Brussels 04/10/2018

Joint Workshop ENTSOG / EASEE-Gas

ENTSOG AS4 profile

Marin Zwetkow

Image courtesy of Thyssengas

2. Welcome and objectives

Hendrik Pollex, System Operations Business Area Manager
hendrik.pollex@entsog.eu

Structure of event

No	Description	Time
1	**Morning Coffee and Registration**	10:00 - 10:30
2	**Opening (ENTSOG) (Hendrik Pollex)** ➢ Welcome/Introduction/History/Structure of Event	10:30 - 10:40
3	**Data Exchange from EU Regulation 2015/703 (Marin Zwetkow)** ➢ Legal Background for Harmonised Data Exchange ➢ Summary of the INT NC Implementation Monitoring Report (chapter V)	10:40 - 10:55
4	**Document Based Data (AS4) Exchange – (Marin Zwetkow / Pim vd Eijk)** ➢ AS4 Success Story ➢ Update to the ENTSOG AS4 Usage Profile and current work	10:55 - 11:10
5	**FUNC Issue on data exchange at VTPs and Underground Storages – (Antonio Gomez Bruque)** ➢ Elaboration of the reported issues and possible solutions ➢ Evaluation of the public consultation ➢ Next Steps	11:10 – 11:25
6	**Presentation – CEF eDelivery team (Maarten Daniels)** ➢ Update on the eDelivery AS4-testing platform ➢ Update on the modularized testing approach incl. ENTSOG's AS4 specific parameters ➢ Information about INEA	11:25 - 11:45
	Coffee Break	**11:45 - 12:00**
7	**AS4 implementation case studies** ➢ IP System – User success story ➢ DESFA – implementation of AS4 ➢ Thyssengas – changeover to a new EDI software solution	 12:00 - 12:15 12:15 - 12:30 12:30 - 12:45

- Objective: For ENTSOG to update our stakeholders on the latest AS4 Usage Profile and Integrated Data Exchange Profiles
- Elaboration on the reported FUNC issues
- Presentation of the eDelivery AS4 testing platform
- How will this be achieved:
  - Discuss the legal background for harmonised data exchange
  - By presenting the updated ENTSOG AS4 Usage Profile V3.6
  - Presentation by CEF
  - Presentations by stakeholders

Structure of event

8	**Presentation of the new proposed version of Edig@s v. 6** ➢ Edig@s v6 ○ Why including background of role model ○ What are the main changes and different directions ○ When will it be ready	13:30 - 15:30
	Coffee Break	**15:30 - 15:45**
9	**Implementation Status of Configuration Repository (EASEE-Connect)**	15:45 - 16:00
	Next Steps & Public Consultation ➢ Next Steps & Invitation to reply to public consultation ➢ Questions and Answers (All)	16:00 - 16:15
10	**Closing**	16:15 - 16:30

- Objective: For EASEE-Gas to present the upcoming version of Edig@s v/6
- Including background of role model
- Main changes and different directions
- When will the new version be ready

- Status of the configuration Repository (EASEE-Connect)

- Questions and Answers session
- Invitation to a public consultation

3. Legal Background for Harmonised Data Exchange (Data Exchange from EU Regulation 2015/703)

Marin Zwetkow
Interoperability Advisor
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Introduction - Regulation

REGULATION (EC) No 715/2009 - Conditions for access to the natural gas transmission networks

- …ENTSOG shall adopt a common network operation tools to ensure coordination of network operation in normal and emergency conditions..
- Article 24

Development process for common network operation tools

1. For each data exchange requirement under Article 20(2), Entsog shall develop a common network operation tool in accordance with Article 8(3)(a) of Regulation (EC) No 715/2009 and shall publish it on its website. A common network operation tool shall specify the common data exchange solution relevant for the respective data exchange requirement. A common network operation tool may also include business requirement specifications, release management and implementation guidelines.

2. Entsog shall establish a transparent process for the development of all common network operation tools. Entsog shall conduct a consultation for each common network operation tool.

The regulation is available at https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32009R0715

NC Interoperability and Data Exchange

- Commission Regulation (EU) 2015/703 establishing a network code on interoperability and data exchange rules **shall apply from 1 May 2016**
- TSOs have to be in a position to support the **standard** data exchange solution(s) as defined in the common network operation tools
- Chapter 5, Articles 20, 21, 22, 23 and 24 refer to the data exchange provisions of the network code
- TSOs **“shall make available and use”** the common data exchange solution as described in the common network operation tools

V. Data Exchange - Article 21: Common Data Exchange Solutions

Document based

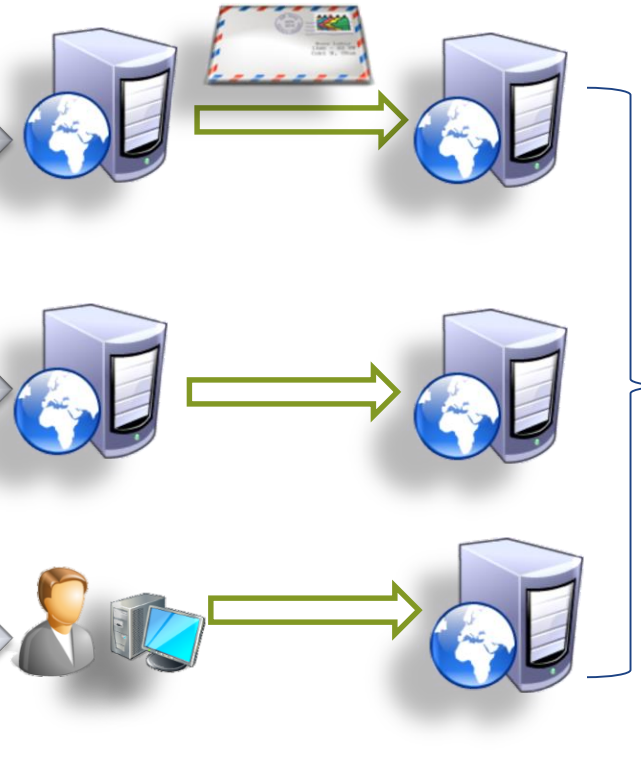
- Data wrapped in a file and then exchanged
- Protocol: AS4
- Data format: Edig@s-XML

Integrated

- Data exchanged directly between applications
- Protocol: HTTP/S-SOAP
- Data format: EDIG@s-XML

Interactive

- Data exchanged through a web application via a browser
- Protocol: HTTP/S



Selection dependent on the type of business described in the CNOT

V. Data Exchange - Article 22: Data exchange system security and availability

- Each transmission system operator and each counterparty shall be responsible for ensuring that the appropriate security measures are undertaken.
  - Secure communication chain
  - Appropriate security measures to prevent unauthorised access of the IT infrastructure

- Each transmission system operator shall be responsible for ensuring the availability of its own system and shall
  - To prevent a single point of failure causes an unavailability of data exchange systems
  - Keep downtime, as a consequence of planned IT maintenance low and inform its counterparties in a timely manner

V. Data Exchange
Article 23: Implementation of Common Data Exchange Solutions

TSOs shall implement the common DE solution within 12 months of when NC comes into force

Parties who cannot communicate with TSOs with their existing DE protocol shall also use the common DE solution

Existing solutions can stay in place as long as they are compliant with the data exchange requirements for the corresponding business processes subject to NRA approval

Common Data Exchange Solutions for Nomination & Matching procedures

Information Flow	From Role	To Role	Confidentiality Level	Common Data Exchange Solution	Optional Data Exchange Solution – second most preferred by stakeholders**
Nomination authorisation *	Registered NU	TSO	Private	Recommendation-Document Based	Recommendation-Document Based
Nomination	Registered NU	(Initiating) TSO	Private	Document Based	Interactive
Nomination	Registered NU	(Matching) TSO	Private	Document Based	Interactive
Forward Single Sided Nomination	(Active) TSO	(Passive) TSO	Private	Document Based	Interactive
Processed Quantities	(Initiating) TSO	(Matching) TSO	Private	Document Based	Interactive
Matching Results	(Matching) TSO	(Initiating) TSO	Private	Document Based	Interactive
Confirmation Notice	(Initiating) TSO	Registered NU	Private	Document Based	Interactive
Confirmation Notice	(Matching) TSO	Registered NU	Private	Document Based	Interactive
Interruption Information	(Initiating) TSO	Registered NU	Private	Document Based	Interactive
Interruption Information	(Matching) TSO	Registered NU	Private	Document Based	Interactive

** Data exchange solution is not mandatory but recommended and has to be negotiated between the TSO and NU*
*** Neither the offering nor the format of an Optional Data Exchange Solution is mandatory*

Common Data Exchange Solutions for CAM & CMP

Information Flow	From Role	To Role	Confidentiality Level	Common Data Exchange Solution	Optional Data Exchange Solution – second most preferred by stakeholders**
Network User Registration*	Network User	Transmission System Operator	Private	Recommendation – Interactive	Recommendation - Interactive
Network User Registration to Auction Office*	Network User	Auction Office	Private	Recommendation – Interactive	Recommendation - Interactive
Approved Network Users*	Auction Office	Registered Network User	Private	Recommendation – Interactive	Recommendation - Interactive
Surrender Capacity Rights	Registered Network User	Auction Office	Private	Interactive	Document Based
Offered Capacity	Auction Office	Registered Network User	Private	Interactive	Document Based
Capacity Bid	Registered Network User	Auction Office	Private	Interactive	Document Based
Allocated Capacity	Auction Office	Registered Network User	Private	Interactive	Document Based
Aggregated Auction Results	Auction Office	All	Private	Interactive	Document Based
Surrendered Capacity Sold	Transmission System Operator	Registered Network User	Private	Document Based	Interactive
Reverse Auction Bid	Registered Network User	Auction Office	Private	Interactive	Document Based
Allocate Reverse Auction Results	Auction Office	Registered Network User	Private	Interactive	Document Based
Secondary Market Sales	Registered Network User	Transmission System Operator	Private	Interactive	Document Based
Secondary Market Sales	Transmission System Operator	Registered Network User	Private	Interactive	Document Based

