Blockchain@IBM

Terminal Tag Berlin

Berlin, 09.11.17

Carsten Hiemsch
Practice Leader Blockchain DACH

INTERMODAL COMPETENCE
SGKV

Agenda

Blockchain Basics

Bitcoin and compensation in Blockchains
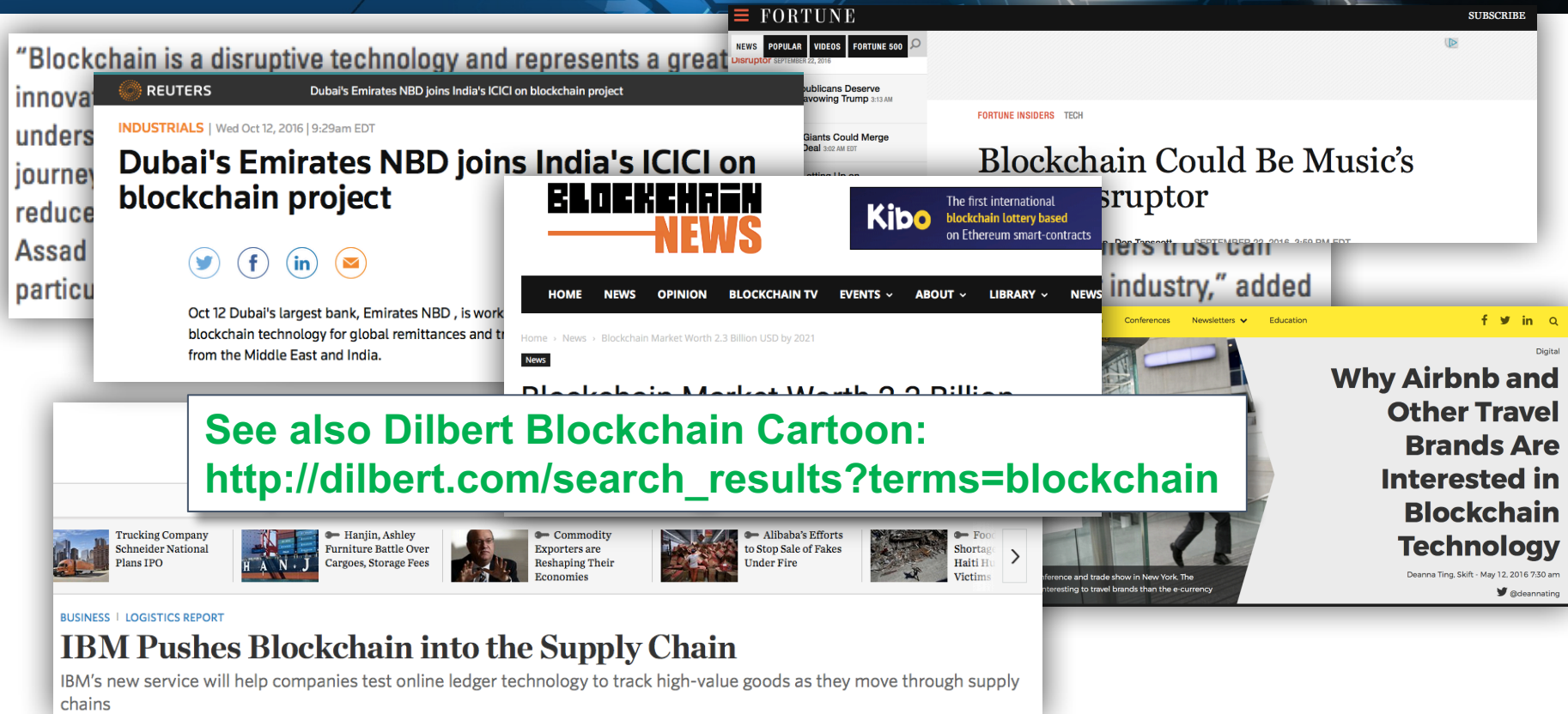
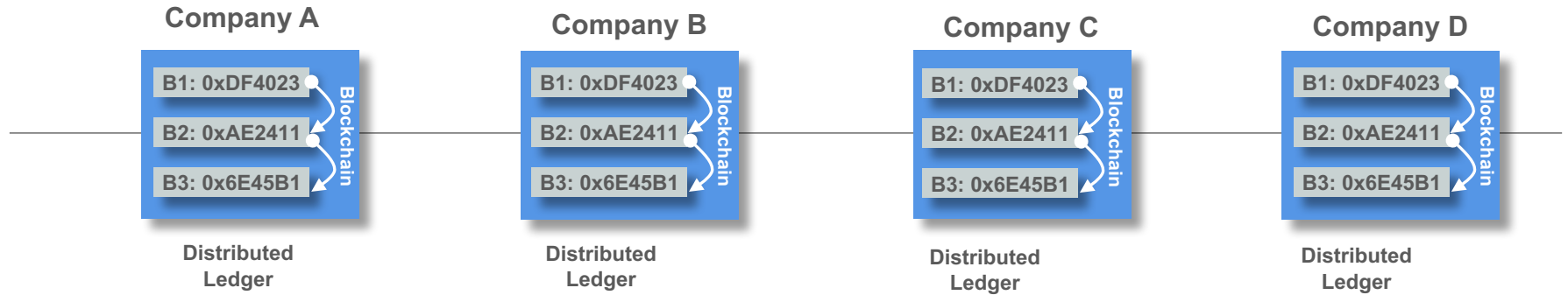Blockchain for the Freight & Logistics Industry

