

Specification nexo - Part 3

nexo protocols

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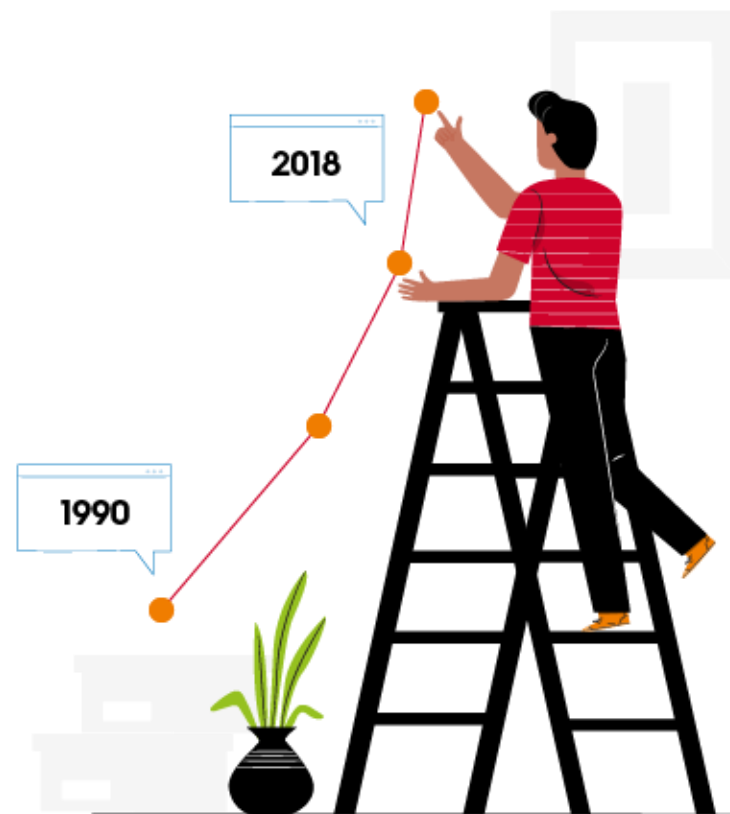
REF: 3 - NEXO-PROTOCOLS – V1.03.PPTX

Passion for payments



Summary

- 01 nexo terminal management protocol
- 02 nexo acquirer protocol
- 03 nexo retailer protocol

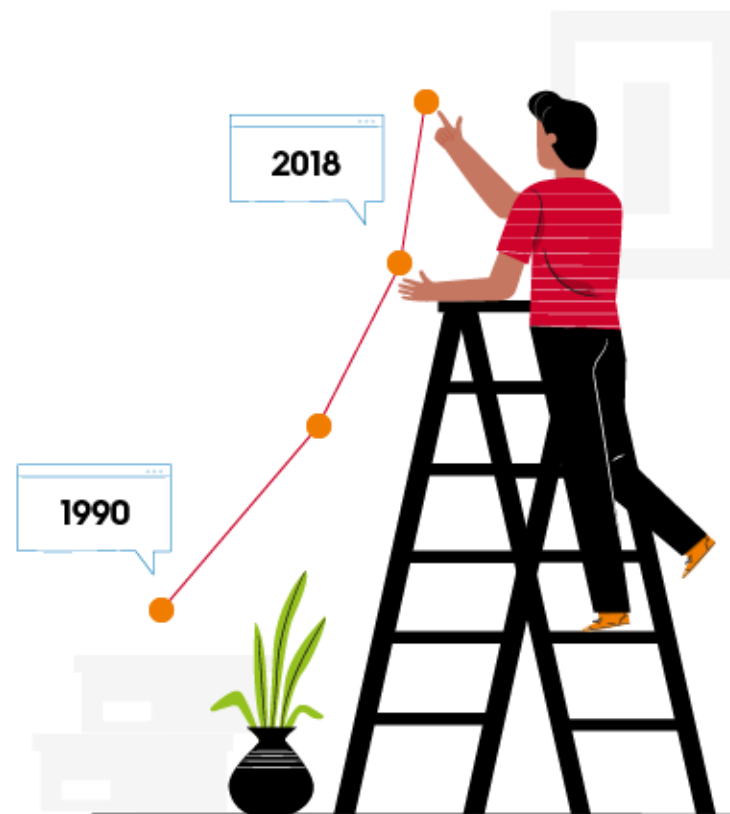


Summary

01 **nexo terminal management protocol**

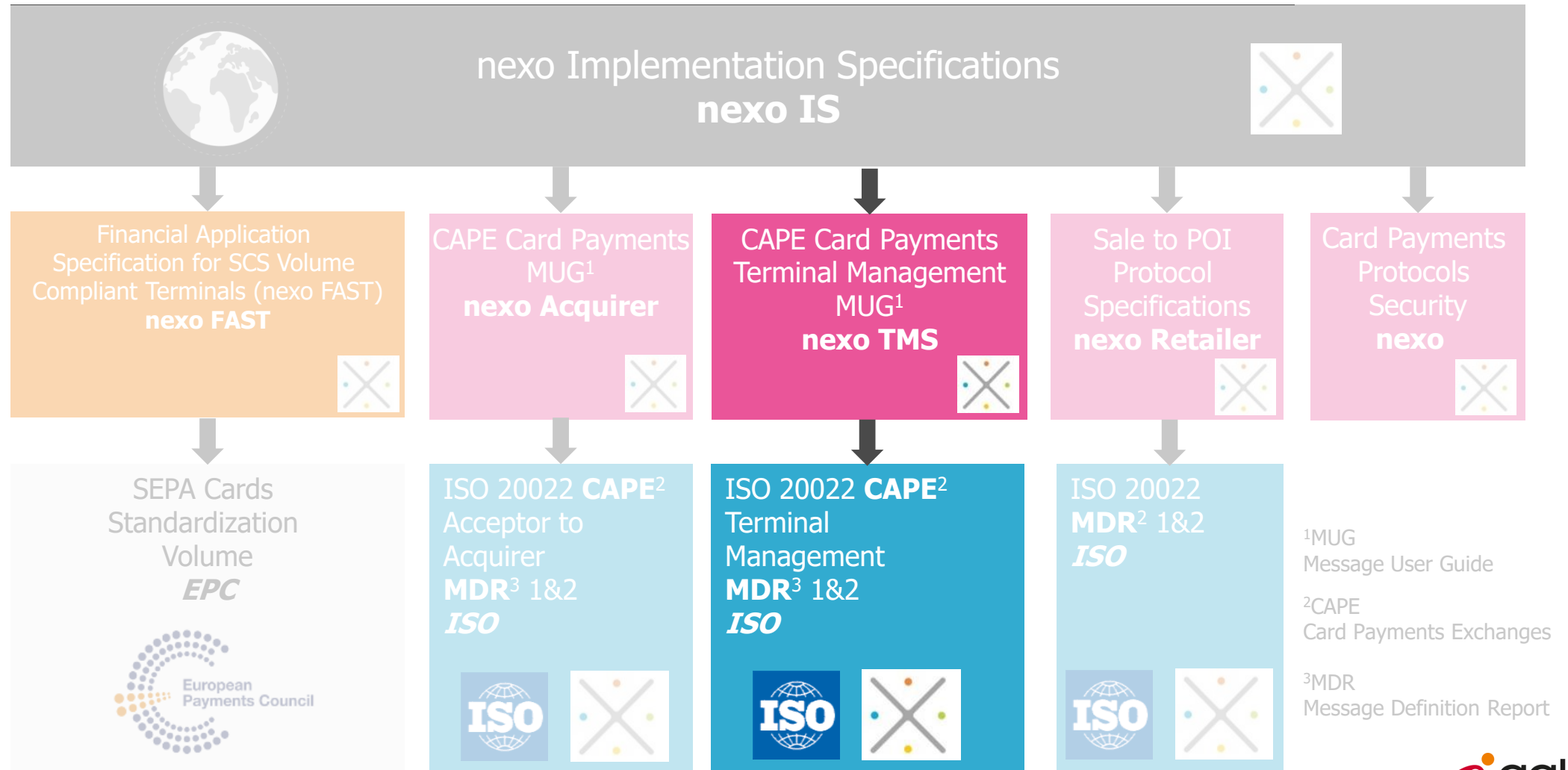
02 **nexo acquirer protocol**

03 **nexo retailer protocol**



nexo terminal management protocol

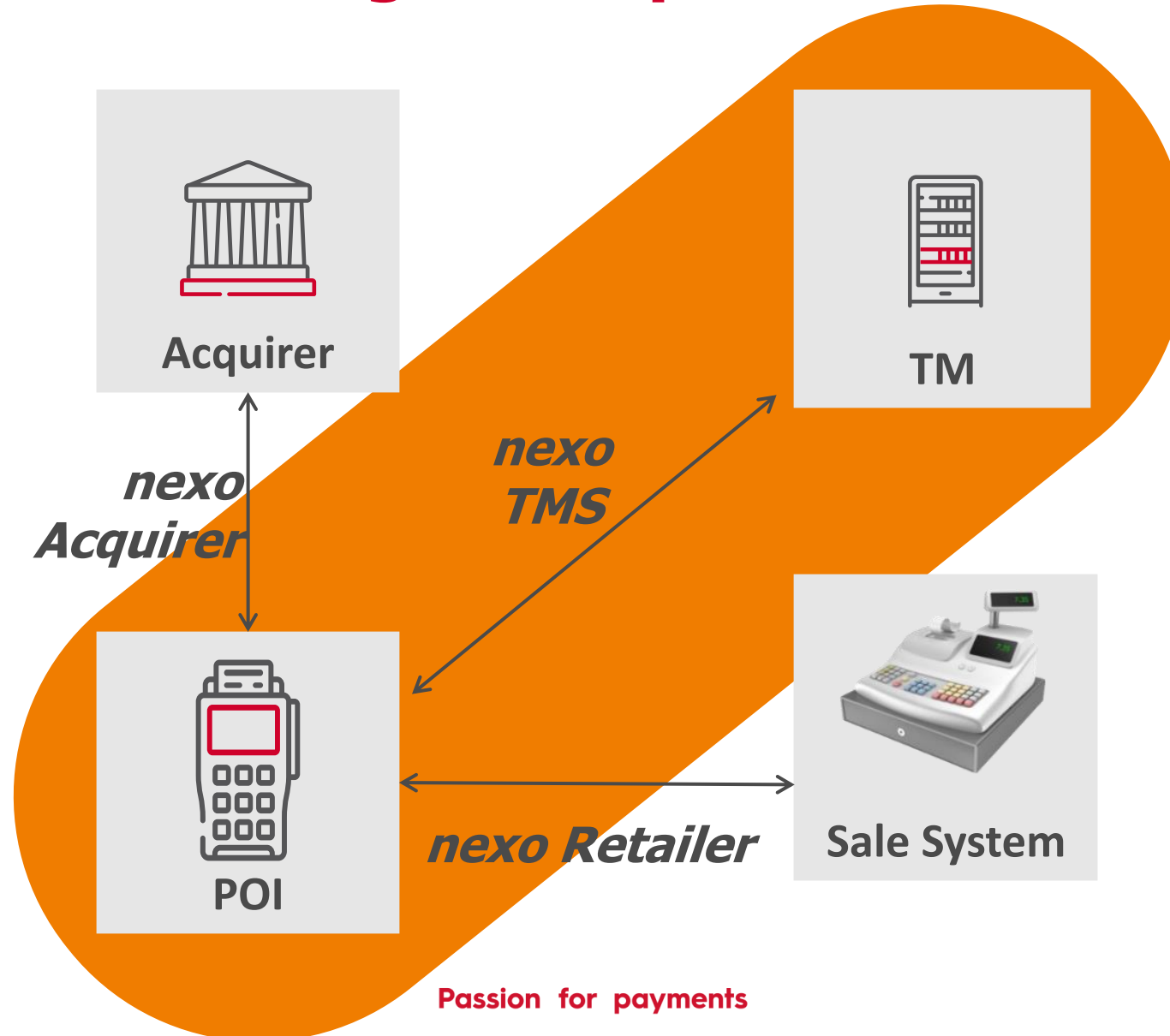
Reference documents



Passion for payments

nexo terminal management protocol

Scope



nexo terminal management protocol

Scope



The Terminal Management System Protocol offers a standardized solution based on ISO 20022 (CAPE Terminal Management) for exchanges related to terminal management



— Objective

- └ Manage and control remote POI configuration
- └ Update application data including security data (cryptographic keys ...)