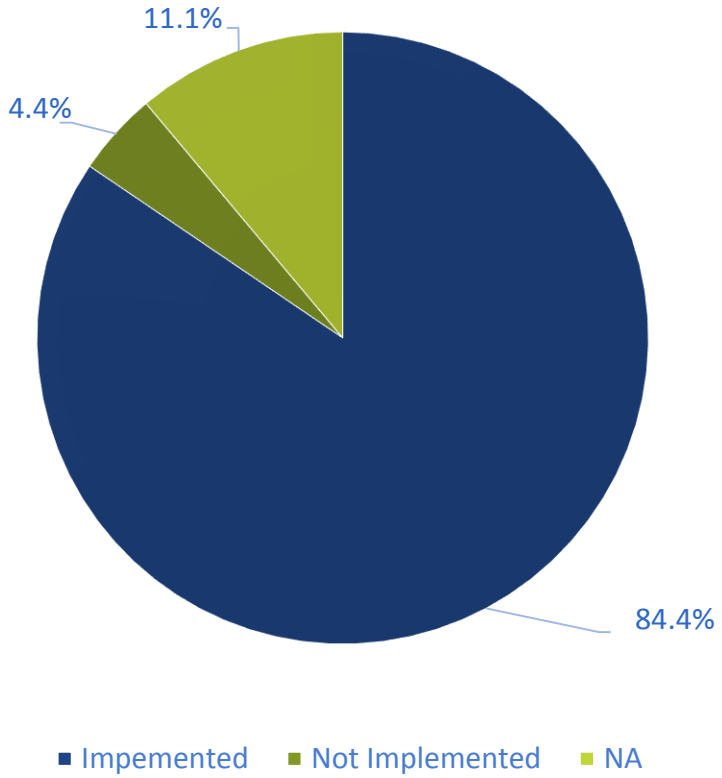
** Data exchange solution is not mandatory but recommended and has to be negotiated between the TSO and NU*
*** Neither the offering nor the format of an Optional Data Exchange Solution is mandatory*

ENTSOG Website – Section data exchange

- AS4 documents for implementation
  - AS4 Mapping Table – Overview of the Service Parameters, Actions and Roles
  - AS4 Usage Profile
  - Profile Comparison
- AS4 supporting documents
  - Setting up an AS4 System – description of the deployment and configuration of AS4 for ENTSOG
  - AS4 agreement approach & configuration management approach
- AS4 Questions and answers
  - Summary of the AS4 Q&A session
  - General Q&A regarding the AS4 profile

INT NC Implementation Monitoring Report 2018

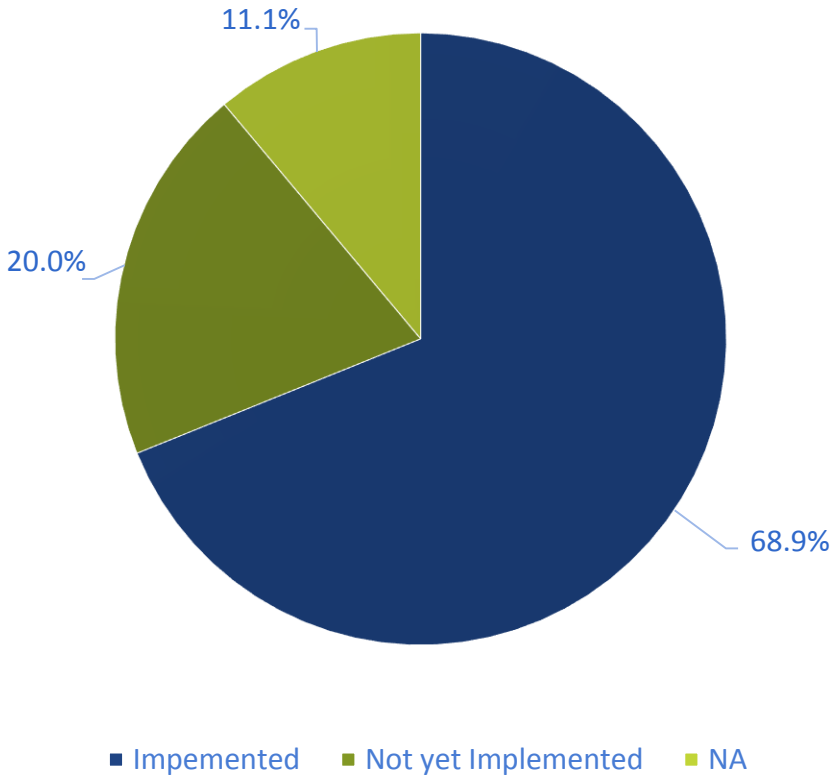
INT NC: Chapter 5, Article 22 – Data exchange system security and availability



This report is based on the answers of 45 ENTSOG members.
84.4% are implemented by ENTSOG's Members, 4.4% not implemented,
11.1% not applicable (TSOs without Interconnection Points)

INT NC Implementation Monitoring Report 2018

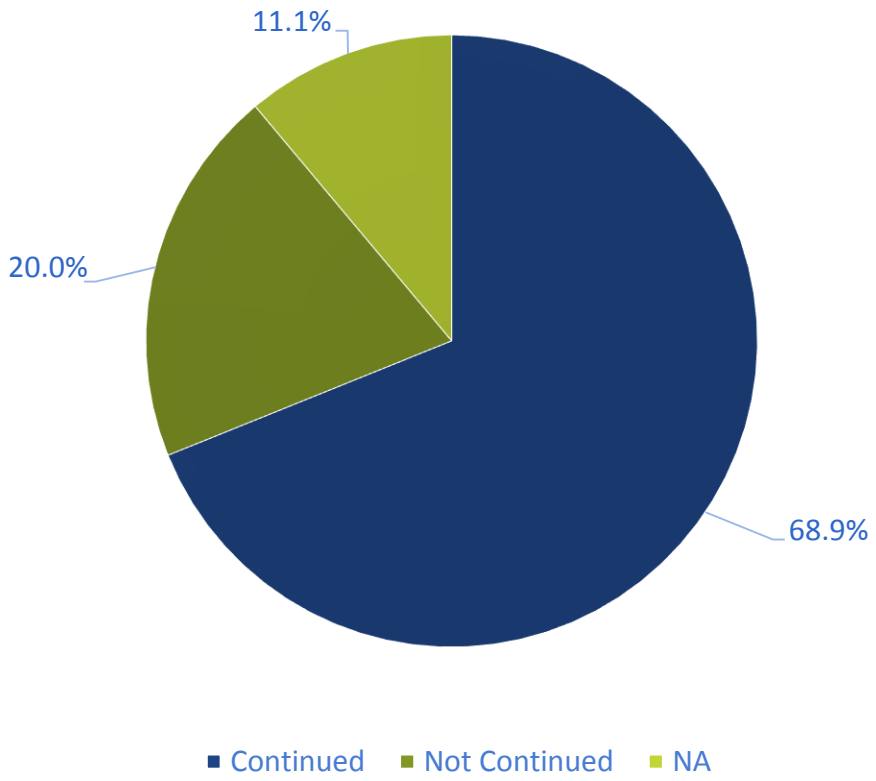
INT NC: Chapter 5, Article 23(1) and 24 – Implementation of the common data exchange solutions



- 68.9% are implemented by ENTSOG's members, 20% not yet implemented, 11.1% not applicable (TSOs without Interconnection Points)

INT NC Implementation Monitoring Report 2018

INT NC: Chapter 5, Article 23(2) and 24 – Continued application of existing solution



- 68.9% continued using existing solutions, 20% stopped using existing solutions, 11.1% not applicable (TSOs without Interconnection Points)

4. Document Based Data Exchange via AS4

Marin Zwetkow
Interoperability Advisor
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AS4 success story

- 38 TSOs have fully implemented AS4 as of Q1 2018
- TSOs have wide choice of AS4 solutions, including open source
  - Multi-vendor interoperability for AS4 is proven in practice
- Several Member States deploy AS4 more widely than just for the Network Code
  - Mandated for national use, also for other types of exchanges, or not just for gas
- The core of ENTSOG AS4 is reused for CEF eDelivery AS4 Common Profile
- CEF conformance testing platform supports Common Profile
  - Will soon also support ENTSOG-specific extensions
- ENTSOG investigates on regular basis potential new developments of the profile considering the market needs
  - AS4 Q&A session hosted by ENTSOG 25/01/18 including 11 participants – provided input for the changes within the ENTSOG AS4 profile

4. Update to the ENTSOG AS4 Usage Profile and current work

Pim van der Eijk
Consultant

ENTSOG AS4 User Profile

Why is a usage profile needed?

- Select the functionality needed for the domain
  - Not all features are relevant

- Narrow down options to
  - Simplify design, build, test & deployment of implementations
  - Reduce cost and time of implementation for all stakeholders
  - Select options that are secure and future-proof

ENTSOG AS4 Versions

Current Version is 3.5

- Published in February 2017
- Changes from earlier published version 2.0 (of June 2015) are mainly clarifications but also some minor (including some incompatible) changes requested by users
- Specification has a full change log back to earliest draft / tracked changed version is also available
- New feature is required support for ebCore Certificate Update

New Draft Version 3.6

- Approved by ITC KG in March 2018
- Fine-tuning and “tightening” of the profile
- Fully aligned with eDelivery AS4 Common Profile
- Draft specification, not approved by ENTSOG INT WG for publication yet
- Minor changes only, no need for changes in software products

ENTSOG AS4 version 3.6

Limitations of profiling in earlier versions of ENTSOG AS4

- The goal of the profile has always been to narrow down options as much as possible
- However, in some cases it is still provided options or left details unspecified
- Some features were recommended instead of mandated:
  - Limitations of AS4 products (e.g. many vendors initially struggled with some of the security algorithms)
  - Anticipation of potential future use, but not used today

Downsides

- Every flexibility in profile becomes a potential source for configuration mismatches between communication partners
- Vendors that strictly implemented the profile had to make costly exceptions (product changes) to accommodate all the others

Tightening the ENTSOG AS4 in version 3.6

Tightened in Version 3.6

- Format for AS4 message identifier
- Signing certificate in XML Signature to be referenced using Binary Security Token reference
- Key transport algorithms in XML Encryption mandatory to use
- Checks mandated on delegation in service provider model
- Firewall guidance removed

