Capítulo 2: ¿Cuál es la historia que construiremos?

Aprendiendo Bluemix & Blockchain

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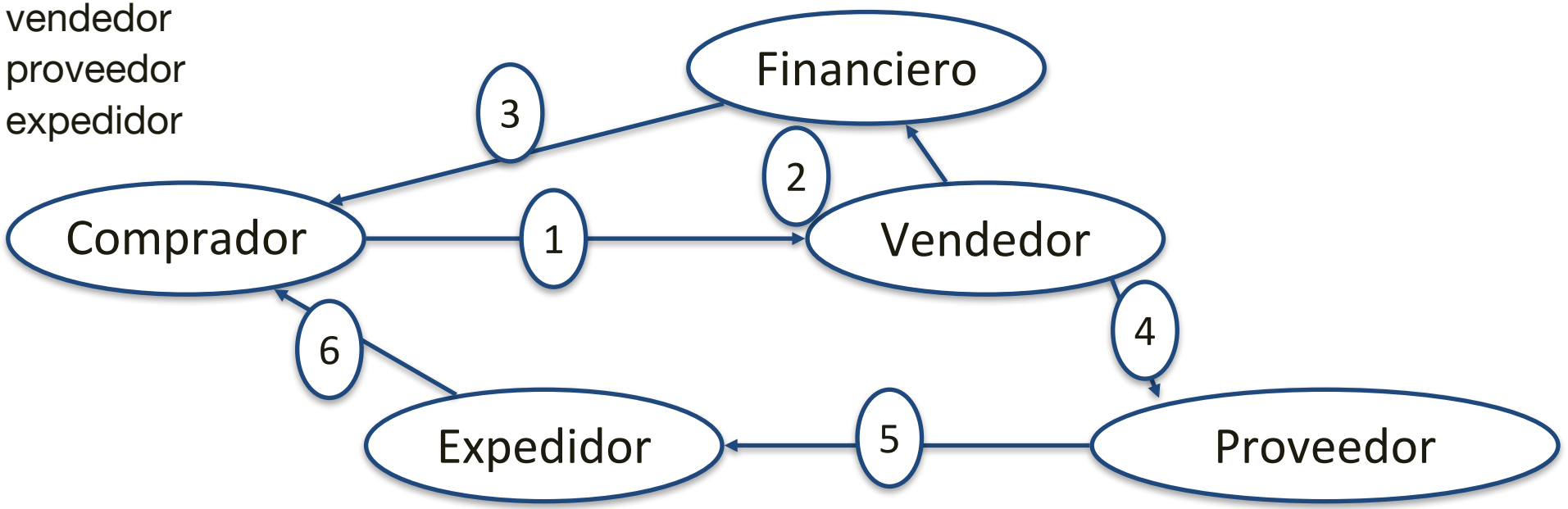
El plan: capítulos de 30 minutos con una o dos horas de práctica

Capítulo 1	¿Qué es Blockchain? Revisión general del concepto y arquitectura
Capítulo 2	**¿Cuál es la historia que construiremos?**
Capítulo 2.1	Arquitectura para la historia
Capítulo 3	Preparar ecosistema para desarrollo local de Hyperledger Fabric V1
Capítulo 4	Construir y probar la red
Capítulo 5	Experiencia de usuario para el administrador
Capítulo 6	Soporte para el comprador y experiencia de usuario
Capítulo 7	Soporte para el vendedor y experiencia de usuario
Capítulo 8	Soporte para el proveedor y experiencia de usuario
Capítulo 9	Soporte para el expedidor y experiencia de usuario
Capítulo 10	Soporte de “Finance Company” y experiencia de usuario
Capítulo 11	Combinando para demostración
Capítulo 12	Eventos y automatización para demostración

