IsSettled
Worldwide Network

Solution Overview

The current global payment infrastructure is complex, costly, slow, and painful.

The traditional global payment system moves money from one system to another through internal transfers between financial institutions. At the same time, payment instructions and the funds indicated in them are moved from the payer bank to the recipient bank through other intermediary banks and more than one payment system; since these transfers occur in different systems with a low level of coordination, this leads to severe consequences.

■ Settlement   ■ Clearing
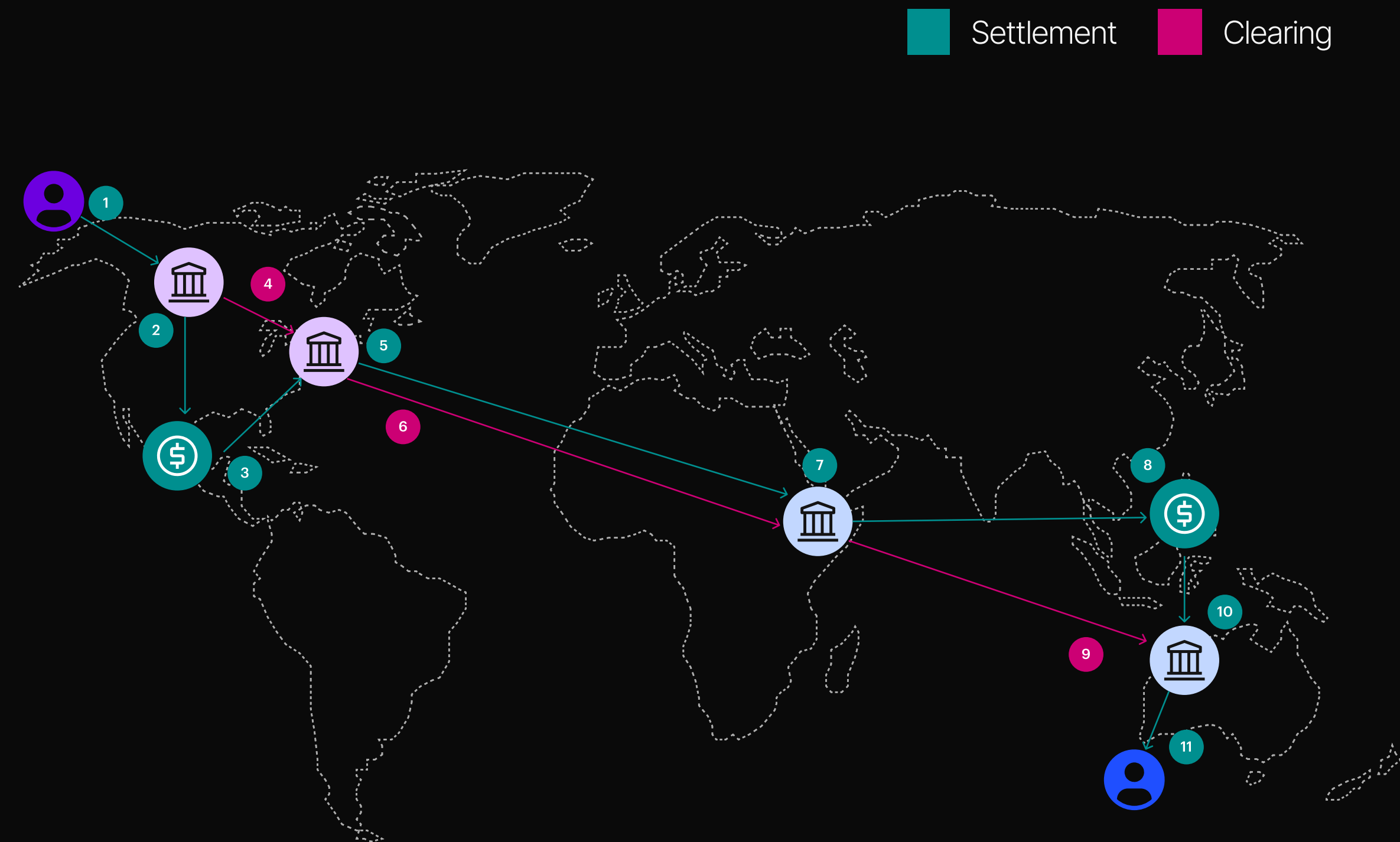
Custodial and correspondent models are widely represented in today's payment networks.

These models are used by large settlement companies that support the daily net settlement of large banks worldwide. They are also used for extensive correspondent messaging networks that support routing and clearing payment instructions.

— **CLSNet** — **SWIFT** — **Visa B2B Connect** — **Ripple.**

Focus on clearing

Correspondent model

- The funds are made available to the ultimate beneficiary immediately via credit transfers.
- Credit transfers are separated from the movement of funds—settlements.
- Payments are secured through legal structures between the jurisdictions of counterparties and bilateral agreements on netting between the participants in the transaction.
- Deferred settlements and carried out asynchronously in other networks.

— **Incumbent: SWIFT + Nostro/Vostro accounts.**

Focus on settlements

Custodial model

- Transfers must be pre-funded to support settlements.
- Reserves are deposited in a multi-currency custodial account.
- Payment is a registered transfer of balances between counterparties.
- Transactions are atomic, and settlements are instant.

— **Incumbent: CLS.**
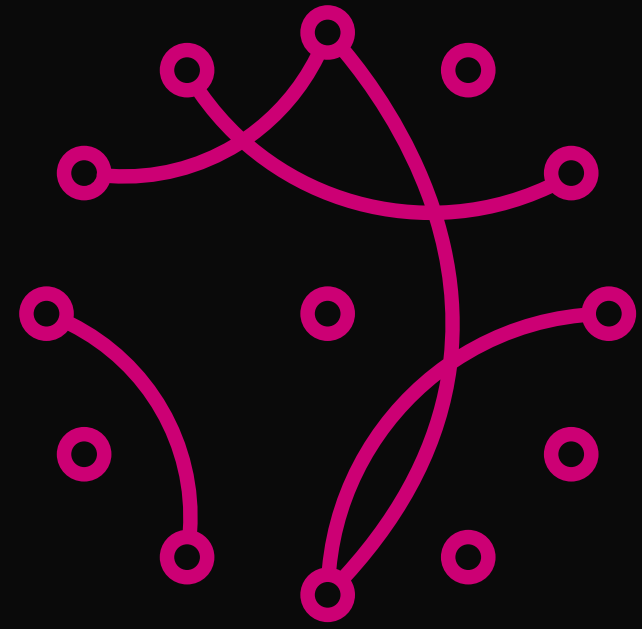
Cross-border payments are most often processed through a chain of correspondent banks.

