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- Overview DLT/
blockchain activities of
Deutsche Börse Group

Activities at Deutsche Börse Group

Investment

- Beginning 2016 investment in **Digital Asset Holdings (DAH)**
- Blockchain startup with focus on **wholesale financial institutions** and **market infrastructure providers**

Collaboration

- DBAG became premier member of the **“Hyperledger Project”** of **Linux Foundation** (founding member)
- Goal: Development of enterprise grade, **open source Blockchain** frameworks

Prototypes

- **Proxy voting** (2015, Ethereum based)
- **Investment fund infrastructure** (2015, Ethereum based)
- **Cross-border collateral mobility** (ongoing, Hyperledger Fabric based, in collaboration with Liquidity Alliance)
- **Settlement of digital bonds** (2016, Hyperledger Fabric based, in collaboration with German Central Bank)
- **Collateralized Coin Infrastructure** (ongoing, Hyperledger Fabric based)

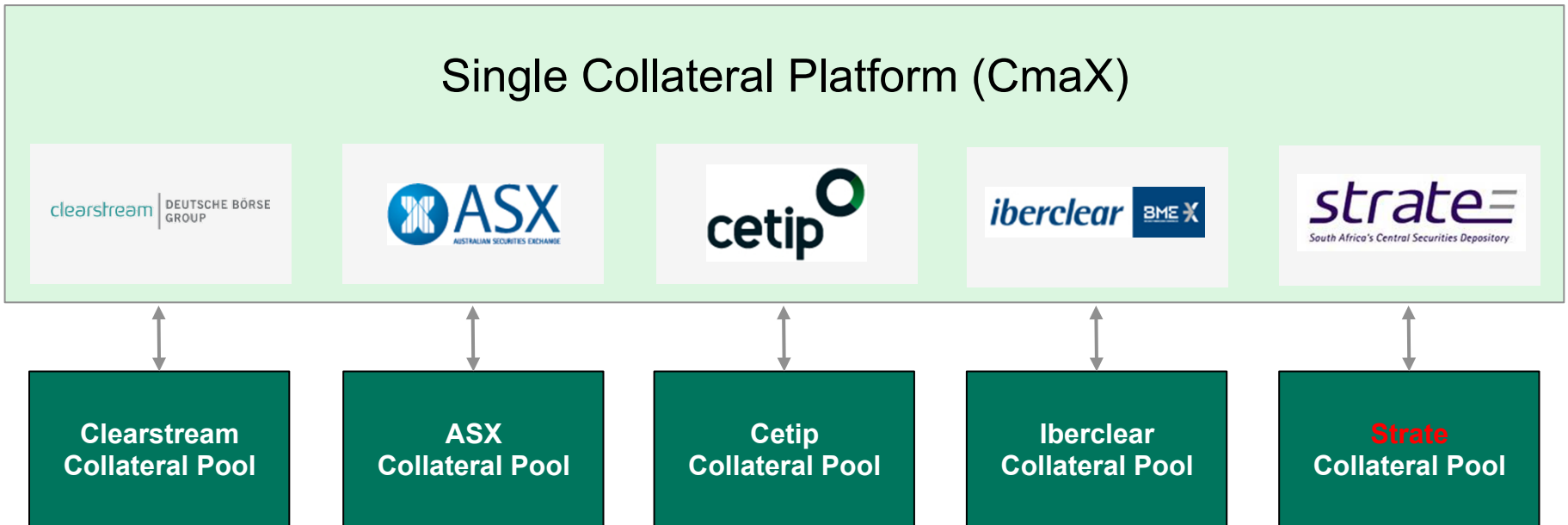
2

- Blockchain in cross-border collateral management



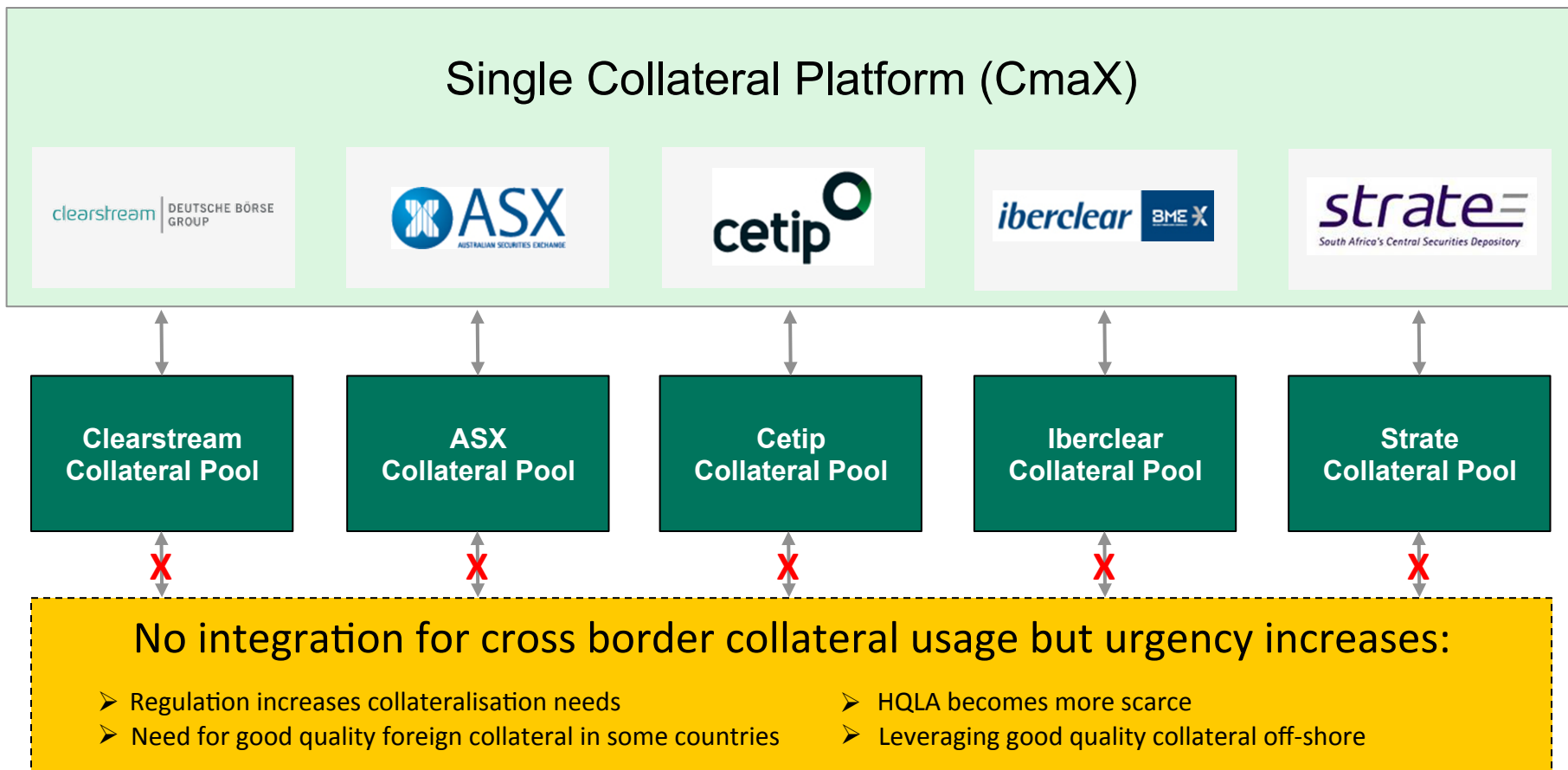
SINGLE PLATFORM SERVICING MULTIPLE MARKETS FOR TRIPARTY COLLATERAL MANAGEMENT...