IBM & Maersk

Future impact of Blockchain

Blockchain in the press

"Blockchain is a disruptive technology and represents a great innova... unders... journey... reduce... Assad particu...

REUTERS
Dubai's Emirates NBD joins India's ICICI on blockchain project

INDUSTRIALS | Wed Oct 12, 2016 | 9:29am EDT

Dubai's Emirates NBD joins India's ICICI on blockchain project

Oct 12 Dubai's largest bank, Emirates NBD , is work...
blockchain technology for global remittances and tr...
from the Middle East and India.

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...publicans Deserve
...avowing Trump 3:13 AM

...Giants Could Be
...Deal 3:02 AM EDT

FORTUNE INSIDERS   TECH

Blockchain Could Be Music's ...sruptor

...ers trust can
...industry," added

BLOCKCHAIN NEWS

KIBO The first international blockchain lottery based on Ethereum smart-contracts

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Blockchain Market Worth 2.3 Billion...

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Why Airbnb and Other Travel Brands Are Interested in Blockchain Technology

Deanna Ting, Skift · May 12, 2016 7:30 am

@deannating

See also Dilbert Blockchain Cartoon:
http://dilbert.com/search_results?terms=blockchain

Trucking Company
Schneider National
Plans IPO

Hanjin, Ashley
Furniture Battle Over
Cargoes, Storage Fees

Commodity
Exporters are
Reshaping Their
Economies

Alibaba's Efforts
to Stop Sale of Fakes
Under Fire

Foo...
Shortag...
Haiti Hu...
Victims

BUSINESS | LOGISTICS REPORT

IBM Pushes Blockchain into the Supply Chain

IBM's new service will help companies test online ledger technology to track high-value goods as they move through supply chains

IBM **Global Travel & Transportation**

What is a Blockchain

Company A

B1: 0xDF4023
B2: 0xAE2411
B3: 0x6E45B1

Blockchain

Distributed Ledger

Company B

B1: 0xDF4023
B2: 0xAE2411
B3: 0x6E45B1

Blockchain

Distributed Ledger

Company C

B1: 0xDF4023
B2: 0xAE2411
B3: 0x6E45B1

Blockchain

Distributed Ledger

Company D

B1: 0xDF4023
B2: 0xAE2411
B3: 0x6E45B1

Blockchain

Distributed Ledger

1 min Excursion -> "Hashing"

Mathematical hashing

Checksum:

5	**4**	**3**	➡️ **Checksum** ➡️	**12**
Data 1	Data 2	Data3		Hash

Hashing Algorithm:

Carsten	**Hiemsch**	**07.Aug**	➡️ 🖥️ ➡️	**00gfhTe3z6qaaf9**
Data 1	Data 2	Data3		Hash

Why do we call it a "Blockchain" ?