The correspondent banking model requires the respondent bank to open an account with the correspondent and set up a messaging method, usually via SWIFT. For small banks, NBFIs, and payment service providers, finding a correspondent bank is either difficult or impossible—in fact, there are 20 largest banks in whose hands the value transfer process is focused.

As a rule, the respondent bank does not have a direct account relationship with the beneficiary bank; as a result, intermediary banks are used, which lengthens the transaction chain. In addition, the respondent bank must maintain several correspondent banking relationships in different jurisdictions that are prohibitively expensive. Finally, the processing of cross-border payments through an intermediary chain of correspondent banks is costly, time-consuming, and non-transparent.

This model leads to long transaction chains, fragmented and truncated payment data, high costs, and little competition, negatively affecting the speed, cost, access, and transparency of payments.

The key issue of the current system is the lack of interaction between the payment infrastructures of different countries.

Because of this, cross-border payments are conducted using a traditional correspondent banking model of relationships in which participating banks have different hours of operation, messaging standards, and pre-funding requirements.

Also, international payments are sensitive to legal, regulatory, and operational consistency, as different legal and regulatory requirements related to anti-money laundering/combating the financing of terrorism (AML/CFT), as well as different operational windows of domestic payment infrastructures, further, increase transaction costs and time delays.

- Difficult reconciliation.
- More prone to errors.
- Liquidity problems.
- Settlement and credit risks.
- Poor visibility of payment progress.
- Unexpected processing fees.
- High transaction costs (high fees and FX charges).
- Locked Nostro/Vostro account balances.
- Duplicative compliance screening.
- Uncertainty and insufficient transparency in payment processing.
- High pre-funding requirements.
- Lack of a single ledger state between participants in settlements.

G20

In October 2020, the G20 endorsed a roadmap for improving cross-border payments developed by the Financial Stability Board (FSB) in coordination with the Committee on Payments and Market Infrastructure of the Bank for International Settlements (CPMI) and other relevant international organizations and standard-setting bodies. The G20 Cross-Border Payments Program seeks to address long-standing problems in the cross-border payments market, including high costs, low speed, limited access, and lack of transparency.

Goals

Speed
— Ensure funds are available to the recipient within one hour of payment initiation for 75% of cross-border money transfers in each corridor; for wholesale and retail payments by the end of 2027.

Standardization
— Transition to ISO 20022 standard for financial messaging.

CBDC and Stablecoins
— Increasing the sustainability of global stablecoin agreements for cross-border payments and shaping the landscape for CBDC.

Interconnection mechanisms
— Interconnecting payment systems to reduce intermediaries, increase speed, reduce costs, and increase transparency.

Transparency
— Payment service providers should provide at least the following list of information about cross-border payments to payers and payees by the end of 2027: total transaction value (with all relevant fees, including sending and receiving fees, any intermediary fees, exchange rates, currency conversion fees; expected delivery time; payment status tracking; and terms of service).

Rapid payment systems, upcoming conversion to the ISO 20022 messaging standard, and the gradual extension of the settlement clock to a 24×7×365 cycle.

Changing market trends and a 5% annual increase in the overall global flow of cross-border payments have resulted in new players changing the nature and internal dynamics of the market, along with the changing needs of consumers and businesses who expect payments to be made immediately, transparently, and efficiently.

Banks and financial institutions must rethink their existing payment strategies and infrastructure to remain relevant in this new world.
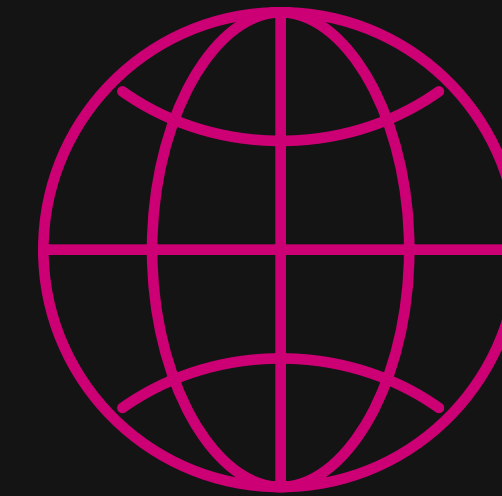
— The Onyx by J.P. Morgan platform helps its customers provide instant asset transfers and clearing in an authorized distributed ledger using digitized currencies held on deposit at J.P. Morgan, facilitating the movement of liquidity funding and payments at the right time.

— Ripple enables cross-border payments using the digital asset XRP for real-time settlement.

— Circle offers the market a digitized USDC dollar for online settlement and the ability to exchange it for cash at a 1:1 exchange rate.

Payment network and FX platform for instant cross-border payments of any size focused on simultaneous clearing and settlement in one network.