Single Collateral Platform (CmaX)

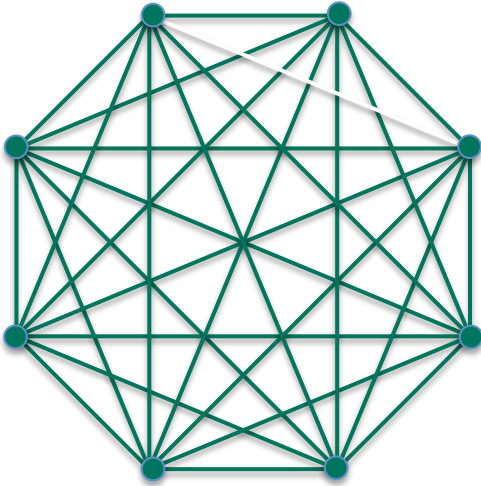


...HOWEVER CROSS BORDER COLLATERAL USAGE IS NOT YET SUPPORTED...

Single Collateral Platform (CmaX)

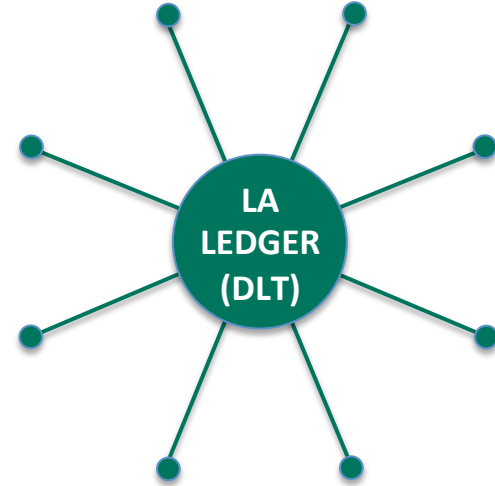


LA LEDGER ADDRESSES A KEY OBSTACLE IN CROSS BORDER COLLATERALISATION



Obstacles today

- Multiple accounts between LA members needed
- Effort for new entrance (increases with #LA members)
- Initial investment (difficult business case)
- Time to market (to establish)