Block #

Transaction Data: Carsten to Max: 167,50 €	**Transaction Hash:** feb359ad27c907d	**Previous Block Hash:** 000000d68b2f0a3b	**Block Hash:** 0000057ec2fda71	**1574**
Transaction Data: Erdi to Lisa: 270,50 €	**Transaction Hash:** 76f0ec56ce04423	**Previous Block Hash** 00000057ec2fda71	**Block Hash:** 0000087ea2ffe94	**1575**
Transaction Data: IBM to James 1.500,-	**Transaction Hash:** 0000044bf2efe32	**Previous Block Hash** 0000087ea2ffe94	**Block Hash:** 0000044bf2efe32	**1576**

Made up of a series of blocks added in chronological order

[40419240049f07bb11de8f22a44fbebd1fd0e848cc8cab1f36c4c02a467e544f]

Blockchain for auditing

Type	Account	Product	Value €		Prev. Hash	Block Hash
Credit	Bank	Screw	+175		235253	7zh776
Debit	Inventory	screw	- 175		7zh776	8hszw7
Credit	Bank	Tires	+180		8hszw7	hszs99
Debit	Inventory	Tires	-180		hszs99	uhsz887
…	…	…	…		uhsz887	…

Type	Account	Product	Value €		Prev. Hash	Block Hash
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…	…	…	…		uhsz887	…

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Credit	Bank	Tires	+180		8hszw7	hszs99
Debit	Inventory	Tires	-180		hszs99	uhsz887
…	…	…	…		uhsz887	…

Problem..

Party D's records

Party A's records

Bank records

Party C's records

Party B's records

Auditor records
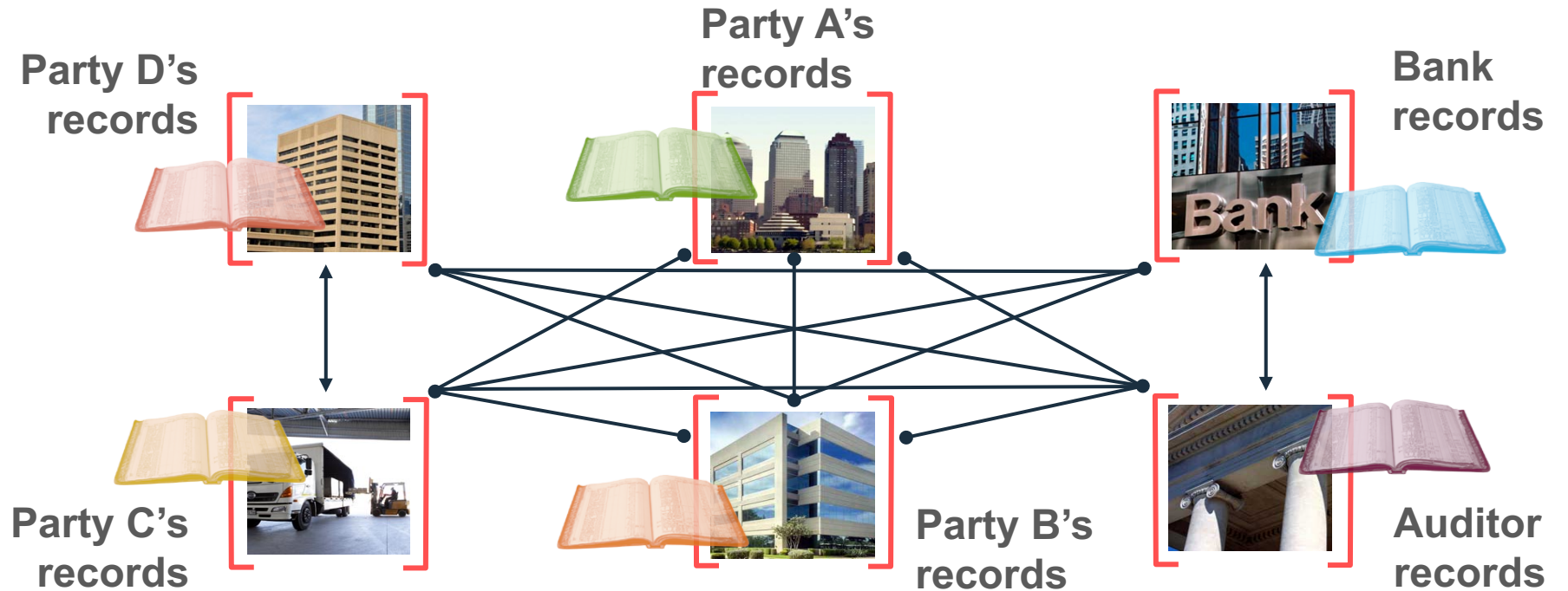
… inefficient, expensive, vulnerable

