Technological opportunities

Consultation on the future of RTGS services

Information Session
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Agenda

Eurosystem Single Gateway (ESG)

- **Introduction**
- **AS-IS/TO-BE**
- **Services and Functionalities**

Enabling Factors

- **Migration of RTGS Services to ISO20022**
- **Independence vis-a-vis the Network Provider**
- **Enhanced Information Security/Cyber Resilience**

Eurosystem Single Gateway

- **Aim**
  - Fully modernized common market infrastructure service that multiple market infrastructures would use

- **Principles**
  - Single access service
  - Agnostic technical connectivity
  - Accessible via multiple networks
 - Common protocols, GUI, authentication mechanisms

Eurosystem Single Gateway

- **Expected benefits**

  - **Reduced running costs**
    - o Connectivity/Security components
  - **Lower project implementation costs**
    - o Same components re-used by new services
  - **Better user experience**
   - o Same connectivity platform for Eurosystem's services

The current landscape for T2
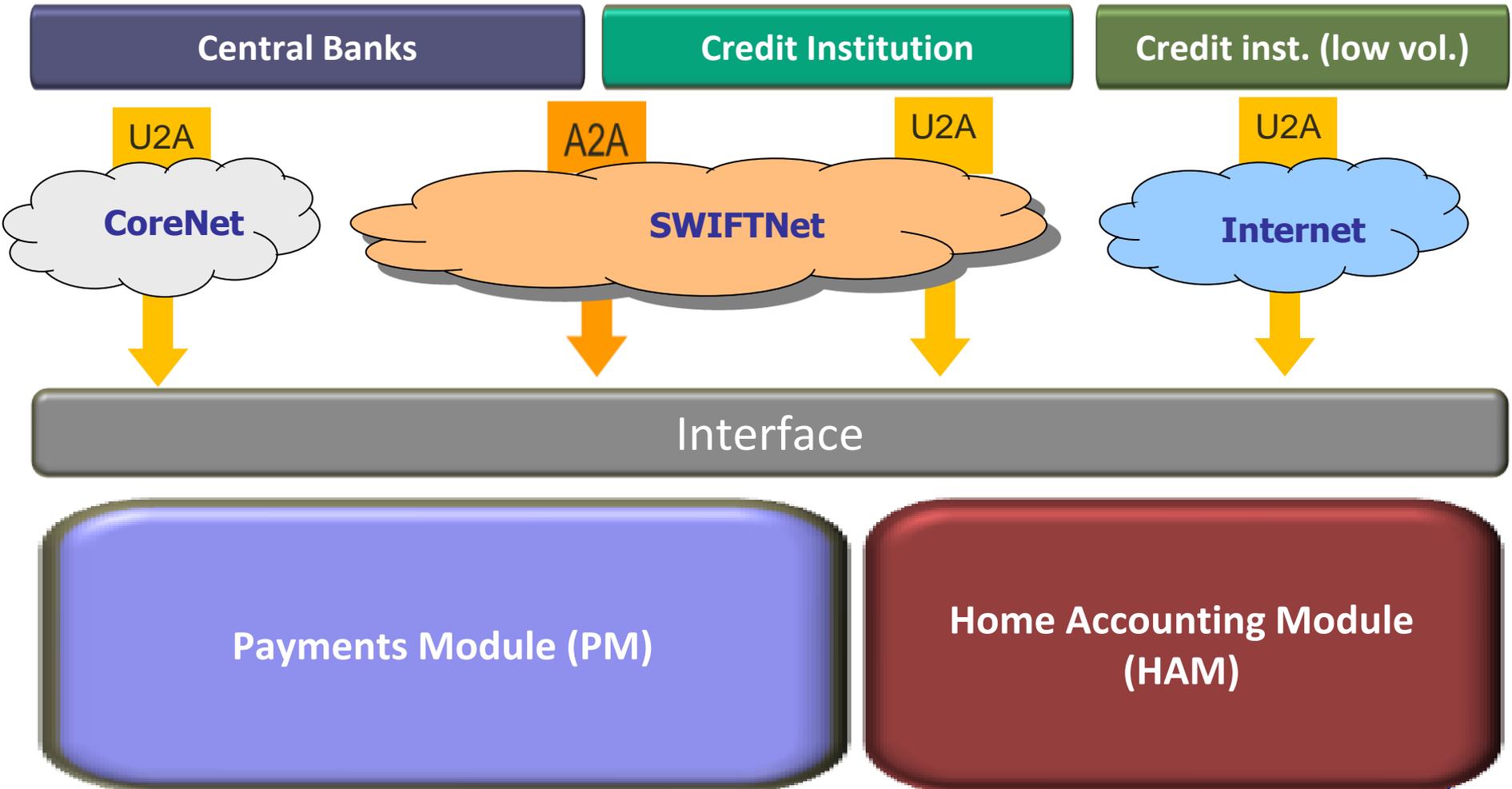
The current landscape for T2S
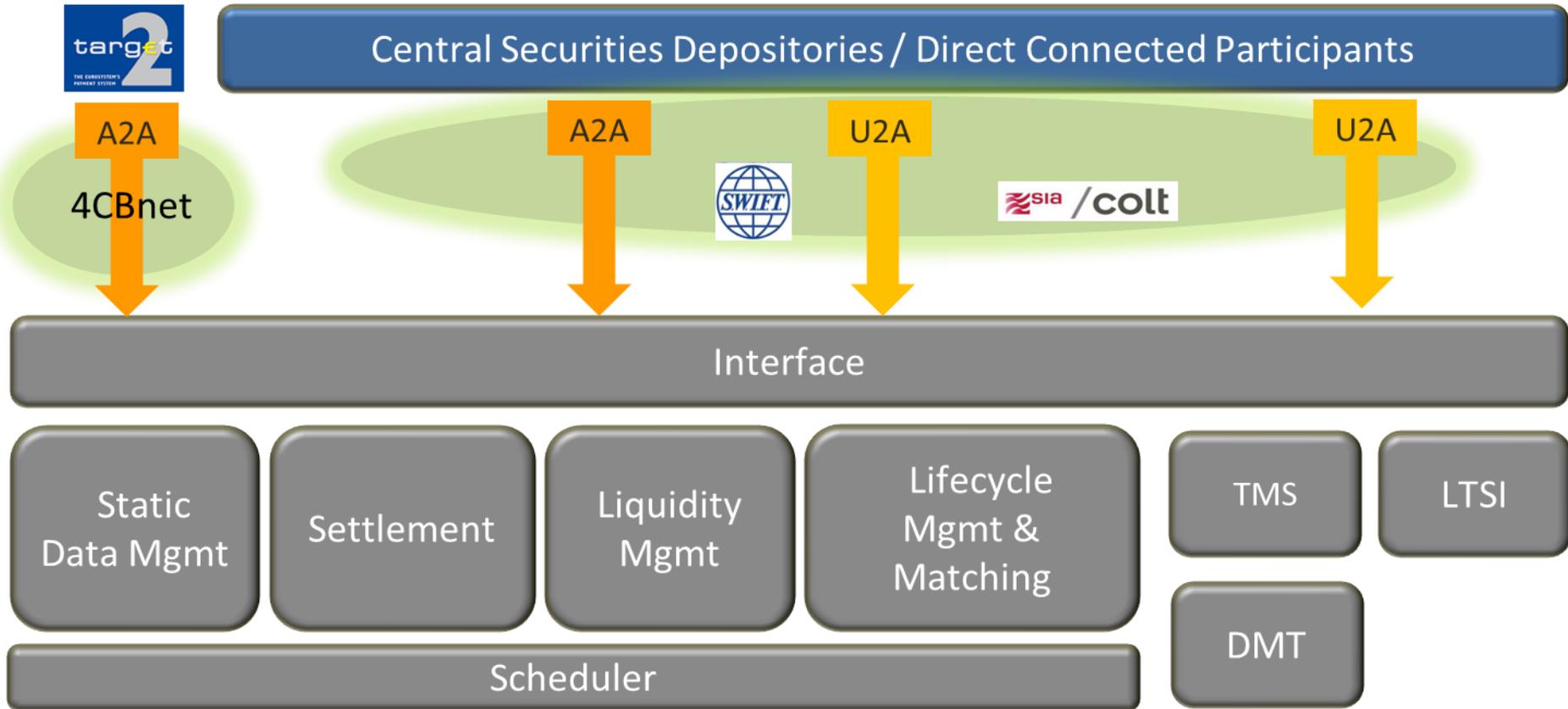
Eurosystem Single Gateway
General architecture

MIs Participants (T2,T2S…): CBs, CSD, Banks,….