Resolución de disputas para una organización financiera

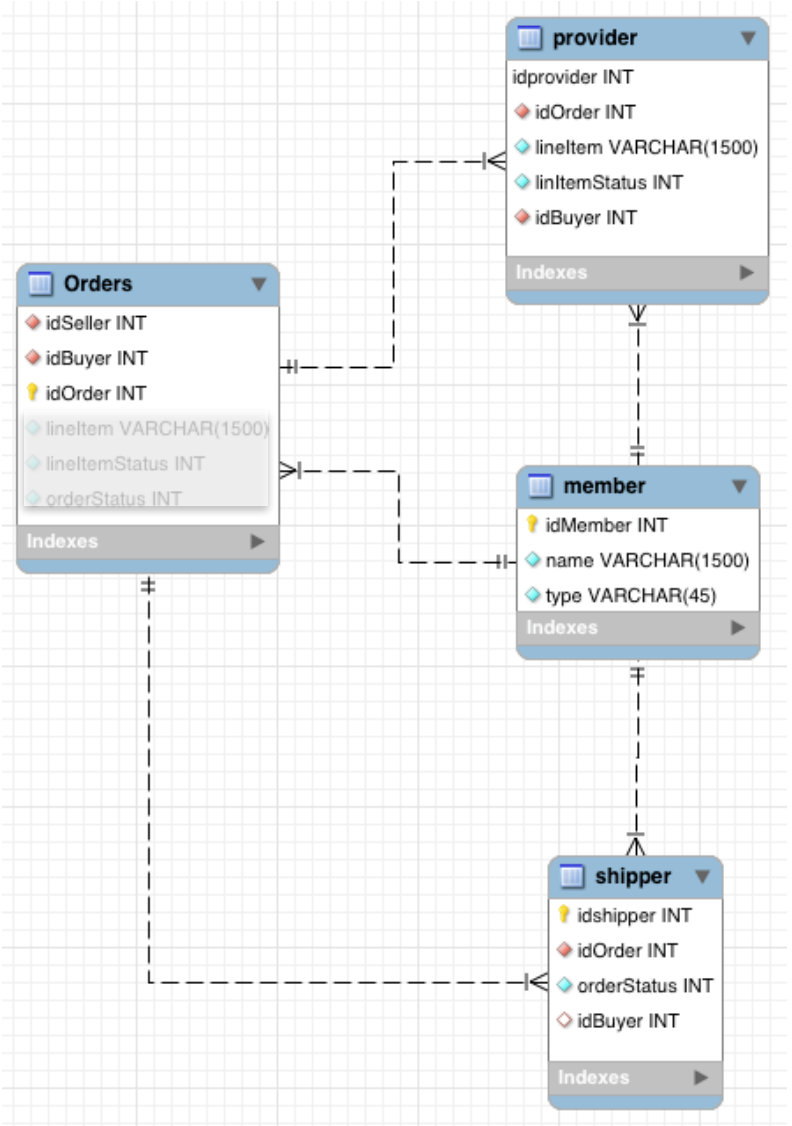
- Resolver disputas requiere reunir y correlacionar hechos de múltiples partes. Este es un lento, laborioso e intensivo esfuerzo que representa más de $100M en cualquier punto del tiempo.
- En este ejemplo, las partes son:
  - La organización financiera
  - El comprador
  - El vendedor
  - El proveedor
  - El expedidor

1. Solicitar producto
2. Solicitar pago
3. Cuenta de débito
4. Solicitar envío directo del proveedor
5. Solicitar embarque
6. Entrega de producto



