system

Blockchain 2.0

2017
Hyperledger
Fabric

- **Distributed applications (chaincodes) in different general-purpose languages (e.g., golang, Java)**
- **Modular/pluggable consensus**
- **No native cryptocurrency***
- Permissioned blockchain system

Blockchain 3.0

Hyperledger Fabric – key requirements

- **No native cryptocurrency**

- **Ability to code smart-contracts in general-purpose languages**

- **Modular/pluggable consensus, membership components**

**Satisfying these requirements required
a complete overhaul of the (permissioned) blockchain design!**

end result
Hyperledger Fabric v1
http://github.com/hyperledger/fabric

Hyperledger Composer: Accelerating Time to Value

Business Application

Hyperledger Composer

Blockchain
(Hyperledger Fabric)

https://hyperledger.github.io/composer/

- A suite of high level application abstractions for business networks
- Emphasis on **business-centric vocabulary** for quick solution creation
- Reduce risk, and increase understanding and flexibility
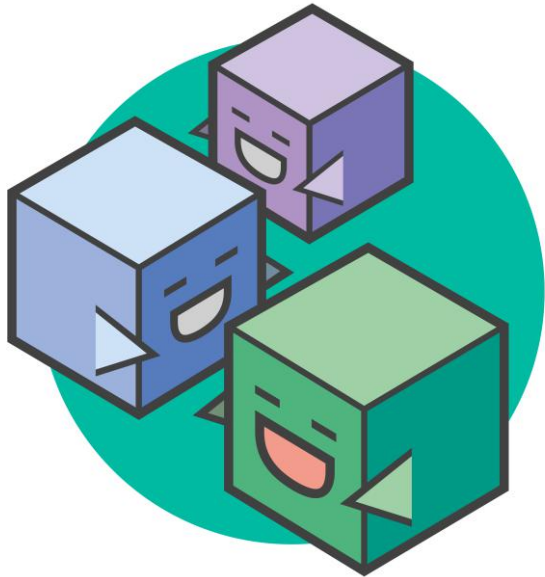
- Features
  - Model your business networks, test and expose via APIs
  - Applications invoke transactions to interact with business network
  - Integrate existing systems of record

- Fully open and part of Linux Foundation Hyperledger

- Try it in your web browser now:
  http://composer-playground.mybluemix.net/
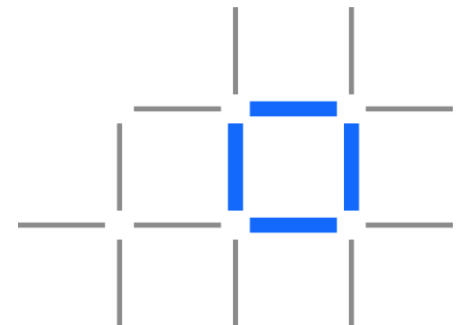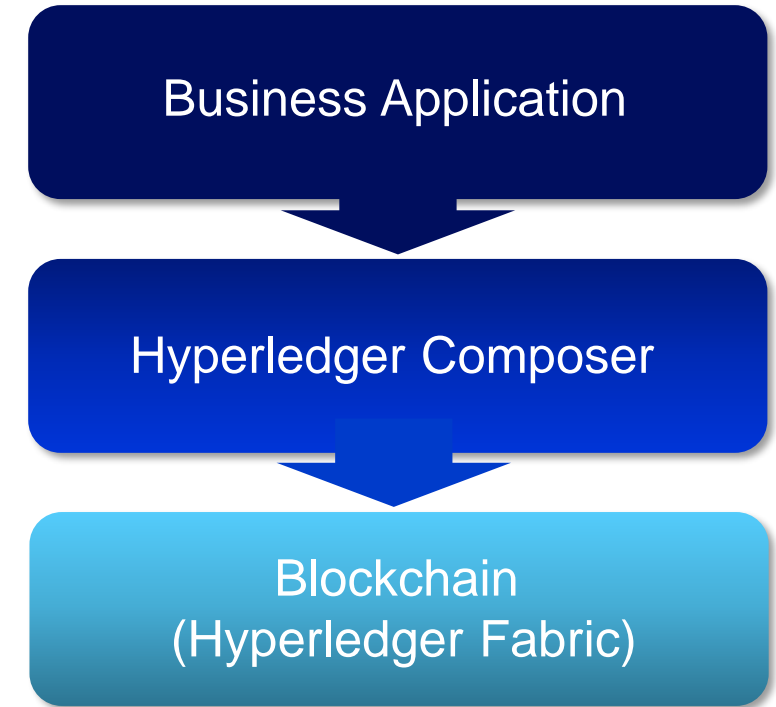
Blockchain Developer Center

Explore and accelerate blockchain application development with free tools, tutorials, and community collaboration

Start developing applications on the IBM Blockchain Platform

https://developer.ibm.com/blockchain/

IBM Blockchain Platform

Meet the new IBM Blockchain Platform

Simplified development, governance, and operation of business networks

This enterprise-ready blockchain platform makes it easy to activate and manage a secure business network across multiple organizations. Best of all, it's powered by open source technology from Hyperledger Fabric and Hyperledger Composer, paving the way for collaborative application development in your preferred environment.

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Dubai Blockchain

Smart Dubai appointed IBM as its blockchain lead strategic partner and Consensys, a custom-software development consultancy, as its blockchain adviser

1. Digitize **health records** on blockchain to provide patients and care providers with secure access to medical data.
2. Digitize and transfer Kimberley certificates on blockchain to secure the **diamond trade**.
3. Transfer titles of **illiquid assets** on blockchain to increase trade efficiency.
4. Streamline **ID verification** to reduce business registration times.
5. Use blockchain-based **wills and contracts** to ease transfer of ownership.
6. Boost tourism in Dubai through a blockchain-based program that would allow visitors to better earn and spend **loyalty points**.
7. Apply blockchain to **trade** finance to more effectively exchange goods and the financing for those goods.

Dubai Drawing the Roadmap to the Blockchain City
Posted by Martin Higgins | May 19, 2017 | ★★★★★

IBM

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