Digital Payment Systems in **THREE** Phases

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Scope of digital Payment

Digital Payment

Centralized Solutions
- Third-party payment
  - Visa, Wechat, Alipay...
- CBDC
- Cryptocurrency
- Digital Identity

Decentralized Solutions
- Metamask, Ledger...
One system can not handle them all...

- Large payment system
- Retail payment system
- Securities settlement system
- Foreign exchange settlement system
1) Connects banking and financial institutions nationwide and provides a channel for interbank payment and clearing for each banking and financial institution.

2) Directly provides fund settlement services for the bond trading market, interbank lending market and other financial markets.

3) Provide fund settlement services for other payment systems such as the retail payment system and the intercity bill exchange system.
Retail Payment systems

The retail payment system mainly handles payment services with relatively small amounts. Retail payment system needs to meet the specific demands of high business volume and low cost to meet the diverse needs of society.

DNS

• Unlike large-value payment systems, national micro-payment systems still mostly use delayed netting systems (DNS), where the netting system sends payment instructions in bulk and rolls them in real time.

• Netting is only done at the end of a given business cycle (usually one business day) to complete the final transfer of claims (debts) between participants.

STATS

• Compared with the large-value payment system, the micro payment system processes more payment transactions, but the individual amount is lower. In 2020, China's micro batch payment system processed 34.58 trillion payment transactions with a total amount of 146.88 trillion yuan.
Securities settlement system

The securities settlement system mainly handles securities transaction settlement and clearing operations. After the securities transactions are completed, the securities settlement system approves and calculates the price of the securities receivable and payable by both parties to the transaction, transfers the securities from the seller to the buyer, and transfers the funds from the buyer to the seller.

Securities settlement is divided into two methods: full settlement and net settlement, which have the characteristics of both RTGS and DNS models.
Foreign exchange settlement system

The foreign exchange settlement system mainly deals with cross-border foreign exchange fund settlement business.

Retail market,
- The market subject including foreign exchange dealers and customers;

Wholesale market
- Also known as the inter-dealer market or inter-bank market.

Two levels of markets

Three types of subjects
Advantages of centralized payment system

**Solid, Secure and Trustworthy**

1. Authoritative institutions coordinate and manage the system, and the system operates on a more solid basis.

2. The structure of payment system is complete and the settlement system is consummate.

3. Sound relevant regulations and systems, and adequate legal support for payment and settlement.
Disadvantages of centralized payment system

Inefficient and discriminative

(1) Funds cannot be directly transferred between systems, and the turnover of funds is slow.

(2) Cross-border interconnection of national payment systems suffers high risk contagion potential.

(3) May weaken the financial inclusion of legal digital currencies.
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Two equations of digital economy

Digital Industrialization + Industry digitization = Digital economy

Digital transformation of real-world economy + Digital native economy = Digital economy
Digital native is a term coined by Marc Prensky in 2001 to describe the generation of people who grew up in the era of ubiquitous technology, including computers and the internet.

Digital native economy

Digital payment will diverge and be completely innovated?
The experiment has already started...

### Decentralized Finance: On Blockchain- and Smart Contract-Based Financial Markets

- **Aggregation layer**: Aggregator 1, Aggregator 2, Aggregator 3
- **Application layer**:
  - Exchange
  - Lending
  - Derivatives
  - Asset management
  - ...
- **Protocol layer**: Exchange, Lending, Derivatives, Asset management, ...
- **Asset layer**:
  - Native protocol asset (ETH)
  - Fungible tokens: ERC-20
  - Non-fungible tokens: ERC-721
  - ...
- **Settlement layer**: (Ethereum) blockchain
Advantages of distributed payment systems

Simple, robust and cheap

(1) The number of money circulation links is significantly reduced and the efficiency of financial operation is improved.

(2) Create a "decentralized" credit mechanism and provide an opportunity for financial transaction model innovation.

(3) Enhance payment system liquidity and reduce transaction funding costs.
Disadvantages of distributed payment systems

(1) Still faces certain technical risks, and the security of the system account has hidden dangers.

(2) Distributed payment systems are automated and programmed, and are less flexible as they cannot be changed after operation.

(3) Distributed payment technology may have an impact on financial stability.

Doesn’t improve user experiences
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Why we need a new infrastructure?

The size of U.S. digital assets has doubled 215 times in five years. Non-state issued digital assets soar from $14 billion in early 2016 to $3 trillion by November 2021.

The market value of Bitcoin, Ether and other token economies has reached $1.9 trillion, close to Italy's annual GDP, making it "richer than the country"
What will it be like?

More diverse and high-quality outputs
More active users

Digital Content
Production
- Developer Share
- Developer Community
- Services based on
  user data

Digital Asset

Digital Currency

User Motivation
- Social Sharing
- Community member
  benefits
- Content optimization
  based on user data

Trading

Better creator incentives
and user incentives

More spending and usage
Higher willingness to pay

Digital Content
Consumption

Digital Payment will be seamlessly
integrated in this infrastructure.
Thank you!