

QUESTIONS RAISED DURING THE TECHNICAL DIALOGUE ON 26 OCTOBER 2010

Q 01: Will both sites in one T2S region host a production system or is one a backup to the other?

The active T2S production processing system will be hosted only by the primary site in one region. Nevertheless, from the network point of view, for the time being, the Eurosystem does not exclude having connections to the two sites in the same region active and use them for more effective recovery and load balancing.

During normal operations, when the production system is hosted by one region the T2S testing environments are hosted by the second region. Consequently, network service providers will be requested to deliver production traffic to the active region and test traffic to the second region.

Q 02: Will load balancing for performance reasons happen between network service providers?

No, T2S will not request load balancing between different network service providers. It is not up to T2S to decide which one from the selected providers a market participant will choose for his connection to T2S.

However, T2S may require load balancing and optimising for each network service provider individually. For this purpose, T2S may require the utilisation of the connections to the primary and secondary site within one region for the production traffic. In other words, T2S does not exclude the configuration where two connections of the same network service provider - i.e. to the active site and to the standby site in one region - are used for delivering production traffic to T2S at the same time. Due to the fact that both sites are interconnected by an internal dedicated network (using fiber optic links), from the perspective of the network service provider it is the same as having two active links to the primary site and there should be no extra intelligence which network service providers would need to implement to differentiate between those two sites.

Q 03: Which authority will become a Certification Authority (CA) for T2S?

T2S will ask network service providers to deliver Public Key Infrastructure services. Directly connected T2S actors will use keys/certificates from the certification authorities chosen by the network service providers.

Q 04: What is the level of encryption – key length – T2S considers?

The end-to-end encryption is not foreseen. The encryption is foreseen between the T2S platform and network service providers. The encryption is foreseen on the network level and it is up to network service providers to implement it.

The encryption between network service providers and their directly connected T2S actors is left for the agreement between each individual network service provider and its customers.

Q 05: Can the Data Exchange Protocol (DEP) be a Giovannini envelope?

The Eurosystem does not intend to adopt to the Giovannini Envelope.

Q 06: Will network service providers be requested to return a negative acknowledgement to a sender in the event of unsuccessful validation of the technical envelope?

Yes, the negative acknowledgement is foreseen for a number of situations and one of them is the case of a wrongly formatted technical envelope. In principle, network service providers are requested to return the negative acknowledgement to T2S when they are not able to deliver messages or files to the respective receiver.

Q 07: Are network service providers expected to validate the payload?

The network service providers are not expected to validate the business payload for the communication with the T2S platform. However, network service providers are free to offer this kind of service to their customers if required.

Q 08: How will T2S deal with receivers, senders and multiple Distinguish Names (DN) as directly connected T2S actors are allowed to use multi network service providers and in consequence multiple Certification Authorities (CA) to communicate with the T2S platform?

For the inbound communication directly connected T2S actors will be able to define multiple technical addresses, in their reference data, from which they will send messages to T2S.

For the outbound communication T2S will use different technical addresses depending on the mode of communication. For the real-time request-response communication T2S will always send the response to the technical address from which the request has been received. For the store and forward communication T2S will use its reference data to determine the technical address and the network service to be used for

the communication. There are certain limitations to this conditional routing. For more information please consider the GFS published on the T2S web site.

Q 09: Would there be a separate legal agreement between the Eurosystem and a network services provider and between the network services provider and its individual customers for the non-repudiation service for the A2A communication mode?

The Eurosystem certainly foresees comprehensive contracts with CSDs, CBs and network service providers for T2S, which will cover such matters. Please refer to the Selection Acts for the network service providers (License Agreement and its attachments) for further details on this matter.

Q 10: Will network service providers need to deal with non-repudiation for U2A communications?

The U2A communication is end-to-end and the network service provider is only expected to transmit data. Consequently, network service providers will not be directly involved in the non-repudiation, with the exception that the PKI service enabling the non-repudiation shall be delivered by network service providers.

Q 11: How will T2S ensure that relevant non-repudiation evidence related to the communication exchange between T2S and Directly Connected Party (DCP) are available to the relevant CSD which is legally responsible for that DCP?

Indeed, the CSD is legally responsible for its DCP(s) and may require non-repudiation evidence in case of a dispute with one of its DCPs.

The Eurosystem will provide the CSDs with evidence of the non-repudiation of origin related to the communication with their DCPs upon request and on a case-by-case basis.

The network service providers shall provide CSDs with evidence of the non-repudiation of receipt related to the communication with the CSD's DCPs based on the legal agreement this CSD will have with the NSP.

Q 12: Is it necessary for a CSD to enter into a contractual agreement with every network service provider?

