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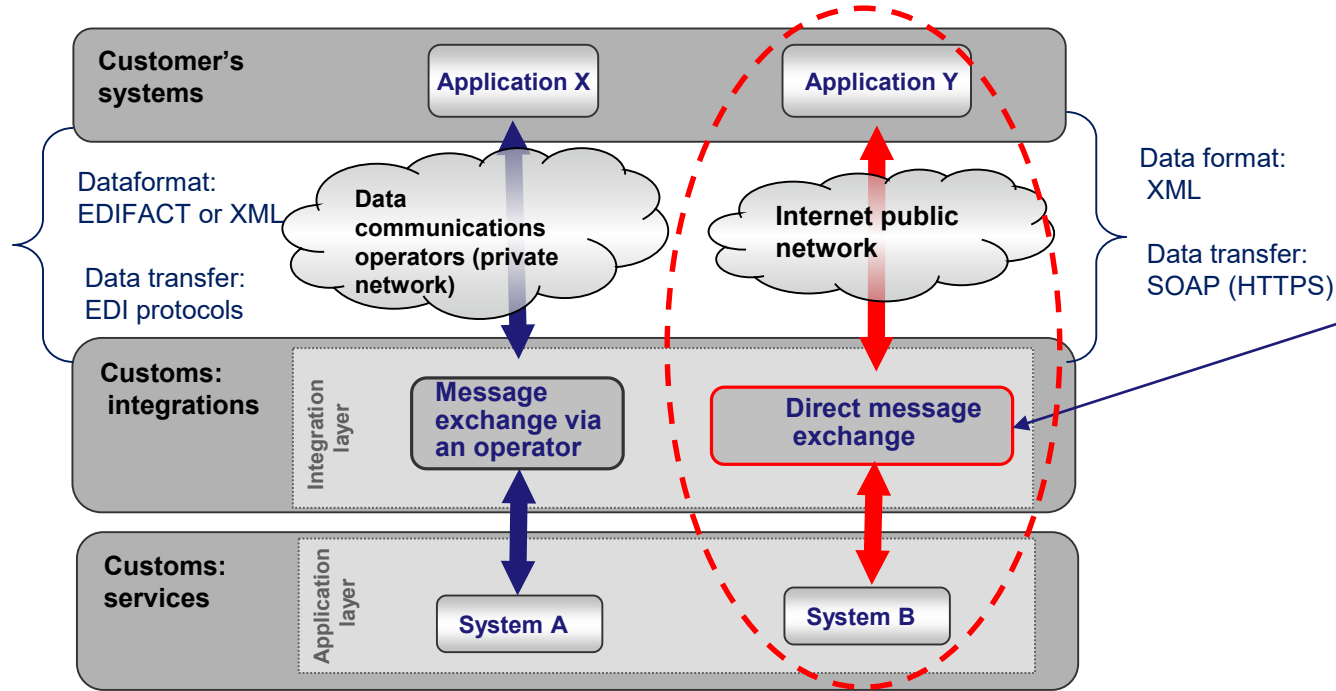
**Direct Message Exchange
(12.8.2019)**

What is Direct Message Exchange (E-Service)?

- Direct message exchange with Customs is based on general international standards, which provide a possibility of implementing integration between the data systems in a manner that complies with data security
- In direct message exchange, the data system of the company can send messages to the Customs systems over the Internet and retrieve response messages produced by Customs systems from the message storage
- Direct message exchange is used as a transport layer for different XML-based data contents.
- The data content (e.g. an export declaration addressed to the ELEX-system) is included in a general-purpose frame message, which is transmitted to the e-service (ES) of direct message exchange.
- The structure of an application message transported through direct message exchange with Customs (e.g. an ELEX export declaration) is identical with the structure of an application message in message exchange via an operator.

Data transmission

Message exchange between the customer and Customs happens to an ever-increasing extent in XML-format. Transmitting XML messages is also possible over the HTTPS/SOAP protocol as so called direct message exchange and for the time being also via operators.

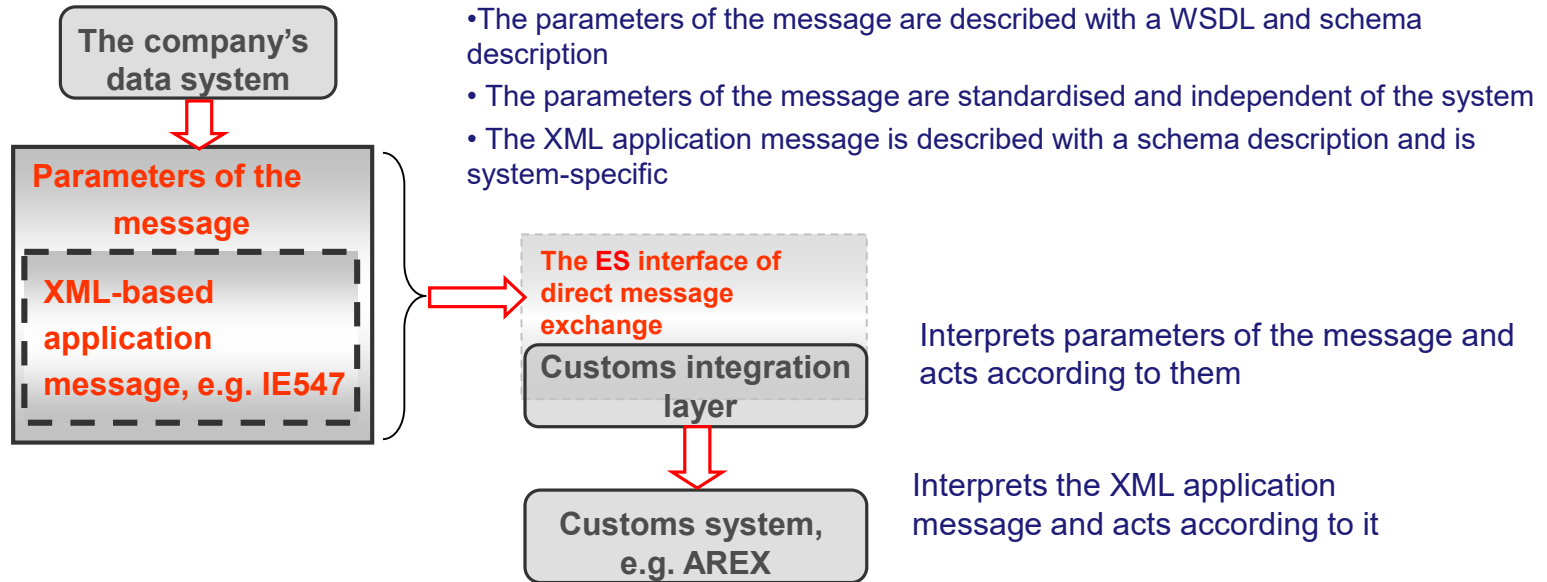


The connection is formed from the company's systems via a public network (the Internet). The connection is encrypted.