A2A   U2A   A2A   U2A   U2A

IDEP   *NSP 1*   *Https*   IDEP   *NSP 2*   *Https*   *Internet*   *Https*

Eurosystem Single Gateway

| Common Static Data Management | Identity & Access Management | SSP U2A Web Portal |

T2S   TARGET2   OTHERS MIs

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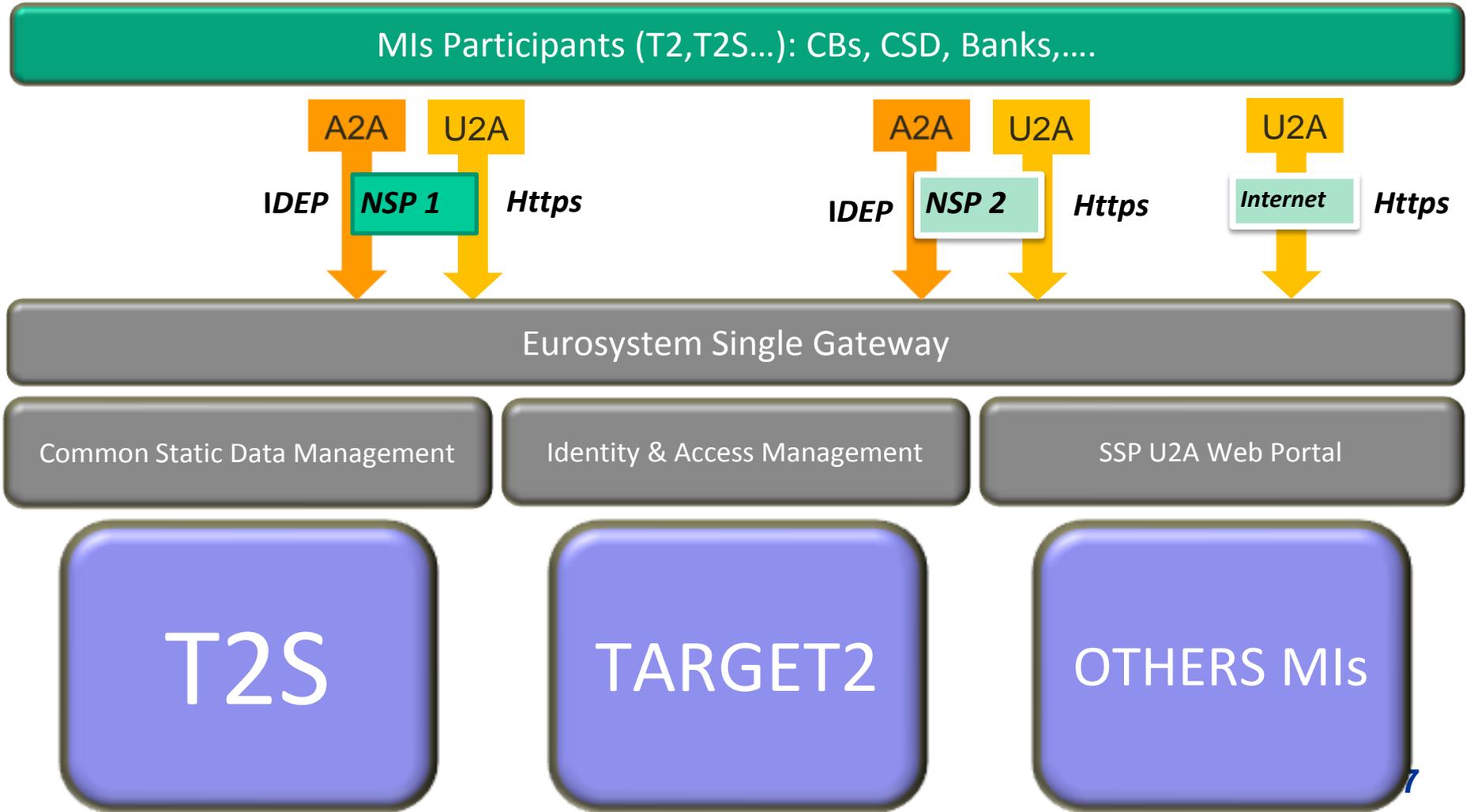
Connectivity Services