Fully aligned with eDelivery AS4 Common Profile

- Stricter than ENTSOG 3.5 and earlier, because vendors were found to have upgraded their products to add support for newer algorithms"

Next steps to be decided by INT WG

- Based on feedback from the market

Ongoing Work

Supporting Certificate Updates

- ebCore Agreement Update specification enables parties to update existing certificate configurations for data exchange using secure AS4 messages
- Support has been required in ENTSOG AS4 since v2.6 (October 2016)
- Goal is to obviate the need for expensive “Migration of Certificate” projects
- Not yet used in practice; ITC KG working on a proof-of-concept

Supporting Partner Configuration

- Data model and XML interchange formats for data exchange configuration parameters to streamline setting up new AS4 partners
- Aligned with new OASIS CPPA3 specification
- Related to ongoing work in EASEE-gas to host a configuration management portal for its members

5. FUNC Issue on data exchange

Antonio Gomez Bruque
Interoperability Subject Manager
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Introduction and status update

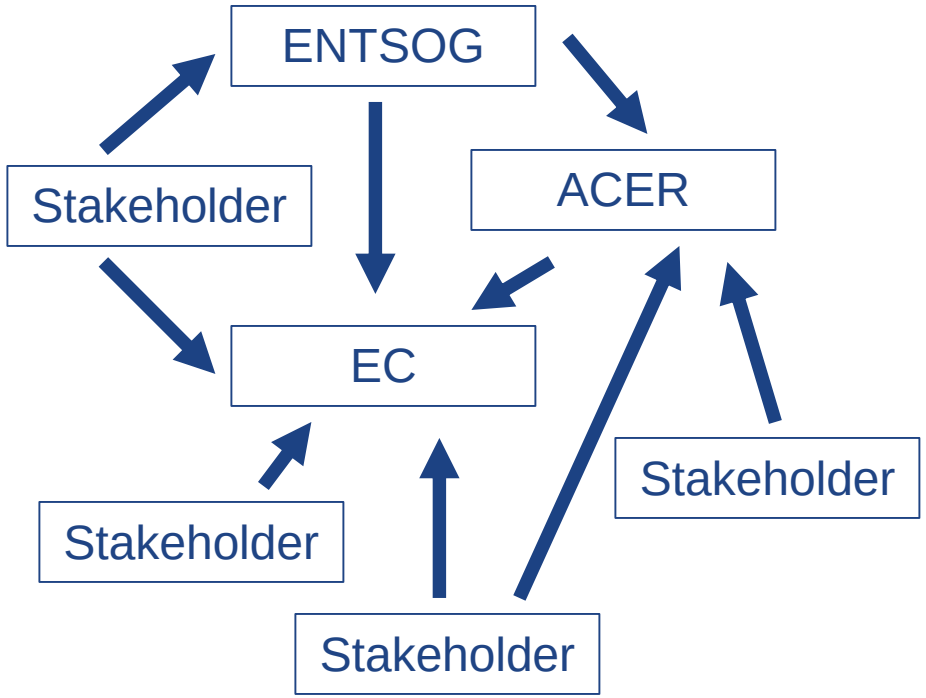
Functionality Process goals

The purpose of the Functionality process

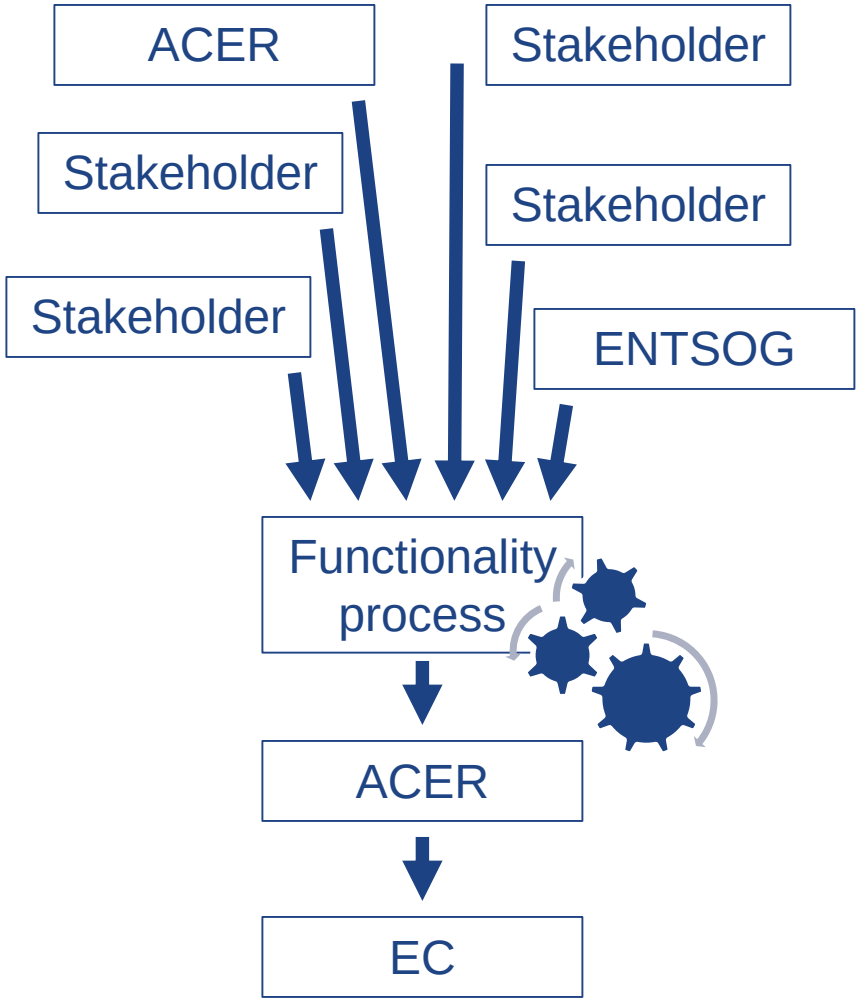
- Option for stakeholders to provide input on their concerns with the existing gas-related legislation*
- Any issues associated with the NCs and GLs can be raised
- Ensure ENTSOG and ACER are working side by side with equal mandate in such discussions about gas-related legislation
- Issue solution(s)
- Run jointly by ACER and ENTSOG, supported by EC

**The application of Reg. 713/2009 and Reg. 715/2009 is not affected.*
This process is without prejudice to the existing obligations and powers of TSOs and NRAs.

Robust Transparent Conceptual Process



VS



Functionality Process scope

The Functionality process scope:

- Related to and/or derived from NCs or GLs (CAM NC, CMP GL, BAL NC, INT NC, TAR NC, TRA GL)
- Issues previously being addressed will not be reconsidered unless change in materiality can be shown.
- Also other validation criteria can be used, if agreed between ACER and ENTSOG.

Gas Network Codes Functionality Platform - **www.gasncfunc.eu**

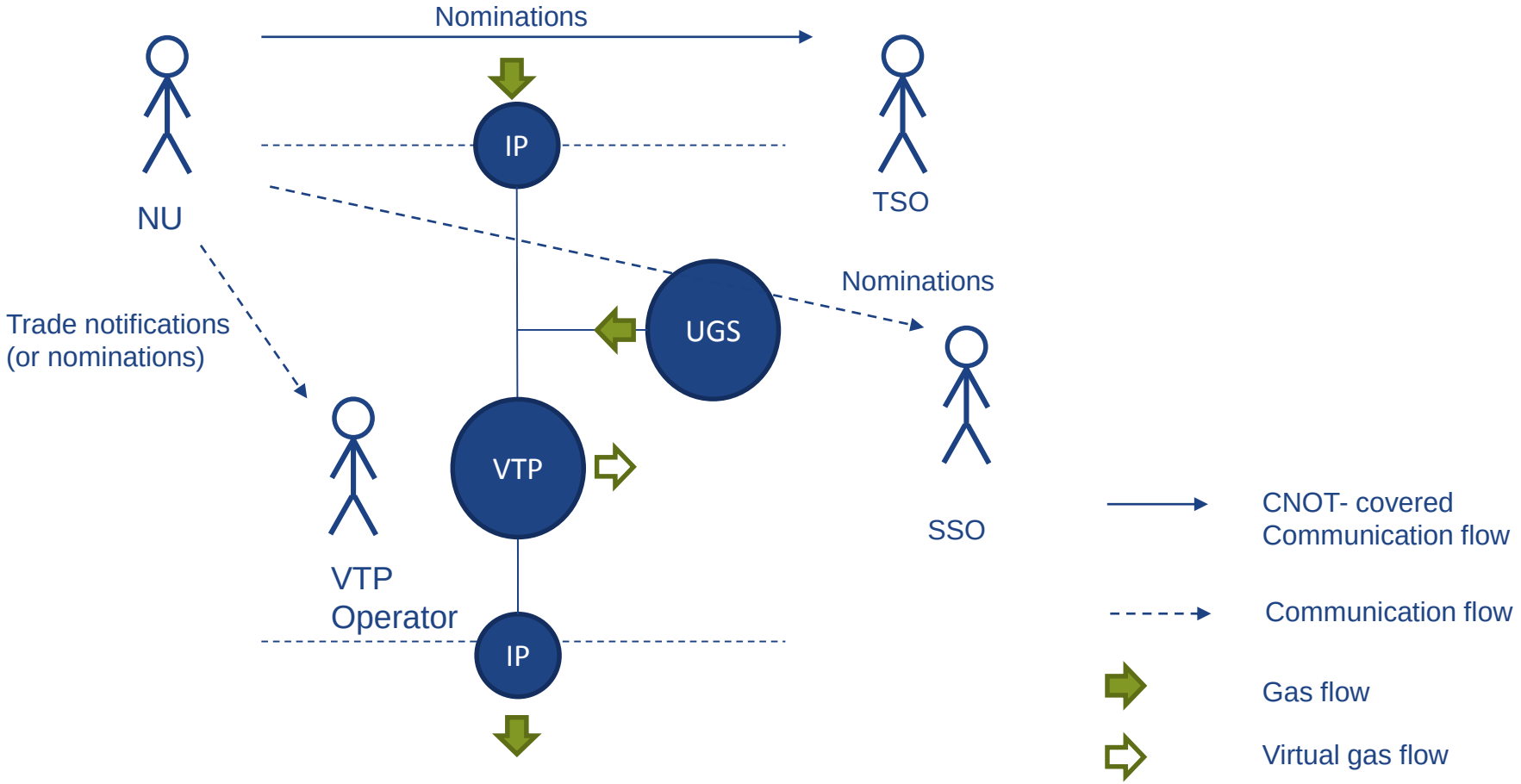
Data exchange at VTPs and UGS

Issue description (Equinor)