— Scope

- └ Specify the exchange protocols between TMS and POI for data transport
- └ Application and system downloads are out of scope as well as remote setting of system parameters

nexo terminal management protocol

Scope

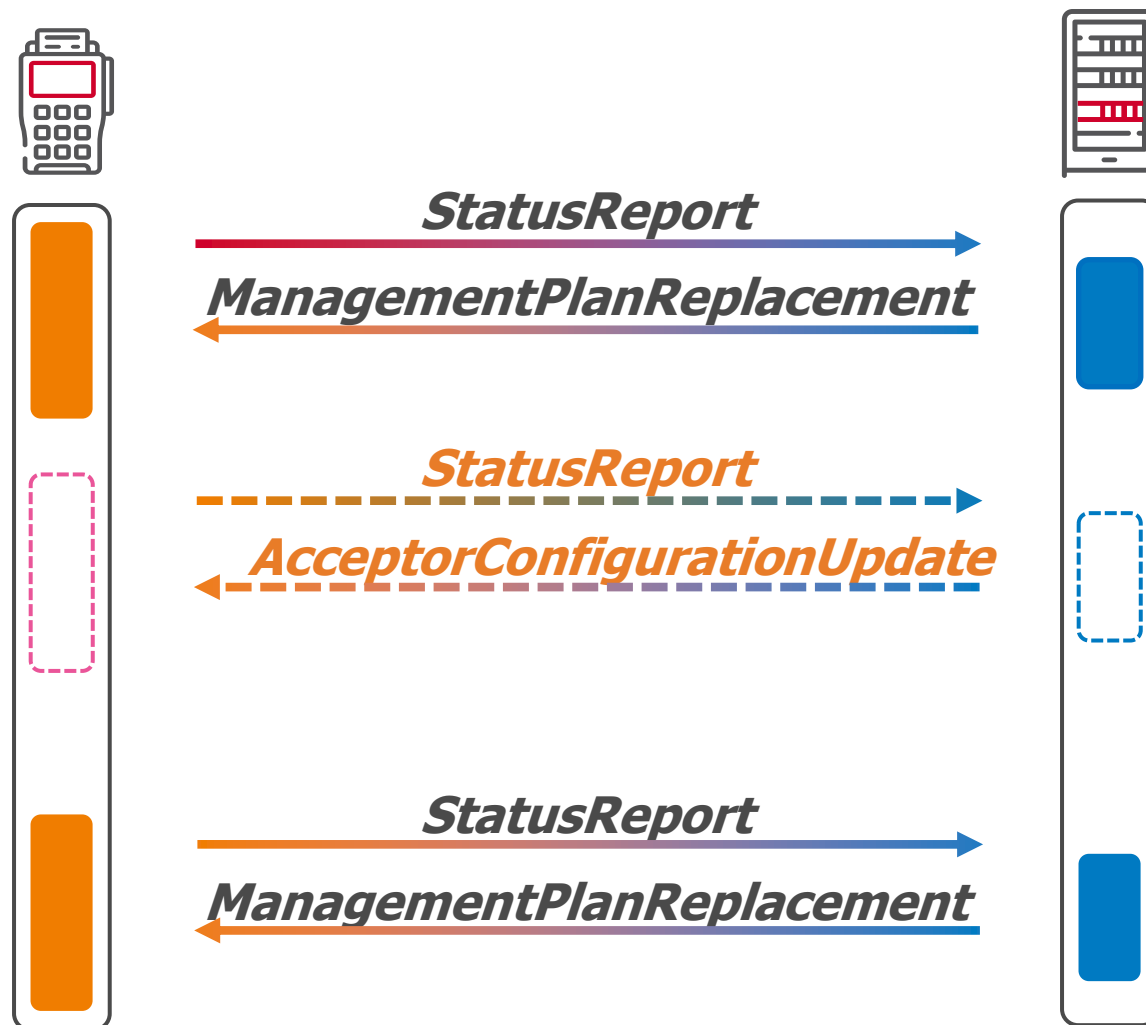
— Messages covered

- └ *StatusReport*
- └ *ManagementPlanReplacement*
- └ *AcceptorConfigurationUpdate*
- └ *TerminalManagementRejection*
- └ *MaintenanceDelegation*
- └ *CertificateManagementRequest*



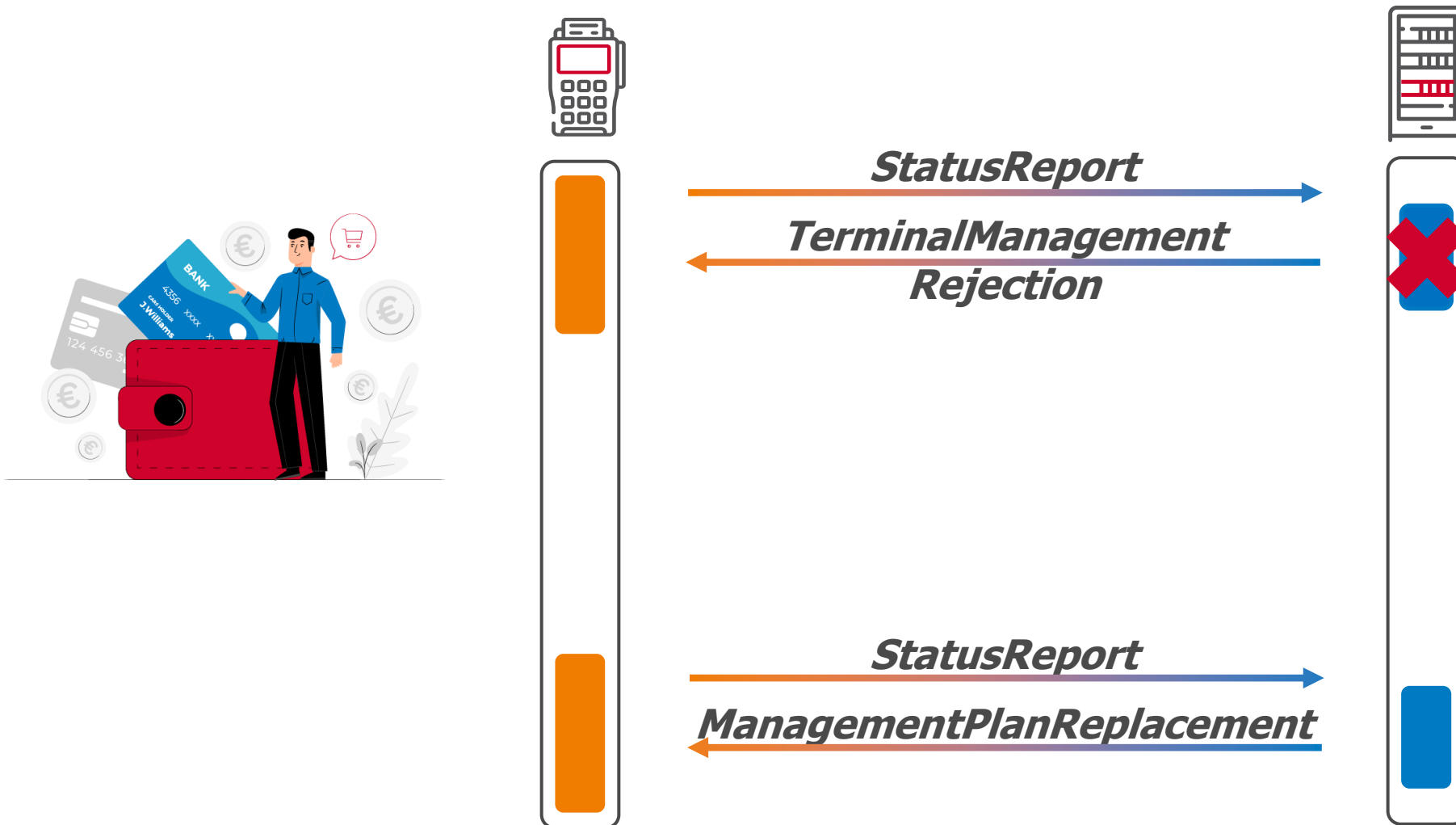
nexo terminal management protocol

Exchange – POI / TMS



nexo terminal management protocol

Exchange – POI / TMS



nexo terminal management protocol

Exchange – POI / TMS



— **Functional status request– StatusReport**

- └ POI → Terminal Manager (TM)
- └ Sends the status of the Acceptance System to TM (Parameter Version, POI Components)
- └ Trigger: Manual, planned, or at the request of a Host (TM or Acquirer)



— **POI Maintenance Plan – ManagementPlanReplacement**

- └ Terminal Manager → POI
- └ Indicates the list of actions to be done by the POI (Download, upload, delete parameters, reboot)
- └ One by TM



— **Download the POI configuration– AcceptorConfigurationUpdate**

- └ Terminal Manager → POI
- └ Sending configuration tables to the Acceptance System (in one message)
 - Host Communication Parameters: Host connection data (Acquirer, TM) and Id of associated DUKPT keys
 - Acquirer Protocol Parameters: Supported Messages, Capture Mode, Message Delivery Conditions
 - Application Parameters: Application data - Out of scope nexo TMS - Described in NIS



— **Reject – TerminalManagementRejection**

- └ Terminal Manager → POI

nexo terminal management protocol

Message structure

— The envelope of a message contains

└ **Header**

Contains information related to the management of the message (routing and processing)

└ **Body**

Contains information related to the application processing of the message

└ **Security Trailer**

Contains information related to the security aspects of the message



Message Envelope

Header

DownloadTransfer.....[1..1]
FormatVersion[1..1]
ExchangeIdentification.....[1..1]
CreationDateTime.....[1..1]
InitiatingParty.....[1..1]
RecipientParty.....[0..1]
TraceabilityInfo.....[0..1]

Body

AcquirerProtocolParameters.....[0..*]
ApplicationParameters.....[0..*]
HostCommunicationParameters [0..*]
SecurityParameters[0..*]

Security Trailer

ContentType.....[1..1]
AuthenticatedData.....[1..1]

nexo terminal management protocol

Acquirer protocol parameters

— Offline

- AcquirerProtocolParameters.OfflineTransaction.FinancialCapture = Completion, Batch

— Completion

- OfflineTransaction.ExchangePolicy

None

OnDemand

Immediately

AsGroup

TotalLimit

NumberLimit

```
<OffLineTx>
  <FinCaptr>BTCH</FinCaptr>
  <BtchTrf>
    <XchgPlcy>NBLT</XchgPlcy>
    <MaxNb>200</MaxNb>
  </BtchTrf>
</OffLineTx>
```

— Batch

- OfflineTransaction.ExchangePolicy

NumberLimit

TotalLimit

Cyclic

OnDemand



AcceptorConfigurationUpdate

Header

Body

AcquirerProtocolParameters

ApplicationParameters

HostCommunicationParameters

SecurityParameters

Security Trailer

nexo terminal management protocol

Acquirer protocol parameters

— Online

- AcquirerProtocolParameters.OnlineTransaction.FinancialCapture = Completion, Batch and Authorisation

— Completion

- OnlineTransaction.ExchangePolicy
 - None
 - OnDemand
 - Immediately
 - AsGroup
 - TotalLimit
 - NumberLimit

```

<OnLineTx>
  <FinCaptr>BTCH</FinCaptr>
  <BtchTrf>
    <XchgPly>NBLT</XchgPly>
    <MaxNb>200</MaxNb>
  </BtchTrf>
</OnLineTx>

```



Passion for payments

AcceptorConfigurationUpdate

Header

Body

AcquirerProtocolParameters

ApplicationParameters

HostCommunicationParameters

SecurityParameters

Security Trailer

nexo terminal management protocol

Acquirer protocol parameters

— Reconciliation

└ ReconciliationExchange.ExchangePolicy

Cyclic

None

NumberLimit

OnDemand

TotalLimit

```
<RcncltnXchg>
  <XchgPlcy>NONE</XchgPlcy>
</RcncltnXchg>
```



AcceptorConfigurationUpdate

Header

Body

AcquirerProtocolParameters

ApplicationParameters

HostCommunicationParameters

SecurityParameters

Security Trailer

nexo terminal management protocol

Host communication parameters

— HostIdentification

- Identification of the host operated by the acquirer

— Address

- The configuration of the host communication parameters for the POI to connect a host system

— Key

- Cryptographic key to be used for message element protection

```
<HstComParams>
  <HstId>Acquirer01 Completion</HstId>
  <Adr>
    <PmryAdr>192.168.1.100</PmryAdr>
    <PmryPortNb>49801</PmryPortNb>
    <ScndryAdr>192.168.1.100</ScndryAdr>
    <ScndryPortNb>49802</ScndryPortNb>
  </Adr>
  <Key>
    <Id>A1MacTestKey</Id>
    <AddtlId>OYclpQHikCAAFw==</AddtlId>
    <Vrsn>2016051911</Vrsn>
  </Key>
  <Key>
    <Id>A1EncTestKey</Id>
    <AddtlId>OYclpQHikCAAFw==</AddtlId>
    <Vrsn>2016051911</Vrsn>
  </Key>
  <Key>
    <Id>A1PinTestKey</Id>
    <AddtlId>OYclpQHikCAAFw==</AddtlId>
    <Vrsn>2016051911</Vrsn>
  </Key>
</HstComParams>
```

AcceptorConfigurationUpdate

Header

Body

AcquirerProtocolParameters

ApplicationParameters

HostCommunicationParameters

SecurityParameters

Security Trailer



nexo terminal management protocol

Security parameters

- This section specifies the downloading of symmetric cryptographic keys by a Terminal Manager to a POI
- For each symmetric key (*SymmetricKey*)
 - └ The identification of the key (Identification, AdditionalIdentification, Version)
 - └ The purpose of the key (Type, Function)
 - └ The period of usage (ActivationDate, DeactivationDate)
 - └ The value of the key (KeyValue)