LA Ledger

- ✓ Tokenisation by customers (no accounts needed between)
- ✓
- ✓



LA LEDGER – STATUS

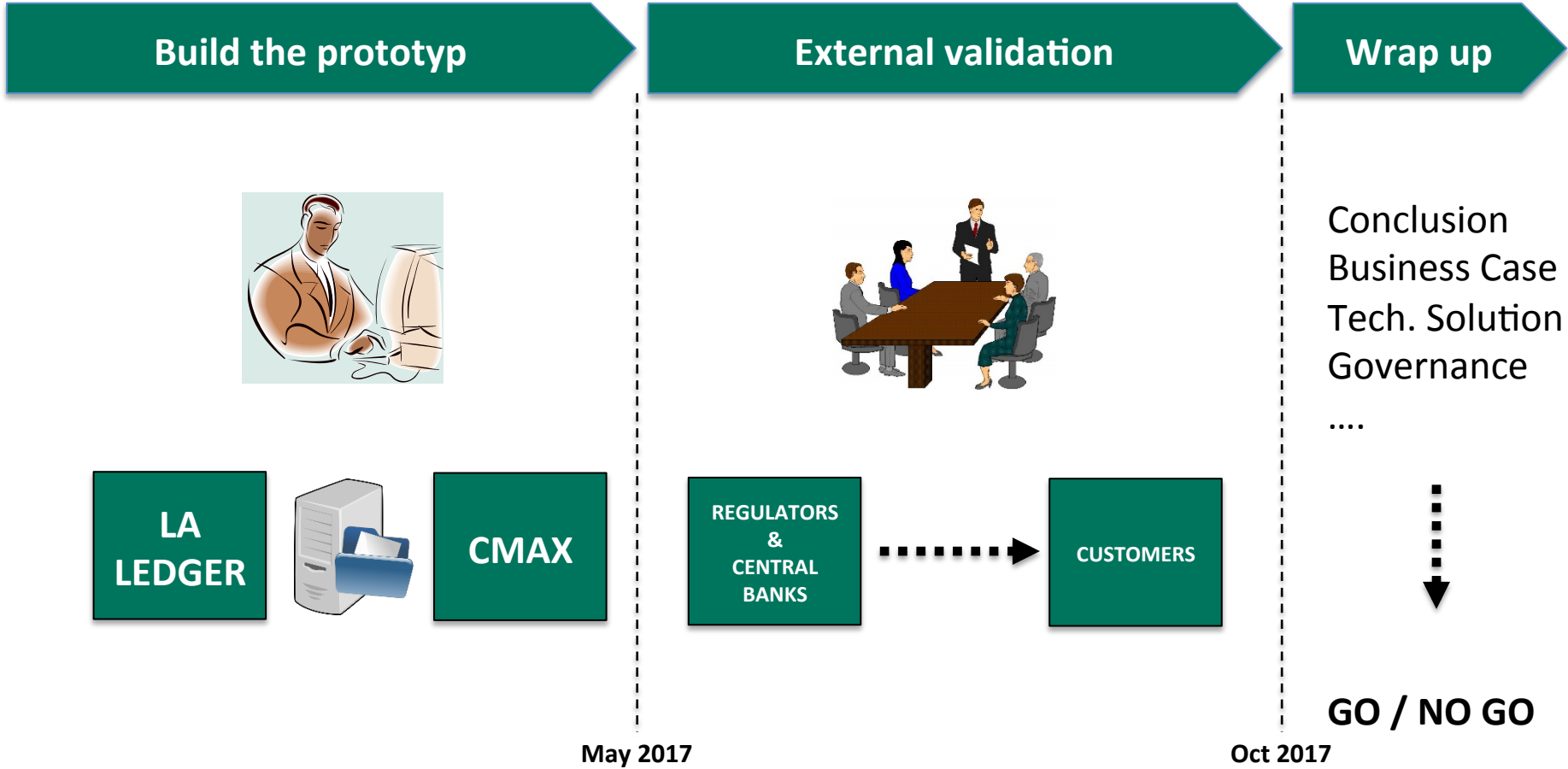


- Multilateral agreement between CDS, Clearstream, Deutsche Börse, Strate and VPS was concluded in December 2016 to jointly execute a **POC**
 - Implement a prototype for LA Ledger (cost sharing)
 - Hold further discussions with regulators/central banks to validate the concept
 - Subsequently enter in consultation/validation with key customers of the LA Ledger parties
- Joint press release on 18 January 2017
- Implementation of prototype underway (delivery in April 2017)
- Next round of regulatory meetings envisaged for end March 2017 to prepare grounds ahead of the prototype becoming available





THE APPROACH FOR THE LA LEDGER POC



LA LEDGER – VALIDATION WITH REGULATORS

clearstream | DEUTSCHE BÖRSE GROUP

strate
South Africa's Central Securities Depository

CDS

OSD
VPS

Regulator	Status
CSSF (LU) BCL (LU) BaFin (DE) BuBa (DE)	initiated
SARB NT	initiated
BOC OSC AMF BCSC	initiated
Norges Bank Finanstilsynet	initiated