Clearing and settlement

IsSettled enables geographically distributed financial institutions to exchange value worldwide in seconds, using distributed ledger-based digital settlement instruments and ISO 20022 standard payment messages for real-time clearing and settlement of international payments within a single network.
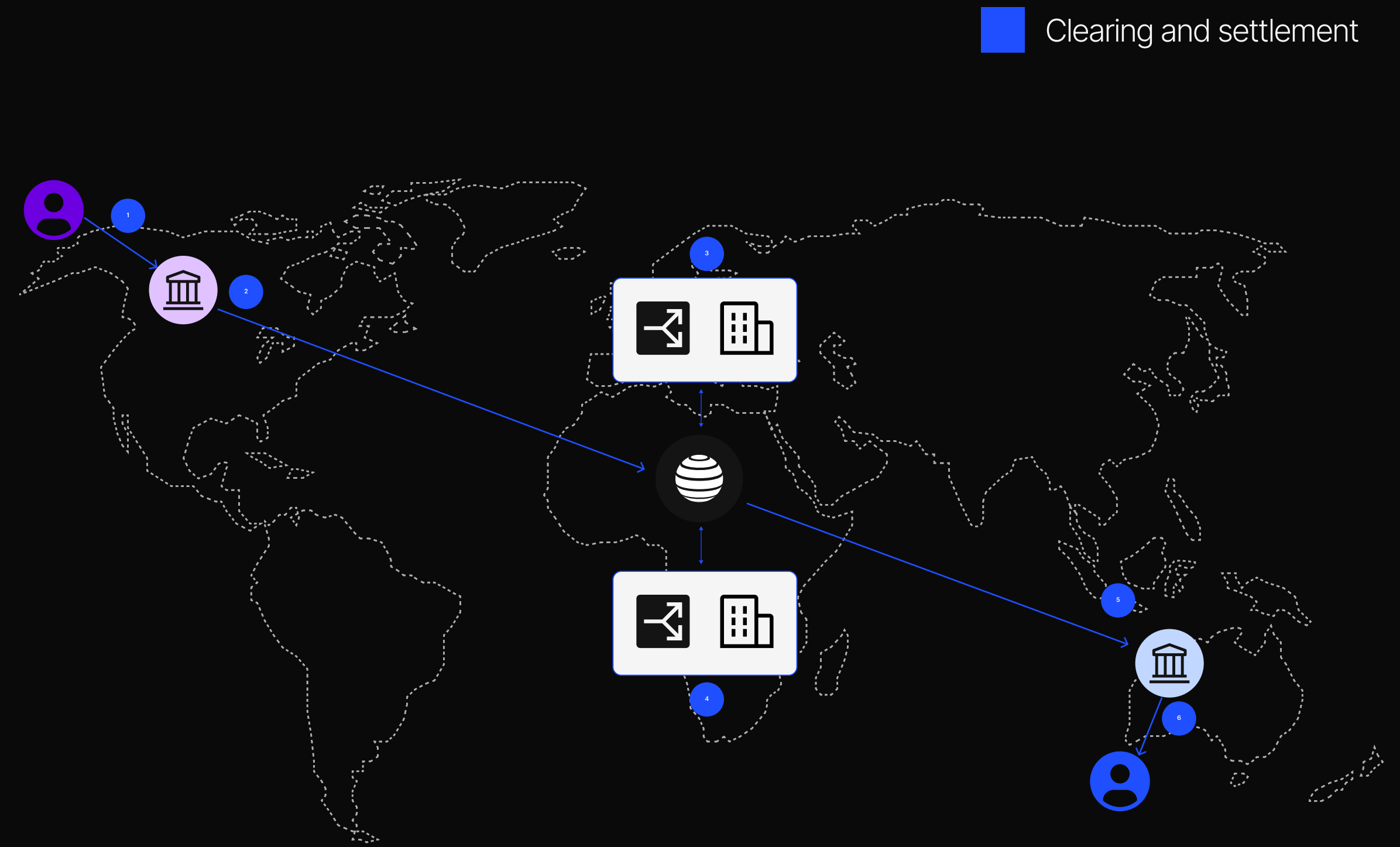
CROSS CURRENCY	SETTLEMENT SPEED	TRANSACTION COST	TRANSACTION THROUGHPUT	TRANSACTION AMOUNT
Yes	Immediately	Low	High	Any

# The system provides a universal way to move payment information and the value of various assets.

The infrastructure is designed to conduct transparent, secure, and traceable international payments with simultaneous clearing, settlement, and exchange of ISO 20022 financial messages on an ongoing basis, 24×7×365.

In a broad sense, it is a comprehensive platform for the efficient operation of financial institutions in a fragmented environment of messaging systems and standards, which provides global, multi-currency, multi-organization, and multi-standard coverage and meets critical market requirements for accessibility, innovation, and reliability.

- 24×7×365 availability.
- Payments without intermediaries—point-to-point.
- Complete visibility in transit and control over the transaction.
- New settlement models.
- New interaction mechanisms.
- Pre-check transactions.
- Universal types of currency agreements.
- Standard ledger status for all members.
- Immediate and deferred net settlement options.
- Financial messaging based on ISO 20022 standards.
- Immediate currency exchange on DvP terms.
- Universal payment support—micropayments, low and high value, commercial and retail payments, remittances.

IsSettled is a complex of flexible interconnected infrastructures designed as a single ecosystem consisting of a distributed ledger, payment messaging system, settlement network, asset tokenization technology, and exchange infrastructure.