AcceptorConfigurationUpdate

Header

Body

AcquirerProtocolParameters

ApplicationParameters

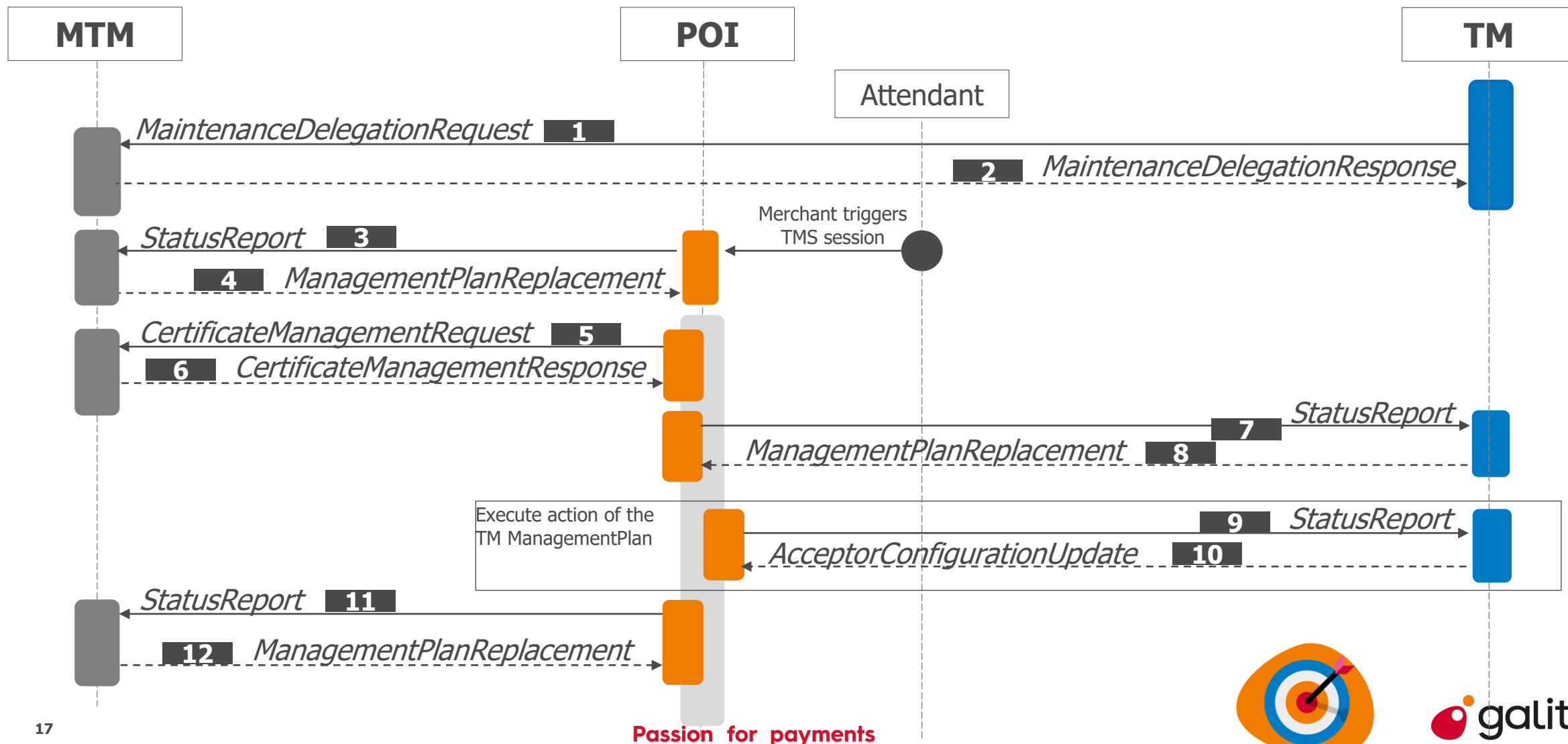
HostCommunicationParameters

SecurityParameters

Security Trailer

nexo terminal management protocol

Configuration management and delegation



nexo terminal management protocol

Configuration management and delegation



— Delegation Request - MaintenanceDelegationRequest

- └ TM → Master Terminal Manager
- └ This message contains the description and the scope of the requested delegation



— Functional Certificate request— CertificateManagementRequest

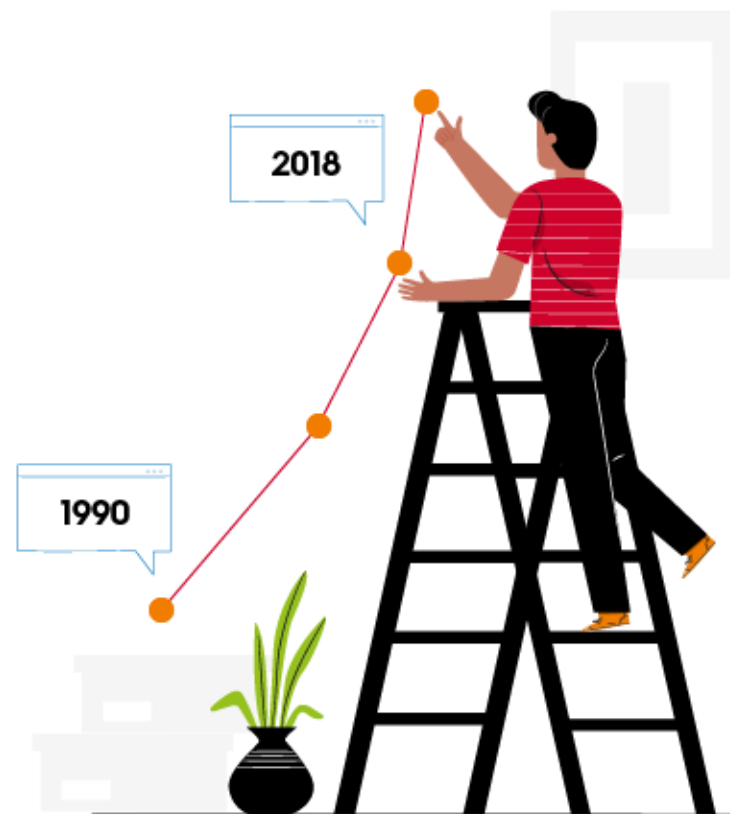
- └ POI → Terminal Manager (MTM)
- └ TMAP generates an RSA key pair and sends the corresponding certificate to the MTM within a CertificateManagementRequest message.
- └ The MTM signs the provided TMAP certificate with the private key for which the corresponding public certificate is known from the TM. The MTM sends the signed certificate to TMAP with a CertificateManagementResponse message

Summary

01 nexo terminal management protocol

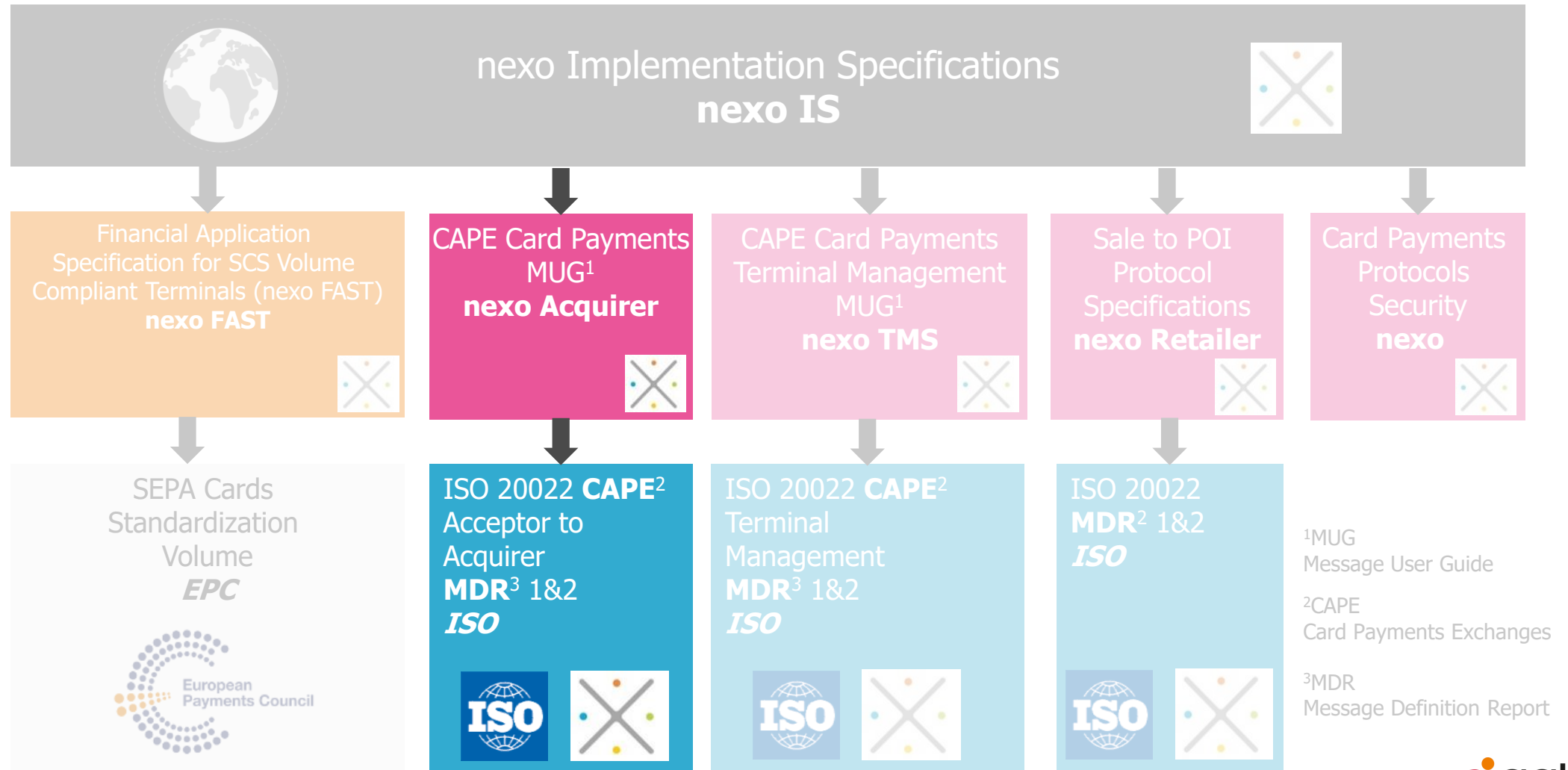
02 nexo acquirer protocol

03 nexo retailer protocol



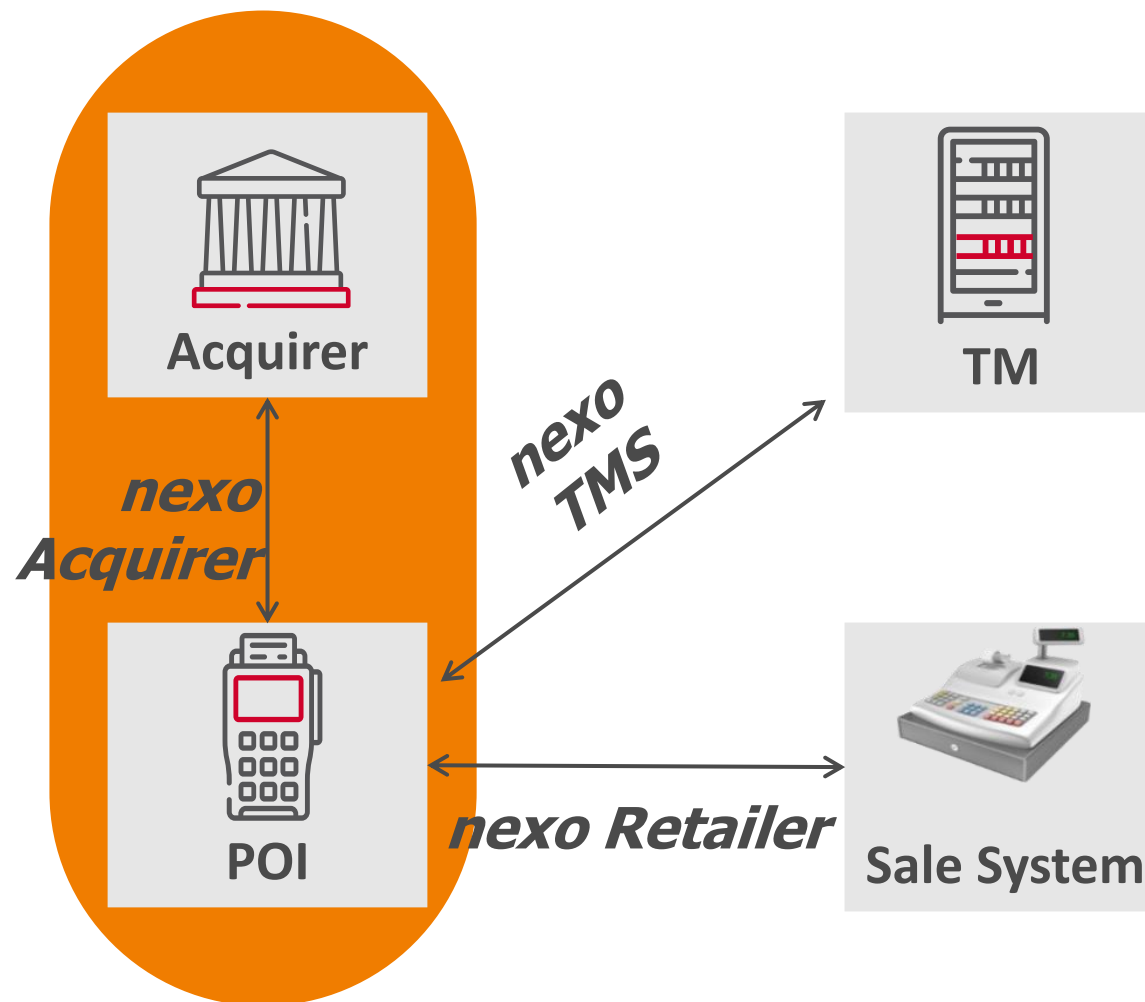
nexo acquirer protocol

Reference documents



nexo acquirer protocol

Scope



nexo acquirer protocol

Scope



Protocol based on ISO 20022 (CAPE Acceptor / Acquirer) defining the Acceptor - Acquirer exchanges