Modelo de datos

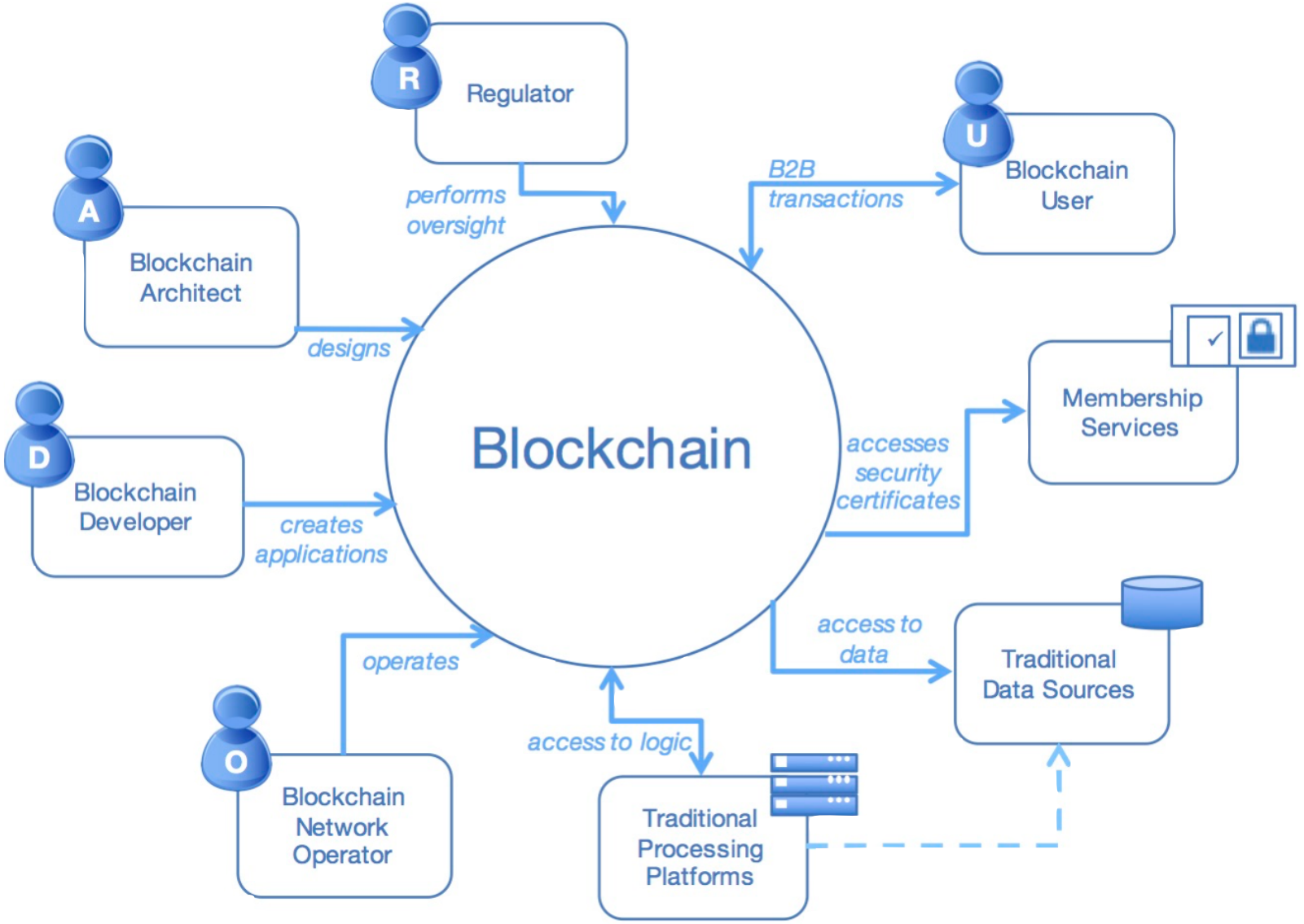
- Una orden tiene estatus de:
    1. Solicitada
    2. aProveedor
    3. aExpedidor
    4. Embarcando
    5. Entregada
    6. Pagada
    7. enDisputa
- Un artículo tiene estatus de:
    1. Solicitada
    2. aProveedor
    3. aExpedidor
    4. Embarcando
    5. Entregada
    6. Ordenada



Las historias básicas

- Como una organización financiera, quiero ver el estatus relacionado a lo financiero en cada orden ejecutada por mis clientes cuando utilizan mis servicios de crédito instantáneamente y en tiempo real.
  - Esto me permitirá administrar la resolución de disputas desde mi teléfono inmediatamente, en lugar de tomar múltiples semanas para resolver una disputa.
- Como vendedor, quiero ver la orden, el estatus de embarque y financiero de cada venta en el sistema.
- Como comprador, quiero ver el estatus en tiempo real de cada orden.
- Como comprador, quiero ser capaz de iniciar una disputa con un solo clic y proveer toda la información necesaria a mi organización financiera.
- Como manufacturero, quiero ser capaz de ver todas las órdenes abiertas y el estatus de embarque de todas las órdenes.
- Como expedidor, quiero ser capaz de interactuar con este sistema con el menor cambio posible en mi proceso.