We offer the market a payment network and a comprehensive platform for digitizing assets. The solution was created based on proven, highly reliable, modern, and efficient technologies per the industry standards and principles for systemically important payment systems, which are successfully implemented and used by leading companies worldwide.
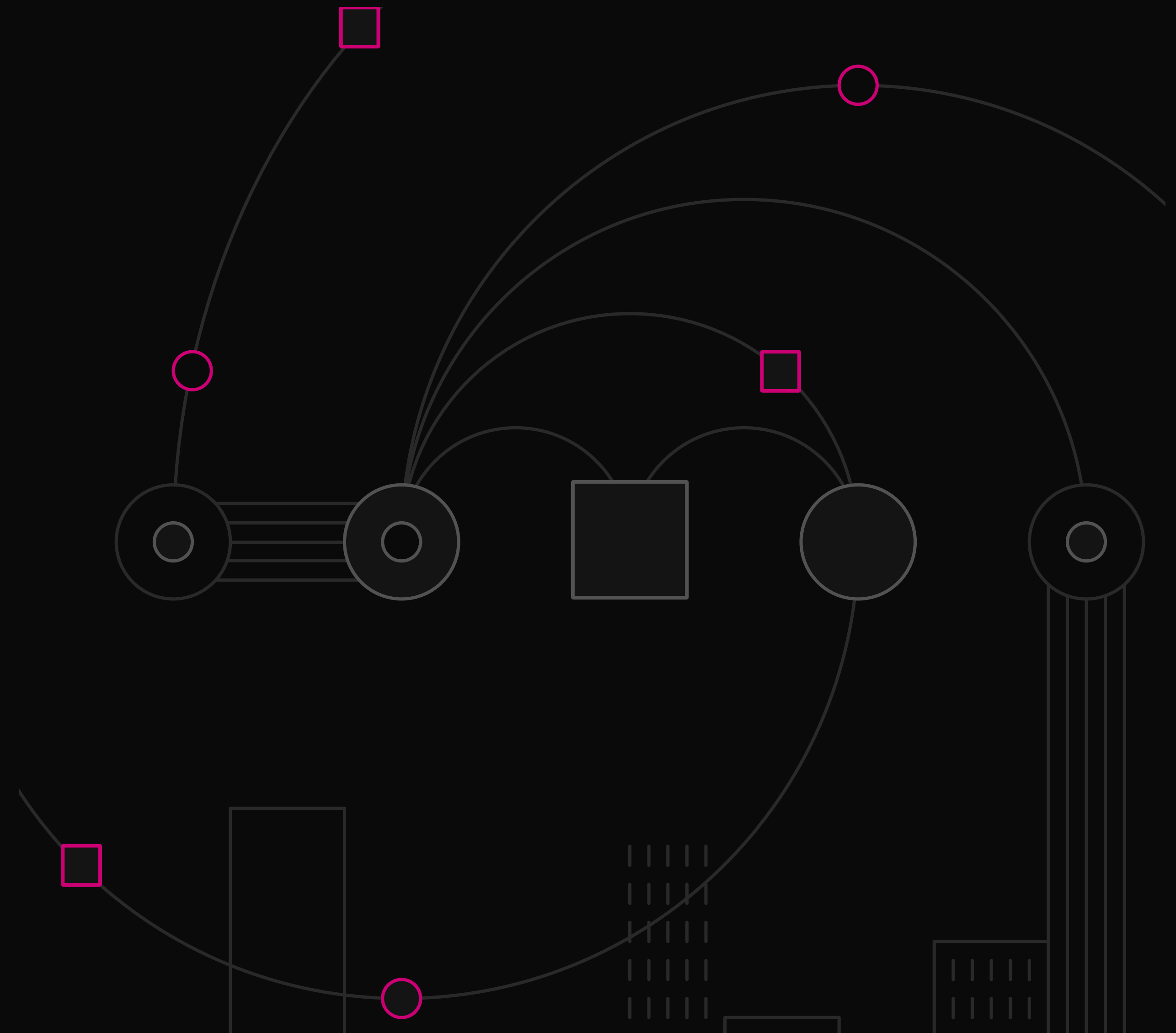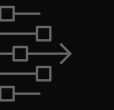
IsSettled offers the market a more innovative, fast, and transparent settlement mechanism without an intermediary bank, focused on digital settlement instruments— tokenized assets and central bank digital currencies.

Unlike the custodial and correspondent models, the application of the new model concerns clearing and settlement in the same network. The system provides members with a resilient payment channel with two-way consistency and instant settlement finality, helping facilitate cross-border settlement with regulatory compliance and controls at every level.

Focus on clearing and settlements

Digital model

- Clearing and settlement are instant, and transactions are atomic.
- No need for pre-funding.
- Transactions involving currency exchanges can be settled instantly by exchanging digitized representations of such assets.
- Digital instruments are an intermediate bridge for currency pairs where direct crosses are not quoted.

— **Incumbent: IsSettled.**

Interaction model: "common platform"—members of one (domestic) payment system connect to the platform to interact with members of a foreign payment system to process cross-border payments in a multi-currency (cross-currency) mode.

Members can be directly connected, relying on the payment infrastructure—IsSettled, which forms a "hub" for connecting payment systems and financial institutions.

The system allows payment service providers (PSPs) participating in the country A payment system to send payments to PSPs participating in the country B payment system without the need for the country A PSP to open accounts in country B or become a member of the country B payment system.

The IsSettled interaction mechanism can be defined as a set of contractual agreements, technical links and standards, and operational components between financial institutions of different jurisdictions that allow financial transactions with each other as if they were in the same system.
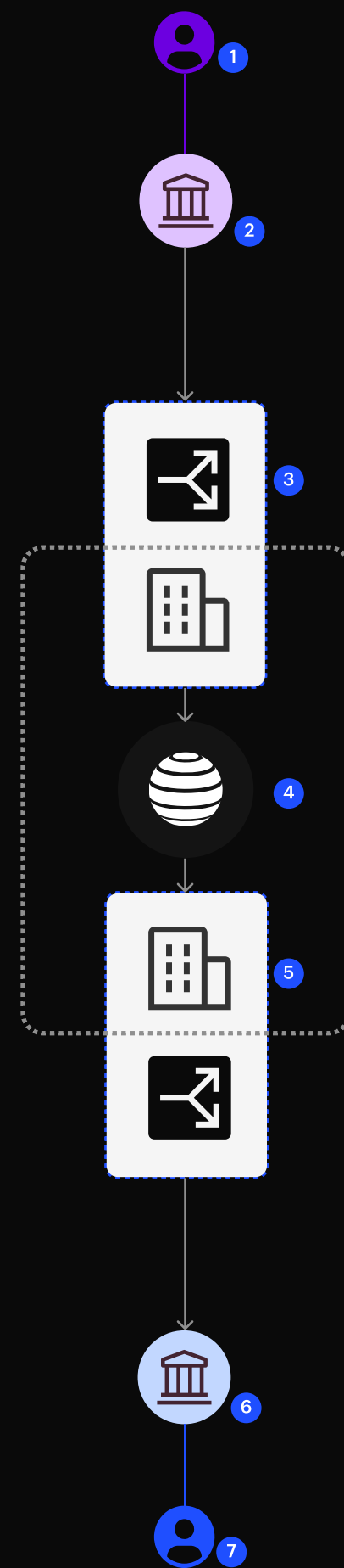
1. Payer (Sender).
Customer of a payment service provider.

