

# Hyperledger Capital Markets

## An Open Discussion on CBDC Focusing on the Digital Dollar

Contributed By Vipin Bharathan, Chair



# Agenda

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- [EO of the President](#)
- Geopolitics & CBDC
- [OpenCBDC](#)
- [Response to the Fed](#)

## EO

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- First acknowledgement of digital-assets
- Does not directly address any deliverables
- Widely hailed by the crypto community

# Contents of The Executive Order

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- Policy
- Objectives
- Coordination
- CBDC
- Consumer Protection
- Systemic Risk
- National Security
- International Co-operation
- Definitions

# Why

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- Swelling Size and scope
- Data privacy and security
- Financial stability and systemic risk
- Crime
- National security
- Ability to exercise human rights
- Financial inclusion and equity
- Energy demand and climate change

# Who

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- Co-ordinator The Assistant to the President for National Security Affairs (APNSA) and the Assistant to the President for Economic Policy (APEP)
- The interagency process shall include: the Secretary of State, the Secretary of the Treasury, the Secretary of Defense, the Attorney General, the Secretary of Commerce, the Secretary of Labor, the Secretary of Energy, the Secretary of Homeland Security, the Administrator of the Environmental Protection Agency, the Director of the Office of Management and Budget, the Director of National Intelligence, the Director of the Domestic Policy Council, the Chair of the Council of Economic Advisers, the Director of the Office of Science and Technology Policy, the Administrator of the Office of Information and Regulatory Affairs, the Director of the National Science Foundation, and the Administrator of the United States Agency for International Development. Representatives of other executive departments and agencies (agencies) and other senior officials may be invited to attend interagency meetings as appropriate, including, with due respect for their regulatory independence, representatives of the Board of Governors of the Federal Reserve System, the Consumer Financial Protection Bureau (CFPB), the Federal Trade Commission (FTC), the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC), the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, **and other Federal regulatory agencies.**

# What & When (focus on CBDCs)

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Within 180 days (September 5th) The Secretary of the Treasury shall produce an assessment on

1. National interests, including implications for economic growth and stability
2. Financial inclusion;
3. Relationship between a CBDC and private sector-administered digital assets;
4. **Global effects on Future of sovereign and privately produced money and financial system and democracy;**
5. **The impact of Foreign CBDCs to displace existing currencies and to undermine United States financial centrality;**
6. National security and financial crime, including an analysis of illicit financing risks, sanctions risks, other law enforcement and national security interests, and for **human rights**; and
7. **Effects that the growth of foreign CBDCs may have on United States interests generally.**

# Geopolitical Implications

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1. **Financial Sanctions.**
2. **Choice one: outsource everything to private actors and monitor after the fact.**
3. **Create restrictability within CBDC wallets**
4. **Privacy Implications in this scenario**
5. **Integration with capital markets**
  - a. Omnibus wallets
  - b. Self-Custody Wallets



# Open CBDC Architecture

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[\(UTXO\)](#) based [\(UHS\)](#) abstraction.

Geo-distributed datacenter(s)

First Open-sourced CBDC

[recovery time objective \(RTO\)](#) of under ten seconds and a [recovery point objective \(RPO\)](#) of zero.

1. "Atomizer" architecture
2. "Two-phase commit" architecture

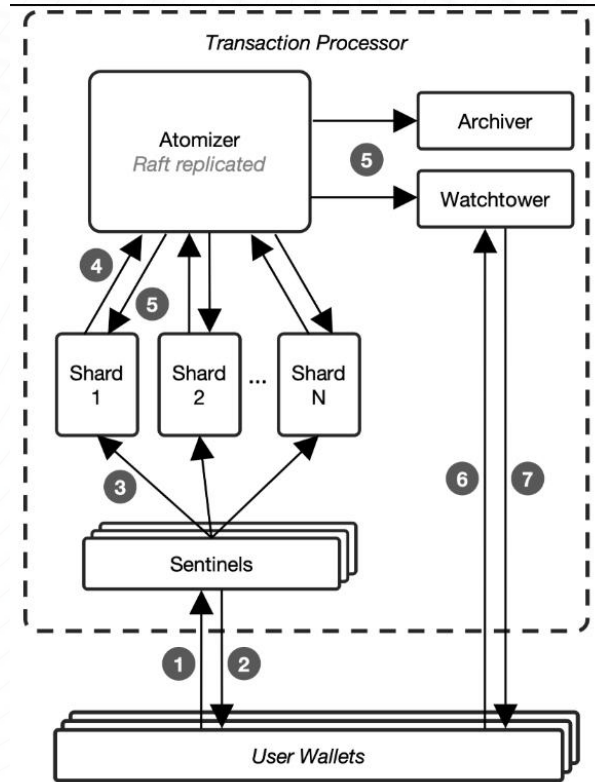
# Open CBDC Architecture

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## "Atomizer" architecture

- Total ordering of all transactions
- Must be vertically scaled
- Max throughput ~170K transactions per second.
- Geo-replicated latency <2 seconds.

# Open CBDC Atomizer



[From: Project Hamilton WP](#)

# Open CBDC Architecture

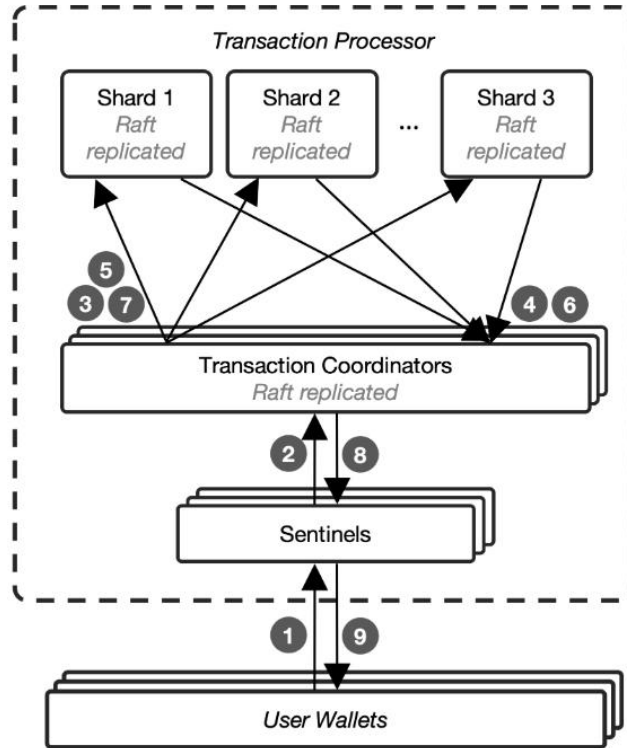
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## "Two-phase commit" architecture

- relative ordering.
- Horizontal scaling with [two-phase commit \(2PC\)](#) and [conservative two-phase locking \(C2PL\)](#)
- Maximum demonstrated throughput ~1.7M transactions per second.
- Geo-replicated latency <1 second.

# Open CBDC 2PC

[From: Project Hamilton WP](#)



# Response to the Fed

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## Task Force

Response has to submitted before May 20

### CBDC Whitepapers

- [Consensys CBDC white paper](#)
- [Stellar CBDC white paper](#) - reference for how/why a blockchain might be used for CBDC
- [UK House of Lords paper](#) - Is CBDC a solution searching for a problem? See VB's response to [Waller](#)

### Questions: 22

CBDC Benefits, Risks, and Policy Considerations (14)

CBDC Design (8)