- **Issue subject**: Communication protocol and encryption (original title)
- **Reported issue**:
  - Storage operators and market area operators (Gaspool and Netconnect Germany) tell they do not need to follow article 23 (Implementation of Common Data Exchange Solutions. In this case, AS4).
  - This leads to an extra cost where network users need to keep AS2 and also ask their vendors to support new encryption algorithm to AS2.
  - In addition they also claim they are not obliged to support edig@s xml (file format) for nominations on the VTPs.
  - If the network code isn't covering these companies the Network Code on Interoperability and Data Exchange Rules, Commission Regulation (EU) 2015/703 has a reduced effect on harmonization.
- The issue has received the support of ENGIE, GasTerra and EASEE-Gas

Data exchange at VTPs and UGS

Issue context: Nominations and Matching process



Current ENTSOG CNOT only covers nominations at IPs

Data exchange at VTPs and UGS

Overview of steps taken so far

- Issue categorized as valid and of European scope
- Potential solutions jointly developed by ENTSOG and ACER
  - VTP issue: European solution (NC amendment)
  - Storage issue: National solution vs European fully fledged binding solution
- Stakeholder meeting on 16 May
- Public consultation open from 17 May to 13 June
- Consultation report published in August on the FUNC platform
  - 30 answers received
  - General support for NC amendment and CNOT extension
- In view of PC results, ENTSOG and ACER updated draft solutions by 25 September
- Stakeholder meeting on 2 October (discussion)
- ***Next steps***
- ACER and ENTSOG to reach a final agreement on the solutions
- Publication of the solution and closure of the issue expected in early 2019

Data exchange at VTPs and UGS

Public consultation overview

- 30 participants: 15 NUs, 7 TSOs, 5 SSOs, 2 MAMs, 1 NRA, 2 associations, 1 clearing responsible party, 1 LSO.
- VTP issue:
  - 24 vs 1 participants support an amendment of the NC to make VTP operators use common data exchange solution
  - One NU argued that there is a stronger case for harmonizing trade “nominations” than for trade notifications.
  - One NU considers allocation and processes connected to balancing should also be harmonized.
- Storage issue:
  - 18 vs 7 respondents believe lack of harmonization is a barrier
  - 19 participants would benefit from harmonization at other points requiring nominations (BAL NC Article 18)
  - 5 supported “National voluntary solution” vs 19 for “Fully fledged European solution”

Updated draft solutions

Data exchange at VTPs and UGS

Solution summary

- *Amendment of the INT NC (European solution for VTP + national regulatory for other points):*
  - *Insert in Article 1 (2): "Chapter V shall apply to **IPs, virtual trading points** **and, subject to NRA decision, other points**"*
  - *Change Article 20 (1) "counterparties means network users active at **IPS or Virtual trading points** **or other points within the meaning of Article 1 (2)**"*
  - *Add **Article 24a:** Article 20 (2) – 23 shall apply to the transmission system operator, **entities who carry out tasks of the transmission system operator** **and other system operators to the extent they are affected by Article 1 (2)**"*
  - *New **Art 26a**: The implementation date of the amendments in Article 1(2), 20 (1) and 24a shall be XX.YY.2020 (if the amendment process starts this year) for VTPs and, subject to NRA decision, for other points.*
- *ENTSOG will update the CNOT for Nominations and Matching to include:*
  - *An explanation of the different types of trade notifications.*
  - *Nominations to storage facilities, LNG terminals and other points subject to nomination (as per BAL NC article 18)*
  - *Extension of the CDES table for these data exchange requirements*
- **NRA or competent authority, to be further discussed.*

Data exchange at VTPs and UGS

Considerations on the updated draft solution

- The updated draft solution would:
  - Clarify that harmonization is applicable also to VTPs from a common future date
  - Clarify that parties carrying out data exchange on behalf of TSOs (such as Market Area Managers) are also bound by the INT NC.
  - Leave discretion to NRAs in:
    - Applying the ENTSOG CNOTs beyond the scope of the INT NC (IPs + VTPs) to other points (storage points, LNG terminals) and deciding on the implementation date
    - Setting obligations for SSOs, LSOs and other operators not acting on behalf of a TSO.
- Any future harmonization work on other topics (e.g. allocations) would be reasonably framed by the amended INT NC by distinguishing between the minimal interoperability scope (IPs + VTPs) and possible extensions as decided by NRAs
- *We expect that NC amendment process will not be fast considering that a new parliament will be elected in 2019 and the on-going higher level regulatory discussion (negotiations on Electricity regulation and the gas package)*

6. CEF eDelivery team

Maarten Daniels

CEF

CEF eDelivery

Conformance Testing for the ENTSOG community

04 October 2018

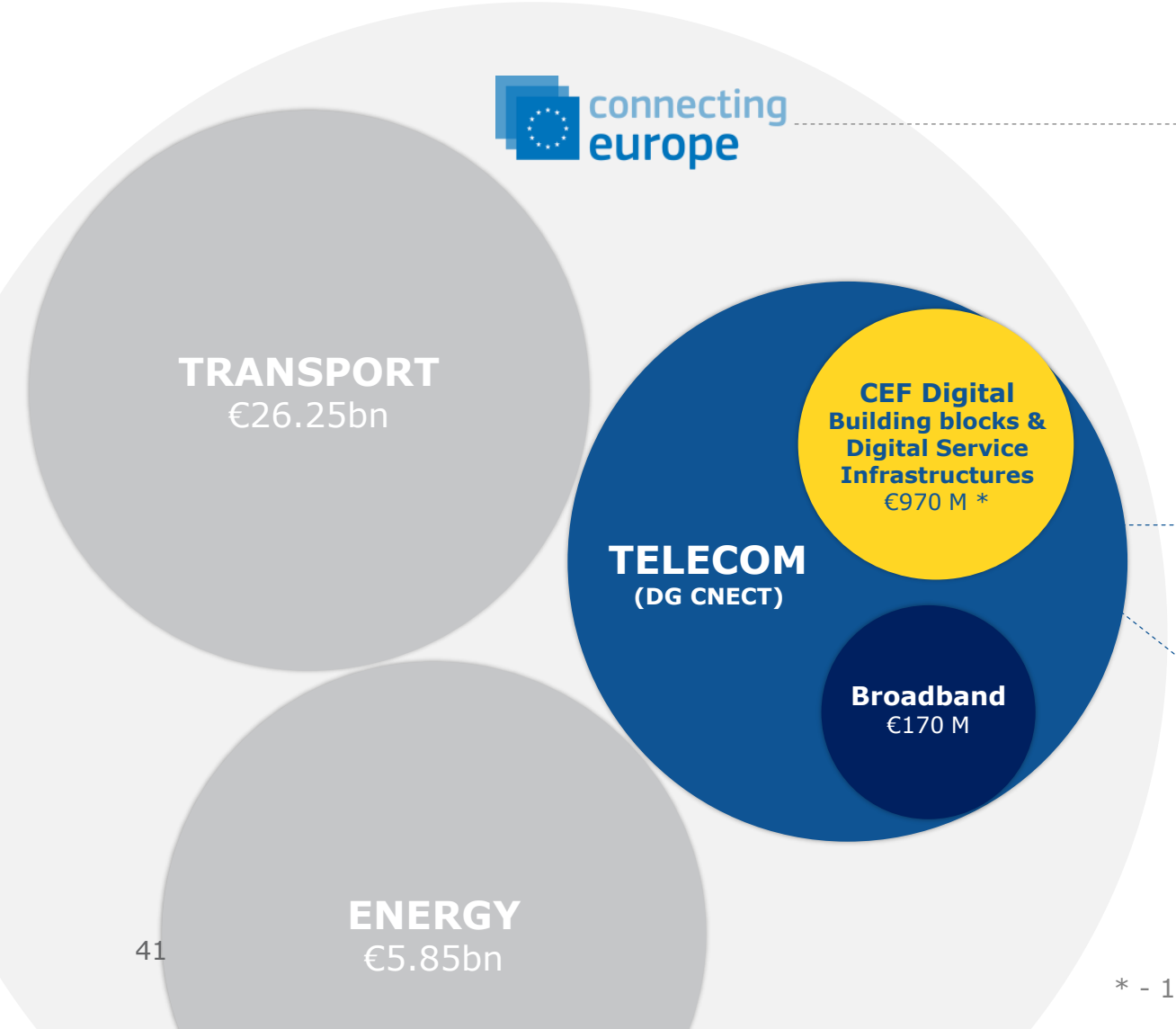
Agenda

1. Introduction to CEF eDelivery
2. eDelivery AS4 profile and its relation to the ENTSOG AS4 profile
3. CEF eDelivery Conformance testing service
4. Grants available from INEA
5. Q&A

1

Introduction to CEF eDelivery

The CEF building blocks are funded by the Connecting Europe Facility



CEF Regulation

The Connecting Europe Facility (CEF) is a regulation that defines how the Commission can finance support for the establishment of trans-European networks to reinforce an interconnected Europe.

CEF Telecom Guidelines

The CEF Telecom guidelines cover the specific objectives and priorities as well as eligibility criteria for funding of broadband networks and Digital Service Infrastructures (DSIs).

CEF Work Programmes

Translates the CEF Telecom Guidelines in general objectives and actions planned on a yearly basis.

* - 100 M Juncker Package

CEF is a funding instrument that will contribute to the completion of the European Digital Single Market

1

Funds Commission projects to digitise key sectors under the condition that they use CEF building blocks

Justice, home affairs and citizens' rights		Science and Technology	Business	Employment and Social Rights	
					
eJustice Portal	ODR	Open Data	BRIS	EESSI	etc.