The Eurosystem does not oblige CSDs, CBs and DCPs to enter into a contractual relationship with all network service providers. However, CSD(s) and CB(s) are free to enter into contractual relationship with more than one network service provider.

The network service providers will be obliged to report to the directly connected T2S actors on the SLAs they will have with them. The CSDs and CBs should be able to get this information from their (directly

connected) clients. In addition, the Eurosystem will closely monitor the performance of the network service providers for their connection to the T2S platform.

Q 13: Where will the non-repudiation evidence be stored?

The non-repudiation of origin happens on the business level – payload level between T2S and the directly connected T2S actors - and network service providers do not need to store this information. However, the network service provider is not prevented from offering this kind of service to the directly connected T2S actors.

The non-repudiation of receipt happens on the technical level, i.e. the DEP envelope level between T2S and the network service providers. In this case, the network service providers shall store the evidence of the non-repudiation of receipt and propagate it to their clients if requested.

Q 14: Is T2S applying a door-to-door security model?

The non-repudiation (of origin only) is end-to-end between T2S and its directly connected T2S actors with the PKI service delivered by the network service providers. However, additional non-repudiation between the directly connected T2S actors and their network service provider is not excluded.

The network service provider is requested to outsource or become a Certification Authority and certify the public keys of its directly connected T2S actors and T2S.

Q 15: Will CSDs have access to or get the end-to-end non-repudiable evidence for the communication between their directly connected parties and T2S?

The Eurosystem will provide the CSDs with evidence of the non-repudiation of origin related to the communication with their DCPs upon request and on a case-by-case basis.

The network service providers shall provide CSDs with evidence of the non-repudiation of receipt related to the communication with the CSD's DCPs based on the legal agreement this CSD will have with the NSP.

Q 16: Which T2S messages would require non-repudiation?

Please refer to the Selection Acts for the network service providers (in particular the License Agreement and its attachments) for further details on this matter.

Q 17: Is a special XML acknowledgement (ACK/NACK) foreseen between the T2S and the network service provider?

The communication between T2S and network service providers is based on the technical protocol (DEP) both for messages and files. On this level the communication is based on MQSeries and the MQSeries reports will serve the purpose of the ACK(s) and NACK(s).

Please refer to the Selection Acts for the network service providers (in particular the License Agreement and its attachments) for further details on this matter.

Q 18: Does the maximum size of messages (32KB) and files (32MB) represent the compressed or uncompressed communication?

T2S expects that network service providers implement compression on the network level.

For the time being there are no plans to implement end-to-end compression, i.e. compression between T2S and the directly connected T2S actors. However, the implementation of compression on the application level at a later point in time is not excluded. There is a compression flag in the technical envelope foreseen in order to guarantee some flexibility for future possible use.

It is foreseen to decouple compression for the interface between T2S and network service providers from compression between the network service providers and their T2S directly connected actors. It means that the network service providers are free to agree with their directly connected T2S actors to implement compression.

Size limits for messages and files are only defined between T2S and network service providers because the interface between T2S and the network service providers is decoupled from the interface between directly connected T2S actors and the network service providers.

Q 19: What is the relationship between the number of business transactions the Eurosystem gave projections on, and the number of messages?

The Eurosystem is not in a position to give a precise answer to this question. Our estimations show an average of around 6 messages for one business transaction.

Q 20: Is it up to network service providers to provide separately message and file services to their directly connected T2S actors?

Yes, it is up to the network service provider to separately provide services for file transfer and message transfer. In general, it is up to T2S and the T2S directly connected actors to route traffic to the right service (channel) depending on the size defined by the Eurosystem. Additionally, network services providers may be asked to give messages a higher priority than files.

From the more technical point of view T2S will request network service providers to open minimum two MQSeries queues: one for message traffic and the other for file traffic.

T2S directly connected actors may have to deal with two entry points: one for messages and the other for files. However, it is not excluded that the network service providers will offer them a service which will concentrate message and file traffic into one point of entry.

Q 21: Is it not better to use the native MQSeries prioritisation mechanism and give directly connected T2S actors the possibility to define priorities on their own instead of having fixed prioritisation of messages over files?

The prioritisation of messages over files is defined only on the T2S side. How the network service providers will prioritise traffic on the side of directly connected T2S actors is for them to agree.

Q 22: Can a file contain messages for more than one sender receiver pair?

On the level of the DEP protocol there will be only one receiver and sender defined. However, a file will contain ISO20022 messages with Business Application Headers which will define sender and receiver on the business level for each individual message.

Q 23: Why is a minimum size imposed on files?

T2S would like to avoid having files with only one or a very limited number of small business payloads inside. It is correct that from the pure transport perspective it is irrelevant how big the file is, however, from a processing point of view it represents unnecessary overhead (resource usage).