Actors in a blockchain solution



Actors in a blockchain solution

Blockchain Architect		Responsible for the architecture and design of the blockchain solution	Chapter 1 & 2.1
Blockchain User		The business user, operating in a business network. This role interacts with the Blockchain using an application. They are not aware of the Blockchain.	Financing Co, Buyer, Seller, Shipper, Provider
Blockchain Regulator		The overall authority in a business network. Specifically, regulators may require broad access to the ledger's contents.	Finance Co.
Blockchain Developer		The developer of applications and smart contracts that interact with the Blockchain and are used by Blockchain users.	Chapters 3-12
Blockchain Operator		Manages and monitors the Blockchain network. Each business in the network has a Blockchain Network operator.	Chapters 4 & 5
Membership Services		Manages the different types of certificates required to run a permissioned Blockchain.	Chapters 4 & 5
Traditional Processing Platform		An existing computer system which may be used by the Blockchain to augment processing. This system may also need to initiate requests into the Blockchain.	Outside the Tutorial
Traditional Data Sources		An existing data system which may provide data to influence the behavior of smart contracts.	Supplied in Tutorial

Blockchain in a nutshell

Append-only distributed system of record shared across business network

Business terms embedded in transaction database and executed with transactions

Ensuring appropriate visibility; transactions are secure, authenticated and verifiable

Transactions are endorsed by relevant participants

Broader participation, lower cost, increased efficiency

Industrial Blockchain – IBM's Perspective

Private and permissioned (not public)

- Private = known set of participants in a business network, known identity
- Permissioned = members need to fulfill criteria to join
- (Public = open set of participants, anonymitiy)

Appropriate consensus

- Mechanism by which participants agree on state of shared ledger.
- Public needs heavyweight consensus for anonymous participants
- Known participants opens up other forms (e.g. participant bonds)

