Delivering Central Bank Digital Currencies (CBDCs): Exploring the Technology Challenge

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PANELLISTS

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AWS Cloud Central Bank Digital Currency white paper can be found at:
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Financial Ecosystems 2.0 & The Role of CBDCs

22 April 2021 | Expert Talk On CBDC
INTRODUCTION
GLOBAL TRENDS IN CBDC

Central Bank Focus Intensifying
- People’s Bank of China
- Digital Dollar Foundation
- European Central Bank
- Pivoting wholesale to retail
  - 80% CB’s experimenting,
  - 10% close to implementing

Advanced Research & Experimentation
- Completed: Jasper, UBIN, Stellar, Inthanon, LionRock, Khokha, Aber, Sand Dollar
- Additive: BoC & MAS, BoT & HKMA, ECB & BoJ, EuroChain
- Regional: Caribbean, Asia South Africa, Middle East

Maturing Vendor Ecosystem
- Feature rich solutions emerging (tokens, wallets)
  - Non-functional: performance, scalability & security & resilience
  - Increasing focus on standardization & interoperability

Optimal Configurations Emerging
- There are a wide variety of requirements and options
- Optimal configuration / balance & stakeholder alignment non-trivial
  - Multi-faceted for optimal solution design & stakeholder acceptance

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1 BIS Papers No 107: Impending arrival – a sequel to the survey on central bank digital currency
Many projects focus on wholesale CBDC

Interest is pivoting to retail

Strong potential for overlap or transition

Cross border broadens functionality & scope

Enables set of functions previously not possible

Token CBDC has properties of a digital bearer instrument

Token CBDC exists outside of but in full control of Central Bank

Central bank role vis-a-vis commercial banks

Preservation of existing consumer relationships

Mirrors cash cycle & distribution to market

Wide accessibility to consumers

Peer to peer payments

Offline payments

Sovereign national payment rail
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22nd April 2021
The future of money is digital: How the cloud can deliver solutions for central bank digital currencies
by David MacKeith | on 23 MAR 2021 | in Amazon Quantum Ledger Database, Best Practices, Customer Solutions, Federal, Finance, Public Sector | Permalink | Comments | Share

Increasingly, central banks want to answer practical questions and make the technology choices involved to offer digital currency (CBDC). They need a solution that delivers on their missions and meets the performance criteria of the stable monetary and financial system. To help organizations understand available technology options and see why certain technologies are the right ones, AWS authored a two-part whitepaper. Here are some of the highlights.

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- Example reference architecture
- Conclusion
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Two-tier CBDC architecture

Account-based, token-based, and bearer instrument approaches

In account-based models, the CBDC system manages records of user account balances. In a token-based approach, users access their CBDC through tokens that authenticate their identity and transfer amounts into each other's accounts. In bearer security, users directly use CBDC without accounts or tokens.
Interoperability between some of the key roles and functions

**Digital ID**
- Key enabler for financial inclusion and open PSP competition

**Payment initiation services**
- Capturing transaction - similar to payment gateway services

**Account management**
- Central role in both token and account-based models

**Programmable money services**
- Managing smart contracts and conditional payments

**Offline payments**
- Separate system even in token-based solutions
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ALISTAIR MILNE

Global government forum/fintech webinar, 22nd April 2021
• Definition (so debate driven by application not technology), “CBDC is any widely held, digitally transferable central bank monetary liability”

• Focus on use cases
  • Retail
    • Safe form of bank account held with central bank
    • Non-bank (mobile) money for use in every day purchases
    • Cash substitute where cash use is in retreat (offline? Anonymous?)
  • Wholesale
    • Widening access to central bank liabilities
    • Allowing real time large value payment/ settlement nb “RTGS” is not fully real time !!

• Technology challenges
  • Blockchain is to me a distraction – centralised ledgers can be just as good for user experience, security and arguably more efficient
  • KYC/AML as an identity challenge
  • The real issue: “Delegated audit and control” see current SSRN paper