Q 24: Is the real-time service a guaranteed delivery channel?

No. In case there is no answer within a certain time network service providers are requested to generate and send a time-out to the sender of the message.

Q 25: Is it possible to send more than one real-time request at one given time?

Yes. The sender does not need to wait for the completion of the previous exchange to send new messages or files. The technical header of each individual message and file contains a unique identifier and in case one of them is lost in transit network service providers must include inside the time-out message the identifier of the lost message or file.

Q 26: Will the ordering of the messages on the business side be constrained by the technical solution in any way?

From the technical point of view the business messages and files can come in any order.

On the business side the T2S application and the directly connected T2S actors' applications must be able to rebuild the order required for correct business processing by using the unique identifiers enclosed inside the business application header and the payload.

Q 27: Is the network service provider requested to keep files sent in A2A real-time pull mode on all its gateways (for the purpose of fail-over)?

The real-time pull mode is not available for the T2S user connectivity.

Q 28: How will directly connected T2S actors identify that files they are interested in are available for download via the A2A real-time pull mode and what shall the network service providers do in case a request is coming in, but the file is not available yet?

The real-time pull mode is not available for the T2S user connectivity.

Q 29: Will the file that is delivered via the A2A real-time pull mode have a retention period?

The real-time pull mode is not available for the T2S user connectivity.

Q 30: Shall a file that is delivered via the A2A real-time pull mode be available to all directly connected T2S actors or only to a specific subset?

The real-time pull mode is not available for the T2S user connectivity.

Q 31: If the file is only for one specific receiver what is the advantage for the receiver in being able to request it from the network service provider? Why can the network service provider not just deliver it?

The real-time pull mode is not available for the T2S user connectivity.

Q 32: Will the network service provider be offered flexibility to arrange communication with its directly connected T2S actors for the A2A real-time pull mode?

The real-time pull mode is not available for the T2S user connectivity.

Q 33: What is the expected business model for the T2S user connectivity? How the optional services will be evaluated from the financial perspective?

The network service providers will be asked to provide maximum prices for each service alongside its technical bid and in the event the network service provider technical bid is compliant with minimum requirements then the two network service providers with the lowest total cost will obtain a licence.

Please refer to the Selection Acts for the network service providers for further details on this matter.

Q 34: Is a delivery notification for the directly connected T2S actor foreseen?

The network service providers may offer this service to directly connected T2S actors as an optional one.

Q 35: Why is the store and forward service necessary for T2S?

There are two business cases. The first case concerns the request-response (queries) where there is no need for guarantee delivery (store and forward) and the second case concerns instructions and related status notifications which are legally binding and for which the delivery notification service is envisaged to be mandatory.

Q 36: Where is the change of liability point between a network service provider and its directly connected T2S actors?

It is up to the network service provider and its customers to define where the change of responsibility and liability point is located. Please refer to the Selection Acts for the network service providers (in particular the License Agreement and its attachments) for further details on this matter.

Q 37: How will the offers be evaluated as regards the optional services offered by the network service providers?

Please refer to the Selection Acts for the network service providers for further details on this matter.

Q 38: Is the access to the PKI service read-only?

Yes, it is a way to get information like certificates, revocation lists etc. Additionally, the network service providers will be requested to act as Certification Authorities.

Q 39: Will a directly connected T2S actor have a choice where to define the demarcation line for the change of responsibility between him and the network service provider?

It is up to the network service provider and its directly connected T2S actors to agree and define where the demarcation line between them is located. Please refer to the Selection Acts for the network service providers (in particular the License Agreement and its attachments) for further details on this matter.

Q 40: How many T2S actors will connect directly to the T2S platform via the licensed network service providers?

The Eurosystem is not in a position to precisely calculate the number of T2S actors connected via the network service providers.

Q 41: What will be the technical acceptance criteria for the evaluation of solutions prepared by the network service providers?

Please refer to the Selection Acts for the network service providers for further details on this matter.

Q 42: Will tender documentation specify precisely the volume characteristics for the peak hour, peak minute etc. for each of the communication modes?

The Eurosystem is not in a position to commit on any volume characteristics for the peak hour, peak minute etc. The actual volumes will depend very much on the way T2S actors will use the system. Consequently, network service providers will be asked to provide flexible and scalable solutions.

Q 43: How will fairness be guaranteed?

The network service providers will be asked to offer a possibility for excluding a directly connected T2S actor upon a request from the T2S operational team. In this way the T2S actor that is overloading the system can be excluded for a period of time. The Eurosystem intends to execute this possibility only in crisis situations.

Q 44: What kind of training will the Eurosystem expect from the network service providers?

The Eurosystem may ask network service providers for a training related mainly to day-to-day operations.