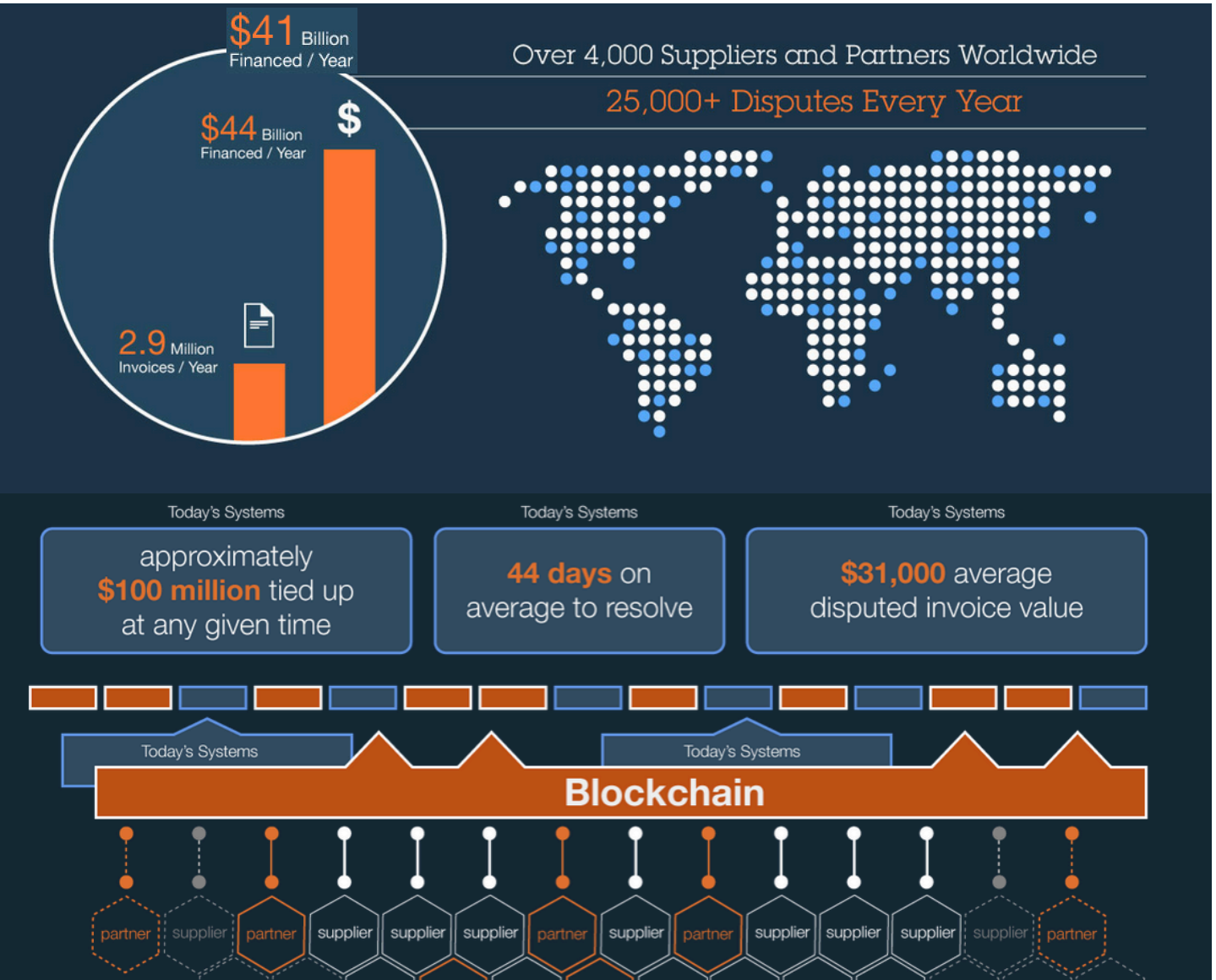
Privacy through cryptography

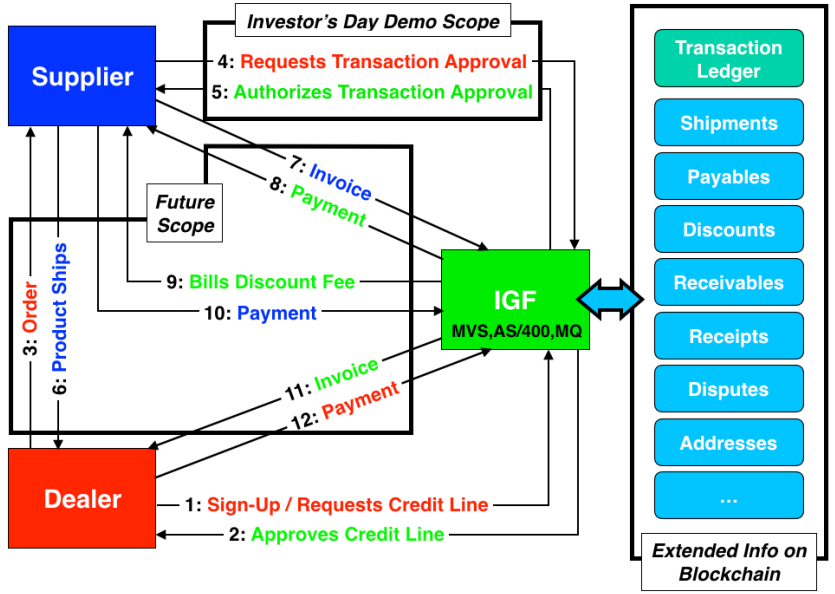
- Transaction privacy
- Participant identity & trading privacy