— Objectives

- └ Cover all European needs, regardless of applications
- └ Adapt to the diversity of European configurations
- └ Provide a high level of flexibility for security management



— Scope

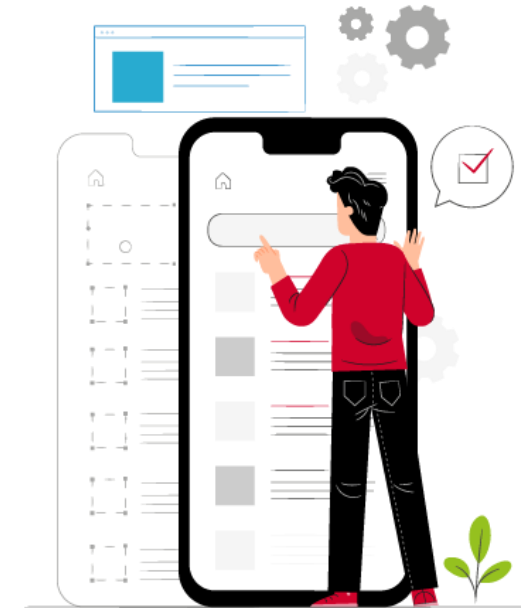
- └ Describe the types of environment (Online, Semi-online, Offline)
- └ Specify Capture Modes (Authorization, Completion, Batch)
- └ Specify the messages and the exchange protocols of the different services (Payment, Cancellation, Reconciliation ...)

nexo acquirer protocol

Scope

— Messages covered

- └ Authorisation
- └ Completion
- └ Cancellation
- └ Reconciliation
- └ Batch transfer
- └ Diagnostic
- └ Rejection
- └ Dynamic Currency conversion



nexo acquirer protocol

Message structure

— Structured data set exchanged between two actors for these messages

- └ Authorisation messages
- └ Completion messages
- └ Cancellation messages
- └ Reconciliation messages
- └ Diagnostic messages
- └ Dynamic Currency Conversion Messages



Message Envelope

Header

MessageFunction.....[1..1]
ProtocolVersion[1..1]
ExchangeIdentification.....[1..1]
ReTransmissionCounter.....[0..1]
CreationDateTime.....[1..1]
InitiatingParty.....[1..1]
RecipientParty..... [0..1]
TraceabilityInfo.....[0..1]

Body

Environment.....[1..1]
Context.....[1..1]
Transaction.....[1..1]

Security Trailer

ContentType.....[1..1]
AuthenticatedData.....[1..1]

nexo acquirer protocol

Message structure

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Message Envelope

Header

MessageFunction.....[1..1]
ProtocolVersion[1..1]
ExchangeIdentification.....[1..1]
ReTransmissionCounter....[0..1]
CreationDateTime.....[1..1]
InitiatingParty.....[1..1]
RecipientParty.....[0..1]
TraceabilityInfo.....[0..1]

Body

Environment.....[1..1]
Context.....[1..1]
Transaction.....[1..1]

Security Trailer

ContentType.....[1..1]
AuthenticatedData.....[1..1]

nexo acquirer protocol

Header

— Management information

- └ **MessageFunction**: identifies the type of process related to the message
- └ **ProtocolVersion**: identifies the version of the protocol used
- └ **ExchangeIdentification**: provides a unique identification
- └ **ReTransmissionCounter**: identifies the number of retransmissions
- └ **CreationDateTime**: identifies the date and time of the message creation

— Parties involved in the message

- └ **InitiatingParty**: Party initiating the exchange
- └ **RecipientParty**: Party receiving of the exchange

— Traceability

- └ **TraceabilityInfo**: allows a RecipientParty to monitor the upstream transport



Message Envelope

Header

MessageFunction.....[1..1]
 ProtocolVersion[1..1]
 ExchangeIdentification.....[1..1]
 ReTransmissionCounter....[0..1]
 CreationDateTime.....[1..1]
 InitiatingParty.....[1..1]
 RecipientParty.....[0..1]
 TraceabilityInfo.....[0..1]

Body

Environment.....[1..1]
 Context.....[1..1]
 Transaction.....[1..1]

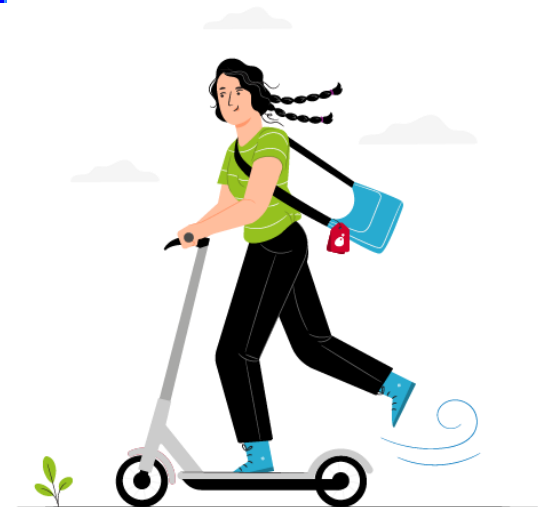
Security Trailer

ContentType.....[1..1]
 AuthenticatedData.....[1..1]

nexo acquirer protocol

Header - example

```
<Hdr>
  <MsgFctn>AUTQ</MsgFctn>
  <PrtcolVrsn>2.0</PrtcolVrsn>
  <XchgId>721</XchgId>
  <CreDtTm>2018-11-01T17:23:20.230+00:00</CreDtTm>
  <InitgPty>
    <Id>POI ID set by ACQ 03</Id>
  </InitgPty>
</Hdr>
```



nexo acquirer protocol

Body



— Environment

- **Acquirer:** a party in a contractual relation with Merchants and Card schemes accepting payments
- **Merchant:** a party providing goods and/or services at a sales location (physical or virtual)
- **POI:** a Point of Interaction defines the entry point of a card into a payment system to accept payment and loyalty cards at a sales location
- **Card:** a physical or virtual device to enable a payment and to identify a Cardholder account
- **Cardholder:** a person presenting a Card or card information to a Merchant

Message Envelope

Header

MessageFunction.....[1..1]
ProtocalVersion[1..1]
ExchangeIdentification.....[1..1]
ReTransmissionCounter.....[0..1]
CreationDateTime.....[1..1]
InitiatingParty.....[1..1]
RecipientParty.....[0..1]
TraceabilityInfo.....[0..1]

Body

Environment.....[1..1]
Context.....[1..1]
Transaction.....[1..1]

Security Trailer

ContentType.....[1..1]
AuthenticatedData.....[1..1]

nexo acquirer protocol

Body - example



— Environment

```
<Acqrr>
  <Id>
    <Id>0000000000521</Id>
  </Id>
  <ParamsVrsn>20110913123456</ParamsVrsn>
</Acqrr>
<Mrchnt>
  <Id>
    <Id>Merchant ID 036</Id>
  </Id>
  <CmonNm>POI.USE.PAY.KC2.P.01400</CmonNm>
  <CtryCd>010</CtryCd>
</Mrchnt>
```



nexo acquirer protocol

Body - example



— Environment

```
<POI>
  <Id>
    <Id>88000001</Id>
  </Id>
  <Cpblties>
    <CardRdngCpblties>MGST</CardRdngCpblties>
    <CardKdngCpblties>CICC</CardKdngCpblties>
    <CardRdngCpblties>ECTL</CardRdngCpblties>
    <CrdhldrVrfctnCpblties>NPIN</CrdhldrVrfctnCpblties>
    <OnLineCpblties>SMON</OnLineCpblties>
    <DispCpblties>
      <DispTp>MDSP</DispTp>
      <NbOfLines>4</NbOfLines>
      <LineWidth>32</LineWidth>
    </DispCpblties>
    <PrtLineWidth>32</PrtLineWidth>
  </Cpblties>
  <Cmpnt>
    <Tp>TERM</Tp>
    <Id>
      <PrvdrId>PAX GLOBAL TECHNOLOGY</PrvdrId>
      <Id>PAX Q80</Id>
      <SrlNb>01122334</SrlNb>
    </Id>
  </Cmpnt>
```

```
<Cmpnt>
  <Tp>APLI</Tp>
  <Id>
    <PrvdrId>NOVELPAY</PrvdrId>
    <Id>NOVELPAY NEXO PAYMENT APP</Id>
  </Id>
  <Sts>
    <VrsnNb>1.0</VrsnNb>
  </Sts>
  <StdCmplc>
    <Id>SEPA-FAST</Id>
    <Vrsn>3.1</Vrsn>
    <Issr>OSCAR</Issr>
  </StdCmplc>
  <Assmnt>
    <Tp>CERT</Tp>
    <Assgnr>OSCAR</Assgnr>
    <Nb>ToComplete(giveByPayCert)</Nb>
  </Assmnt>
</Cmpnt>
</POI>
```

nexo acquirer protocol

Body - Example



— Environment

```
<Card>
  <PlainCardData>
    <PAN>5071009999100013</PAN>
    <XpryDt>2049-12</XpryDt>
    <TrckData>
      <TrckVal>5071009999100013D4912999000000000000000</TrckVal>
    </TrckData>
  </PlainCardData>
  <CardPdctPrfl>0037</CardPdctPrfl>
  <CardBrnd>CB</CardBrnd>
</Card>
<Crdhldr>
  <Lang>en</Lang>
</Crdhldr>
```



nexo acquirer protocol

Body

— Context

- **PaymentContext:** This component identifies the elements of the sales environment for payment
- **SaleContext:** This component contains elements that identify the sale within the sales environment



Message Envelope

Header

MessageFunction.....[1..1]
ProtocolVersion[1..1]
ExchangeIdentification.....[1..1]
ReTransmissionCounter.....[0..1]
CreationDateTime.....[1..1]
InitiatingParty.....[1..1]
RecipientParty.....[0..1]
TraceabilityInfo.....[0..1]

Body

Environment.....[1..1]
Context.....[1..1]
Transaction.....[1..1]

Security Trailer

ContentType.....[1..1]
AuthenticatedData.....[1..1]

nexo acquirer protocol

Body - example

— Context

```
<Cntxt>
  <PmtCntxt>
    <AttdncCntxt>ATTD</AttdncCntxt>
    <AttdntMsgCpbl>true</AttdntMsgCpbl>
    <AttdntLang>pl</AttdntLang>
    <CardDataNtryMd>ECTL</CardDataNtryMd>
  </PmtCntxt>
</Cntxt>
```



nexo acquirer protocol

Body

— Transaction

- └ **Transaction:** This component contains the transaction specific application data
- └ **Product:** This component identifies the class of goods and/or services



Message Envelope

Header

MessageFunction.....[1..1]
ProtocalVersion[1..1]
ExchangeIdentification.....[1..1]
ReTransmissionCounter....[0..1]
CreationDateTime.....[1..1]
InitiatingParty.....[1..1]
RecipientParty.....[0..1]
TraceabilityInfo.....[0..1]

Body

Environment.....[1..1]
Context.....[1..1]
Transaction.....[1..1]

Security Trailer

ContentType.....[1..1]
AuthenticatedData.....[1..1]

nexo acquirer protocol

Body - example

— Transaction

```
<Tx>
  <TxCaptr>false</TxCaptr>
  <TxTp>CRDP</TxTp>
  <MrchntCtgyCd>9999</MrchntCtgyCd>
  <TxId>
    <TxDtTm>2018-11-01T17:22:47.000+00:00</TxDtTm>
    <TxRef>00000215</TxRef>
  </TxId>
  <RcncltnId>0</RcncltnId>
  <TxDtls>
    <Ccy>EUR</Ccy>
    <TtlAmt>43.00</TtlAmt>
    <ICCRltdData>nwIGAAAAAEManwMGAAA</ICCRltdData>
  </TxDtls>
</Tx>
```



nexo acquirer protocol

Security trailer

- **ContentType:** This component identifies the type of security used for the message (authentication)
- **AuthenticatedData:** This component contains the Message Authentication Code (MAC)

