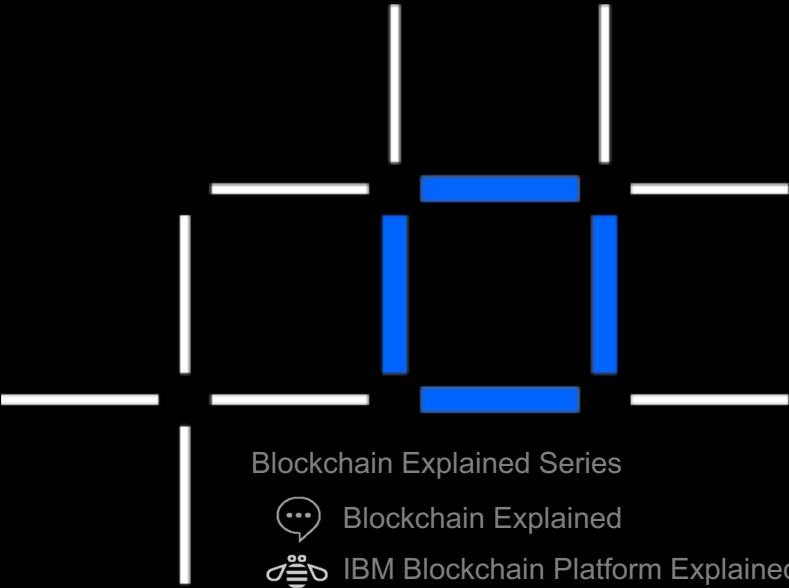


Solutions Explained

IBM Blockchain Networks

Jin VanStee



Blockchain Explained Series

… Blockchain Explained

⌚ IBM Blockchain Platform Explained

✅ **Solutions Explained**

🏡 Garage Explained

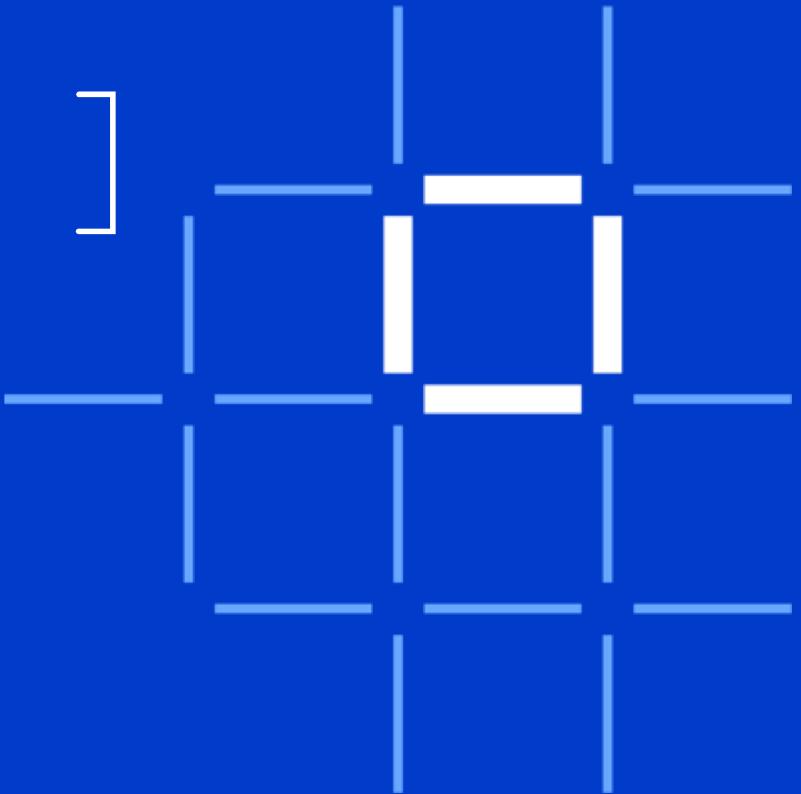
➔ Next Steps



Use Cases

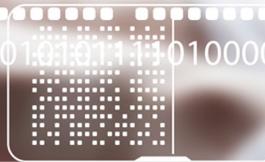


Your Solution



10100101011101011101010010101

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Example: Shared reference data

What

- Competitors/collaborators in a business network need to share reference data, e.g. bank routing codes, medical codes
- Each member maintains their own codes, and forwards changes to a central authority for collection and distribution
- An information subset can be owned by organizations

How

- Each participant maintains their own codes within a Blockchain network
- Blockchain creates single view of entire dataset

Benefits

1. Consolidated, consistent dataset reduces errors
2. Near real-time access to reference data
3. Naturally supports code editing and code transfers between participants