Compliance and audit

- Current spend can be vastly reduced
- Automated processes possible

Blockchain for IBM Global Financing

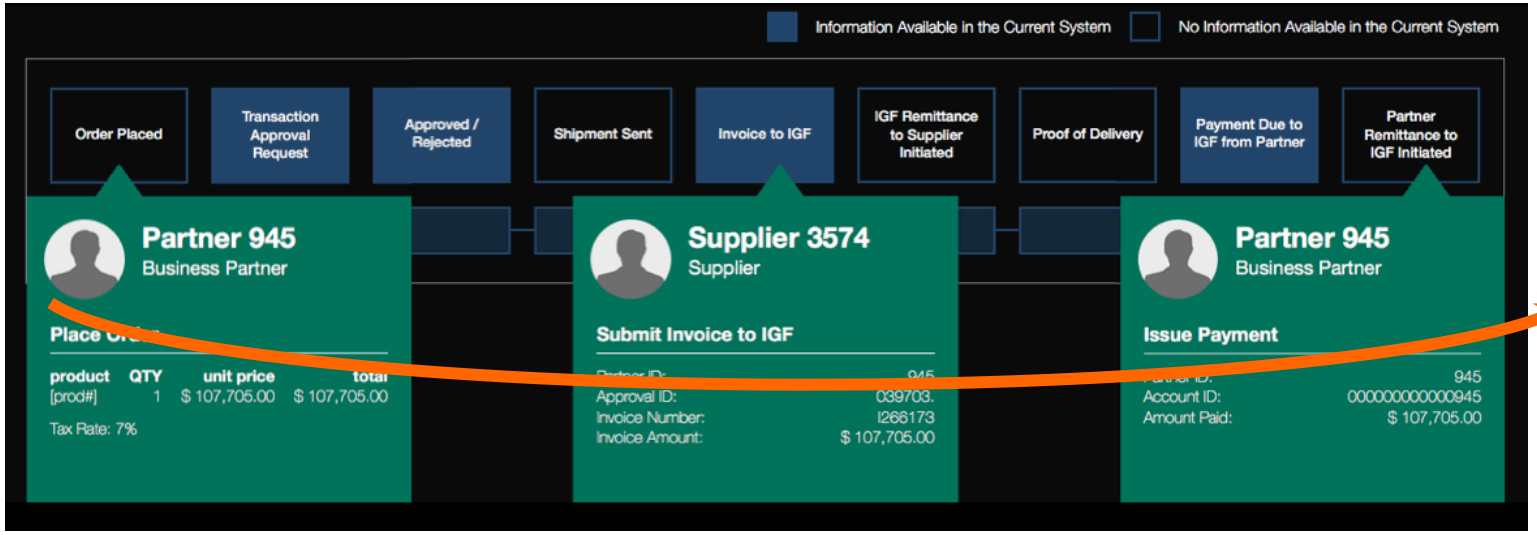




- Immutability / non-repudiability of Blockchain ledger
  - Comprehensive view of all operational data
- Less disputes, faster settlement
  - Free flow of capital between parties
- Distributed and replicated
  - Less outages, highly extensible