Message Envelope

Header

MessageFunction.....[1..1]
ProtocalVersion[1..1]
ExchangeIdentification.....[1..1]
ReTransmissionCounter....[0..1]
CreationDateTime.....[1..1]
InitiatingParty.....[1..1]
RecipientParty.....[0..1]
TraceabilityInfo.....[0..1]

Body

Environment.....[1..1]
Context.....[1..1]
Transaction.....[1..1]

Security Trailer

ContentType.....[1..1]
AuthenticatedData.....[1..1]

nexo acquirer protocol

Security trailer - example



```

<SctyTrlr>
  <CnttTp>AUTH</CnttTp>
  <AuthntcdData>
    <Rcpt>
      <KEK>
        <Vrsn>4</Vrsn>
        <KEKId>
          <KeyId>A1MacTestKey</KeyId>
          <KeyVrsn>2016051911</KeyVrsn>
          <DerivtnId>OYclpQE=</DerivtnId>
        </KEKId>
        <KeyNcrptnAlgo>
          <Algo>DKP9</Algo>
        </KeyNcrptnAlgo>
        <NcrptdKey>4pAgAVE=</NcrptdKey>
      </KEK>
    </Rcpt>
    <MACAlgo>
      <Algo>MCCS</Algo>
    </MACAlgo>
    <NcpsltdCntt>
      <CnttTp>DATA</CnttTp>
    </NcpsltdCntt>
    <MAC>ekDbDZQTXHU=</MAC>
  </AuthntcdData>
</SctyTrlr>

```

nexo acquirer protocol

Body response

Transaction : This component contains the transaction specific application data

TransactionReponse: This component contains the result of the online authorisation (AcceptorAuthorisationResponse and AcceptorCancellationResponse)



Message Envelope

Header

MessageFunction.....[1..1]
ProtocolVersion[1..1]
ExchangeIdentification.....[1..1]
ReTransmissionCounter....[0..1]
CreationDateTime.....[1..1]
InitiatingParty.....[1..1]
RecipientParty.....[0..1]
TraceabilityInfo.....[0..1]

Body

Environment.....[1..1]
Context.....[1..1]
Transaction.....[1..1]
TransactionResponse.....[1..1]

Security Trailer

ContentType.....[1..1]
AuthenticatedData.....[1..1]

nexo acquirer protocol

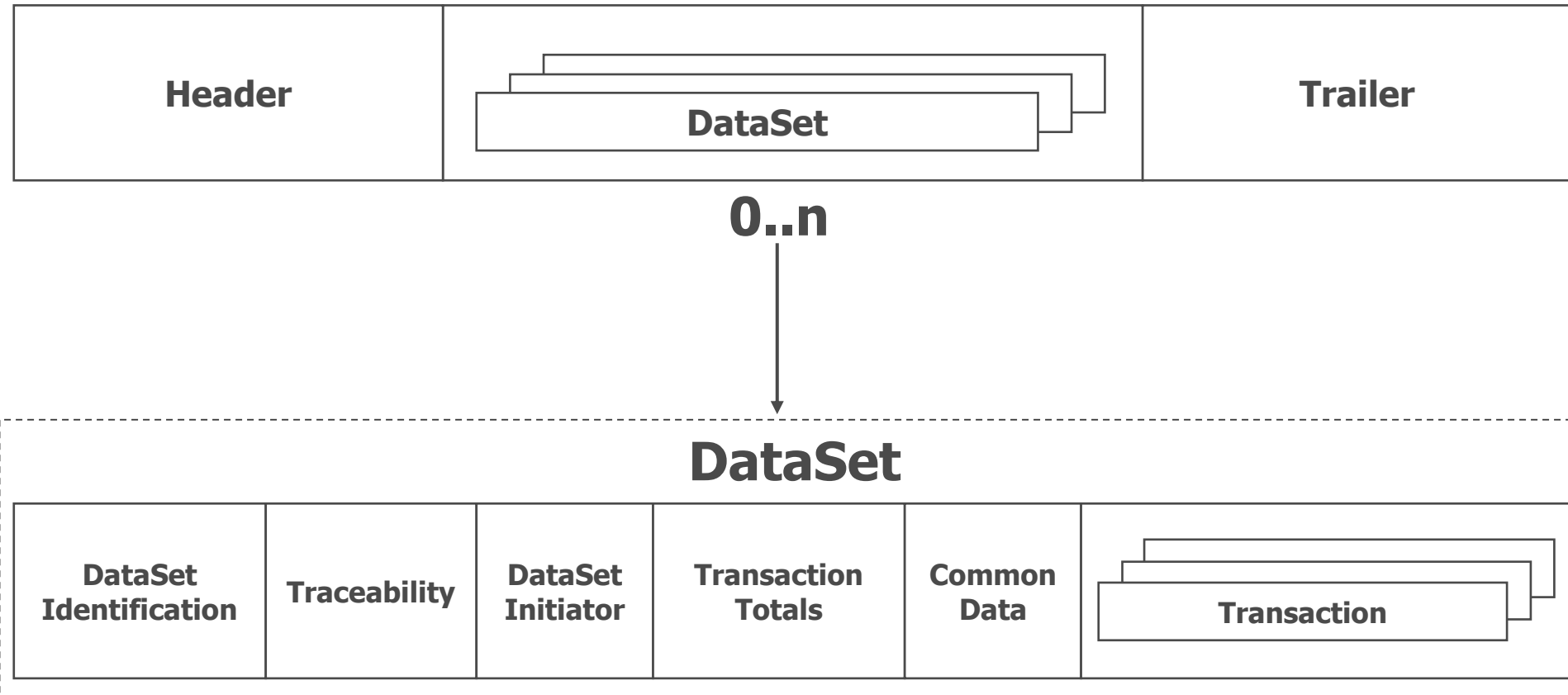
Body response - example

```
<Tx>
  <TxId>
    <TxDtTm>2018-11-01T17:22:47.000+00:00</TxDtTm>
    <TxRef>00000215</TxRef>
  </TxId>
  <RcptTxId>thisIsADummyTxIdSetByRecipient</RcptTxId>
  <TxDtls>
    <Ccy>EUR</Ccy>
    <TtlAmt>43.00</TtlAmt>
  </TxDtls>
</Tx>
<TxRspn>
  <AuthstnRslt>
    <AuthstnNtty>
      <Tp>CISS</Tp>
    </AuthstnNtty>
    <RspnToAuthstn>
      <Rspn>APPR</Rspn>
      <RspnRsn>thisIsADummyResponseReason</RspnRsn>
    </RspnToAuthstn>
    <AuthstnCd>597158</AuthstnCd>
  </AuthstnRslt>
</TxRspn>
```



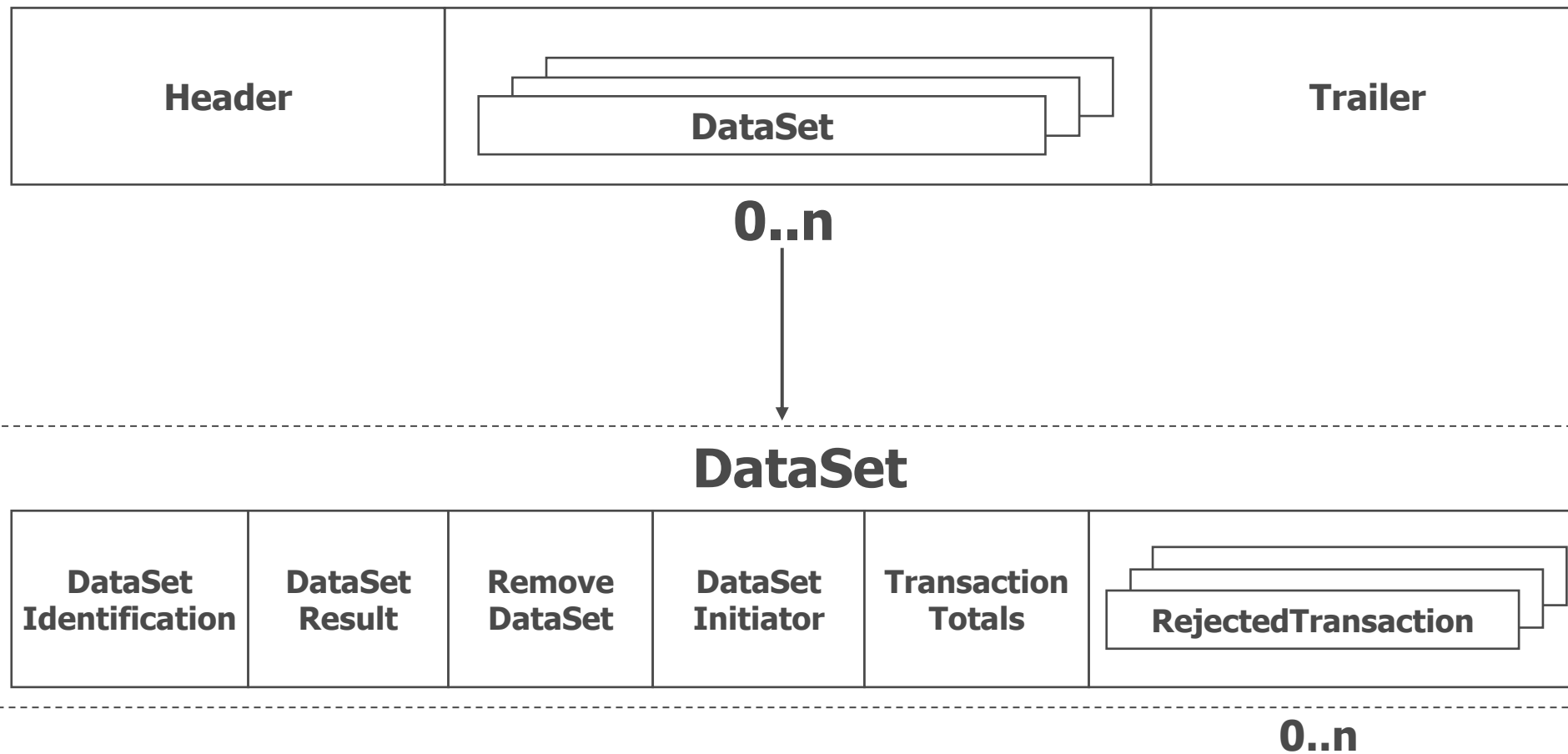
nexo acquirer protocol

Message structure – batch request



nexo acquirer protocol

Message structure – batch response



nexo acquirer protocol

Batch - example



```

<AcceptorBtchTrf>
  <Hdr>
    <DwnldTrf>false</DwnldTrf>
    <FrmtVrsn>2.0</FrmtVrsn>
    <XchgId>566</XchgId>
    <CreDtTm>2018-11-24T13:43:00.773+00:00</CreDtTm>
    <InitgPty>
      <Id>POI ID set by ACQ 03</Id>
    </InitgPty>
  </Hdr>
  <BtchTrf>
    <TxTtls>
    <TxTtls>
      <CardPdctPrfl>0017</CardPdctPrfl>
      <Tp>DEBT</Tp>
      <TtlNb>7</TtlNb>
      <CmltvAmt>31.48</CmltvAmt>
    </TxTtls>
    <TxTtls>
    <TxTtls>
    <TxTtls>
    <TxTtls>
    <TxTtls>
    <TxTtls>
  </BtchTrf>
</AcceptorBtchTrf>

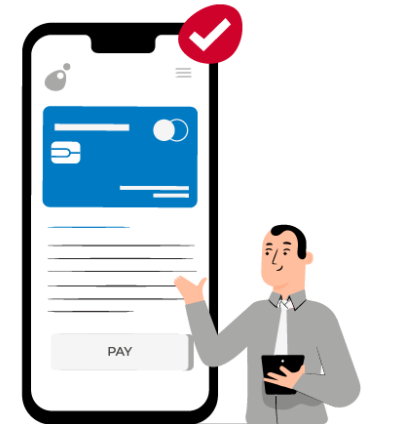
```

nexo acquirer protocol

Batch - example



```
<DataSet>
  <DataSetId>
    <Nm>5</Nm>
    <Tp>TXCP</Tp>
    <CreDtTm>2018-11-24T13:43:03.402+00:00</CreDtTm>
  </DataSetId>
  <TxTtls>
    <TxTtls>
      <CardPdctPrfl>0017</CardPdctPrfl>
      <Tp>DEBT</Tp>
      <TtlNb>7</TtlNb>
      <CmltvAmt>31.48</CmltvAmt>
    </TxTtls>
    <TxTtls>
    <TxTtls>
    <TxTtls>
    <TxTtls>
    <TxTtls>
    <Tx>
    <Tx>
      <Cmpltn>
        <TxSeqCntr>00000101</TxSeqCntr>
        <Env>
          <Acqrr>
            <Id>
              <Id>000000000123</Id>
            </Id>
            <ParamsVrsn>20110913123456</ParamsVrsn>
          </Acqrr>
          <Mrchnt>
            <Id>
              <Id>MyMerchantID000</Id>
            </Id>
```



nexo acquirer protocol

Dynamic of the payment exchanges



— Determination of Payment Cases by

- └ Authorisation type

 - Online

 - Offline



- └ Authorisation result

 - Approved

 - Declined

 - No Acceptable Response : Timeout or TechnicalError

- └ Incidents after the authorisation (Transaction/FailureReason)