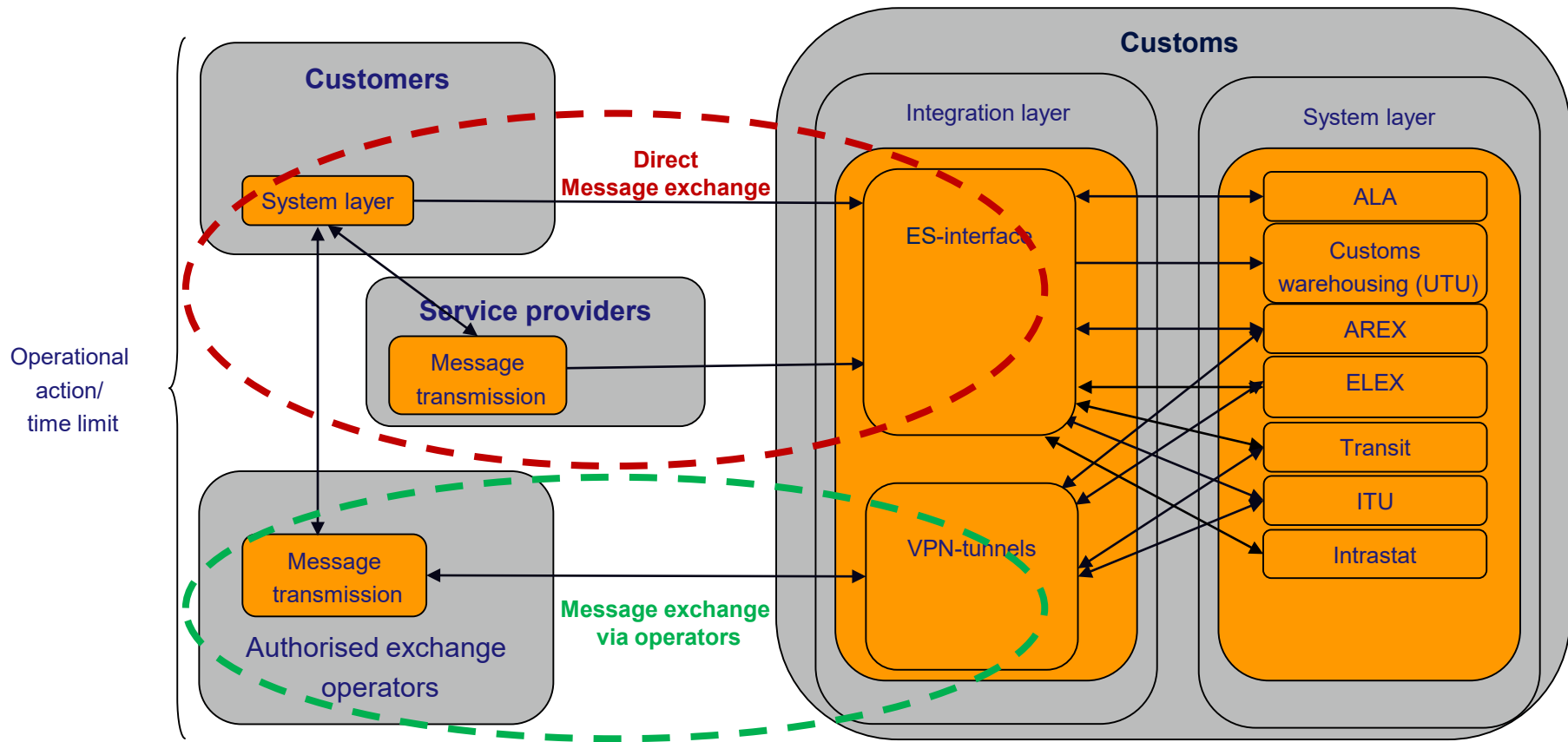
Direct message exchange offers: Access to a subset of the Customs services of message exchange based on E-Service (ES) technologies

Message transfer via the ES-based message interface

The customer of Customs connects to the E-Services (ES) interface, which has been established for customers.



Message exchange between Customs and customers



Direct message exchange is currently available in the following Customs systems:

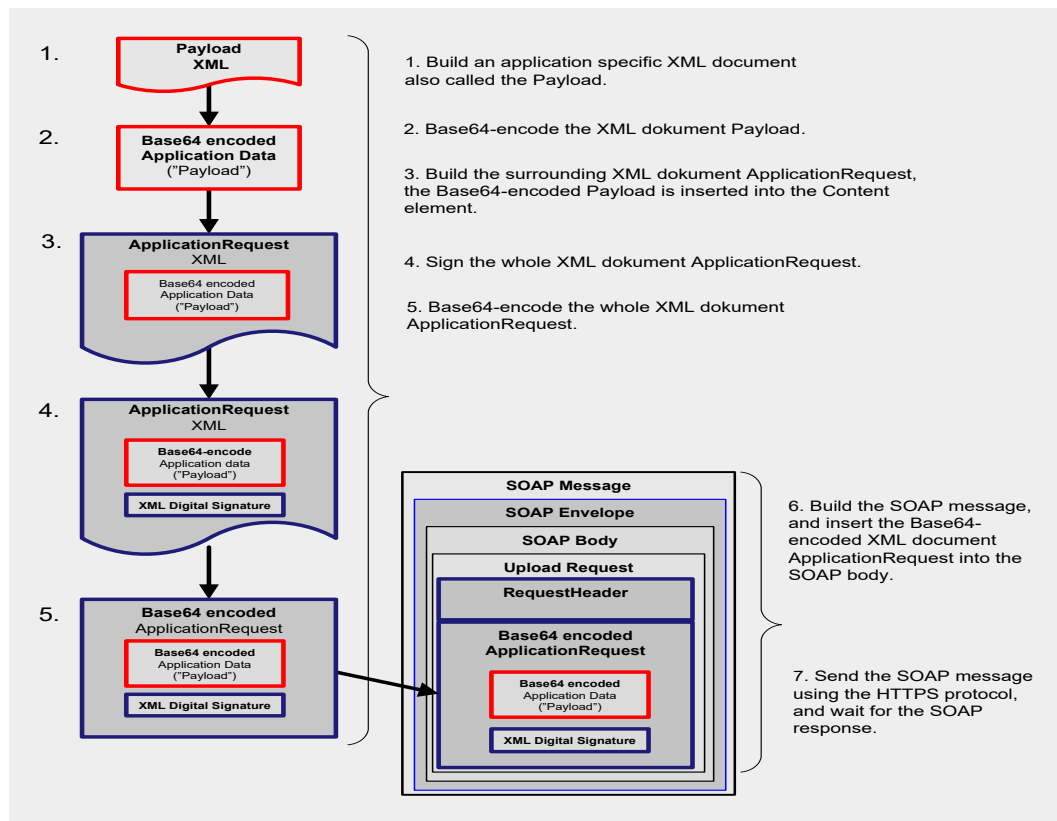
- UTU-system
 - Customs warehousing
- AREX Summary declaration system
- ELEX export system
 - export declarations
 - place of exit declarations
- Åland tax border system ALA
- ITU Import system
- Transit system
- Intrastat Intra-Community Trade Statistics

Operations enabled by direct message exchange

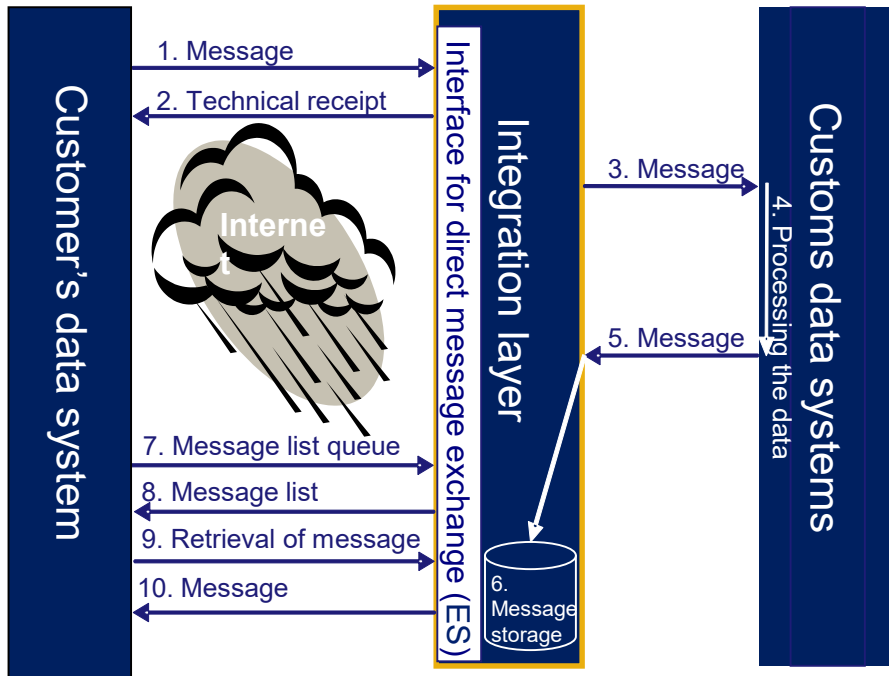
- Sending one data entity, a customs declaration for example, from the company to Customs systems
- Retrieving one data entity from Customs systems, e.g., a response to a Customs declaration sent earlier. Retrieving messages can be automated in the company's system.
- Producing a list with basic information of the company's response messages that are to be retrieved
- A notice to the company of delivered response messages, when the company uses the message exchange service
- Sending attachment files through direct message exchange
 - In the attachment message service, you can send the required declaration attachments. A company that acts as a software supplier implements this functionality in the software they sell or rent.

Building and transmitting the message

- An ApplicationRequest block is build around the actual application message. The signature of the builder covers it entirely
- The intermediary embeds this complete, signed message structure in a SOAP Envelope, which is the outermost element of the SOAP message
- The SOAP Envelope contains a SOAP Header and a SOAP Body, which both consist of different elements. The SOAP Body is mandatory.



Operations and process when not using the Message Notification Service



1. The data system of the customer builds and transmits the message to Customs e-service for direct message exchange.

Processing of the customers message at Customs:

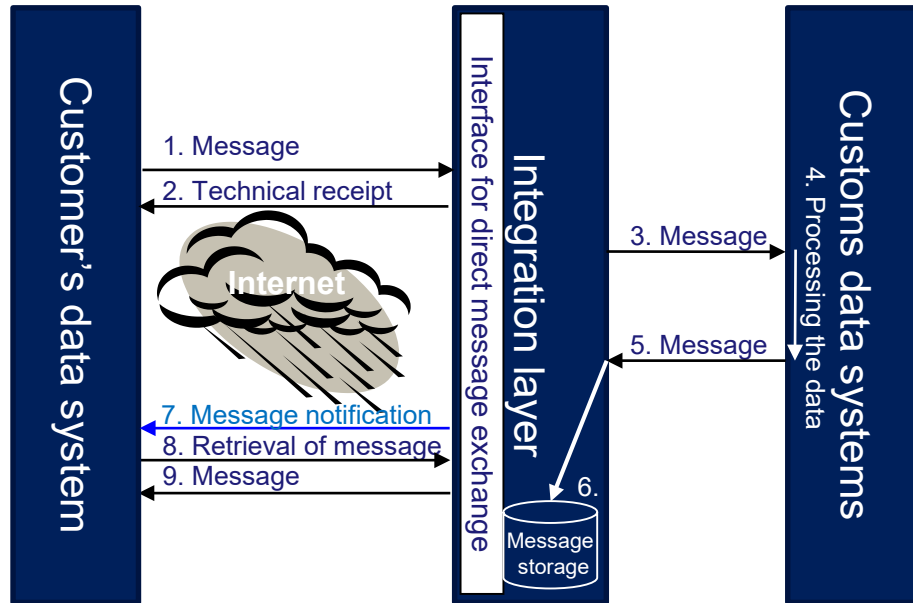
2. The integration layer of Customs reports the technical receipt of the message.
3. The Integration layer checks the message and routes it to the relevant Customs system.
4. The Customs system processes the data in the message and builds a response message.
5. The Customs system sends a response message to the Customs integration layer.
6. The message transmitted by the integration layer of Customs will not reach the customer directly. Instead, the message is recorded in the message storage. The customer must retrieve the response messages addressed to him or her from the message storage.

Retrieving messages from Customs addressed to the customer:

7. The data system of the customer requests a list of messages that are to be retrieved from the message storage.
8. As a response, the customer receives the message list.
9. The customer requests an individual message from the message storage.
10. The customer receives the requested message as a response. The customer repeats the two previous stages of operation for each message that is to be retrieved.

The customer is not allowed to request message lists too frequently, because it would overload the system. The limit is one message list request per customer in five minutes.

Direct message exchange process when using the Message Notification Service



Processing of the customers message at Customs:
No changes 1-6

7. The e-service for direct message exchange sends the customer a notification on a new message that is to be retrieved from the message storage. The customer receives a notification on a new message that is to be retrieved when the message has been stored. This requires that the customer uses the Message Notification Service.

Retrieval of the message by the customer:

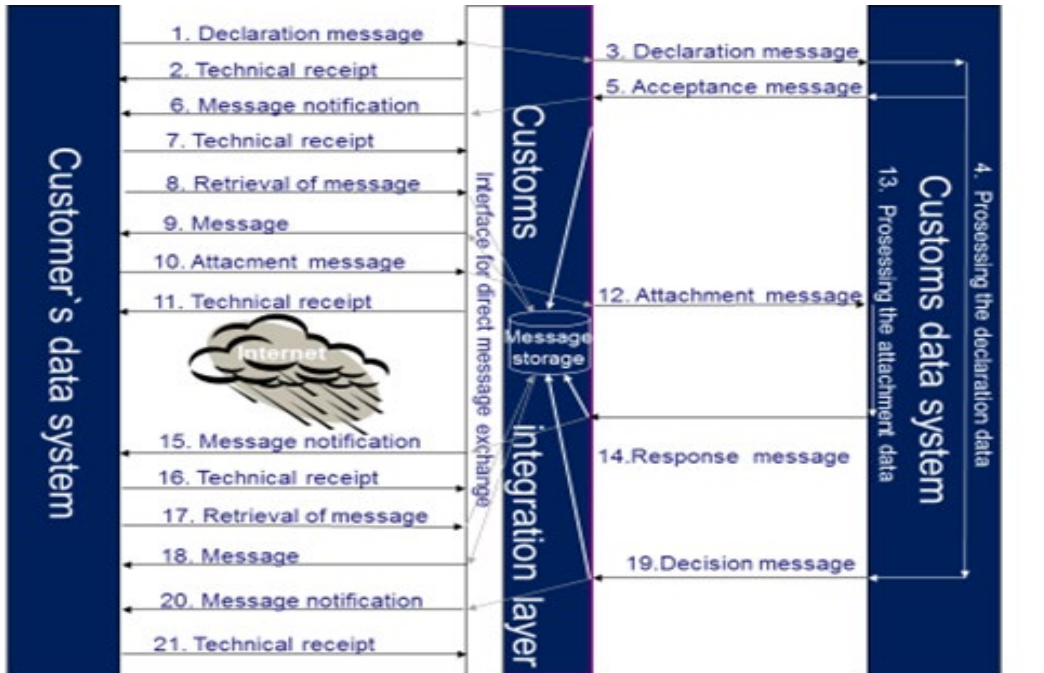
8. The customer reports the technical receipt of the message notification.
9. The customer retrieves an individual message from the message storage using the message ID.
10. The customer receives the requested message as a response.

- The customer receives a notification of a message waiting to be retrieved **as soon as** it has been stored.
- This requires that the customer uses the Message Notification Service.
- In case of disruptions, e.g. if message notifications cannot be successfully retrieved, the customer can send a DownloadList request as before

Process of direct message exchange when using the attachment message service

Processing of the customers message at Customs:

No changes 1-9



10. In the technical report of the message, the customer receives an individual uploading code from Customs. After receiving the acceptance message regarding the customs declaration, the customer sends the attachments one by one to Customs; providing the uploading code of the original declaration message.

11. The integration layer of Customs receives the message containing the attachment. If the customer's message is accepted, the integration layer of Customs reports the technical receipt of the message. A technical acknowledgement of receipt will end the customer's service request.

12. The integration layer of Customs transfers the attachment file with reference data to the Customs system for checking.

13. The integration layer of Customs checks the attachment file with reference data. Once the attachment file has been checked, a response messages is formed regarding the results.