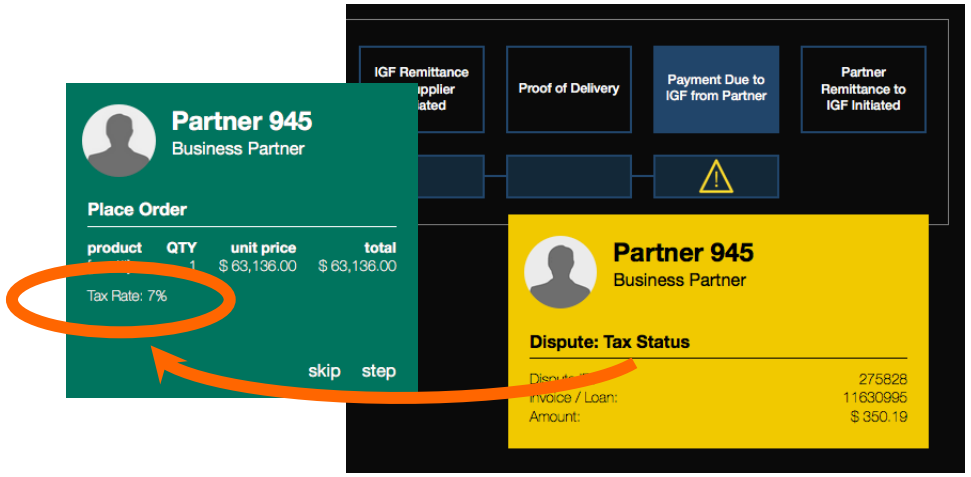
Blockchain for IBM Global Financing

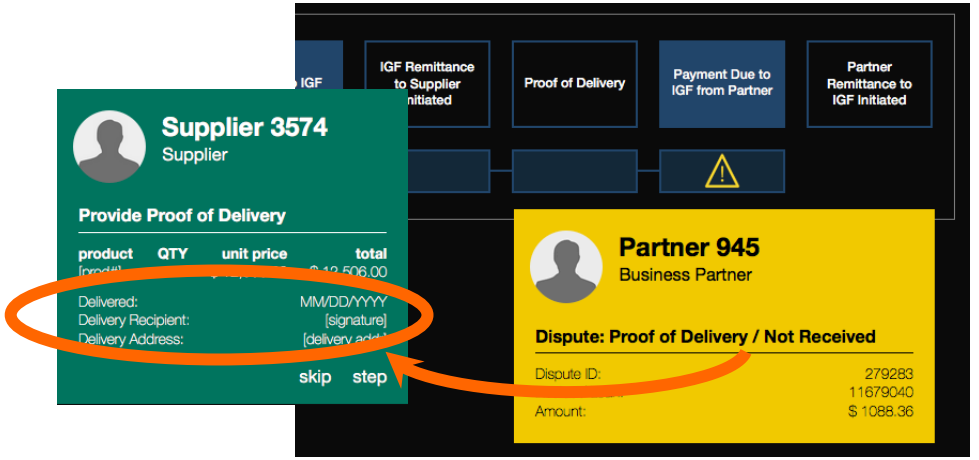
An immutable, non-repudiable record of events, shared between Partners, Suppliers and IGF…



…enabling a comprehensive view across the entire transaction lifecycle….

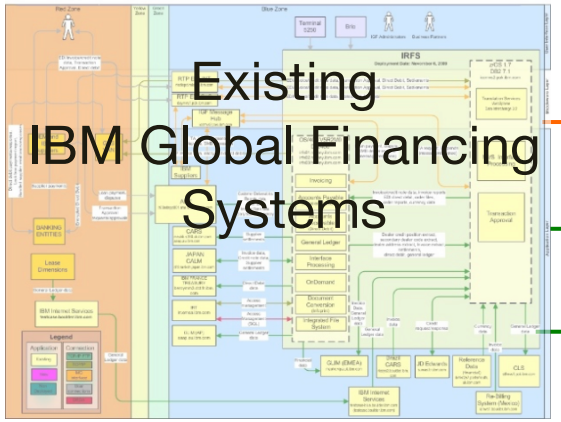
…with enhanced visibility to prevent or speed the resolution of disputes…





Demo Video: https://youtu.be/F0P7NM7d-ps

Blockchain for IBM Global Financing



Transaction Approvals

Invoices

Remittances

External Data

Application

UI

Application

Validating Peer

Validating Peer

Validating Peer

Validating Peer

Application

Application REST APIs

TA Data Services

Invoice Data Services

Remittance Data Services

External Data Services

Indexing

Blockchain data for dispute resolution

Data recorded in the Blockchain can improve resolution time for common disputes

Dispute Reason	Data Recorded in Blockchain			
	PO	Shipment	Proof of Delivery	Invoice
Shortshipped Order by Part Quantity or by Box	Line item and quantity info	Shipment line items and quantities		
Proof of Delivery			Proof of Delivery	

Benefits and next steps

Potential benefits

- Reduction in disputes and dispute resolution cycle time (initial estimates of 10%), leading to:
  - Better customer satisfaction
  - Differentiation from your competitors
  - Reduced costs associated with dispute resolution

What can I do to get ready?

- Prepare for availability of data to be shared on the Blockchain:
  - Order information
  - Shipping information
  - Receipt of shipment
  - Additional information that would benefit your partners