 - CustomerCancel

 - CardDeclined

 - Malfunction

 - UnableToComplete



nexo acquirer protocol

Dynamic of the payment exchanges

— Determination of Payment Cases by



- └ Merchant Forced Acceptance when a transaction does not complete as approved, since:
 - No response was received
 - The transaction was declined
 - Some incident occurred after authorisation at the POI



- └ Capture Type
 - The **authorisation**
 - The **completion**
 - A **batch transfer**

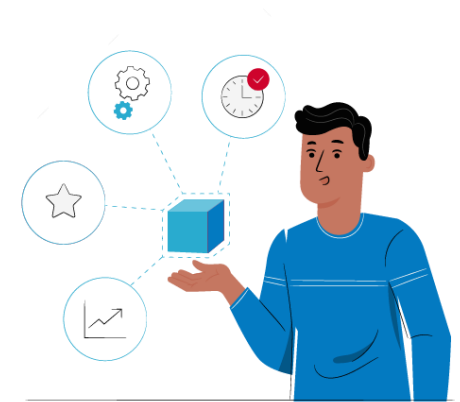
nexo acquirer protocol

Dynamic of the payment exchanges



— Determination of Payment Cases by

└ Completion Exchange



A completion exchange for successful approved transactions is required depending on the value of the TMS parameter *CompletionExchange.ExchangePolicy*

A completion exchange is also required when

- An online authorisation needs to be reversed

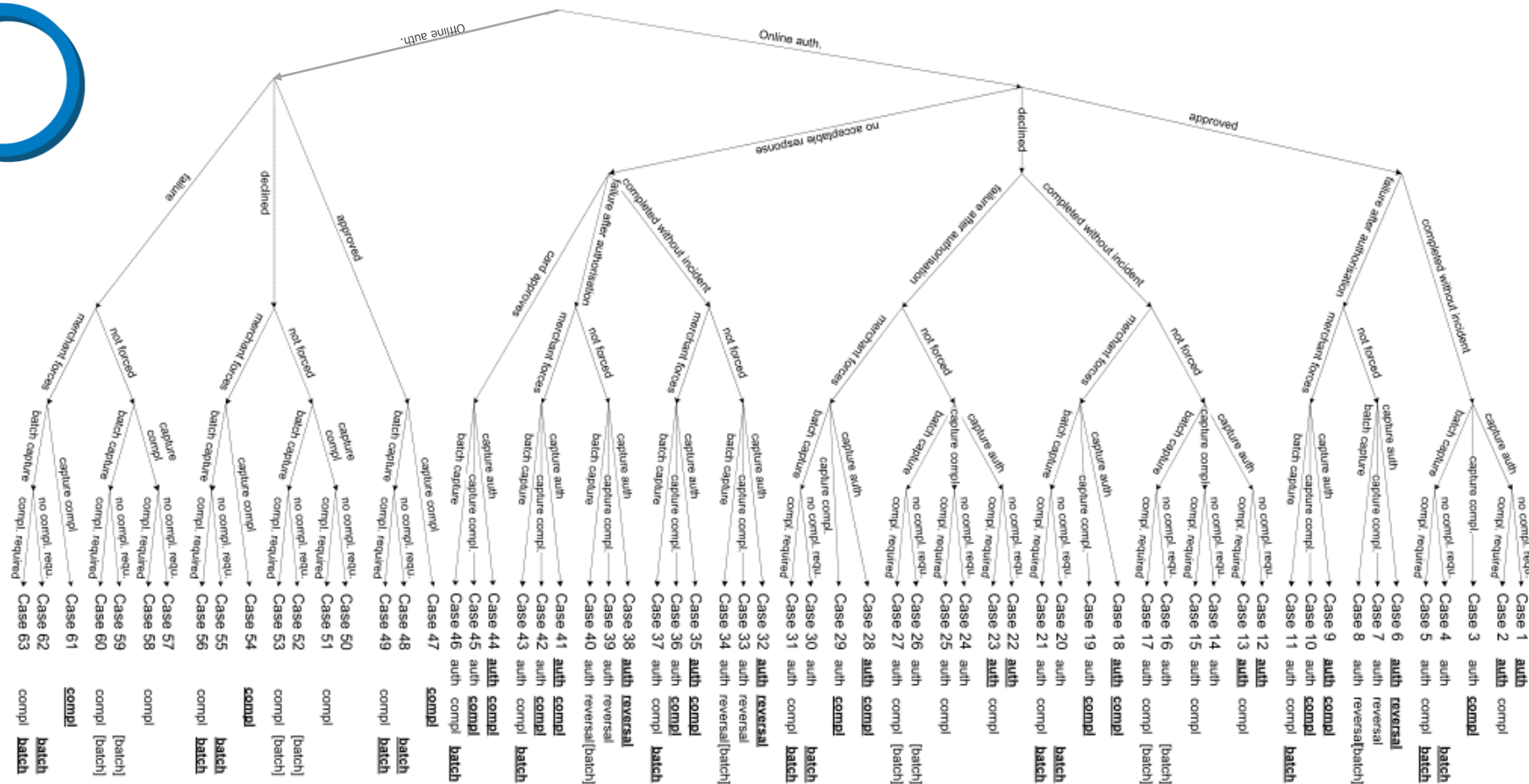
- The merchant successfully forces the transaction and the capture must be made on-line

- A successful voice authorisation was performed and the capture must be made with the completion exchange.

- The authorisation is declined or the payment transactions failed and the TMS parameter BatchTransferContent is set to send declined or failed transactions.

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Dynamic of the payment exchanges



nexo acquirer protocol

Dynamic of the payment exchanges

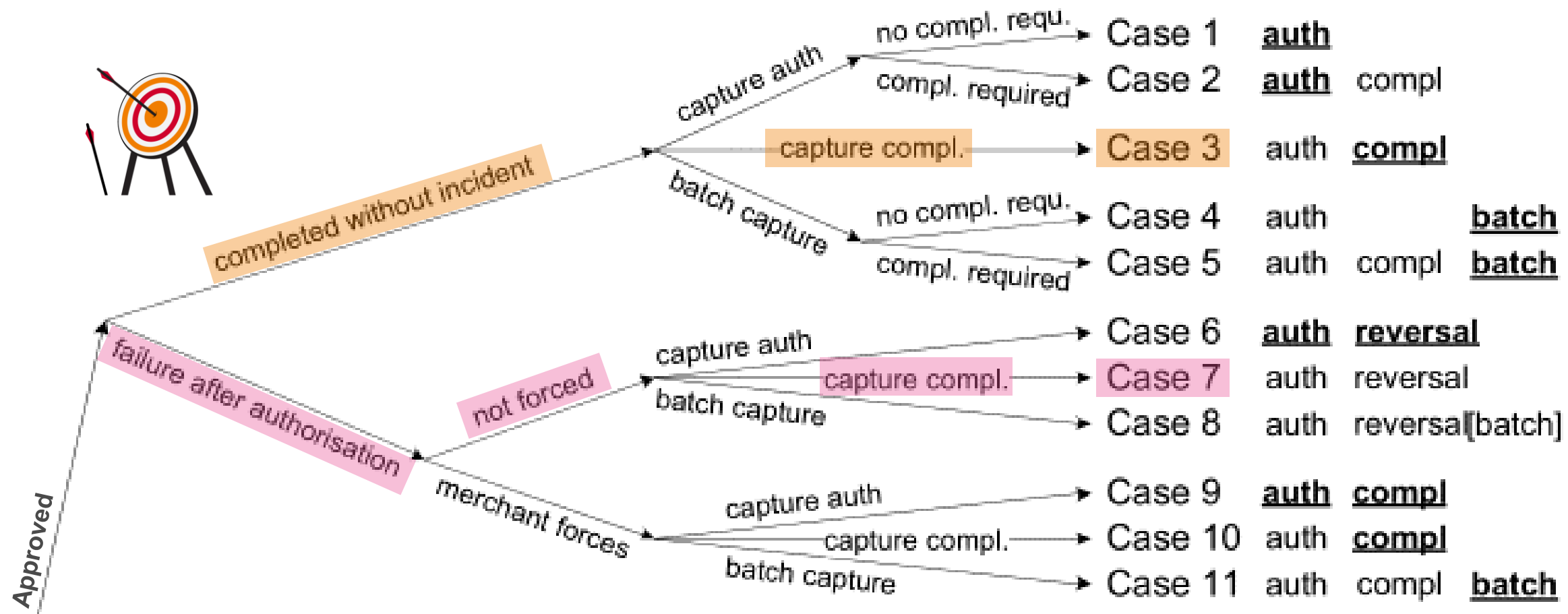
	<i>MessageFunction</i>	
auth	"AuthorisationRequest"	"AuthorisationResponse"
<u>auth</u>	"FinancialAuthorisationRequest"	"FinancialAuthorisationResponse"
compl	"CompletionAdvice"	"CompletionAdviceResponse"
<u>compl</u>	"FinancialCompletionAdvice"	"FinancialCompletionAdviceResponse"
reversal	"ReversalAdvice"	"ReversalAdviceResponse"
<u>reversal</u>	"FinancialReversalAdvice"	"FinancialReversalAdviceResponse"



Passion for payments

nexo acquirer protocol

Dynamic of the payment exchanges



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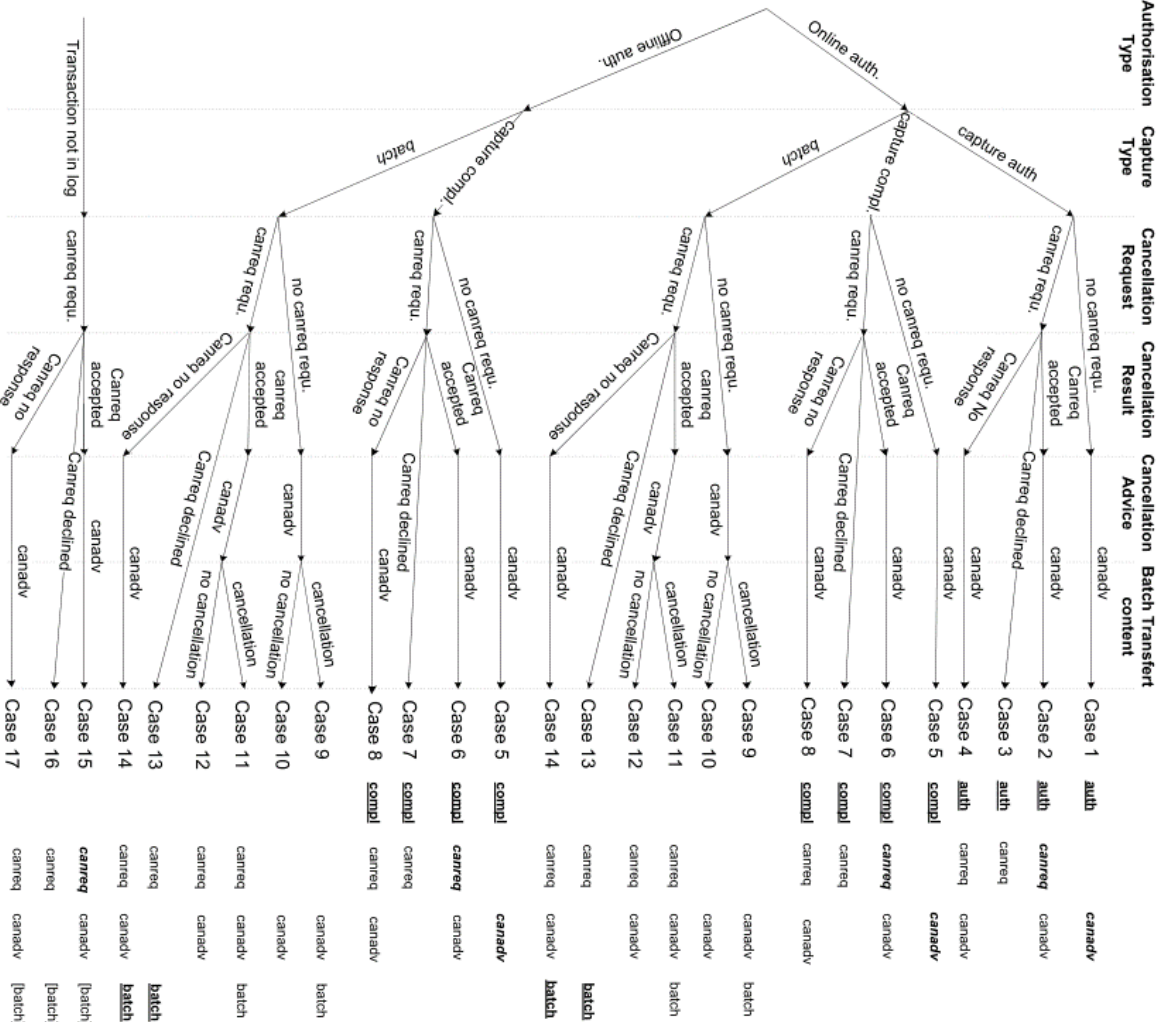
Dynamic of the payment exchanges