ASX
AUSTRALIAN SECURITIES EXCHANGE

SGX
SINGAPORE EXCHANGE

cetip

iberclear BME

Regulator	Status
RBA ASIC	tbc
MAS	tbc
BCB CVM	initiated
BdE CNMV	tbc



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Settlement of digital bonds

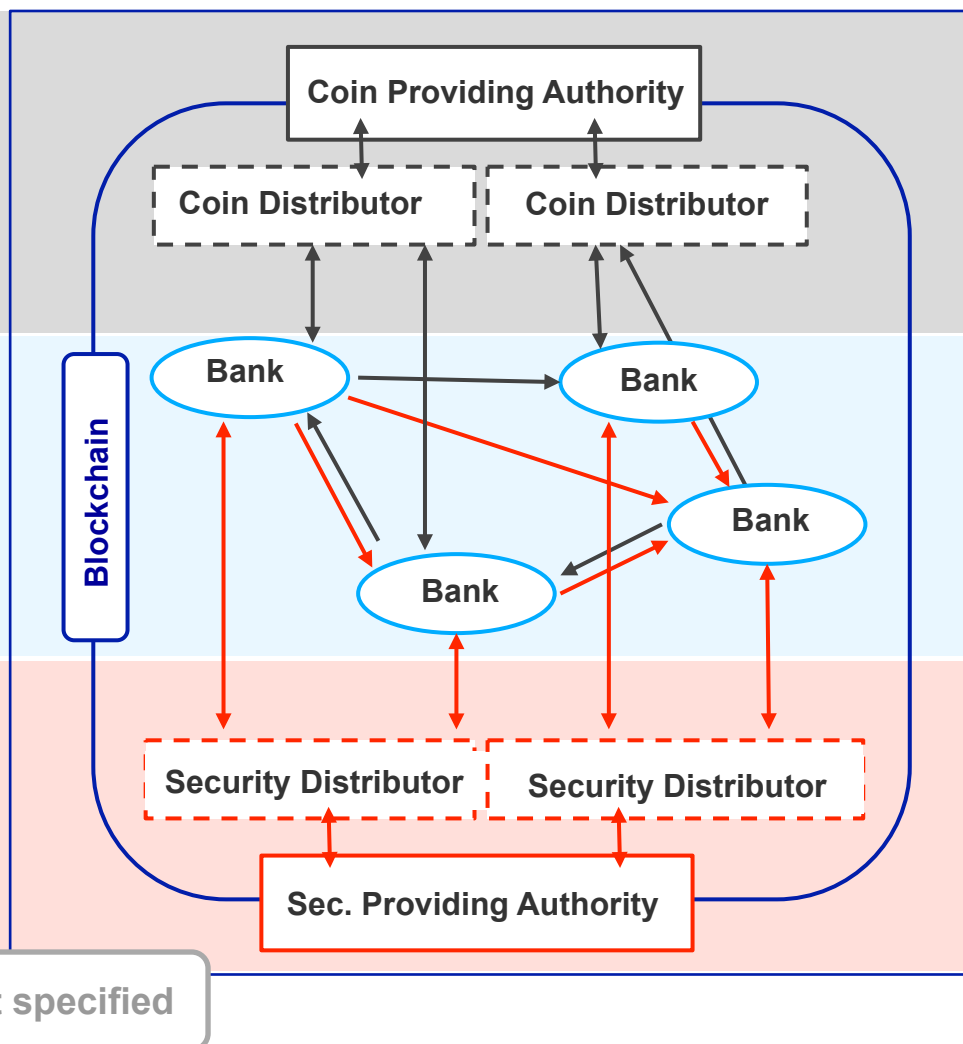


Post trade functionality for securities

Functionality

- Import and export of **Digital Coins**
- **Peer-to-peer transactions**
Transfer of Digital Coins and Digital Securities (DvP, payments, FoP)
- **Bond corporate actions**
Redemption, coupon payment
- Import and export of **Digital Securities**

Overview



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Collateralized coin infrastructure

Category	Name	Value
Retail	PROLME	13249.289
	PAROLSI	13139.409
Consumer	PRA	13.87806
Advertiser	HEH	13951.70.55
Advertiser	HEH	13931.30.55
Advertiser	HEH	1391.016

Money on the blockchain – necessary for on-chain asset transfer

- Cryptocurrencies, e.g. Bitcoin
- Fiat currency
- Commercial bank money
- (Collateralized) Settlement coins issued by single entity or consortium
- Collateralized commercial bank money coin

Commercial bank money coins backed by collateral

Functionality

The „**Collateralized Coin Infrastructure**“ is based on the (margining/collateral) functionality of a clearing house