14. The response message is transferred to the message storage of the integration layer of Customs.

15. The integration layer of Customs sends a notification to the customer on a new message to be retrieved

16. The customer's system sends a technical report to the message declaration

17. The customer's system sends a retrieval request regarding the response message

18. The customer's system receives the message. The customer's system should check the response message.

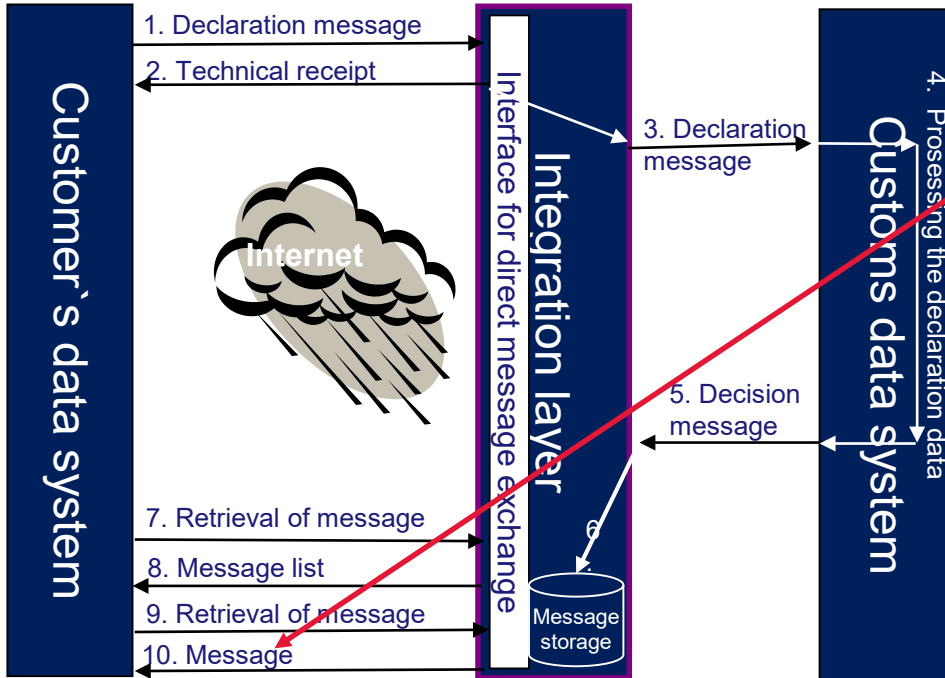
19. After checking the declaration message, the Customs' system generates a decision document related to the declaration message and transfers it to the message storage of the integration layer

20. The integration layer of Customs sends a notification to the customer on a new message to be retrieved

21. The customer's system sends a technical report to the message declaration

Retrieving decisions in old customs clearance systems

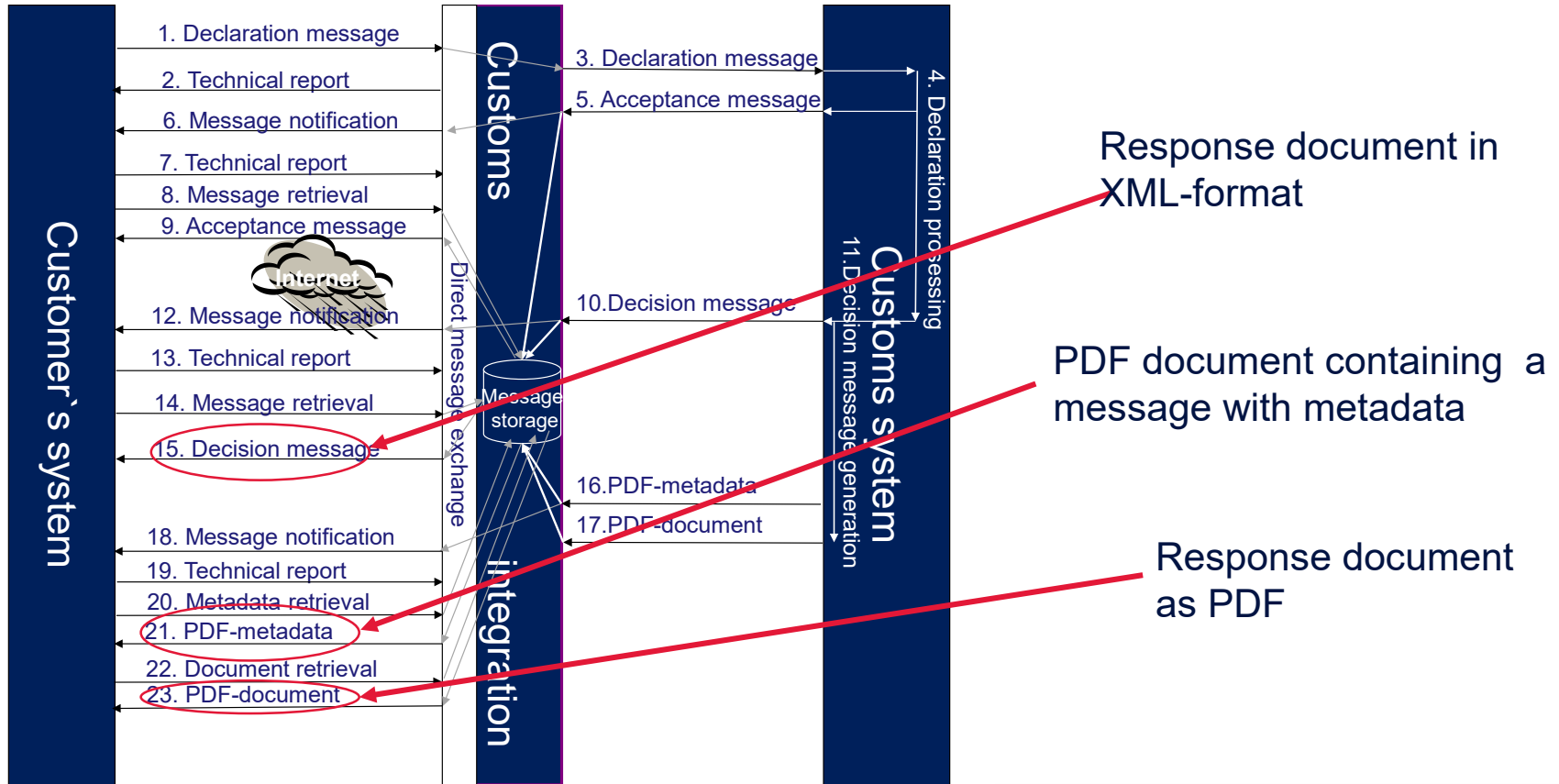
The customer receives decisions formed in the old customs clearance systems (Export, Import, Transit, Summary declaration service (AREX) in the same response message in both XML format and as PDF.



