T2/T2S Consolidation

Settlement Services

Task Force on Future RTGS Services

1st meeting on 07 December 2016
## Overview

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Objectives

• T2 and T2S services will remain separate services
• T2S services are not the target for future RTGS services

Nevertheless, the context is changing:
• T2S is now live
• TIPS might attract part of T2 traffic
• T2 was launched 10 years ago with building blocks from RTGS+ conceived in the 90’s
• CLM should enhance liquidity management
Objectives

- For all of these reasons, we should seize the opportunity of the T2/T2S consolidation to assess each and every service, to question complexity and to look for any new idea for a lean RTGS, which settles payments without any delay.

- Therefore, the current presentation shall compare T2, T2S and TIPS settlement services, in order to ease the discussion on what the future RTGS settlement services might look like.
Objectives and scope

- **System Operators**
- **Direct Participants**
- **NCBs**
- **Non-Euro RTGS**

**Legend**:
- Blue: In scope for T2/T2S Consolidation
- Purple: Focus for Task Force
- Green: Out of scope for T2/T2S Consolidation
- Orange: Transversal Topic

**Eurosystem Single Market Infrastructure Gateway**

- **Business Interface**: ISO, Information and Reporting
- **Central Liquidity Management**
  - Standing Facilities
  - Reserve Management

**Central Bank Services**

- **ECMS**

**Contingency Settlement (*)&**

(* Contingency settlement to be addressed under the umbrella of cyber resilience)

**Focus for Task Force**

- In scope for T2/T2S Consolidation
- Out of scope for T2/T2S Consolidation
- Transversal Topic

**In scope for T2/T2S Consolidation**

- **Operational Monitoring**
- **Central Liquidity Management**
- **Central Bank Services**

**Out of scope for T2/T2S Consolidation**

- **Non-Euro RTGS**

**Transversal Topic**

- **Legend**

**Reference Data Management**

**Data Warehouse**

**Billing**

**Legend**

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Real time settlement

• In order to achieve the functional convergence between T2 and T2S, we need to compare the settlement services of both systems

• Since T2 is already known, we will first take a look at the services provided for real-time settlement by T2S

• We also compare with TIPS considering that this project runs in parallel and that synergies could be found
Real time settlement and optimisation principles

- **PRINCIPLES**
  - The settlement engine attempts to settle transactions.
  - SLA commitment is to minimise the delay of first settlement attempt.
  - Recycling and optimisation procedures run in parallel with settlement to maximise volume of settled transactions and to minimise the number of unsettled transactions in combining them with previously unsettled.
  - Continuously runs during the Real-time.
Real time settlement and optimisation dynamic features

➢ DYNAMIC RECYCLING

• Upon settlement event:
  • It identifies new resources on the basis of (1) the securities provisioning net flows, (2) the cash provisioning net flows and (3) the credit memorandum balance (CMB) provisioning net flows and then determines the available quantities and/or amounts
  • It selects all pending settlement transactions consuming those resources and recycles them for a new settlement attempt

• Upon an increase of a limit (NCB or Client):
  • It identifies new resources based on the CMB related to the limit which has been increased and then determines the availability
  • It selects and recycles any pending settlement transactions consuming the resources which may be brought by the new limit headroom
Real time settlement and optimisation dynamic features

- **DYNAMIC OPTIMISATION**
  - Triggered by a settlement failure
  - Combines this new fail with previous ones in order to build a new settlable collection
  - The function launches a succession of optimisation algorithm series on the collection received (Build-up, simple circle, back to back, Generic)
  - During the daytime, the optimisation relies on “build up” based algorithms. Such algorithms identify settlable collections by looking for chains of transactions such as simple circles, back-to-back or more complex chains
Real time settlement and optimisation time-triggered features

- **MASSIVE RECYCLING**
  - Triggered by scheduler
  - All pending settlement transactions are recycled at once, provided they are eligible for settlement

- **PARTIAL SETTLEMENT ATTEMPT**
  - Triggered by event
  - At each start of a partial settlement window, all pending settlement transactions allowed to be partially settled and that have never been sent for a settlement attempt during a partial settlement windows are recycled
  - Timing: partial settlement within four windows within RTS at 10:00, 12:00, 13:00, 15:45
Real time settlement and optimisation combined features

- **OUT OF TRIGGERED TIME**
  - The real-time settlement attempt triggers dynamic optimisation or dynamic recycling

- **AT TRIGGERED TIME**
  - The real-time settlement attempt triggers dynamic optimisation or dynamic recycling
  - The time triggered massive recycling or the time triggered recycling of pending instructions able to settle partially
TIPS is a business service for the instant settlement of payments in CeBM, with 24x7 availability and pan-European reach.