Solution

Party D's records

Party A's records

Bank records

Shared, replicated, permissioned

Party C's records

Party B's records

Auditor records
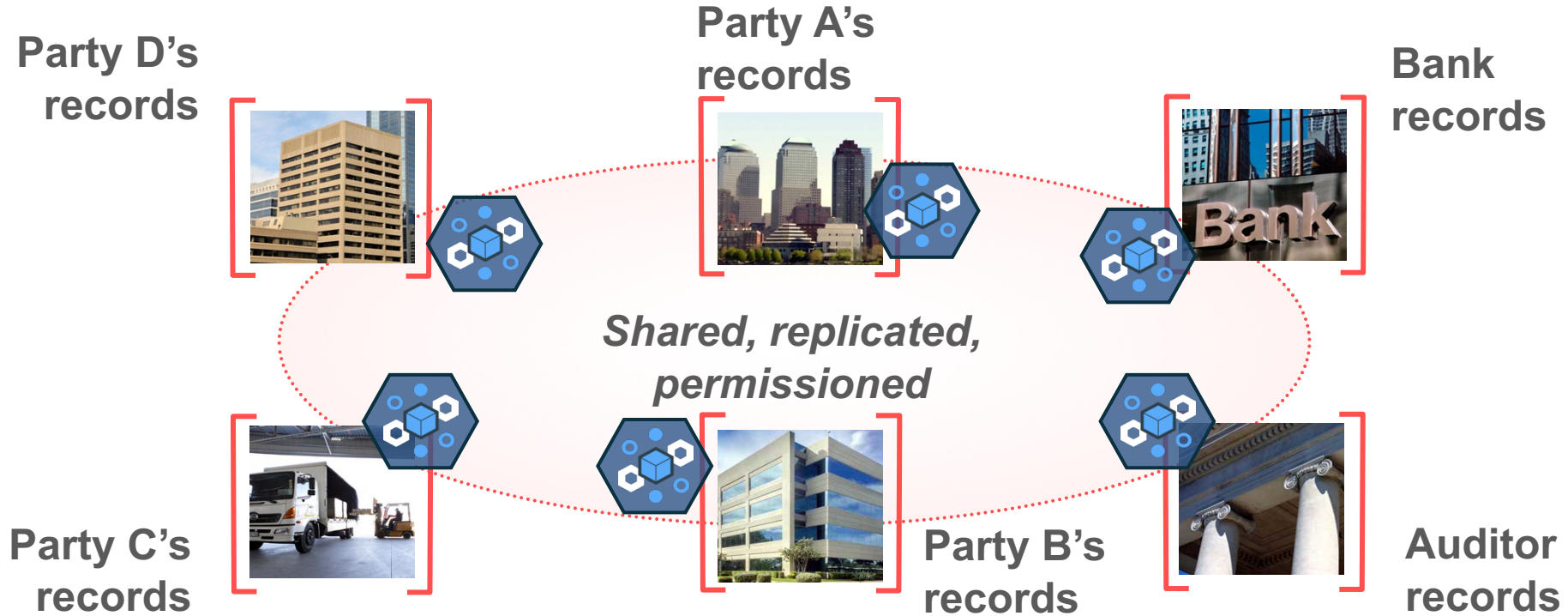
… consensus, provenance, immutability, finality

Blockchain for Business…

Shared system of record. Permissioned visibility within own copy

Shared ledger

Smart contract

Business terms embedded in transaction database & executed with transactions

Ensuring appropriate visibility; transactions are secure, authenticated & verifiable