Example: Supply chain



What

- Provenance of each component part in complex system hard to track

- Manufacturer, production date, batch and even the manufacturing machine program

How

- Blockchain holds complete provenance details of each component part

- Accessible by each manufacturer in the production process, the aircraft owners, maintainers and government regulators

Benefits

1. Trust increased, no authority "owns" provenance
2. Improvement in system utilization
3. Recalls "specific" rather than cross fleet

Example: Audit and compliance



- What
- Financial data in a large organization dispersed throughout many divisions and geographies
 - Audit and Compliance needs indelible record of all key transactions over reporting period

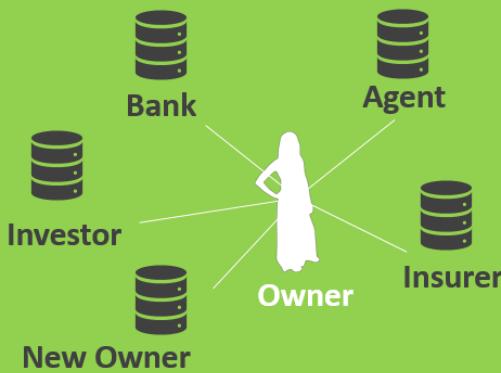
- How
- Blockchain collects transaction records from diverse set of financial systems
 - Append-only and tamperproof qualities create high confidence financial audit trail
 - Privacy features to ensure authorized user access

- Benefits
1. Lowers cost of audit and regulatory compliance
 2. Provides “seek and find” access to auditors and regulators
 3. Changes nature of compliance from passive to active

Blockchain enables States to perform ‘business as usual’ and unlock new value
e.g. Property Title

Current Property Transfer Environment

Each party passes paper or electronic documents or transactions amongst themselves.



Digitized Property Title Transfer—with Blockchain

Each entity has a blockchain replica of contracts and transactions

- Title is stored in a secure, tamper proof, and permanent block
- Authorized access to the title block is granted to parties in a real estate chain
- Negotiated contract is stored as a block and added to the property title chain
- Lender accesses the block chain to validate contract terms
- Title Insurer accesses the block chain to validate property ownership
- At closing, attorney accesses the block chain to record transfer of title and funds



Each party maintains a trusted version of data in their proprietary database

Benefits:

Title search is simplified to only validate last property owner

Fraud is eliminated

Reconciliation of title data, contract terms, and approvals is eliminated—single version of truth

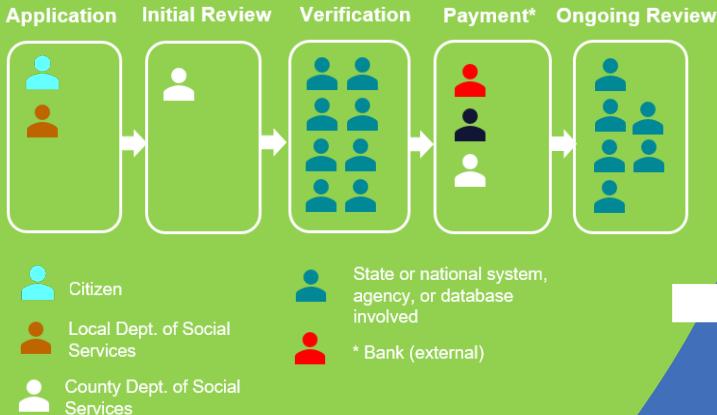
Elapsed time in each step of the process is compressed

Costs are reduced

Blockchain enables States to perform ‘business as usual’ and unlock new value
e.g. Social Services

Current Welfare System

Process of applying, verifying and paying welfare is complex involving dozens of stakeholders across government levels



Each party maintains a trusted version of data in their proprietary database

Benefits:

Single view of citizen across agencies

Fraud is eliminated

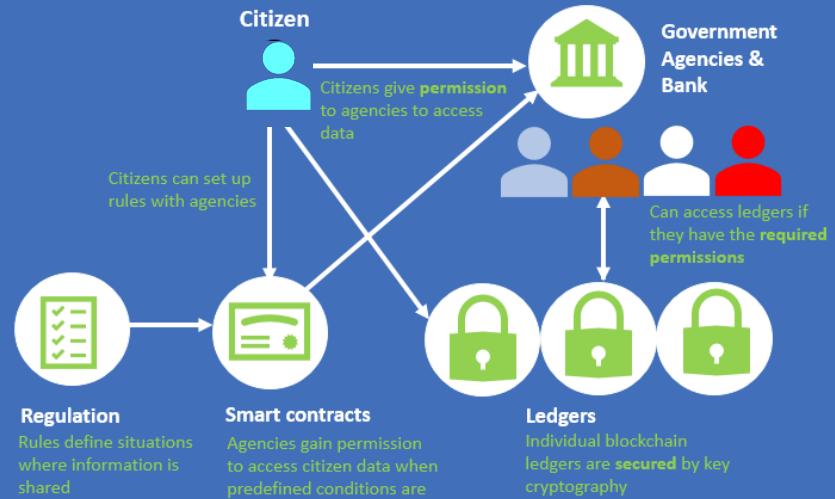
Empowers citizens to say who has access to their data