- **Provided by a selected number of Network Service Providers (NSPs)**

- **Each NSP will be able to…**
  - **Connect every market participant to Eurosystem Infrastructures**
  - **Support U2A and A2A store and forward and real time services**
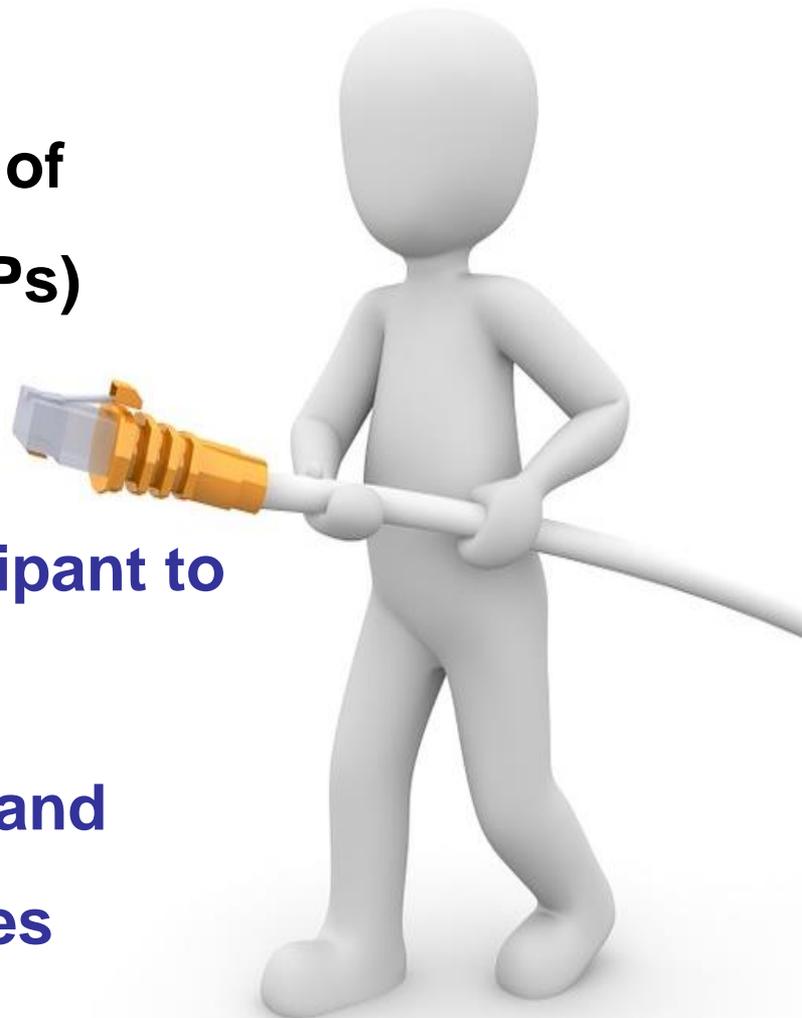
Connectivity Functionalities
(for A2A and U2A, when applicable)