TIPS settles a payment with a 2-step approach

1. On reception of the payment from the originator participant, TIPS validates and reserves the payment (conditional settlement)

2. On reception of the positive confirmation from the beneficiary participant, TIPS settles the payment
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## Mapping T2, T2S and TIPS services

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<tr>
<th>T2 features</th>
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<th>TIPS features</th>
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<tbody>
<tr>
<td>Priorities (HU/U/N) in order to prevent the settlement of a payment with a lower priority when there is a payment with a higher priority</td>
<td>Priorities (R/T/N/L) in order to favour the optimisation of higher priority instructions</td>
<td>-</td>
</tr>
<tr>
<td>Offsetting</td>
<td>Technical netting</td>
<td>-</td>
</tr>
<tr>
<td>Within the entry disposition</td>
<td>Within the optimisation algorithm</td>
<td></td>
</tr>
<tr>
<td>Entry disposition</td>
<td>First real-time attempt with high parallelism</td>
<td>Instant real-time attempt</td>
</tr>
<tr>
<td>For each incoming payment, with offsetting and priority management before the settlement attempt</td>
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<tr>
<td>Queue management</td>
<td>Recycling &amp; Optimisation</td>
<td></td>
</tr>
<tr>
<td>FIFO for HU/U</td>
<td>First Available First Out</td>
<td></td>
</tr>
<tr>
<td>FIFO-BYPASS for N</td>
<td>favouring priority/age</td>
<td></td>
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<tr>
<td>Interventions on queued transactions</td>
<td>Interventions on unsettled transactions</td>
<td>Failed transactions are rejected</td>
</tr>
<tr>
<td>Change priority for U/N</td>
<td>Update priority</td>
<td></td>
</tr>
<tr>
<td>Re-ordering</td>
<td>N/A</td>
<td></td>
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<tr>
<td>Change execution time</td>
<td>CR under assessment</td>
<td></td>
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<tr>
<td>Revocation</td>
<td>Cancel</td>
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<td>Hold/Release</td>
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<td>Optimisation algorithm running every 3 minutes</td>
<td>Optimisation algorithm event-triggered running in parallel to booking</td>
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<tr>
<td>Reservation</td>
<td>Reservation</td>
<td>-</td>
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<tr>
<td>Cash segregated according to priority for highly urgent and urgent payments</td>
<td>Cash segregated for specific instructions, including pre-emption</td>
<td>-</td>
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<tr>
<td>Links</td>
<td>Links</td>
<td>-</td>
</tr>
<tr>
<td>With</td>
<td>With</td>
<td>-</td>
</tr>
<tr>
<td>After/Before</td>
<td>After/Before</td>
<td>-</td>
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<tr>
<td>Limits</td>
<td>Credit memorandum balance</td>
<td>-</td>
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<tr>
<td>Bilateral/multilateral limits set by a debtor against creditor</td>
<td>Limit for client-collateralisation ACO, external guarantee and unsecured limits</td>
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Opportunities

• T2S settlement engine uses high parallelism and event-triggered optimisation and recycling that allows to
  – Favour a higher settlement rate in volume
  – Reduce the need for liquidity

• T2 settlement engine ensures the order according to the priority

How could both strengths be combined? In which order should we organise settlement attempt, technical netting, optimisation and priority management?
Priority management

There are several ways to favour high priority payments:

- Be able to dedicate liquidity according to the various levels of priority:
  - Reservation can be done on an individual basis (through the use of a reservation number), and can be or cannot be complemented with available liquidity
  - Reservation can be done just according to the level of priority

- Automatically put on hold normal and/or urgent payments

- Blocking settlement of lower priority levels

In which direction should we go?
Limit management

- Is there a need for T2 ‘bilateral limit’ functionality that enables to determine the payment amount (priority = normal) a participant is willing to pay to another participant without having received payments first?
- What about T2 ‘multilateral limit’ functionality taking into account that you can segregate liquidity for specific settlement activity?
Links management

Is there any need for links management (With, After, Before)? Not only for Ancillary Systems…
Partial settlement

Is there any need for partial settlement? For specific transactions? According to which rules?
Night time settlement

Is there any need for night time specific features?
1 Annex – TARGET2 Entry disposition