Documents in XML-format and as PDFs in the same response message

```
<vl:ApplicationResponse xmlns:vl="http://tulli.fi/schema/corpor
<vl:DeclarantBusinessId>FI3451031-6</vl:DeclarantBusinessId
<vl:Timestamp>2012-10-31T12:01:23.016+02:00</vl:Timestamp>
<vl:Application>ELEX</vl:Application>
<vl:ControlReference>77572910_77569</vl:ControlReference>
<vl:MessageStorageId>ELEX20121031100122F3E4F11</vl:MessageS
<vl:ApplicationResponseContent>
  <vll:Content>PD94bWwgdmVyc2l1b3J0iMS4wIiB1bmNvZGluZz0iVV
  <vll:ContentFormat>application/xml</vll:ContentFormat>
</vl:ApplicationResponseContent>
<vl:AttachmentOfApplicationResponseContent>
  <vll:Content>UEsDBBQACAAIACpgXOEAAAAAAAAAAAAAAAAAArAAAAM
  <vll:ContentFormat>application/zip</vll:ContentFormat>
</vl:AttachmentOfApplicationResponseContent>
</vl:ApplicationResponse>
```

Retrieving decisions from the UTU system



Direct message exchange requirements

The direct message exchange requires the following from the company:

- Connections (Internet connection) for transmitting messages
- A server certificate by the Population Register Centre (VRK) for building and transmitting messages (varmennemyynti@vrk.fi)
- Software with which the customer builds the right kind of application and frame message and is connected to the e-service of the Customs direct message exchange
 - Customs provides a complementary model implementation of the direct message exchange to the company's software implementer
- Application for message exchange authorisation and issued by Customs
- Functionality testing with Customs of the direct message exchange.

The roles in direct message exchange

- The technical roles are related to building and transmitting messages. The roles refer to the operators in a purely technical sense. The terms do not refer to the parties in the data content of the messages (e.g. transport company, representative).
- In direct message exchange, the technical roles must be the same regardless of the system being used. Therefore, it is not possible for a company to use a service provider e.g. for submitting messages through the ELEX export system, but for the company itself to submit messages through the AREX Summary declaration system.
- **Message builder**
 - A company, which data system builds the messages in a format specified by Customs and signs the messages with an XML-signature
 - The customer's service requests are transmitted to Customs by using HTTPS-connection and with the transmission frames required by the web service.
- **Intermediary**
 - A company which data system is in direct contact with the Customs direct message exchange e-service via the internet
 - The term Intermediary does not refer to the transmitter or the transporter of the goods.

Parties in direct message exchange (1)

Two different parties can utilise direct message exchange with Customs: **the message declarant** and, when used, **the service provider** of the message declarant.

Message declarant

- The party who has the responsibility to provide declaration data or similar data to Customs and who does this by using direct message exchange. Depending on the procedure, the message declarant can be a principal, a representative or other.
- The message declarant can act alone, then the company's data system provides an electronic XML-signature as well as **produces** and **transmits** the messages to Customs.
 - The message declarant must acquire and maintain the server certificate for direct message exchange.
 - The message declarants system retrieves the response messages from Customs direct message exchange e-service. If, for instance, it is a question of customs declarations, the Customs decisions are sent to the message declarant. If the message declarant is a representative, the decisions are sent to the principal of the message declarant
- The declarant can use a service provider for building and transmitting messages. In this instance, the message declarant does not produce messages that comply with Customs specifications for application-specific messages, but rather sends the data required for producing a message to the service provider in their own internal format. Therefore, the message declarants system cannot provide an XML-signature electronically to the message.

Parties in direct message exchange (2)

Service provider

- The party who can take over certain technical roles related to direct message exchange. The technical roles are related to message building and transmission.
- The service provider converts the messages into the proper electronic data format, builds the message declarant's commercial messages and gives them an XML-signature as well as transmits the messages to Customs direct message exchange e-service.
- The transmission also includes the retrieval of messages to the message declarant from Customs direct message exchange e-service.
- The service provider must acquire and maintain the service certificate. In this case, the customer company of the service provider does not have to acquire a server certificate.

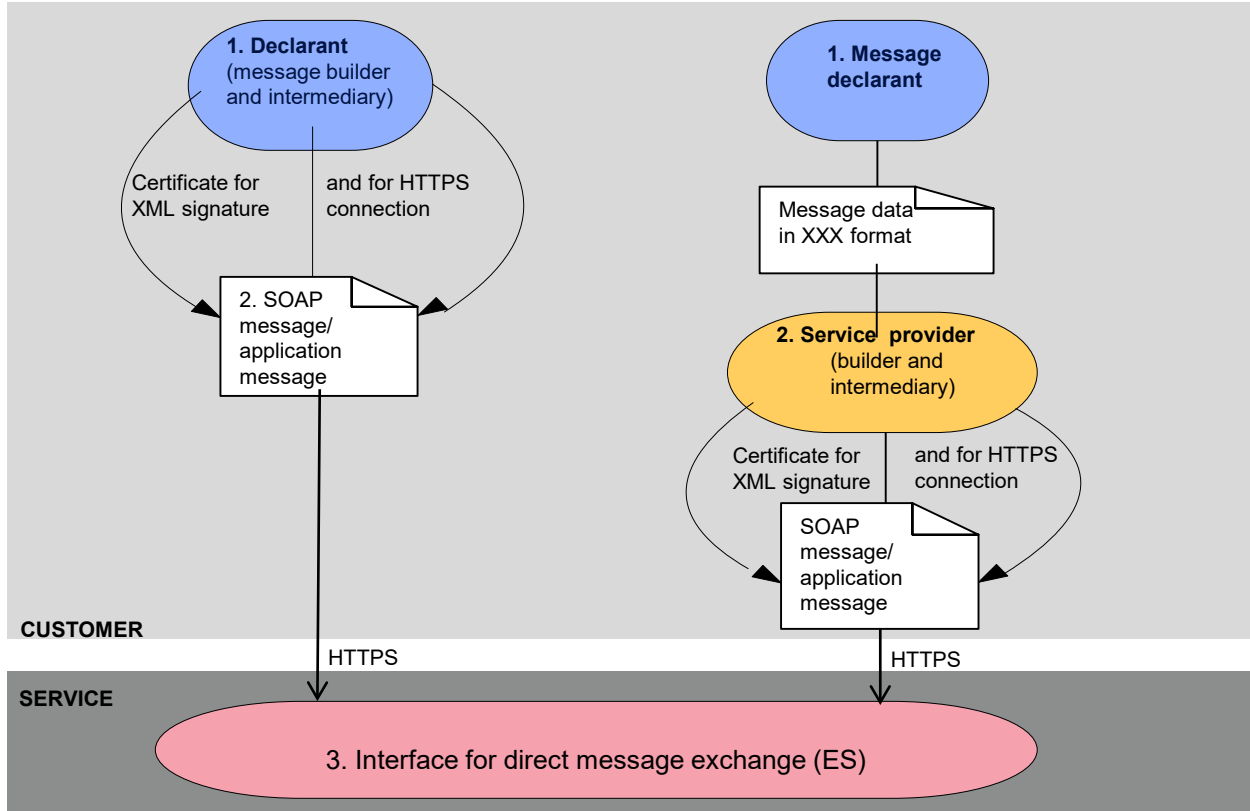
Parties and roles in direct message exchange