2. Payment service provider.
IsSettled Member; a bank, money transfer operator, non-banking institution, money service company, or other authorized legal entity acting on behalf of money senders.

3. Market Maker.
IsSettled Member; all regulated money service organizations, including companies authorized to process money and/or perform exchange functions. This role is key to the functioning of the IsSettled network—members provide endpoints for deposits and payments in various currencies.

4. IsSettled Network.
Provides sophisticated payment flow business logic from payment initiation, internal error checks, and recording the settlement transaction in a distributed ledger. Provides a bidirectional channel for exchanging financial messages, funds, and value transfers through the blockchain network within a single real-time platform. Controls network members and opens digital accounts in the names of financial institutions under their control.

5. Digital instruments issuer/liquidity provider.
IsSettled Member; a commercial or central bank and other financial organizations authorized to issue digital instruments (credits, obligations) on money funds, central bank digital currencies, cryptocurrencies, commodities, exchange, and other assets.

6. Payment service provider.

7. Payee (Beneficiary).

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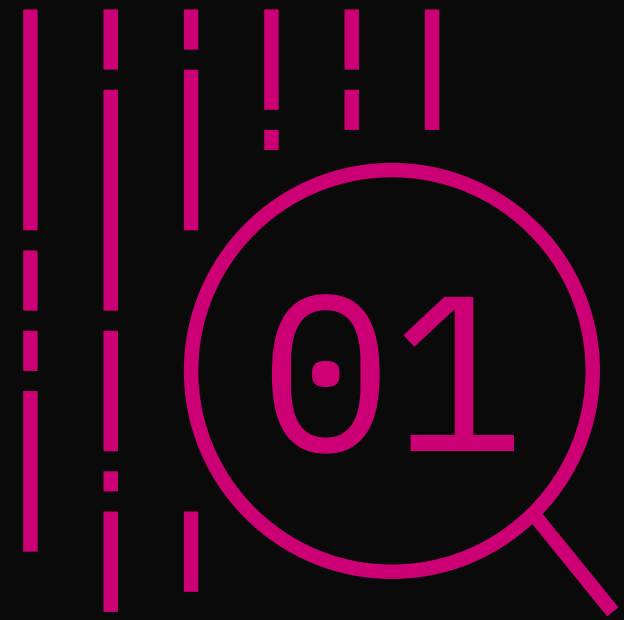
The new model is a network of corridors of tokenized assets and digital currencies of central banks. With this approach, clearing and settlement of cross-border payments in a peer-to-peer mode and within the same system.

All monetary transactions in the IsSettled network (except CBDC) take the form of credits issued by issuer members, which act as a bridge between the traditional system with fiat currencies and the IsSettled network with digitized assets.

The IsSettled infrastructure implements the new model algorithm and is an integrated payment network that includes a system for initiating money transfer instructions, a messaging system, and an FX platform with support for digital instruments to settle transactions in near real-time.

The platform allows members to tokenize cash, securities, cryptocurrencies, and central bank digital currencies (CDBC).

Digitized assets are used as a means of settlement for transactions in real-time, where they act as an agreed-upon store of value that members exchange to fulfill payment obligations; this provides a safer, simpler, and faster interaction with the infrastructures of other payment systems both locally and internationally. Tokenized assets can be stored, transferred, exchanged, and redeemed between members.

Tokenizers in the context of IsSettled are financial institutions that network members trust to store deposits and issue loans (digital instruments) in the IsSettled system for these deposits.
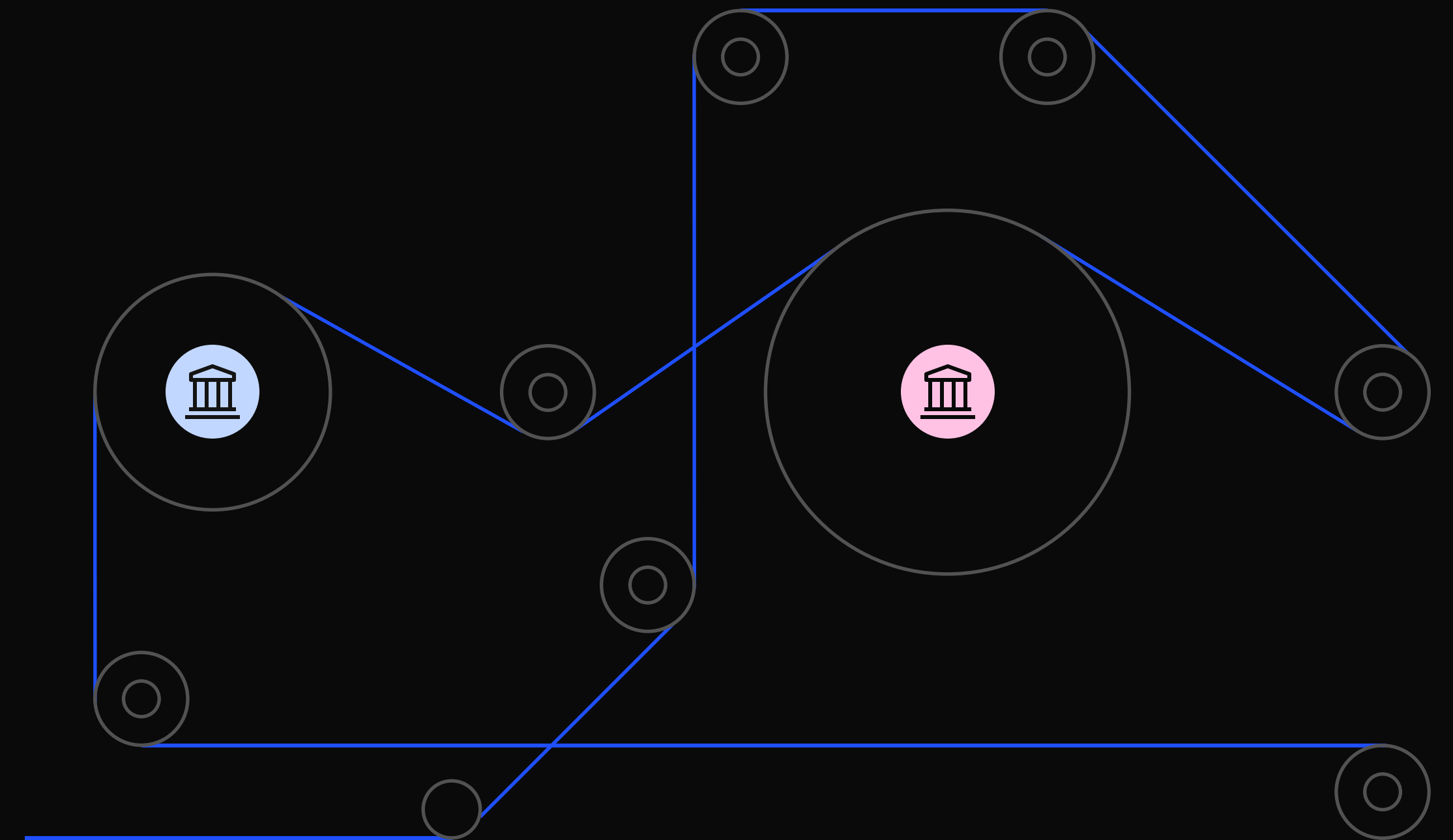
Tokenization is a mechanism for digitizing assets backed by an underlying value and is intended for issuing settlement instruments in IsSettled.