		Authorisation			CompletionAdvice						Batch
		Txn Capt.	Resp.	Compl Requ	condition	Txn Succ.	Txn Capt.	Rev-ersal	Failure Reason	Merch. Overr.	Condition
1	Online approved Capture Auth. No Completion	True	Appr.	False							
2	Online approved Capture Auth. Completion	True	Appr.	True absent	required	True (c)	False				
3	Online approved Capture Compl.	False	Appr.	absent	mandatory	True (fc)	True				
4	Online approved Batch Capture Compl. not requ.	False	Appr.	False	ExchPol=None						BatchCont= DebitCredit 3
5	Online approved Batch Capture Compl. required	False	Appr.	True absent	ExchPol=None required	True (c)	False				BatchCont= DebitCredit 3
6	Online approved Incident after Auth. Capture Auth.	True	Appr.		mandatory	False (fr)	True	True	CustCancel Malfunction CardDecline Unab2Com		
7	Online approved Incident after Auth. Capture Compl.	False	Appr.	absent	mandatory	False (r)	False	True	CustCancel Malfunction CardDecline Unab2Com		

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Cancellation exchange



nexo acquirer protocol

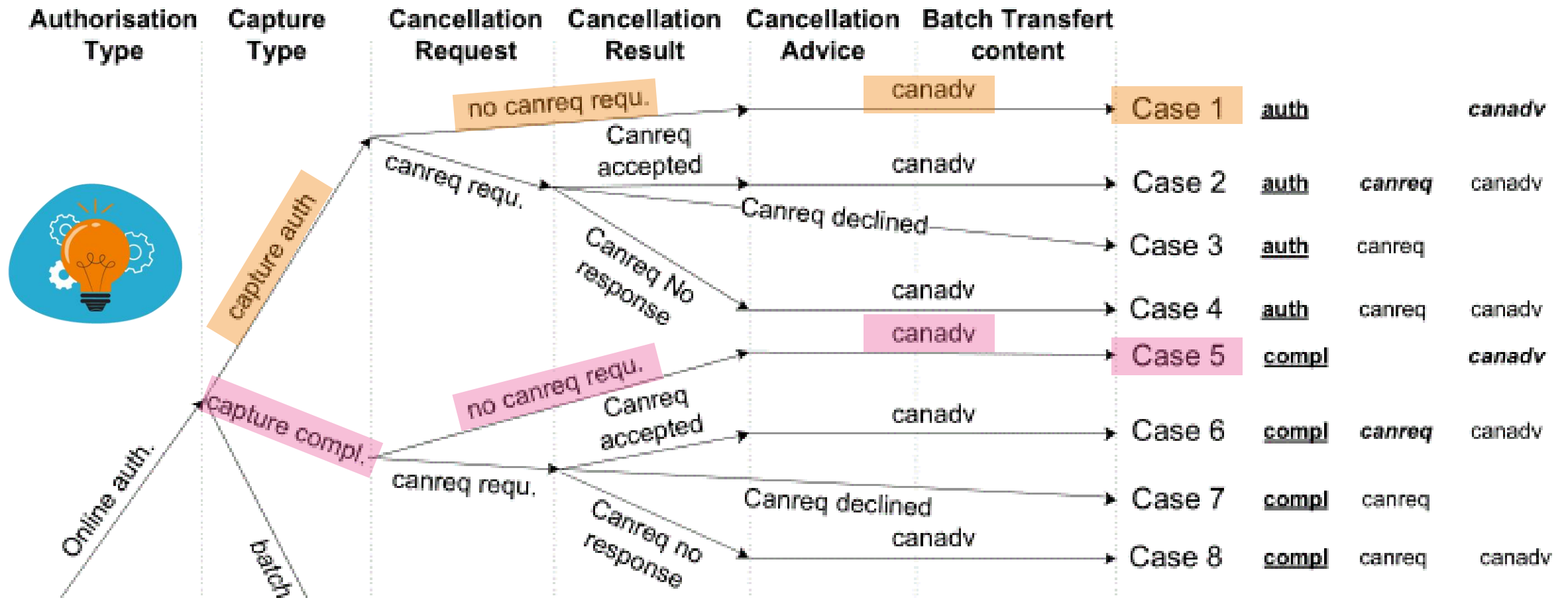
Cancellation exchange

	<i>MessageFunction</i>	
canreq	"CancellationRequest"	"CancellationResponse"
canadv	"CancellationAdvice"	"CancellationAdviceResponse"



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Cancellation exchange



nexo acquirer protocol

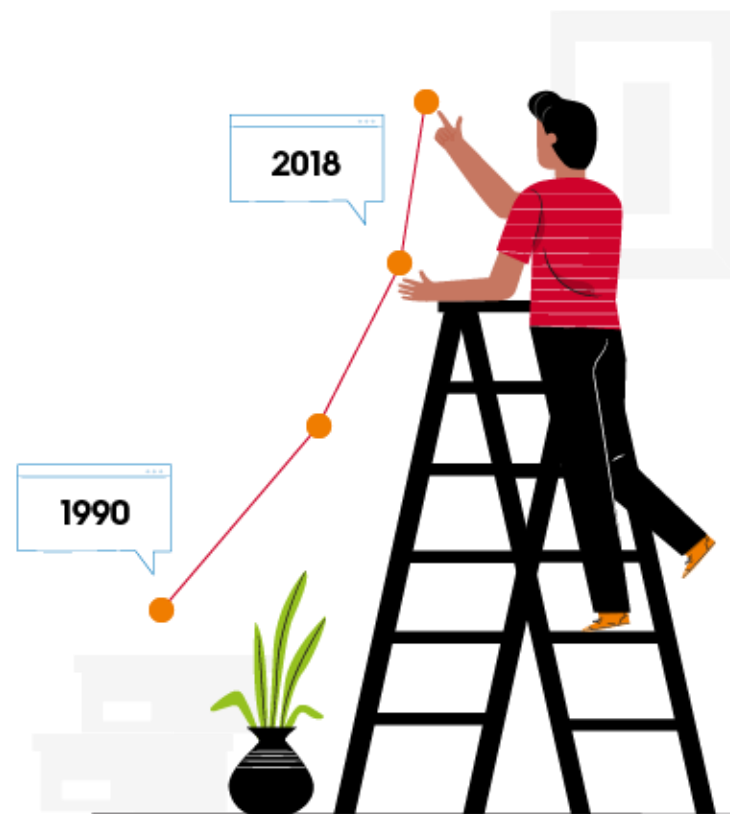
Cancellation exchange

		Payment Case	Cancellation Request			Cancellation Advice			Batch
			Condition	Resp	Capture Undone	Advice sent	Capture undone	Reverse flag	Cancellation in batch
1	Capture Auth. No cancellation requ. Cancellation advice	1,2	CancExch= Advice			True	True	False	
2	Capture Auth. Cancellation requ. Canc. approved Cancellation advice	1,2	CancExch= Request	Appr.	True	True	False	False	
3	Capture Auth. Cancellation requ. Canc. declined	1,2	CancExch= Request	Decl.	False	False			
4	Capture Auth. Cancellation requ. Canc. no response Cancellation advice	1,2	CancExch= Request	No resp.	False	True	False	True	
5	Capture Completion. No cancellation requ. Cancellation advice	3,9,10,18,19,28,29,35,36,41,42,44,45,47,54,61	CancExch= Advice			True	True	False	
6	Capture Completion Cancellation requ. Canc. approved Cancellation advice	3,9,10,18,19,28,29,35,36,41,42,44,45,47,54,61	CancExch= Request	Appr.	True	True	False	False	



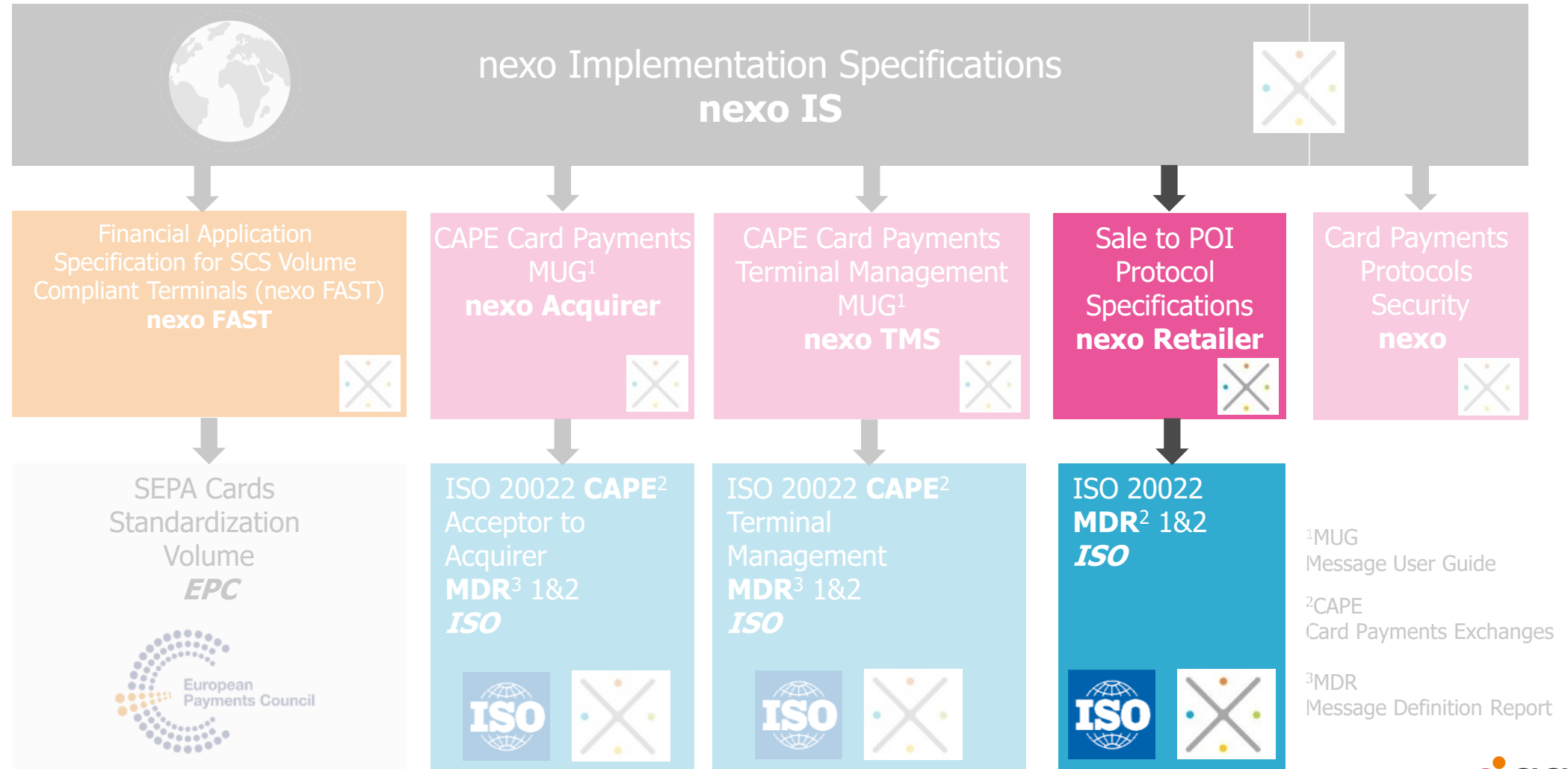
Summary

- 01 nexo terminal management protocol
- 02 nexo acquirer protocol
- 03 **nexo retailer protocol**