1. The software of the **message declarant** builds an application-specific message according to the specifications set by Customs, signs it and places the signed message in the data element according to the rules.

2. The software of the **message declarant** creates a SOAP message, into which the data element created in the previous phase is entered.

3. The software of the **message declarant** transmits the SOAP message to Customs web service for direct message exchange using the HTTPS protocol.

The software of the **message declarant** retrieves messages addressed to it from Customs' e-service for direct message exchange.



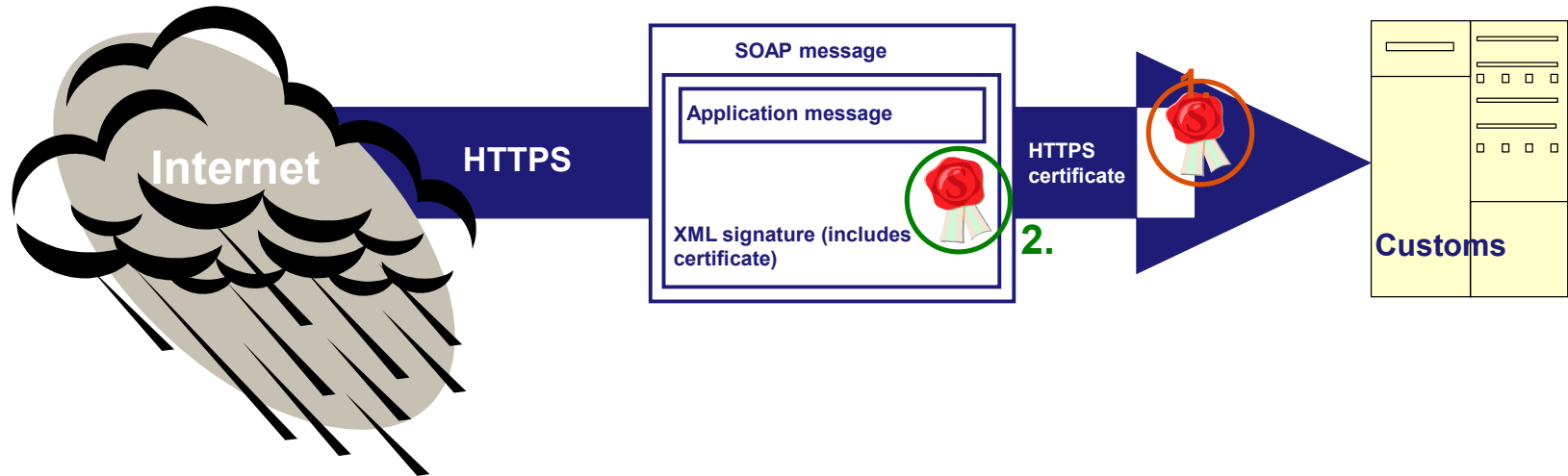
1. The message declarant provides the service provider with the data required for building the messages in its own internal format.

2. The software of the **service provider** converts the messages into an electronic data format, builds (and signs with an XML signature) the message declarant's application-specific messages according to the specifications set by Customs and transmits them to Customs e-service for direct message exchange.

3. The software of the **service provider** transmits the SOAP message to Customs e-service for direct message exchange using the HTTPS protocol.

The software of the **service provider** retrieves messages addressed to it from Customs' e-service for direct message exchange.

Authentication of the operators in direct message exchange



Server certificate (1)

End use:

- The Customs integration layer identifies the actors in direct message exchange with the help of server certificates.
- When forming a HTTPS connection to the e-service for direct message exchange, the customer (intermediary) is identified by the server certificate.
- When building a message, the message is signed with a server certificate, which is saved in the frame message around the application message. Data on the customer (builder) is transmitted to Customs.
- The customer can use the same certificate in the testing environment and in the production environment.

Server certificates accepted by Customs:

- Customs only accepts server certificates granted by the Population Register
- The certificate includes the possessor's EU VAT-number (in Finland the country code and business ID without a hyphen)
- Obtaining the certificate takes about five weekdays.