IDENTIFY *with* eID


SIGN *with* eSignature


EXCHANGE *with* eDeliver y

INVOICE *with* eInvoicing


TRANSLATE *with* eTranslation

2

Funds Member States to participate in the sectorial projects

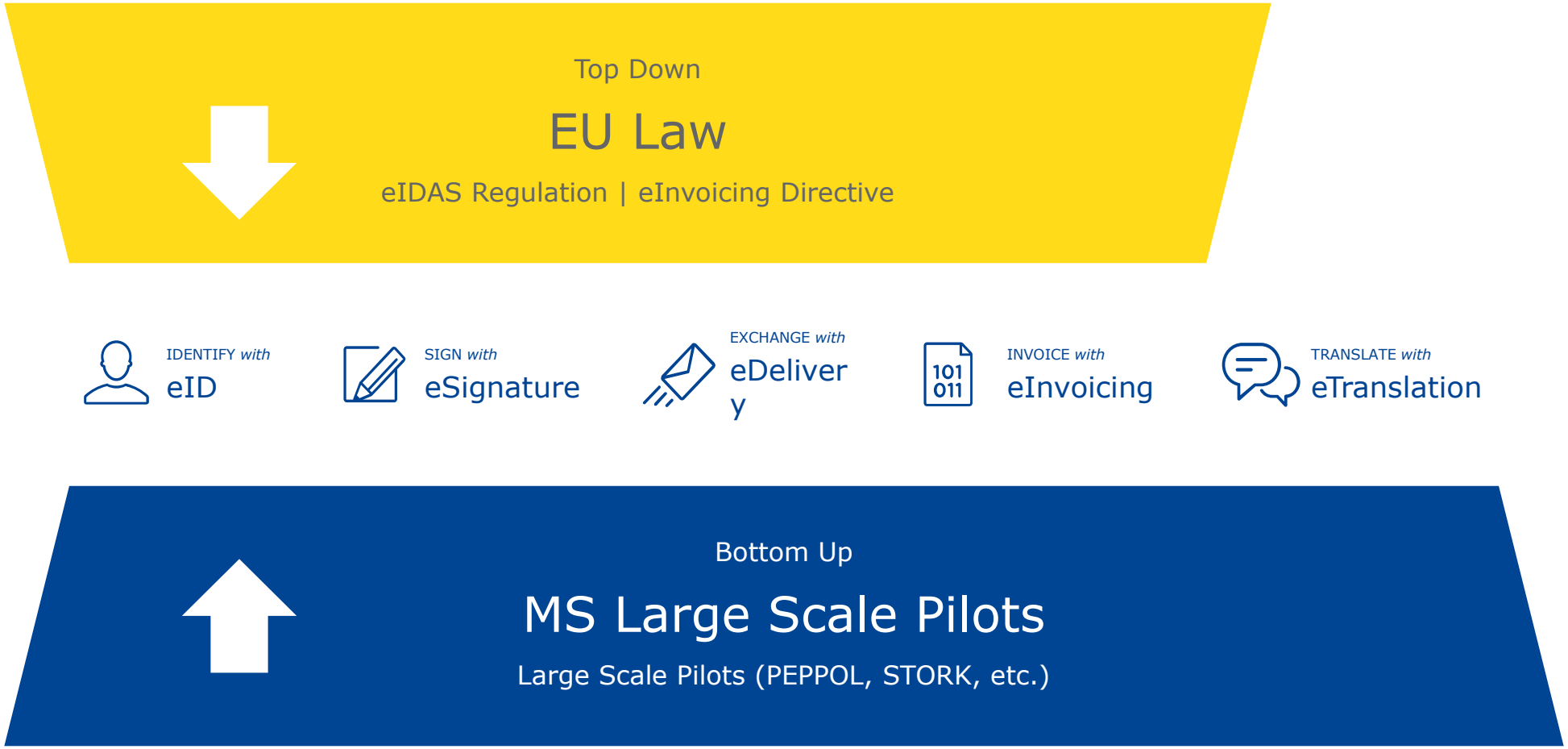
Typically 'deployment' projects at national level
(up to 75% of eligible cost)

3

Funds the use of building blocks in these sectors by the Commission and in the Member States

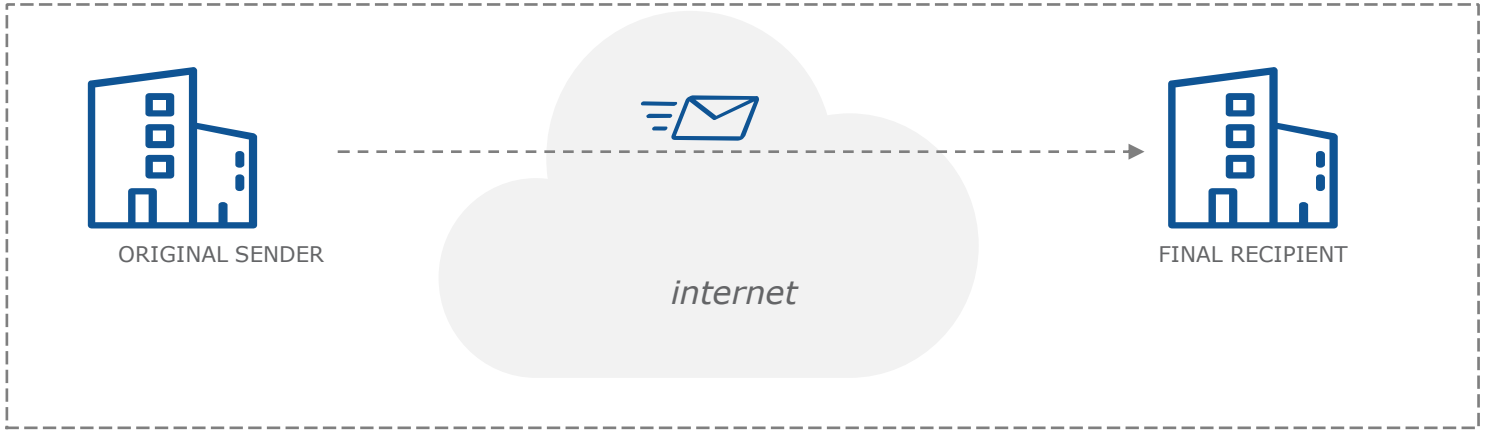
European Commission

The CEF building blocks were developed by the Member States through pilots and most are supported by legislation such as eIDAS

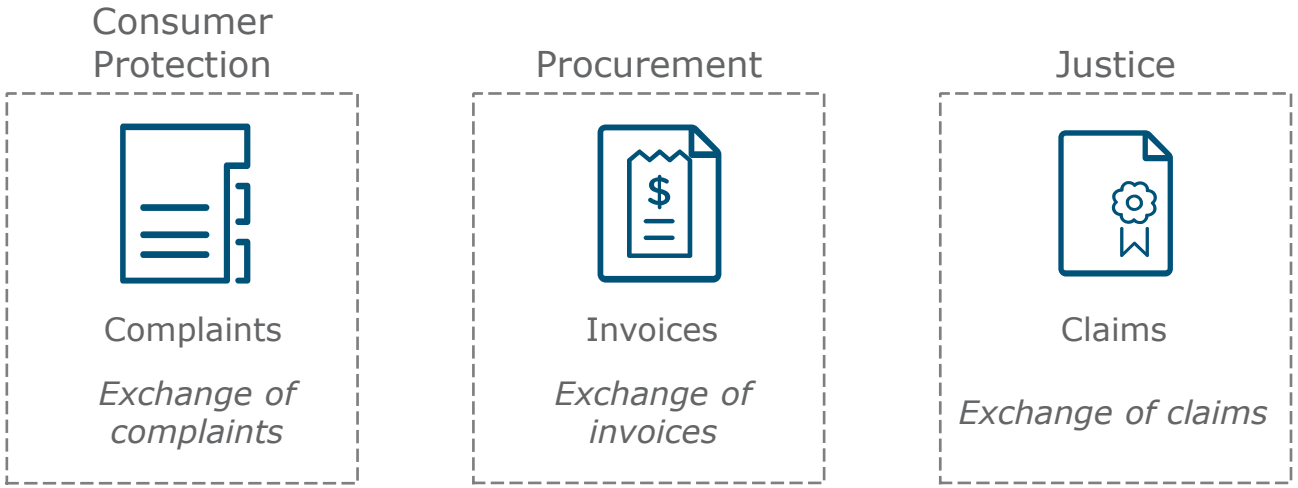


The eDelivery Use-Case

DOMAIN-NEUTRAL USE CASE



Examples of DOMAIN-SPECIFIC USE CASES



eDelivery *onboarding-race*

COMMITMENT GATE

SET UP

PHASE	PROSPECTING	ELICIT requirements	DESIGN eDelivery infrastructure	SELECT eDelivery solutions	DEPLOY eDelivery solutions	OPERATE eDelivery solutions	
CEF DSIs	CyberSec **DG CNECT** ePayments **ECB**	eTranslation / ELRC **DGT**	eHealth (AS4) **DG SANTE**		eHealth (SMP) **DG SANTE** EESSI **DG EMPL**	ODR **DG JUST** eProcurement (*) **GROW | DIGIT**	EU-CEG **DG SANTE** PNR *(regulated)* **DG HOME** e-Justice | eCodex **DG JUST** BRIS **DG JUST**
Other Policy Projects	Customs Single Window **DG TAXUD** ECRIS **DG JUST** IRI **DG JUST** Maritime Single Window **DG MOVE** Central Clearance Import **DG TAXUD** IRMA **DG HOME** e-enforcement academy **DG JUST** IMI **DG GROW** Inland Waterway Transport **DG MOVE** NEW	CISE **DG MARE** eTransport Docs **DG MOVE**	TACHOnet **DG MOVE** eEvidence **DG JUST** EUDAMED 3 **DG GROW**	DECIDE (upgrade) **SG** EPREL **DG ENER** ICS2 **DG TAXUD**			
Member State led projects (including CEF grants)			Utdataprojektet **ESV**	TOOP (once-only) Development of NL eDelivery gateway **Logius.nl**	Slovenia Supreme Court's communications **Laurentius** e-Impact (CEF Transport)	NOBLE project (Postal Services)	PEPPOL (upgrade to AS4)
Other institutions	**European Data Protection Supervisor** **European Chemical Agency** NEW **European Anti-Fraud Office** NEW	Parliamentary Q + Trialogue + OP **Parliament** **European Aviation Safety Agency**	**European Citizens' Initiative** **European Union Agency for Railways**		CIxP **The European Council** eDocX2017 **DG HOME (EMCDDA)**		ENTSOG (Gas operators)