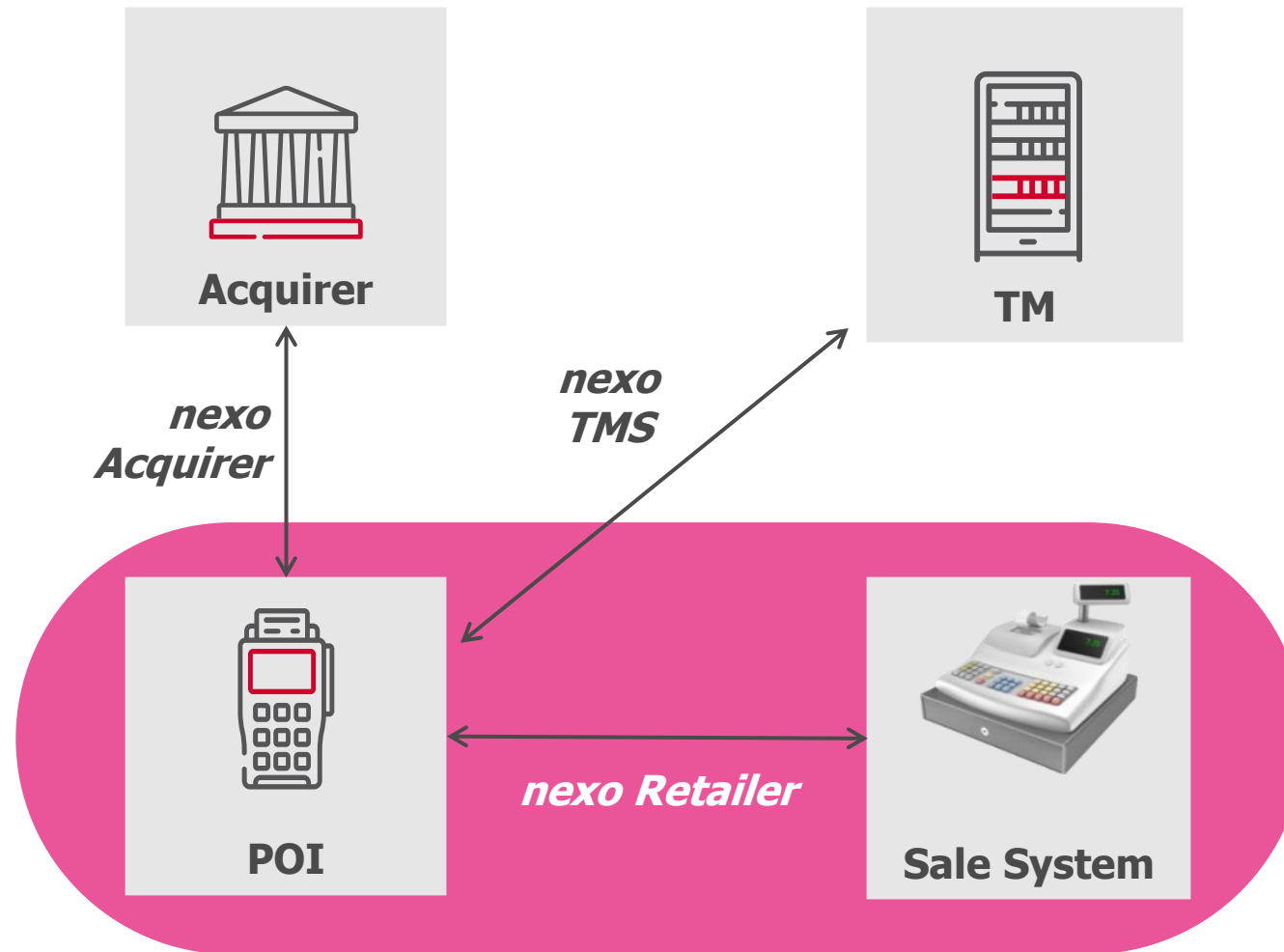
nexo retailer protocol

Reference documents



nexo retailer protocol

Scope



nexo retailer protocol

Scope

Relation between POI and sales system



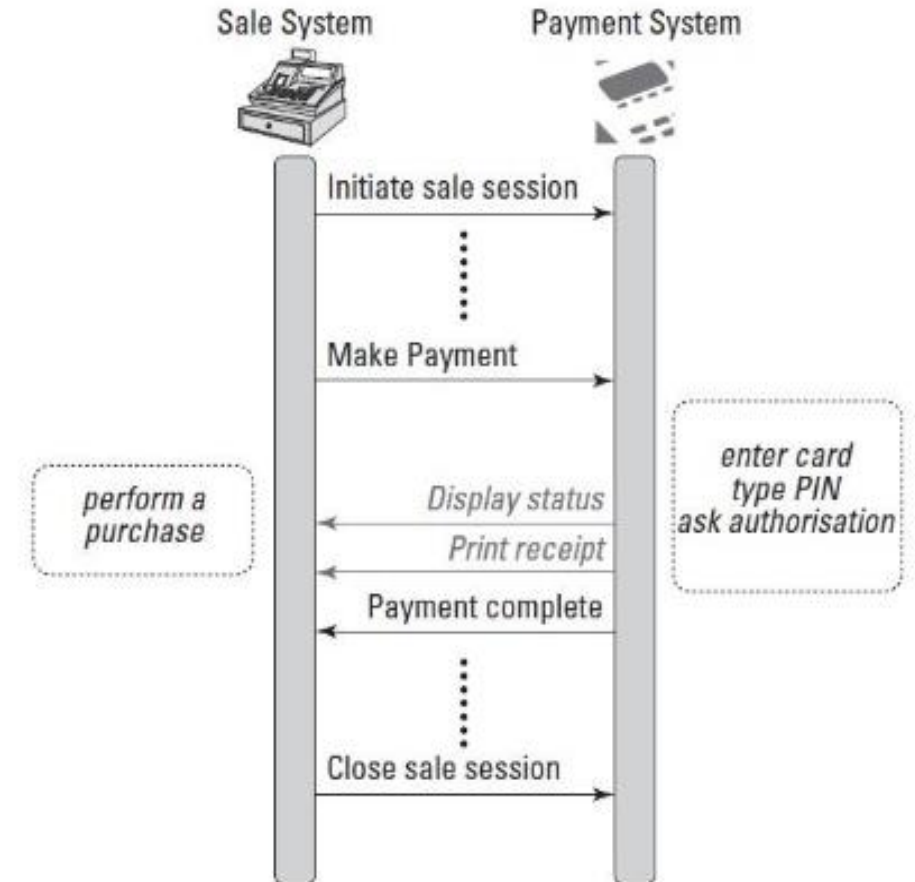
Objective

- └ Manage and control remote POIs through the sale system
- └ Update application data and security keys
- └ Open standard
- └ Easy to implement



Scope

- └ Describe messages and exchanges between POI and Sales System
- └ Recognized by ISO 20022 (Since V4 - 2020)
- └ Describe the different possible architectures for the Sales System



nexo retailer protocol

Benefits



— Open standard

- └ Elaborated by a wide panel of stakeholders
- └ Based on latest technologies (Ideal for APIs)



— Easy to implement

- └ Minimum protocol overhead
- └ Most data items are optional



— Flexible and future-proof

- └ Independant from sale system architecture
- └ Based on ISO 20022 structured approach



— For Physical and eCommerce

- └ Unified way of completing payment
- └ Exchange commerce data when needed



— Multi-payment options

- └ Ready for a wide combination of options
- └ Split payments, loyalty programs



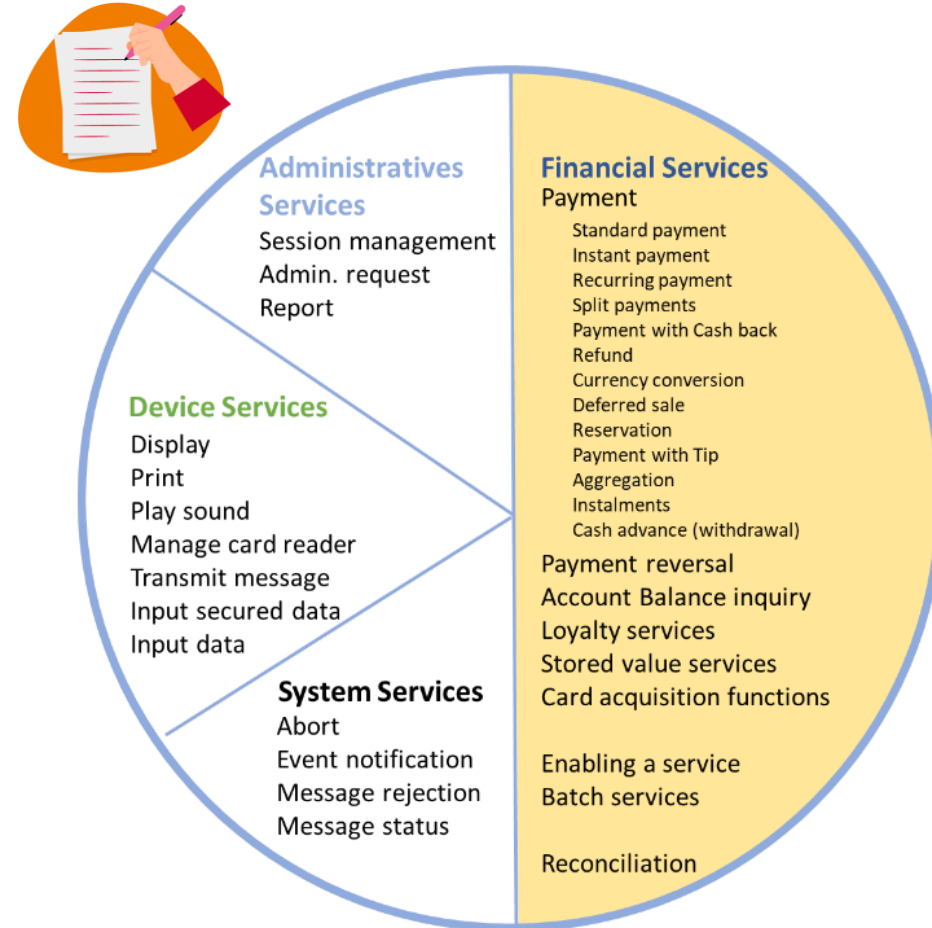
— Multi-Currency – Multi-Languages

- └ Independant from the displayed messages
- └ Support any combination of languages

nexo retailer protocol

Services

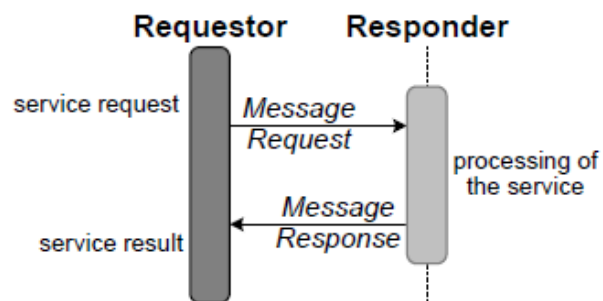
- **Financial Services:** Used to exchange payment related data to allow to support all payment related functions
- **Administrative Services:** Used to manage sessions (Start, stop) and request reports from the POI
- **System Services:** Used to manage on-going service processing
- **Device Services:** Allow each party to interact with the peripherals of the other party



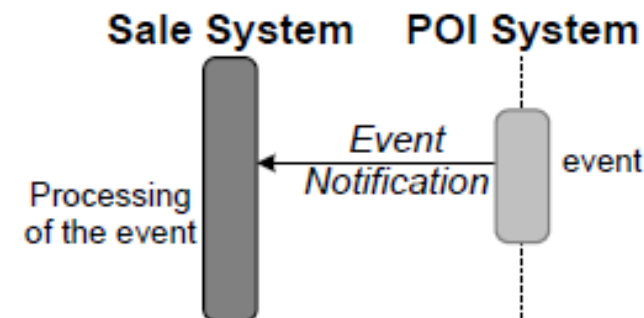
nexo retailer protocol

Type of exchanges

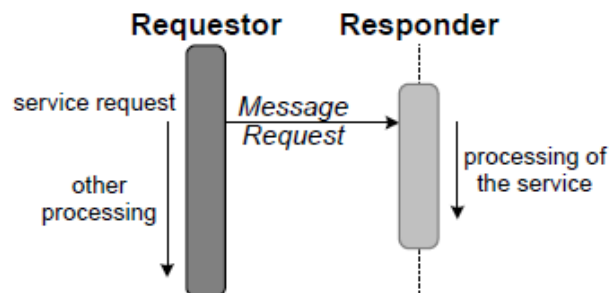
- **Request / Answer:** The applicant expects information in return (Ex: Balance Inquiry)



- **Notification ('Event' message only)**



- **Request Only (Ex : Display)**



Dialogue Management

Types of dialogue

— Service Dialogue

- └ Sale System ⇔ POI
- └ Transaction Processing Request (Batch, Payment, Reconciliation)

— Device Dialogue

- └ Sale System ⇔ POI
- └ Low level operations (Print, Card Power-off)

— Abort Dialogue

- └ Sale System ⇔ POI
- └ Error resolution attempts

— Notification Dialogue

- └ POI ⇔ Sale System
- └ Allows the POI to notify the sale system of an unsolicited event (End of processing, etc ...)

— Message Rejection Dialogue

- └ POI ⇔ Sale System
- └ Informs the other participant that its original message cannot be processed



nexo retailer protocol

Type of dialogue



- **Profiles defines globally the services implemented by a Sale System**

- └ Message groups
- └ List of services

- **'Basic'** profile: Minimum profile to make a payment

- **'Standard'** profile: 'Basic' + POI interaction with Sale Systems devices (Printing, Display, Input)

- **'Extended'** profile: 'Standard' + Totals retrieval for Sale System interaction and reporting with POI devices

- **Related profiles:** Deferred Payment, Booking, Fidelity, ...