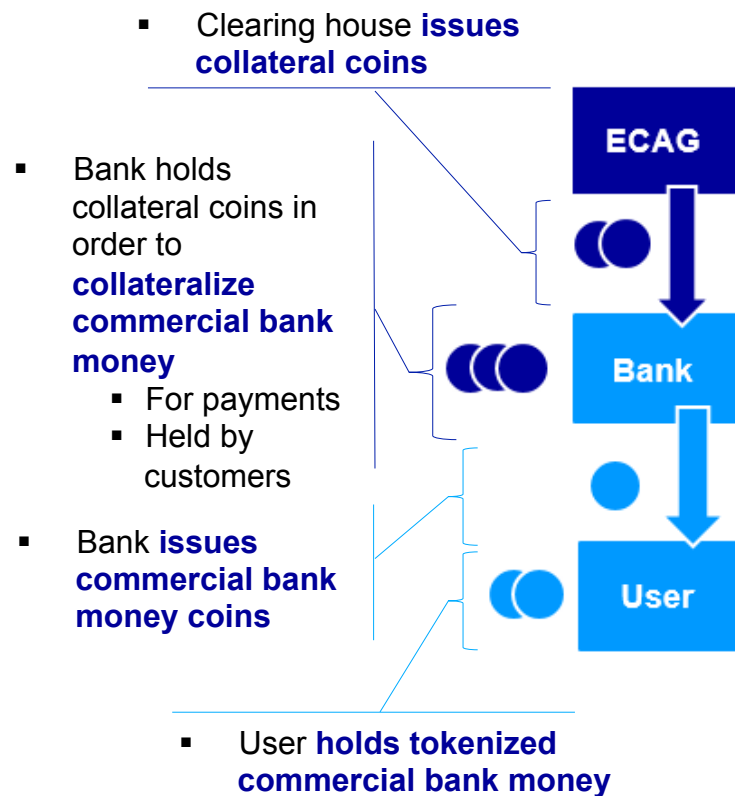
Coins

- **Collateral coins** issued by **the clearing house** to **banks**. Backed by **collateral outside the chain**
- **Commercial bank money coins** issued by **banks** to their **customers** – corresponding to commercial bank money of the respective bank.

Mechanisms

- Collateralized **peer-to-peer payments/transfer** of commercial bank money coins between users
- **Collateralization** of commercial bank money coins **held by a user**

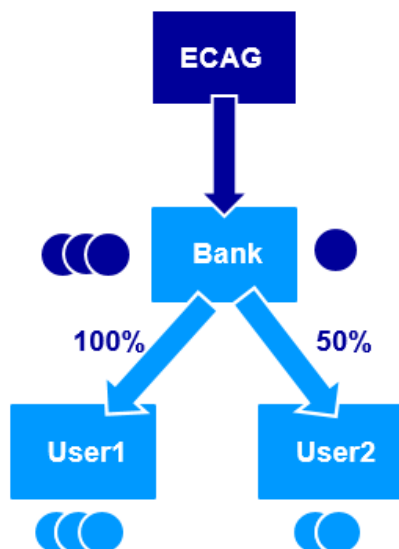
Overview



Collateralization and transfer of tokenized commercial bank money

Collateralization

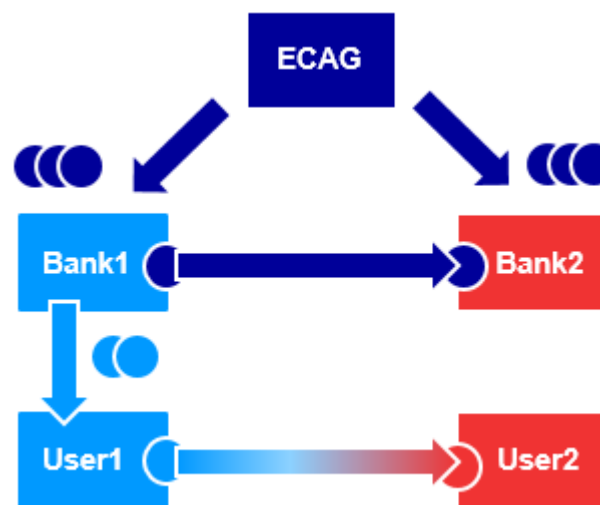
- **Collateralization** of commercial bank coins held by the users according to agreed collateralization ratios



- Customers can be shielded against credit risk of own commercial bank

Peer-to-Peer Payment

- **Payments**/transfer of commercial bank coins between users
- **Collateralization** through transfer of collateral coins between banks



- Customers carry only the credit risk of their own commercial bank

Thank you