(*) Also part of PEPPOL

* https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/Success+Stories

Read all the Connecting Europe success stories on CEF Digital

View ›

2

eDelivery AS4 profile and its relation to the ENTSOG AS4 profile

Technical specifications of eDelivery

Available for free

Supported by multiple programming languages

Independent from any specific vendor products

Supported by (Open Source and Commercial) solutions that can be purchased in a competitive environment

European Commission

eDelivery AS4 profile vs ENTSOG AS4 profile

- Both profiles are closely related
- Main differences relate to the Usage Profiling
- Modularisation of the eDelivery AS4 profile has been released in May 2018
- The result is a common core (shared with the ENTSOG AS4 profile) and optional additional modules, called profile enhancements
- This provides opportunities for ENTSOG solution providers to perform conformance testing and mitigate potential interoperability issues

3

CEF eDelivery Conformance testing service

CEF eDelivery Service offering

SOFTWARE

Sample software maintained by the EC (with documentation)

- Access Point (AP)
- Service Metadata Publisher (SMP)
- Service Metadata Locator (SML)

OPERATIONS SERVICES

Managed services	Testing services	Supporting services
Public Key Infrastructure (PKI)	Connectivity testing	Training & Deployment
Service Metadata Locator (SML)	Conformance testing	Service Desk

STAKEHOLDER MANAGEMENT SERVICES

Onboarding services (for stakeholders)	Community management services
Self-assessment tool (reuse approach)	Developers Community
Onboarding of new stakeholders	

Available

Coming soon

(example) TECHNICAL SPECS OF EU-WIDE INITIATIVES

- Access point specifications
- SMP specifications
- SML specifications
- Security control guidance

STANDARDS OF ESOs

- Connector specification

Service offering Description (SoD)

All services are described in an SoD describing its purpose, the users for which it is for, its benefits and the process to obtain it

Service Level Arrangements (SLA)

Documents that describe Service Level Targets to be reached when delivering Building Block Services.

eLearning, videos, success stories

Some services feature multimedia such as eLearnings, instructional videos or success stories to help grasp what the service is about

CEF Digital platform

CEF eDelivery service offering, and more about the building block, can be found online

CEF Digital >

Conformance testing

OBJECTIVE OF THE SERVICE

Verify that an implementation of the CEF eDelivery Access Point and SMP specifications, a software package either commercial or Open Source, conforms to the specifications of the CEF eDelivery Access Point.

The following specifications are tested within the scope of this service:

- eDelivery AS4 Profile
- eDelivery SMP Profile

The CEF eDelivery Team provides ready to use test cases, a testing platform, and supports the users of the CEF eDelivery Conformance Testing service during the entire testing process.

BENEFITS

- Confirm and assure your users/customers that your software package or implementation of the CEF eDelivery Access Point conforms to the CEF eDelivery specifications
- Testing anywhere at anytime
- Testing supported by professional staff of the European Commission

Back to Service offering >

USERS

Software Providers

Service Providers

STATUS

Service

Documentation

More info

CEF Digital >

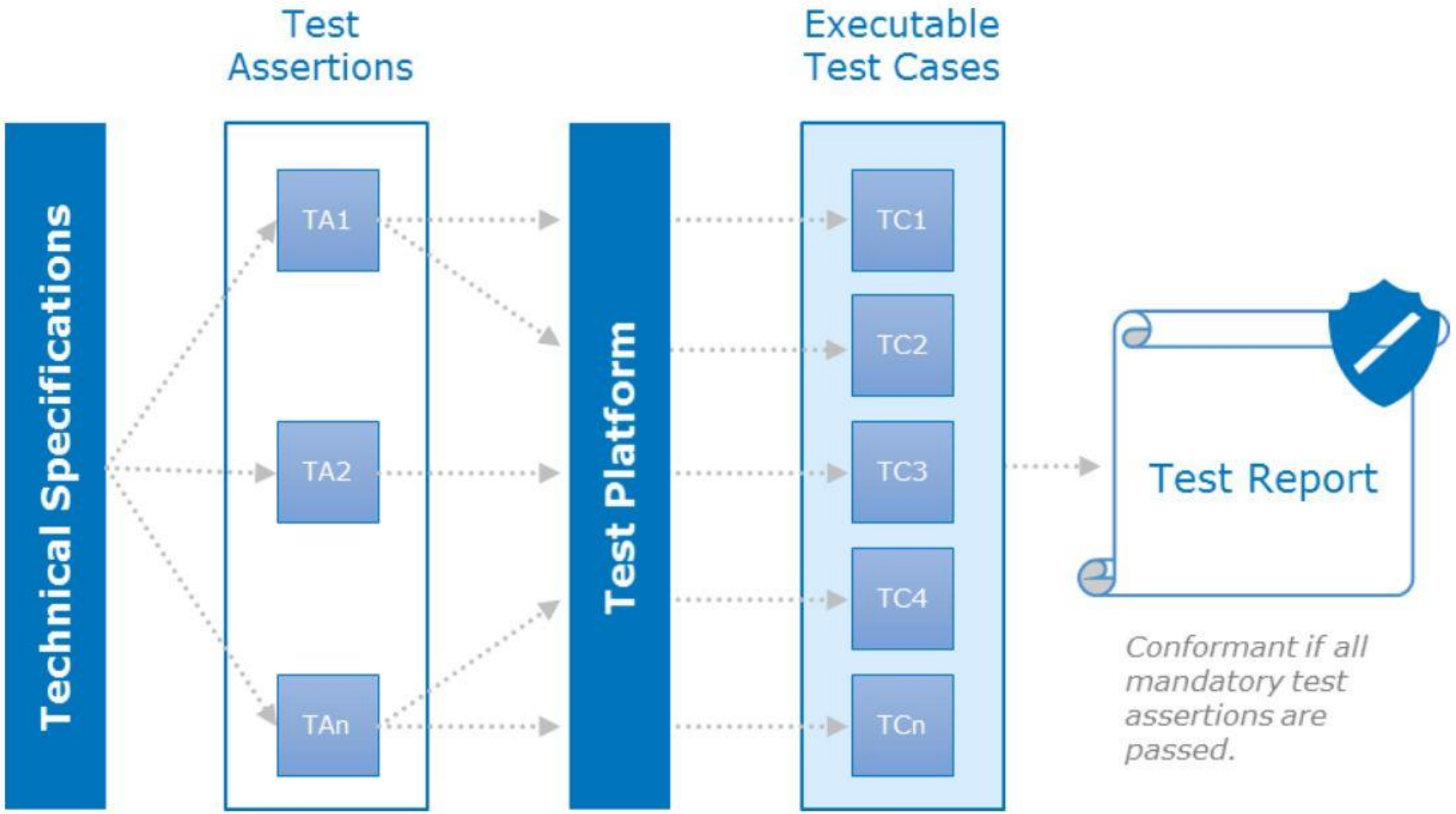
Get started

Contact us >

Benefits of CEF eDelivery Conformance Testing

- Get assurance that a software package is conform the CEF eDelivery specifications (CEF eDelivery AS4 and ENTSOG AS4 share the same common core)
- Supporting tools developed and proofed in the context of the e-SENS project
- Testing supported by eDelivery team
- Quick testing cycle with reduced cost and time
- Testing anywhere at anytime
- Tests are fully domain-neutral
- Ready to use test cases and test platform