Buyer

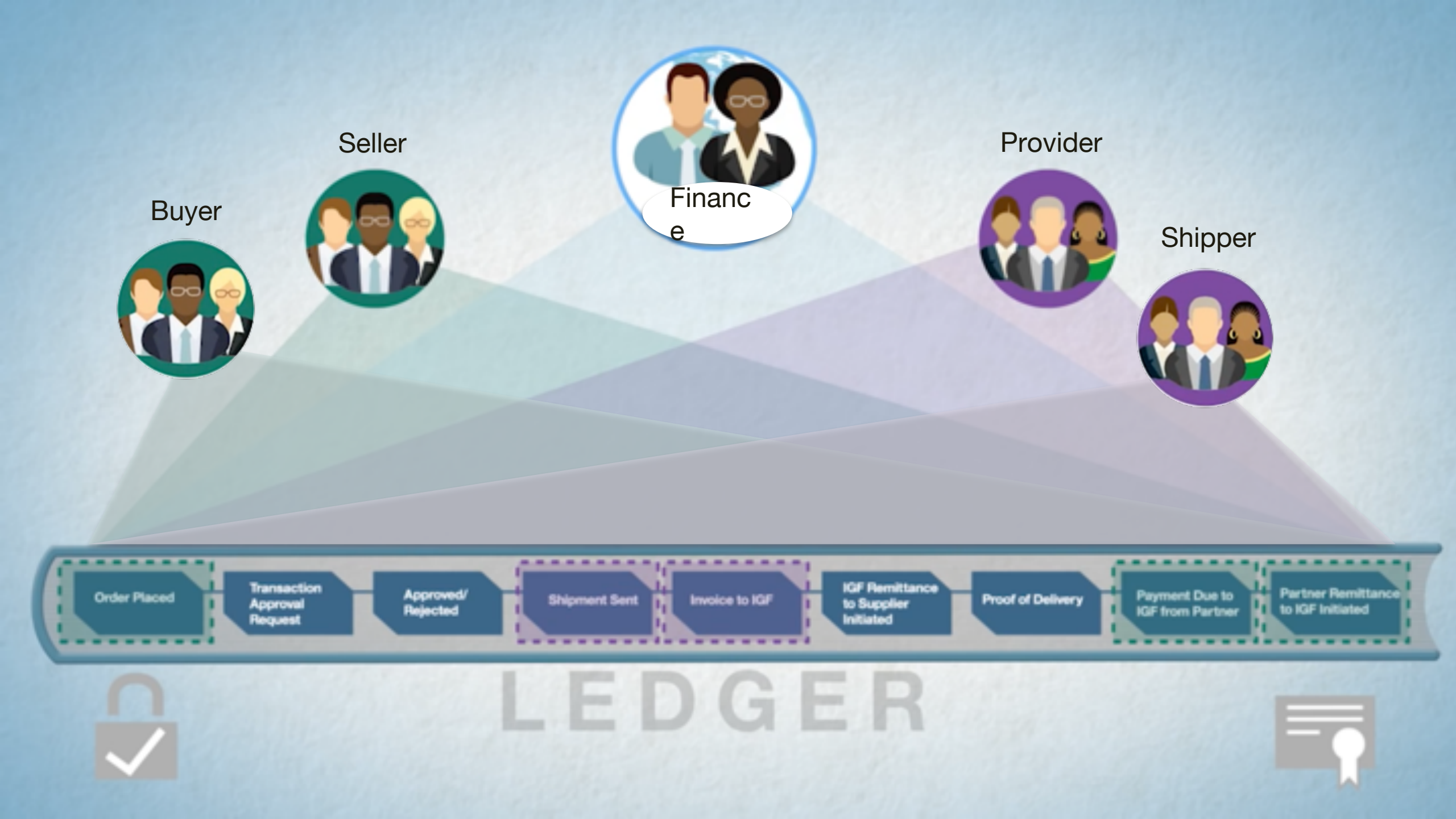
Seller

Provider

Shipper

Each participant has permissioned and secured access

LEDGER


Buyer
Seller
Financ
e
Provider
Shipper
Order Placed
Transaction Approval Request
Approved/ Rejected
Shipment Sent
Invoice to IGF
IGF Remittance to Supplier Initiated
Proof of Delivery
Payment Due to IGF from Partner
Partner Remittance to IGF Initiated
LEDGER

The Plan: 30 minute chapters with an hour or two of practice

Chapter 1	What is Blockchain? Concept and architecture overview
Chapter 2	What's the story we're going to build
Chapter 2.1	Architecture for the story
Chapter 3	**Set up local Hyperledger Fabric V1 development environment**
Chapter 4	Build and test the network
Chapter 5	Administration user experience
Chapter 6	Buyer support and user experience
Chapter 7	Seller support and user experience
Chapter 8	Provider support and user experience
Chapter 9	Shipper support and user experience
Chapter 10	Finance company support and user experience
Chapter 11	Combining for demonstration
Chapter 12	Events and automating for demonstration