Server certificate (2)

Renewing of the server certificate:

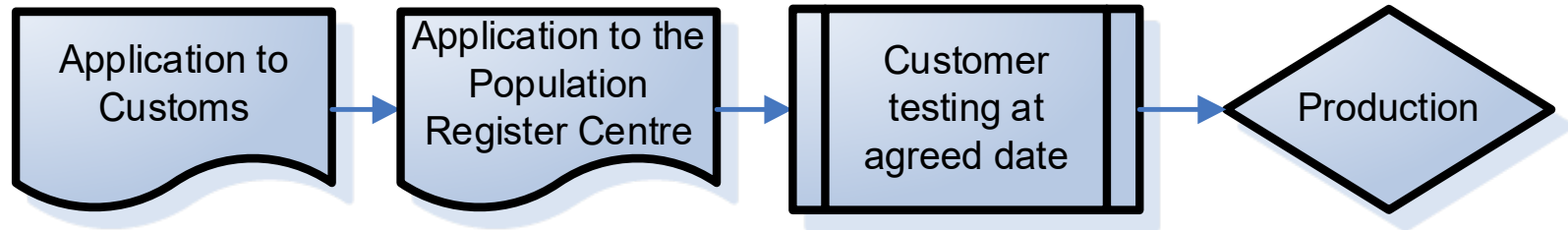
- The server certificate is valid for 2 years at a time. Messages cannot be sent to Customs with an expired certificate
- VRK reminds customers that the certificate is about to expire, but the customer is responsible for the actual renewal of the certificate.
- The company does not have to notify Customs of the renewal of the certificate.

Server certificates are required by:

- The message declarant when their IT system builds and transmits the message.
In that case only one server certificate is in use.
 - Only message declarants need a server certificate.
- The service provider, when the message declarant delivers the documentation needed for building the message to the service provider, who forms and XML-signs the message declarant's commercial messages and transmits them.
 - The service provider needs one server certificate, the message declarant none.

Server certificate (3)

- The company must first send the application for message exchange to Customs and then apply for a server certificate from VRK.



Applying for customer status

- Applications for message exchange:
- The service “Applying for a message exchange authorisation” in Customs’ online services. Through the service you can apply to become a direct message customer:
 - For customs warehousing
- With form no 943e ”Application for message exchange with Finnish Customs”. The application form and completion instructions are available on the Customs website. The application form can be used for applying for status as message declarant to the following systems:
 - Import system ITU
 - Export system ELEX
 - Transit system
 - Summary declaration system AREX
 - Excise taxation system EMCS
 - Åland Tax Border System ALA
 - Intrastat system for Intra-EU trade statistics

General information on applying

- A company that wishes to act as a direct message exchange declarant or a service provider has to apply for an authorisation.
- In the application process, the direct message declarant's and the possible service provider's applications are linked together in such a way that it is technically possible for the service provider to transmit messages on behalf of the message declarant
- If the company is both the direct message exchange declarant and the service provider, then several alternatives should be chosen, otherwise only one alternative should be chosen
- Both the message declarant and the service provider agree to adhere to the conditions of the authorisation mentioned in the authorisation application form. Customs is not liable for the quality of the service provided by the service provider chosen by the message declarant. Furthermore, using a service provider will not affect the message declarant's responsibilities in relation to Customs.

Company-specific consultation before testing

After processing the authorisation application the testing official for customer testing sends a letter to the company with a suggested time for testing and a suggested consultation free of charge.

- The consultation is arranged about two weeks before the testing either as a meeting, by email or by phone
- The Customs business adviser will contact the contact person in the application and arrange the time of the meeting
- The purpose of the consultation visit is to go through issues associated with the testing, such as measures related to direct message exchange e.g. acquiring the certificate, the flow of the testing phase and, if necessary, the declaration-specific principles of operation.

Customer testing

- Every direct message declarant and service provider has to go through the Customs customer testing:
- UTU-system, customs warehousing -> only the service provider tests
- Other declaration systems, e.g. ITU, AREX etc.
 - >the message declarant tests (builds and sends the messages)
 - >The service provider and the service provider's customers test

Customer tests to be carried out:

- Testing the functionality of the direct message exchange
- Declaration-specific testing per each system
 - The different tests are described in the guide "Introduction to message exchange with Finnish Customs" <https://tulli.fi/en/e-services/services/message-exchange>

Testing the functionality of the direct message exchange

- By testing the system you ensure that the company's software is compatible with the Customs Direct message exchange service
- Technical testing is always carried out before the actual testing with declaration-specific messages (e.g. export, import, customs warehousing) is carried out
- The technical testing of the connection for direct message exchange consists of three test cases (four if the customer starts using the Message Notification Service)
- The connection is working if the e-service of the direct message exchange reports the receipt of the message
- In addition, the company's system has to be able to retrieve the reply message from the Customs message storage
 - The content of the reply message (acceptance, rejection etc.) is not significant for the testing of the connection.
- **The testing of the connection is mandatory, unless the company is already using direct message exchange with a Customs system or uses an intermediary that has already carried out the technical testing of the connection.**

Authorisation for direct message exchange and beginning the production

- After the testing of the connectivity and the declaration-specific tests have been successfully completed, Customs will send the decision on authorisation to the company with the date when the declaration-specific direct messaging can begin (e.g. export, import, customs warehousing)
- As soon as the first production declaration has been sent, the company must report it to the Customs testing official for customer testing
- The testing official supervises the production of the first declarations.

Notification of changes in the company (1)

Both the company acting as direct message declarant and the company acting as service provider must notify of changes with a message exchange application, or in the service “Applying for a message exchange authorisation”

Changes in the company can for instance be:

- Changed business ID (a new application for authorisation required)
- Software changes (assessment regarding the need for re-testing)
- the company extends the use of message exchange to another Customs system

Notification of changes in the company (2)

- Changes in the server certificate
 - Further information on changes in the Server certificate is available from the Population Register Centre at: varmennemyynti@vrk.fi
- Changing the service provider
 - A new application must be lodged by the direct message exchange customer.
 - For liability reasons, it is important that Customs receives a written statement from the message declarant regarding the new service provider. That way, Customs has an assurance that the message declarant actually has authorised another company (service provider) to act on their behalf
 - Only one operator at a time can transfer the message declarant's messages (send and fetch), either the declarant himself or one service provider. Changing intermediary must be arranged in such a way that the message declarant + the former intermediary (if applicable) and the new service provider know when the changes come into effect.

Additional information on direct message exchange can be found in the Customs guidebooks on the Internet:

- Message exchange with Finnish Customs: Introduction to message exchange with Finnish Customs
- Message exchange with Finnish Customs: Direct message exchange technical guidebook

Address: <http://tulli.fi/en/e-services/services/message-exchange>