The final interbank settlement's time and model depend on the digital instrument group. Transactions determine the final status of obligations between members; in the case of using the DSO, the transaction reflects the debt obligations amount according to the subsequent settlement, which must be repaid between parties outside IsSettled; in the case of the DSA, a transaction means a completed settlement (termination of obligations between the Members).

Deferred settlements

Digital settlement obligation

A one-time settlement instrument representing an agreed-upon store of value between two parties who execute a transaction until payment obligations are finally discharged outside IsSettled. The DSO is applicable for payments where there is pre-funding of Nostro accounts, netting agreements, or credit agreements between the parties.

Immediate settlements

Digital settlement asset

A reusable settlement instrument representing a digitized credit form backed by the issuer member's reserves that is liable for the issued digital instrument. DSA is applicable for payments with simultaneous clearing and real-time settlement.
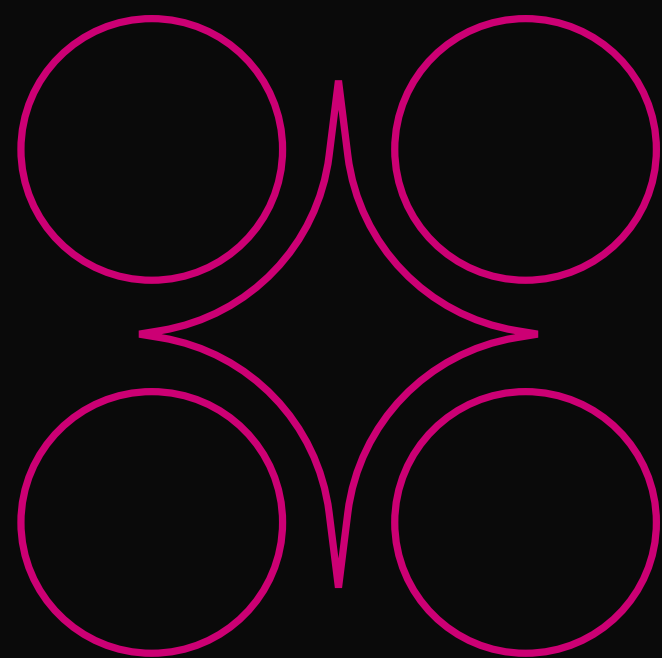
16. Digital Instruments Types

Tokenized (digitized) asset	A dematerialized form of an asset in a distributed Ledger, corresponding to the amount of the base asset stored outside IsSettled in the member's reserves.
Tokenized non-cash funds	A credit-digital form of the bank reserve, expressed in assets, which are stored in the accounts of the member(liquidity provider) outside IsSettled in the form of non-cash funds.
Tokenized cryptocurrency	A credit-digital form of cryptocurrency reserves or yokens expressed in assets that are stored on the blockchain addresses of the member(liquidity provider) outside IsSettled.
Stablecoin	A token traded on cryptocurrency exchanges whose value is quoted by supply and demand. The value of a token is determined by the value of the Base Asset in which it is expressed.
Central bank digital currency (CBDC)	A currency issued by the Central Bank of a country through digital technologies, the functions and nature of which are determined by the issuer's legal framework.

17. Digital Instruments Characteristics

	DSO	DSA-001	DSA-002	DSA-003
Description	A one-time digital settlement instrument.	Tokenized Asset.	Central Bank Digital Currency (CBDC).	Cryptocurrency.
Funds Availability to the Beneficiary	Instantly.	Instantly.	Instantly.	Instantly.
Interbank Settlements Speed	Vary: up to 1 settlement cycle.	Under 25 seconds.	Under 25 seconds.	Vary.
Interbank Settlements Complexity	Average: interbank settlement outside IsSettled.	Simple: interbank settlement within IsSettled.	Simple: interbank settlement within IsSettled.	Complex: interbank settlement outside IsSettled.
Liquidity	High.	High.	Extremely high.	Low.
Risk	Counterparty risk.	Solvency risk.	No.	Price volatility: liquidity risk.
Issuer	Financial Institution.	Financial Institution.	Central Bank.	Financial Institution.
Features	Deferred settlements and prefunding.	Instant settlements.	Instant settlements.	Vary.