More accurate records build trust across stakeholders

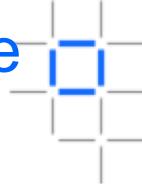
Faster processes & updates

Digitized Welfare System - with Blockchain

Blockchain network ensures social services are distributed in a secure, trusted and efficient environment



Healthcare organizations tackle provider directories mandate



What?

- Five healthcare organizations including insurers UnitedHealthcare and Humana, Optum, Quest Diagnostics and MultiPlan are launching a blockchain pilot to help payers tackle mandated provider directories

How?

- The pilot will use blockchain technology for the five members of the alliance to share the curated information.
- “So when one payer does the curation work, it could be potentially shared with the other payers,” “This works for payers that have an overlapping provider population.”

Optum, UnitedHealthcare, Humana, others launch blockchain pilot

The alliance is one of the first, if not the first, national blockchain alliances for healthcare, says Optum engineer.

By [Susan Morse](#) | April 02, 2018 | 10:28 AM



*Source: <http://www.healthcareitnews.com/news/optum-unitedhealthcare-humana-others-launch-blockchain-pilot>

Government Blockchain traction as of August 2017



KEY: Project completed; Project in progress; Scoping; In conversation

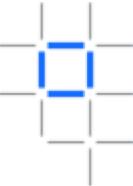


Use Cases



Your Solution





Good blockchain use-case or bad?

Food
Provenance

Holiday
Tracking
Tool

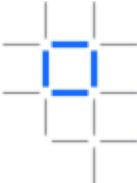
Know Your
Customer

Secure
Document
Store

Track Your
Child

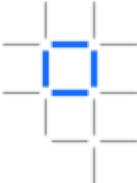
Electronic
Medical
Records





What makes a good blockchain use case?

- Identifying a good blockchain use-case is not always easy!
 - However there should always be:
 1. A **business problem** to be solved
 - That cannot be more efficiently solved with other technologies
 2. An identifiable **business network**
 - With Participants, Assets and Transactions
 3. A need for **trust**
 - Consensus, Immutability, Finality or Provenance

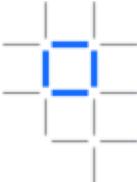


What makes a good first blockchain use case?

– First use-cases are even more difficult to identify!

1. A limited scope, but still solves a real business problem
 - Minimum Viable Product in a few weeks of effort
2. A smaller business network
 - Usually without requiring regulators and consortia
3. Allows for scaling with more participants and scenarios
 - Consider shadow chains to mitigate risks

Start small, succeed and grow fast!



It is important to ideate potential use-cases

Day 1

[A] Use Case



Blockchain Recap	30
Use Case Selection	30
Blockchain Fit	20
Business Network	15

[B] User

Design Thinking	30
Empathy Mapping	45
As-is Experience	45
Explore Possibilities	30
Focus Outcomes	15

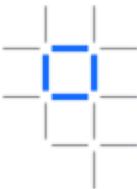
Day 2

[C] Hills

Formulating Hills	60
Playback Hills	15
Refine Hills & Check Fit	35
Prioritize Hills	15

[D] Going Agile

Storyboarding	45
First Project Method	30
Sprint Zero	20
Non-functional Details	15
Action Plan	20



Assessing Business Value

- It can be difficult to accurately quantify investment case for blockchain
- Things to consider:
 - Existing Pain Points
 - Scope – participants, assets, transactions
 - Benefits: baseline, minimum viable ecosystem (MVE) & mature network
 - Blockchain Design Points
 - References

Blockchain Value Design (BVD) activity will help elaborate these items!