Privacy

Consensus

All parties agree to network verified transaction

… broader participation, lower cost, increased efficiency

How does Bitcoin work

Aunt Ema

Mustermann GmbH

George

Erdi

Isabella

Max

How does Bitcoin work

Mustermann GmbH — verify

Aunt Ema — Receive the money

George — verify

Erdi — Send money to Aunt Ema

Max — verify

Isabella — verify
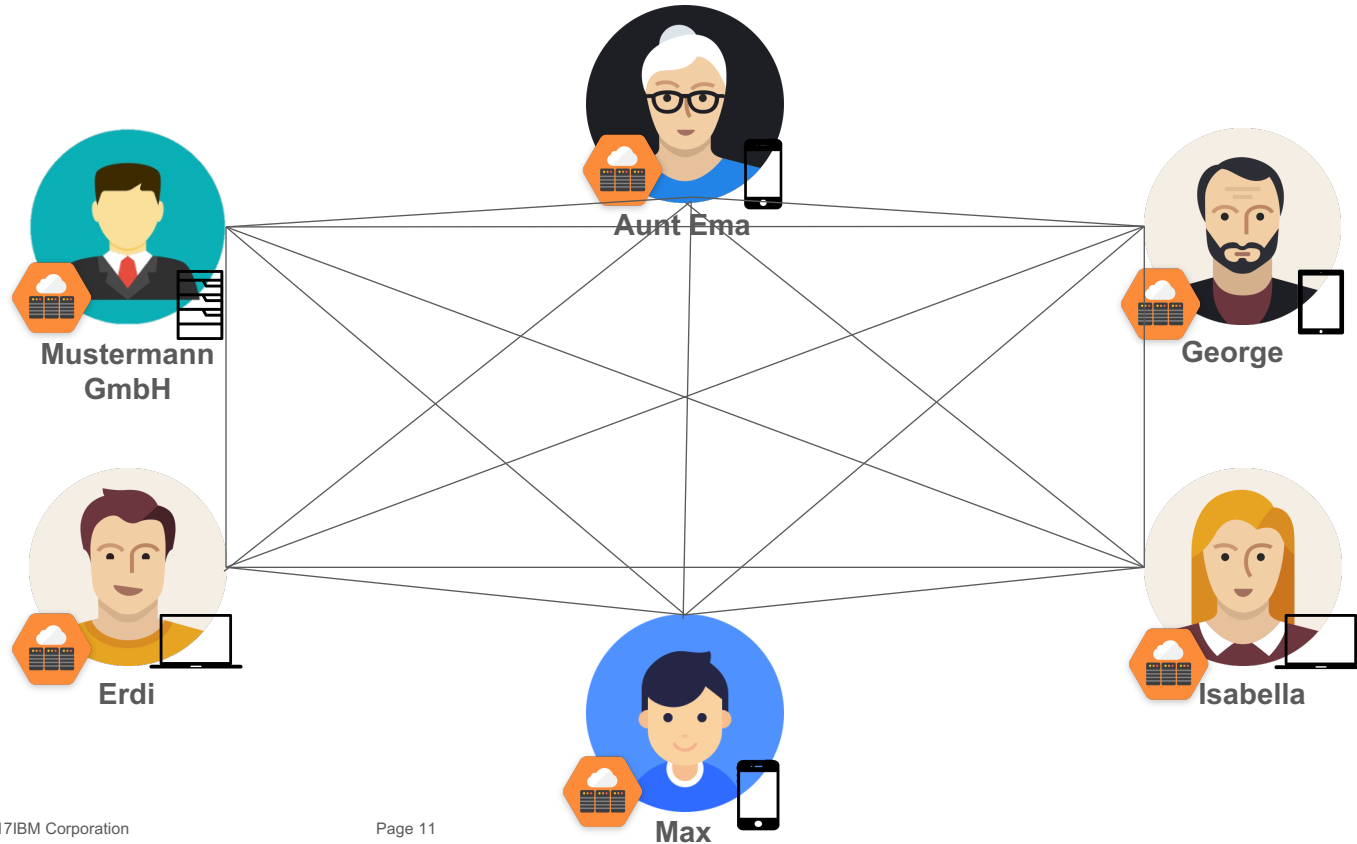