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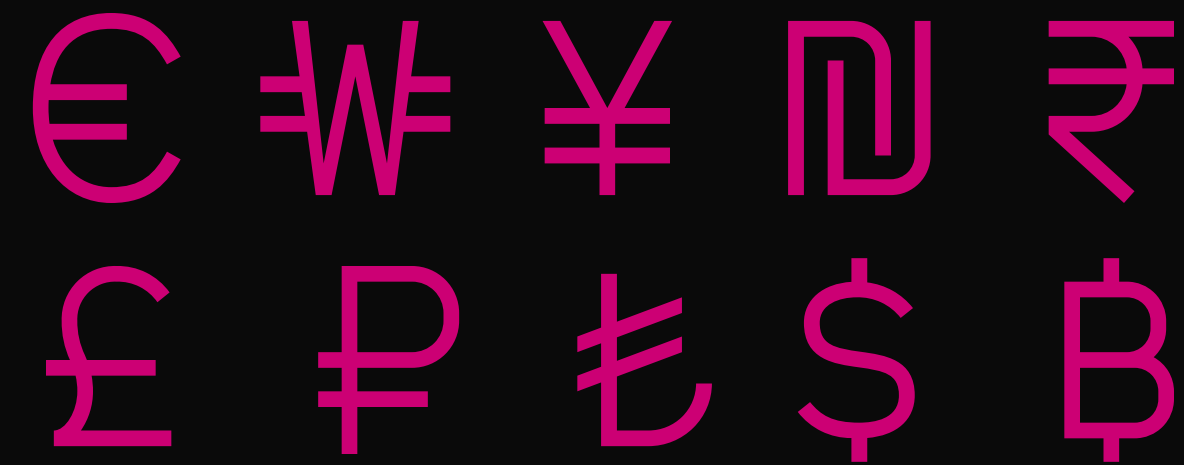
For interbank settlements, digital instruments— tokenized assets—are used, while the legal tender is used to execute payments.

Banks can settle transactions either directly with each other outside the network using DSO or within the IsSettled network by transferring DSA between digital accounts for real-time settlement using ledger entries maintained in a distributed ledger. All steps, from payment instructions to clearing, settlement, and foreign exchange, can be combined into a single atomic transaction executed in near real-time.
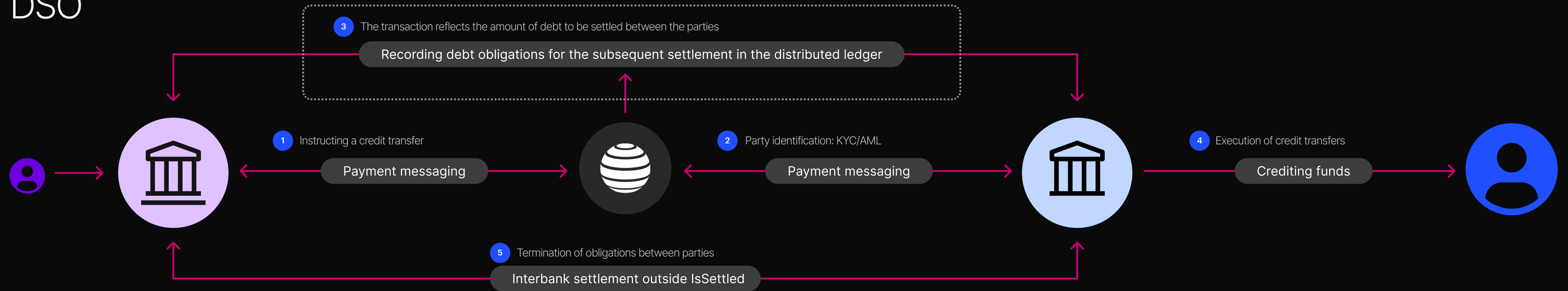
With DSA, the final interbank settlement is executed immediately. From the legal point of view—settlement implies a change of asset (obligations) holders and assignment of claims to the issuer. In such a transaction, bank accounts are not involved, as there is no need to use the non-cash funds established by the jurisdiction.

Regardless of the mechanism of interbank settlements, the payment for the recipient is made instantly through credit transfers.
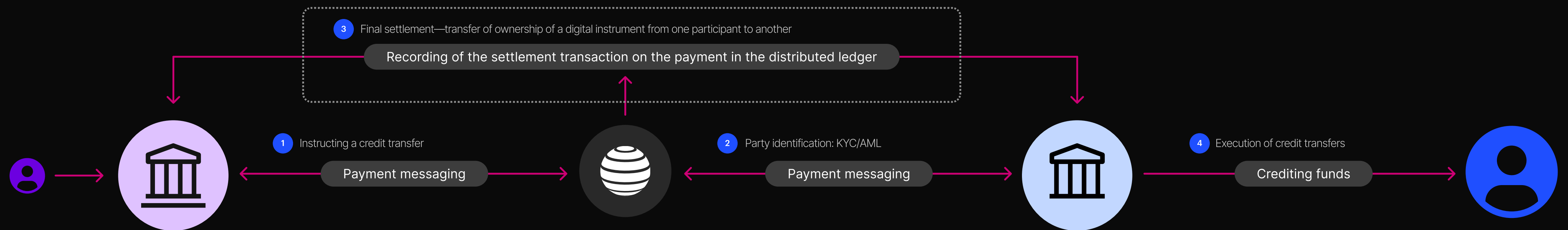
19. Payment and Settlement Scheme using Digital Instruments

DSO

3 The transaction reflects the amount of debt to be settled between the parties

Recording debt obligations for the subsequent settlement in the distributed ledger

1 Instructing a credit transfer

Payment messaging

2 Party identification: KYC/AML

Payment messaging

4 Execution of credit transfers

Crediting funds

5 Termination of obligations between parties

Interbank settlement outside IsSettled

DSA

3 Final settlement—transfer of ownership of a digital instrument from one participant to another

Recording of the settlement transaction on the payment in the distributed ledger

1 Instructing a credit transfer

Payment messaging

2 Party identification: KYC/AML

Payment messaging

4 Execution of credit transfers

Crediting funds

Centralized emission based on tokenization

A model in which a IsSettled Member—a centralized entity, holds assets in a bank account or vault and issues digital instruments representing a claim on the underlying assets.