From specifications to test cases



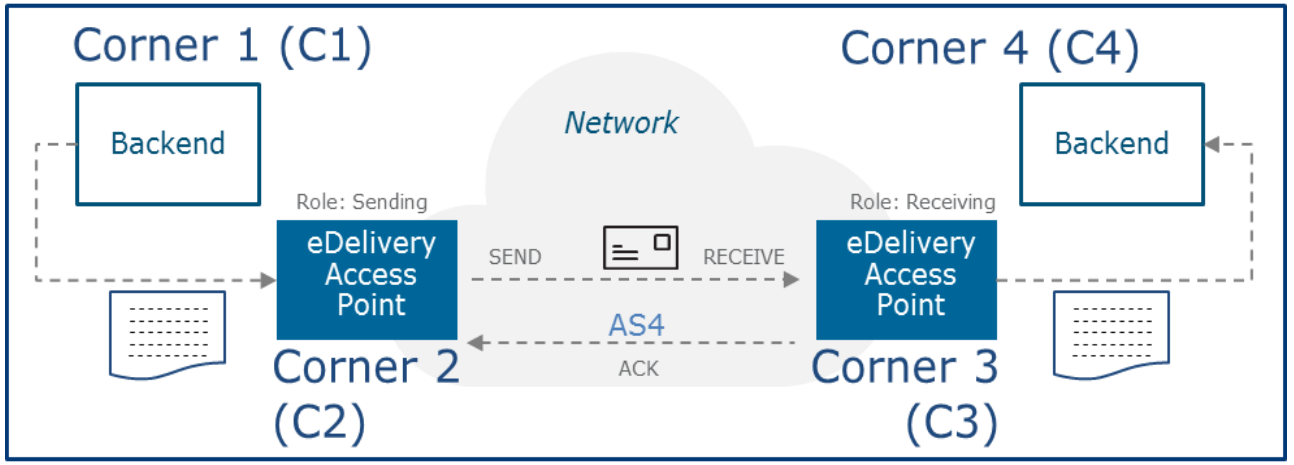
Sample AS4 test case

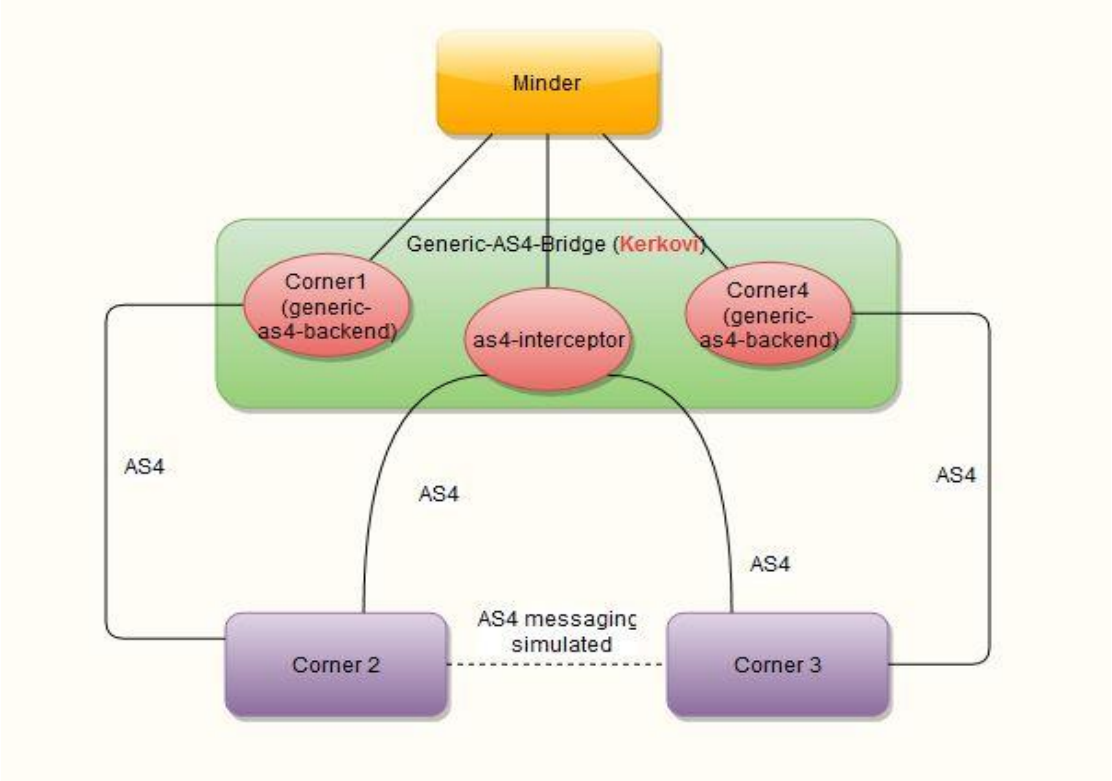
The requirements are used as input to create Test Assertions

AS4_CP_TA05	
TA id	AS4_CP_TA05
Normative source	[eDelivery-AS4] "Due to the mandatory use of the AS4 compression feature in this profile (see section 2.2.3.3), XML payloads MAY be converted to binary data, which is carried in separate MIME parts and not in the SOAP Body. Conformant eDelivery AS4 messages therefore always have an empty SOAP Body."
Target	Payload location
Prerequisite	• SMSH and RMSH are configured to exchange AS4 messages according to the eDelivery AS4 profile. (One-Way/Push MEP) • Producer submits a message with metadata information and an XML payload to the SMSH. • SMSH generates an AS4 message to send to the RMSH.
Predicate	In the AS4 message created by the SMSH, the compressed payload is carried in a separate MIME part and the soap body is empty.
Prescription Level	Mandatory
Tag	Payload packaging
Variable	

Sample AS4 test case

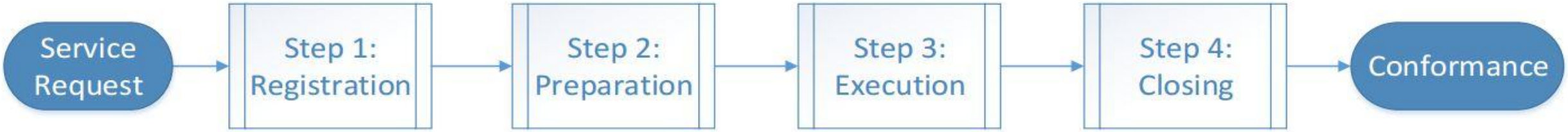
The Test Assertions are implemented as Test Cases on the Test Platform