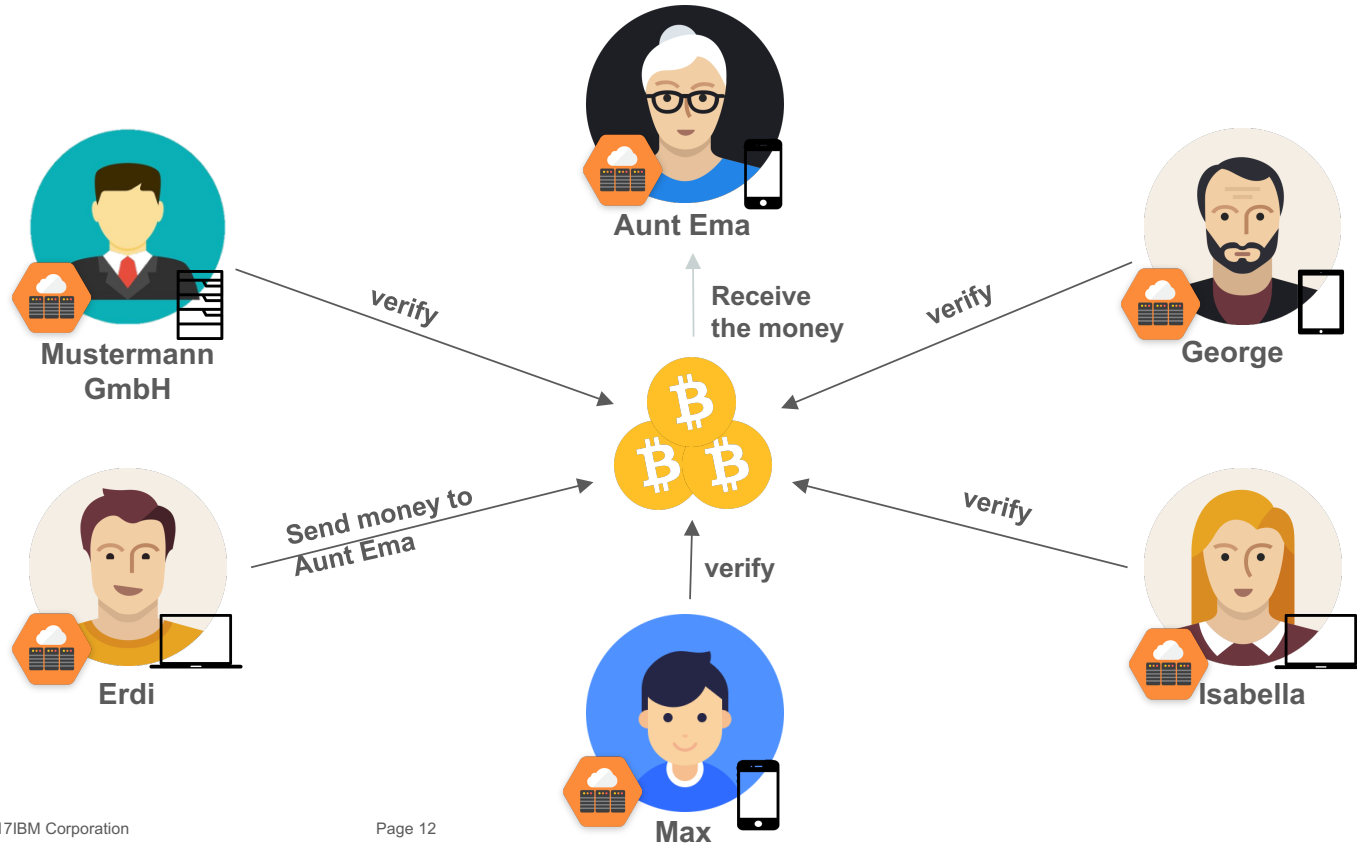
Future Impact of Blockchain – creating environment for compensation of value creation
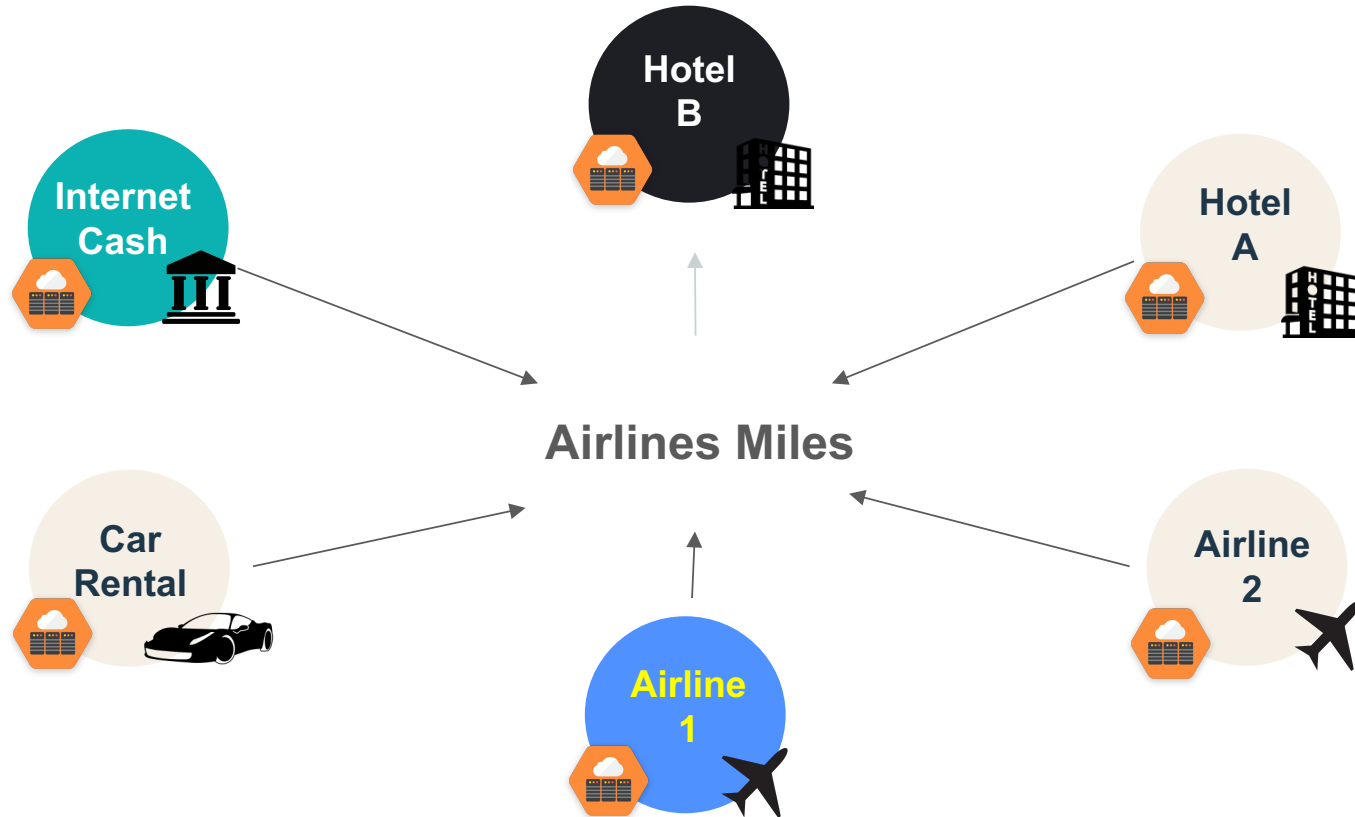
Basic F&L Scenarios supported by Blockchain