Template – example only (Cross Border Supply Chain)

Problem	90% of goods in global trade are carried by the ocean shipping industry each year. Costs associated with trade documentation processing and administration are estimated to be up to 20% the actual physical transportation costs.	Pain Points
Solution	Manage and track the paper trail of tens of millions of shipping containers across the world by digitizing the supply chain process	<ul style="list-style-type: none"> Transport remains highly dependant on a flood of paper that is never digitised Shipping information must pass through many hands, increasing potential for delays in transport. One shipment can require sign-off from 30 unique organizations and up to 200 communications. One lost form or late approval could leave the container stuck in port The entire process can take more than one month.. Fraudulent changes may be made to the Bill of Lading
Participants	Supplier, couriers (*2), customs (*2) , ports (*2), shipper and retailer	
Asset & Trust	Need for trust around paperwork associated with a container	
Transactions	Supplier prepares to ship, release container to courier, load to ship, clear customs, retailer receipt	

Benefits benchmarks - Value Tree		Baseline	Phase 1	Phase 2-3	Blockchain : Design Points	References
KPI's (e.g.)						
New revenue	# new value propositions	-	-	1 to 3	<ul style="list-style-type: none"> Find new value propositions to exploit the network effect between members 	ANO -1
Improve client experience	Increase in customer satisfaction	-	5%	10%	<ul style="list-style-type: none"> Securely and transparently trace the container's path through the supply chain on the blockchain 	
	Increase in trade volumes	-	+5%	+15%	<ul style="list-style-type: none"> Add trust (Immutability and Provenance) around the Bill of Lading and other container paperwork 	ANO -2
	Cycle times (transit & shipping)	30 days	25 days	10 days	<ul style="list-style-type: none"> Automate the transit and shipping process with Smart Contracts reducing cycle times and delays 	
Reduce transport costs	Waste as % of total shipped	6%	5%	1%	<ul style="list-style-type: none"> No reconciliation or matching of documentation with near instant updates - eliminates the need for audit and verification 	
	Fraud and errors as % of total costs	5%	4%	0.5%	<ul style="list-style-type: none"> Removes paper and intermediaries 	
	Documentation admin. as % of total costs	20%	15%	5%		

Thank you

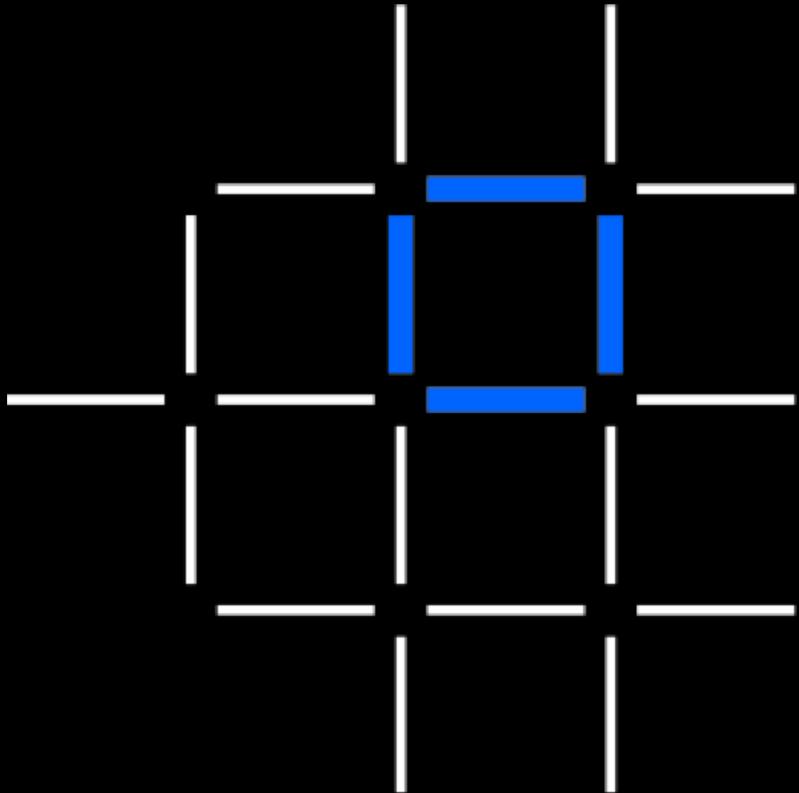
Jin VanStee

Questions? Tweet us or
go to ibm.com/blockchain

 @IBMBlockchain

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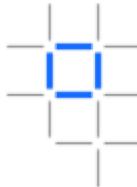
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Sample questions to ask for the selected use case:



1. What is the specific business problem / challenge that the first project will address?
2. What is the current way of solving this business problem?
3. Assuming the business problem is large, what specific aspects of this business problem will be addressed?
4. Who are the business network participants (organizations) involved and what are their roles?
5. Who are the specific people within the organization and what are their job roles?
6. What assets are involved and what is the key information associated with the assets?
7. What are the transactions involved, between whom, and what assets are associated with transactions?
8. What are the main steps in the current workflow and how are these executed by the business network participants?
9. What is the expected benefit of applying blockchain technology to the business problem for each of the network participants?
10. What legacy systems are involved? What degree of integration with the legacy systems is needed?