Trade Matching using Distributed Ledger Technology

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Agenda

- Introduction to Calypso
- Trade Matching on R3 Corda DLT
- Trade Matching Pilot
- Joining the Matching Pilot
- Questions?
Who is Calypso?
Who is Calypso?

- The leading provider of front-to-back technology solutions for the financial markets.
Who is using Calypso?

- **35,000+ Users**
- **200+ Customers**
- **60+ Countries**

- Hedge Funds
- Asset Managers
- Insurance Companies
- Pension Funds
- Corporate
- Central Banks
- Exchanges & Clearing Houses
- Global & Regional Banks
- Securities Services
- Utility providers
Calypso, 20 years of innovation

Blockchain or Distributed Ledger Technology (DLT) is our most recent offering in our journey to transform and bring efficiencies to Capital Markets.
A technology ready for blockchain

Smooth Integration
Real-time
Blockchain Technology
Agnostic

Event Driven

Workflow Based

Smart Contract Implementation

Smart Contracts

Calypso Services

Highly Configurable
Standardization

Independent Business Services
Cloud Deployment
What is Calypso Blockchain Roadmap?
# Our DLT Offerings

## 1. Cross Asset DLT Based Matching
- Bilateral Matching of OTC asset classes
  - FX
  - Swaps
  - MM
  - ...

## 2. Collateral Management
- Collateral Management on Blockchain
  - CSA Eligibility checks
  - Record Agreed Calls
  - Preform Pledges & Substitutions
  - Make Payments
  - Manage Collateral Positions
  - ...

## 3. Settlements and Payments
- Payment Management
  - Shared SSIs
  - SSI selection
  - Settlements

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What is our Trade Matching “DLT” initiative?
Calypso’s Trade Matching Platform

• Cross-Asset Matching Platform
  – Extensible for any asset class
  – Single Platform to support Front Office as well as Middle Office use cases

• Decentralized Matching based on Corda R3
  – Peer to Peer Workflow based on Smart Contracts. No Reconciliation

• Leverages Calypso’s High Performance Matching Engine
  – Ability to handle millions of transactions a day

• Deployed as a Micro Service on the Cloud
  – Secure, Robust Public Cloud

• Reduced TCO
Current industry process

PARTICIPANT A

(1) Book FX Trades

(2) Send to Party B

(3) Send to Party A

PARTICIPANT B

(4) Match

CONFIRMATIONS

(5) Match

(6) DFP Euro Payment

(7) DFP USD Payment

- Pain Point
Pain points

“Blind” bilateral matching
Data discrepancies
Mismatch & STP breaks
Manual resolution
Late resolution
Settlement default
No Golden Copy
New “DLT” FX Matching Process

1. Book FX Trades
2. Send to Corda
3. Acknowledge
   (7) Send Match Result
4. Run Match
5. Propose Match
6. Create Golden Copy
7. Send Match Result
8. Match result
R3 Corda Benefits

- **R3 Corda Evolution**
  - Additional features added for Enterprise support
  - Java Support

- **Ease of programming**
  - Dev Mode
    - Auto create certificates
  - Flows
    - SubFlow
      - Collecting signatures
    - Finality
      - Automatically calls Notary as required
      - Sends fully signed transaction to all participants

- **Additional Features**
  - Observer Nodes
  - Proxy
FUNCTIONAL OVERVIEW

**DLT – Corda Flow: New**

1. **Swift Formatted Message**
2. **Convert to Smart Contract**
3. **Send / Receive to Party B**
4. **Save State**
5. **Update Matching Service**
6. **Similarly, Party B message is updated**
DLT – Corda Flow: Matching

1. Propose Match
2. Node A validation
3. Node B validation
4. Collect Signatures
5. FinalityFlow
6. Update Matching Service
New “DLT” FX matching tools
With a full workflow

- Perfect Match, Un-match, Mismatch
- Trade lifecycle (Amend, Cancel)
- Chasing
- Aliasing
- Affirmation
Benefits

Direct benefits:
- Increased STP rate with real time matching
- Reduced reconciliations
- True Golden Copy
- Synchronization of parties
- Reduction in Processing Costs
- Cross-Asset processing

Indirect benefits of a Golden Copy:
- DVP settlements
- Agreed source of market data (trade lifecycle)
- KYC and AML
- UTI service and regulatory reporting
What is our Pilot?
Following a successful POC

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Pilot with active participants

Branch A
Counter Party
Distributed Ledger
Branch B
Broker

ECOSYSTEM

BBVA + BBVA

BBVA and BBVA Bancomer are piloting an FX matching application developed by Calypso Technology, a leading provider of cloud-based cross asset trading software solutions for the financial markets, and enterpise software firm R3. The application, which runs on R3’s Corda platform and is facilitated by Calypso’s cloud services, has already been used by the two banks to match a live FX trade.
Benefits of Pilot

- Access and test DLT technologies
  - Business Use Cases
- Assess impact on current situation with metrics
  - Measure ROI
- Influence functional and technical roadmap
  - Ready for use case expansion (FX vertical, Interest Rate Swaps, Money Markets, etc.)
  - Extend use to other functional areas such as Settlements.
- Attract other participants
  - Easy connectivity
  - Share experience with peers
How to join Matching Pilot?
Joining Matching Pilot

Join the Pilot by contacting
Calypso or R3

Email: PilotFX@calypso.com
Questions
SIMPLIFY. TRANSFORM