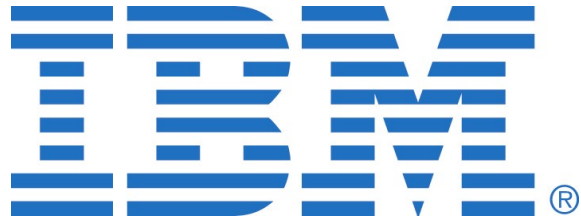**2** Outbound Warehouse

4 Outbound Terminal

6 Inbound Terminal

8 Inbound Warehouse

1 Pick up

3 Outbound Customs

5 Sea Transport

7 Inbound Customs

9 Delivery
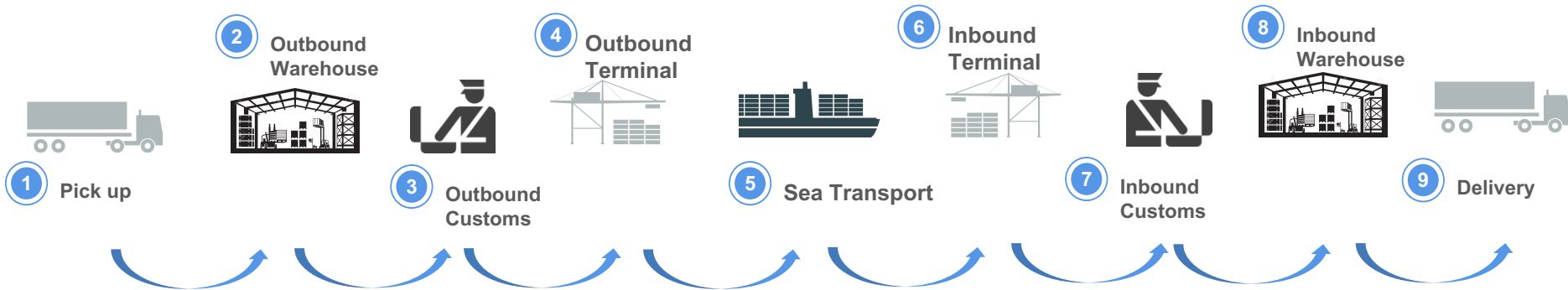
1) PHYSICAL flow of goods/shipment

Documents, Track&Trace, Process status

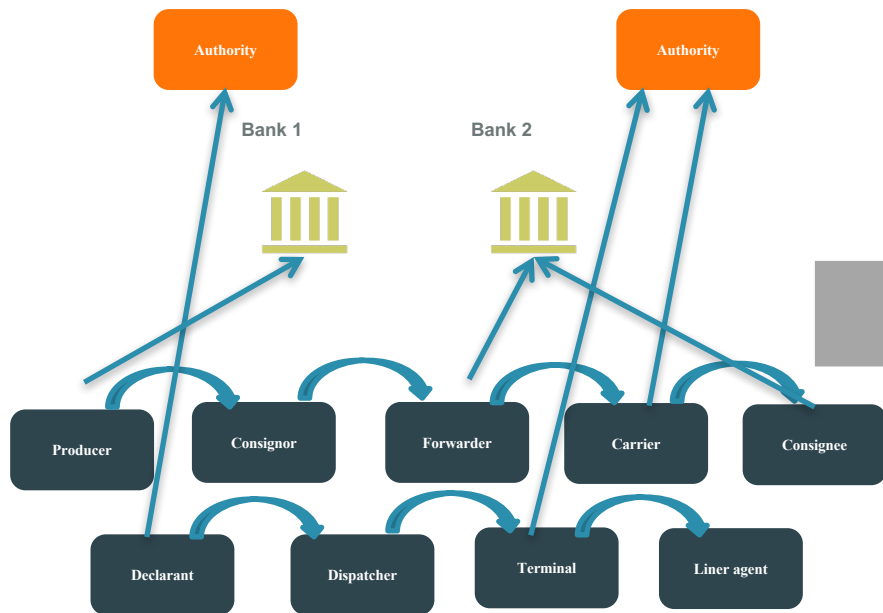**2) FINANCIAL flow of goods/shipment**

Settlement & Payment

https://youtu.be/tdhpYQCWnCw

Information Exchanges in the Trade Ecosystem

TODAY
- **Peer to peer communication**

Tomorrow
- **Shared communication**

Authority

Bank 1

Bank 2

Authority

Producer

Consignor

Forwarder

Carrier

Consignee

Declarant

Dispatcher

Terminal

Liner agent

Bank 1

Authority

Authority

Bank 2

Global Shared Infrastructure

Producer

Consignor

Forwarder

Carrier

Consignee

Declarant

Dispatcher

Terminal

Liner agent
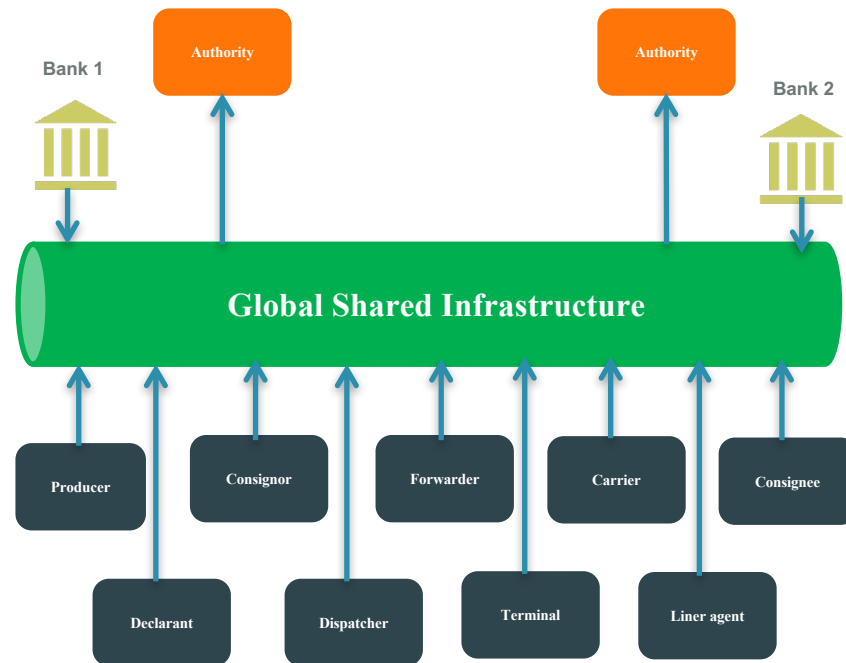
Future impact of Blockhain in the F&L Industry

SCM-Transparency

Higher demands regarding Supply Chain accuracy and and transparency
- real time
- Support provenance (batch tracking)
- IOT-integration

New modes for Settlement and invoicing

New mode of settlement between Business Partners for more
- transparency
- accuracy and
- dispute management

Autonomous Payments

IOT and assets taking over responsibilty for paying services.
New services arising based on mircopayments

CAR
eWALLET

UBS | ZF | IBM

New forms of financial compensation

Financial compensation shifting into new environ-ments

Thank you!

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IBM