Algorithmic emission based on collateral

A model in which IsSettled Members—organizations united in a consortium, issue a digital instrument linked to the asset rate and provide it with other assets, algorithmically adjusting the rate and issue.

Algorithmic emission based on Seigniorage

A model in which the IsSettled Member—the country's central bank, issues digital instruments pegged to the asset's rate and algorithmically increases or reduces the amount of money supply as the public demand increases.

21. Centralized Emission Based On Tokenization

Description	• A digital instrument has value because it represents a claim on the underlying asset's value. • The object of tokenization (digitization) can be any asset, such as U.S. dollars. • Several members can be issuers of the same tokenization object, e.g., two different issuer banks in the same country with U.S. dollars. • Emission is carried out by a central bank or financial institution with regulatory oversight, a network of auditors, and per regulatory requirements. • Transactions determine the accumulation of obligations and claims between the holder of digital instruments and their issuer, which are consequently settled between the parties outside IsSettled.
Benefits	• A clear and acceptable model with working cases on the market. • Prospect for well-established players with trust and brand. • Higher confidence in digital instruments with low volatility.
Disadvantages	• Requires trust in the issuing party. • There is counterparty risk for holders of digital instruments. • Security and related costs for the issuer. • Additional efforts to prove solvency and legitimacy to increase trust.
Industry example	• J.P. Morgan (Coin Systems), Circle (USDC), Tether (USDT).
Income model	• Service fee—fixed or based on the quality of service.

22. Algorithmic Emission Based On Collateral

Description	• A digital instrument is a decentralized asset backed by other assets. • The collateral is held by trusted network members who manage the transfer and redemption models. • Unlike the tokenization-based model, holders do not rely on the redemption of the asset they are claiming. • The emission of digital instruments depends on the total monetary value of other assets and is regulated algorithmically to maintain a stable exchange rate against a pegged asset, such as the U.S. dollar.
Benefits	• Members do not rely on a centralized link in the chain. • Economic opportunities and new business models for network members. • An ecosystem approach of transfer and redemption governs revenue structure. • Prospect for well-established players with trust and brand. • Acceptable model for issuing a stable digital instrument based on collateral from various assets, including cryptocurrencies, commodities, exchange, and other assets.
Disadvantages	• There is counterparty risk for holders of digital instruments. • Security and related costs for the issuer. • Additional efforts to prove solvency and legitimacy to increase trust. • Risks of under or over-collateralization of assets.
Industry example	• MakerDAO (DAI), Tron (USDD), Waves (USDN), Ampleforth (AMPL).
Income model	• Service fee—fixed or based on the quality of service, collateral and in-network lending models, and other services.

23. Algorithmic emission based on Seigniorage

Description	• The central bank issues digital instruments tied to an asset's exchange rate, such as the U.S. dollar. • Digital instruments are not backed by anything other than the expectation that they will retain a particular value, a model that relies on "general trust/shared money beliefs" in properties similar to fiat money. • As the total demand for a digital instrument increases or decreases, the total supply automatically changes through algorithms. When demand increases, the system issues a new quantity, thereby increasing supply and causing the price to stabilize to the target level, and vice versa.
Benefits	• As the network grows, so does the demand for these digital instruments. • New business models and networking opportunities.
Disadvantages	• There is a technological risk, as increasing and decreasing issuance must be decentralized, sustainable, and unmanipulated. • Requires more complex governance structures with precise emission management and regulatory models for the type of digital instrument and its movement. • The model is experimental, which entails systemic risks.
Industry example	• Carbon, Basecoin, Fragments.
Income model	• New business models around creating new instruments (obligations, debentures).

Simplification of operations
— Reducing the manual operations required for reconciliation and dispute resolution.

Streamlining the relationship between counterparties
— Agreements are codified and executed in a shared immutable environment.

Reduced time for clearing and settlement
— Elimination of individual intermediaries responsible for checking (validating) transactions.

Higher liquidity
— Reducing the amount of blocked capital and ensuring transparency in the search for liquidity for assets.

Enhancing transparency ("clean trail")
— Enabling real-time financial activity monitoring for regulators to establish the origin of assets and the complete history of transactions within a single source of truth.

Capital predictability
— Providing system members with better visibility of assets to improve risk assessment and decision-making.

Process automation
— Tracking and managing liabilities of multiple parties (e.g., letters of credit) in real-time, accelerating automatic settlements, and fixing liabilities that minimize operational errors.

Reduction of settlement cycles
— Providing point-to-point transfer of funds between financial institutions in near real-time.

Reporting management
— Providing faster and more accurate reporting by automating processes that allow for more productive reporting management.

Increased profitability
— Reduced liquidity requirements and operating costs.
New business models—new model principles open new business scenarios for cross-border business.

API

The solution includes a member user interface for system setup, account and asset management, transaction viewing, uploading, and auditing, and its own set of APIs for payments, clearing, settlement, and currency exchange.

The API supports DELETE, POST, and GET requests. The API always returns the response in JSON format, regardless of the request type. The API uses HTTP as the primary protocol and is suitable for development in any programming language that can work with HTTP libraries.

Web Services
For each member, global IsSettled services are automatically deployed and configured in the cloud, with which the member's server systems communicate via JSON RESTful API. Access tokens of the OAuth 2.0 specification in JWT format authenticate requests.

API
Integration via API allows banks and other payment service providers (PSPs) to transact with each other without having to participate in the same country's payment system.

Web Office
IsSettled client portal for members, available as a web interface and designed for resource management and electronic interaction between IsSettled and members.

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Thank you for your attention

For more information about the IsSettled solution, use the developer's portal—https://developer.issettled.com/.

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