- Submission notification

- Message/file duplication avoidance

- Push and pull

- PKI services

- Confidentiality

- Integrity

- Sender authentication and identification

- Closed User Group

- Access authorization control

- Non repudiation

- Message/file validation

- Business continuity/Rotation

- Network recovery

- Message/file retrieval

- Data compression

Other connectivity services

Eurosystem Single Gateway (ESG) would also be

capable of providing Internet connection

- **Developed for low volume participants (TARGET2 LVPs)**

- **Services:**

  - **Access to the ESG web portal**

  - **Security and authentication (via a PKI)**

  - **File download and upload**

The opportunity of maintaining Internet-based connection would have to be reassessed (cyber security requirements)

Protocols and standards

The ESG will support two communication protocols

Application to Application (A2A)

- **Message-based communication protocol**

- **XML format (ISO20022) for messages and files**

- **Transport protocol based on Data Exchange Protocol (DEP)**

  – **Developed for T2S**

  – **Only for communication between ESG and NSPs**

User to Application (U2A)

- **Based on standard HTTPS**

- **Connection between end-user's workstations and ESG web portal**

- **Authentication services via accredited PKI infrastructures**

- **Web applications (GUI) provided by MIs (accessible via ESG portal)**

- **GUIs harmonization (presentation/ usability) is welcomed (but not required)**

Security services

Critical Market Infrastructures needs …

…high level of security requirements!

- Authentication (Access control)
- Confidentiality (encryption, key management)
- Integrity
- Non-repudiation
- Auditability
- Security monitoring
- …

Security framework and certifications

Constraints and pre-requisites

- **Network services for T2/T2S - Currently 2 models:**
  - **TARGET2**
    - o **Outsourced to a single NSP (SWIFT)**
    - o **Not only connectivity (i.e. CUG, identification and authentication, standards, directory services)**
  - **T2S**
    - o **Outsourced to 2 NSPs (SIA/COLT and SWIFT)**
    - o **License agreement will expire on June 2022**

- **Development of a common gateway**
  - **To be used by the two MIs**
  - **New tender procedure required for new licenses**

- **XML format (based on ISO20022)**
  - **Required to access ESG services**
  - **Mandatory adoption in TARGET2 for migration to the ESG**

Migration to ISO20022 (opportunities)

- **ISO 20022 (messaging standard)**
    - **Becoming the preferred choice**
        - For Market Infrastructure around the world
        - …also for Payment Services
    - **Benefits of migration already assessed (acknowledged in various consultations with TARGET2 participants)**

"The consolidation of the infrastructures (Vision 2020 strategy scope) is the right moment for a fully-fledged implementation of ISO2002"

- **Technical topics to be addressed jointly with the market participants**
  - **Message versions**
  - **Release management**
  - **Solutions to keep some features of the Y-copy in the V-shape model**
  - **Usage of extensions (e.g. Business Application Header)**
  - **Addressing (e.g. BIC – Distinguish Name conversion, T&T BICs)**

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Independence vis-a-vis NSPs

- **TARGET2**
  - **heavily relying on specific/proprietary SWIFT's solutions (e.g. InterAct, FileAct, Y-Copy, RBAC roles)**
- **T2S**
  - **"Network provider agnostic" (i.e. does not rely on NSP's proprietary services)**
  - **Two Providers selected via public tender**
- **Vision 2020 Strategy**
  - **Consolidation of infrastructures**
  - **Right moment to allow TARGET2 to become network agnostic too**

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Independence - Benefits

- **Fiercer competition amongst network providers**

  – **service and/or cost benefits for end-users**

- **Increased overall resilience**

  – **Participants could use/choose any provider**

  – **Lower technical entry barrier for an eligible participant to directly participate in TARGET2**

Enhanced Information Security/Cyber Resilience – CPMI/IOSCO Key principles

- **Settlement finality not affected**

- **2 hours RTO**

- **End of day settlement**

A change of perspective

- **Same risks – New perspective**

- **From «what-if» to «what-when»**

- **Checklists vs Intelligence**

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New security challenges

- **Resilience by design**
  - **Comprehensive security testing**
  - **Golden copy of critical data**
  - **Layered protection**
  - **Security focused training**

- **Improved detection, response and recovery**
  - **Cyber threat intelligence**
  - **Security monitoring and analytics**
  - **Forensic readiness**
  - **CERT/SOC**

Questions?