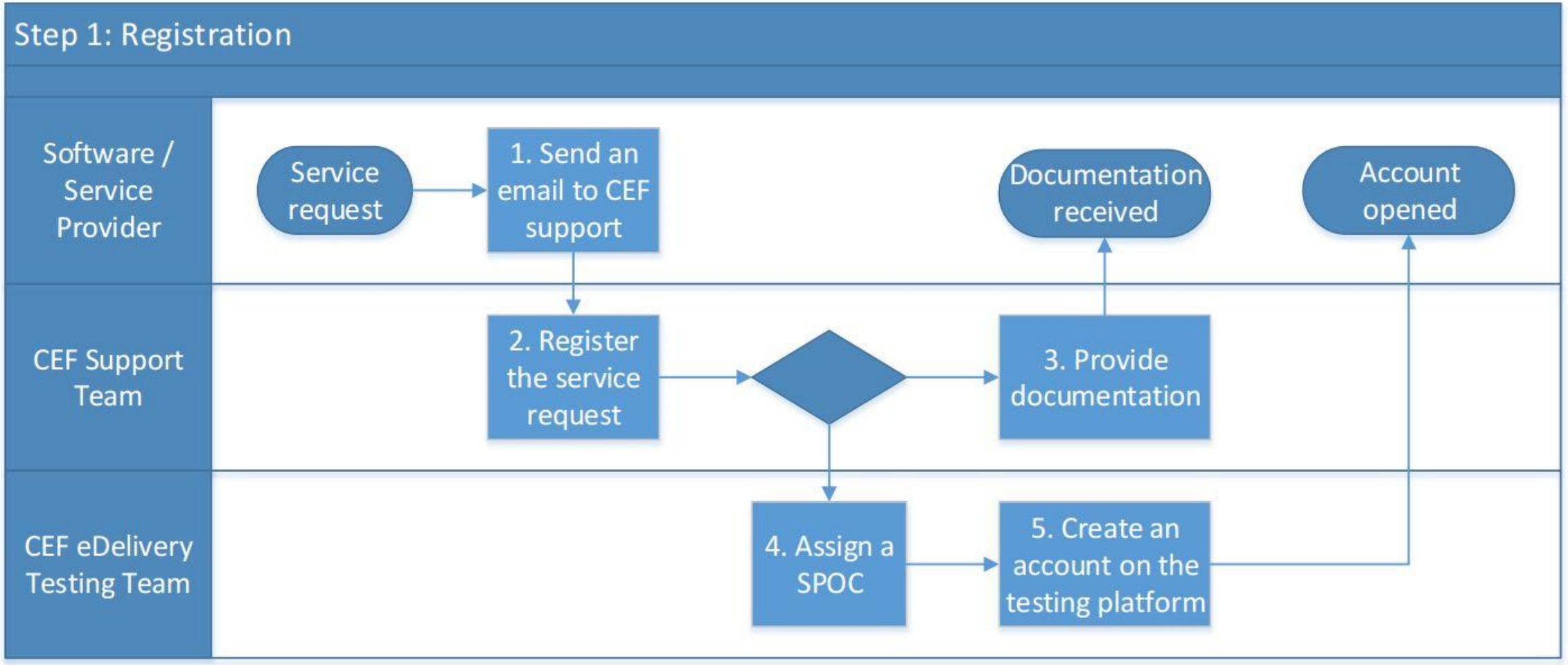


European Commission

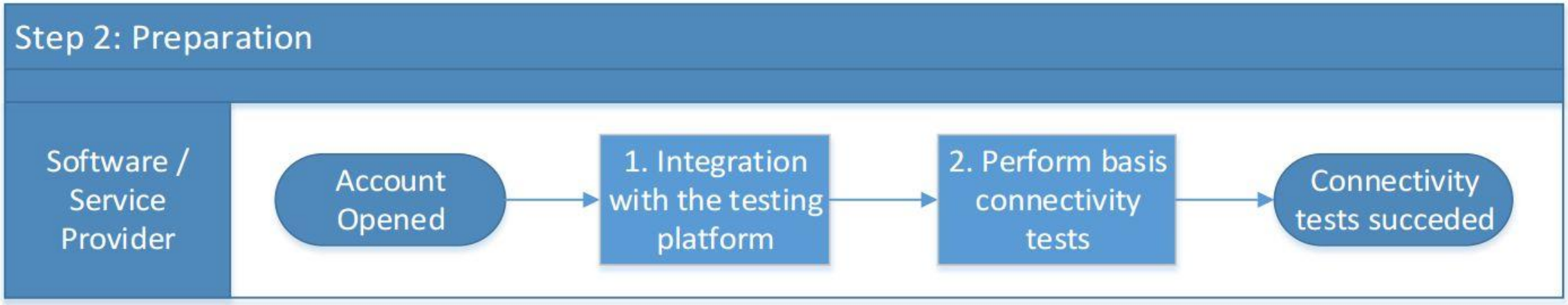
Conformance Testing process



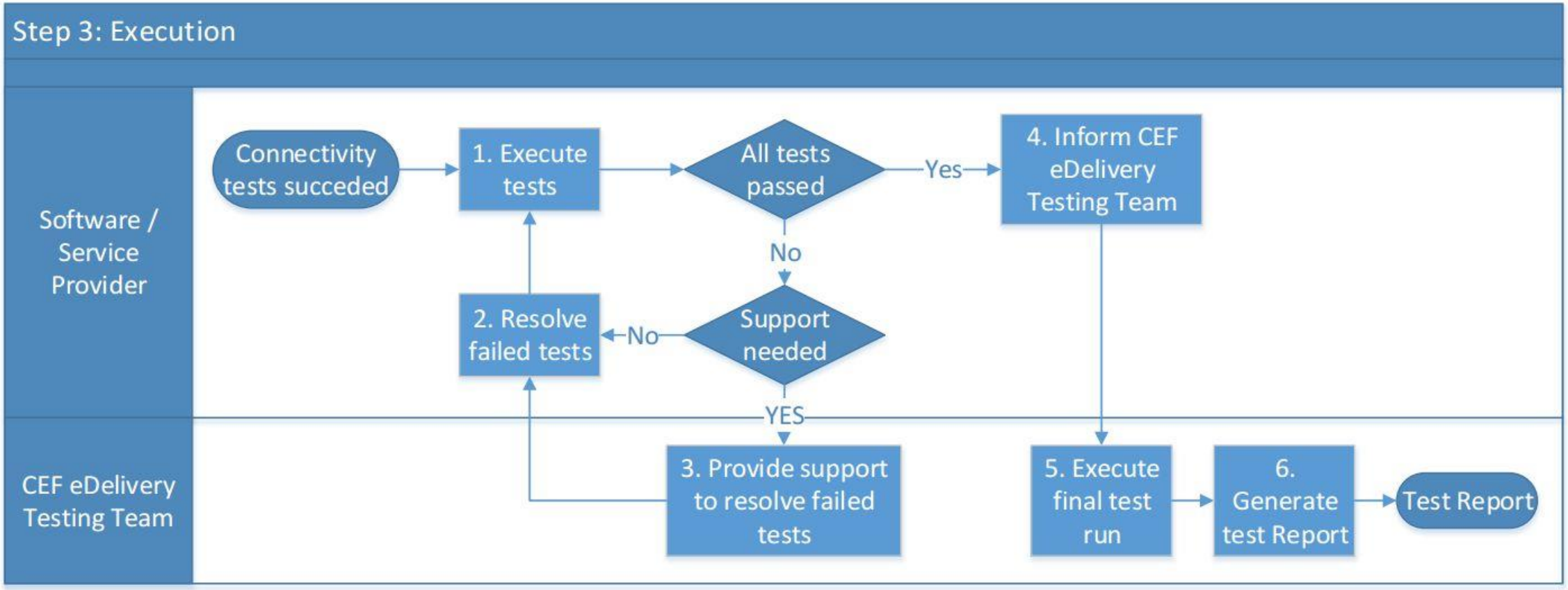
Conformance Testing process



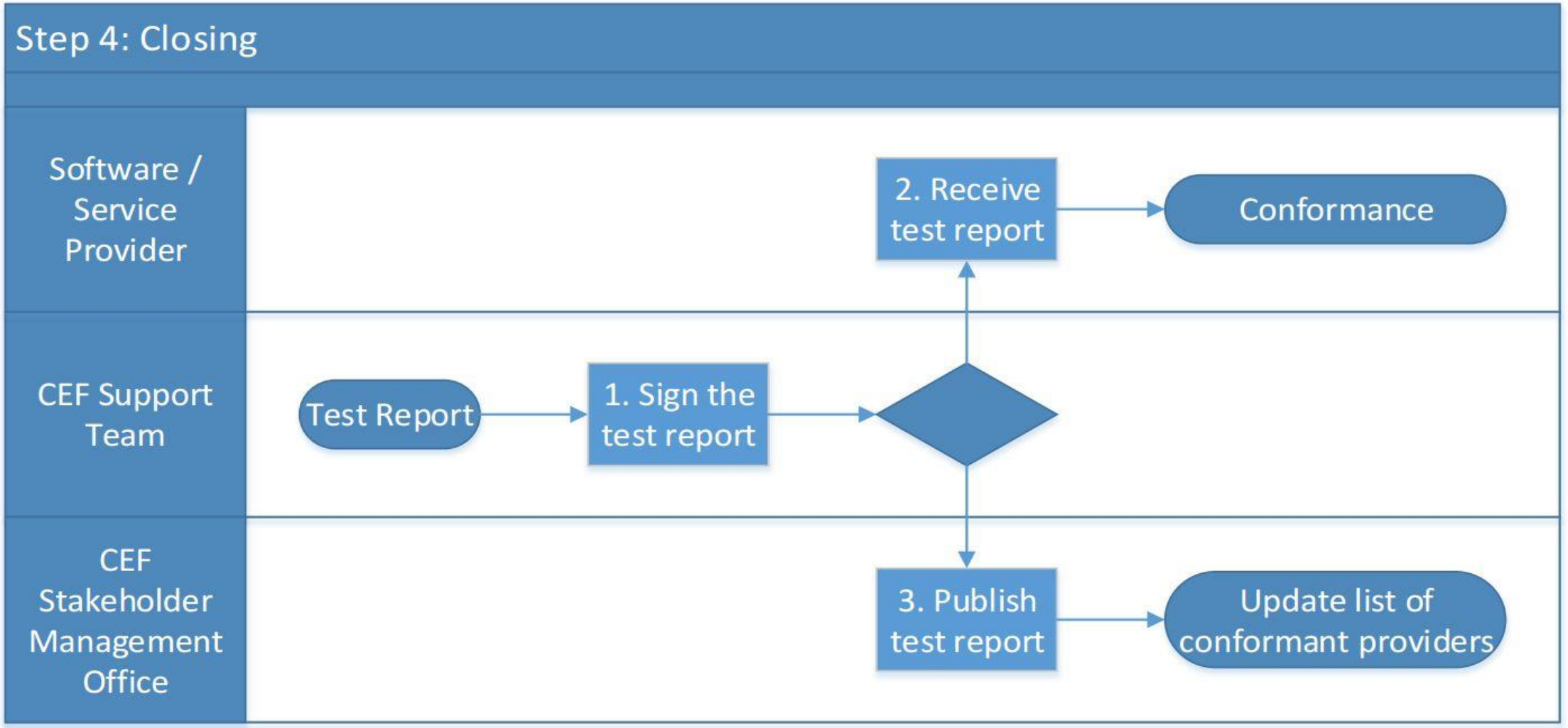
Conformance Testing process



Conformance Testing process



Conformance Testing process



What does Conformance Testing not cover?

- Conformance testing is complementary to:
  - Functional testing
  - Connectivity testing
  - Interoperability testing
  - Load testing
  - Vulnerability testing

ENTSOG specific optional module?

- Domain Profiling (ENTSOG specific)
  - Values for PartyId and @type, Service, Action, Role
  - Values for AgreementRef, ConversationId
  - MPC
  - Payload part property
  - EDIG@S payloads
- ENTSOG specific Test Assertions and Test Cases are now available to be verified in the ENTSOG community
  - We are looking for a candidate provider to be the first ENTSOG module conformant solution.
  - Based on the feedback, the tests can be refined (if needed) and rolled out to all ENTOG interested solution providers.

Vendors - Take action and become conformant

Benefits of being conformant to the CEF eDelivery specifications

Vendor perspective

- Get additional Quality Assurance for your product
- Increase your chances for successfully communicating with other implementations
- Get brand and product visibility by being present on the list of conformant implementations
- Be ready for call for grants that require an implementation to be conformant

- The service is provided for free
- Assistance is available during the entire process

Clients - Take action and require vendors to become conformant

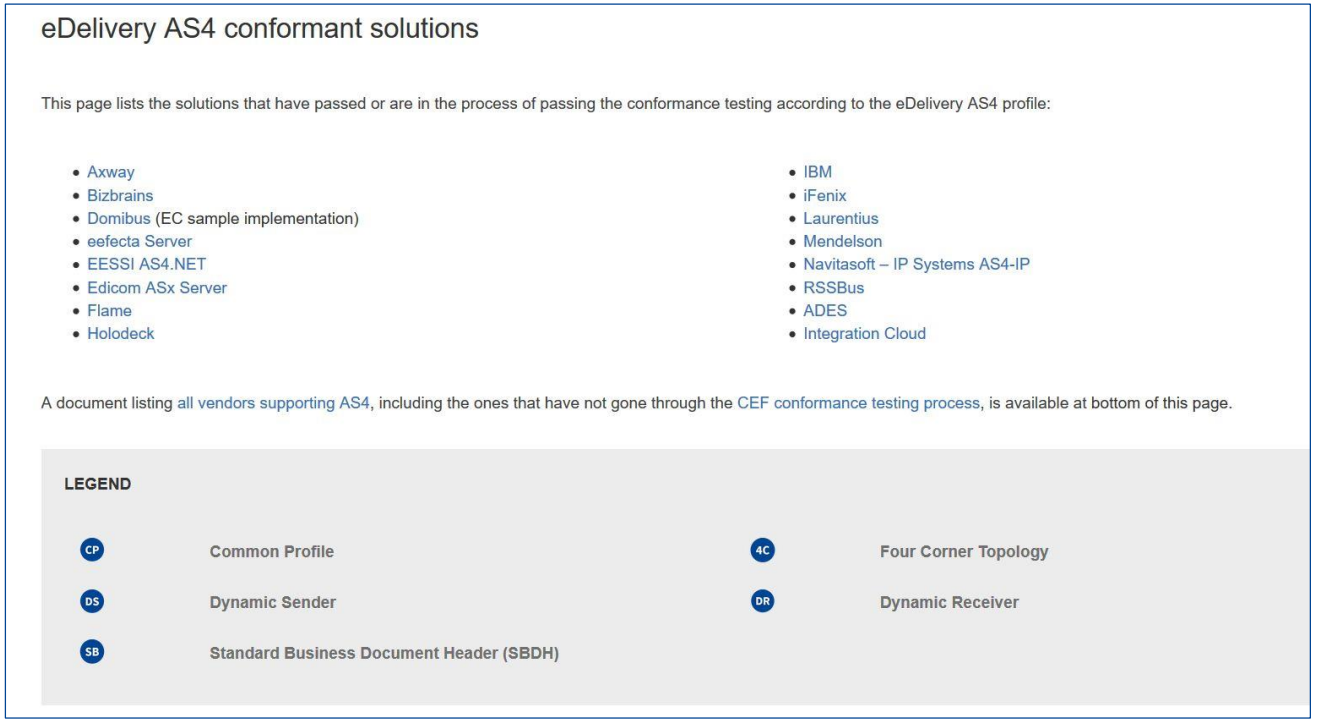
Benefits of being conformant to the CEF eDelivery specifications

Client perspective

- Get a clear view on the capabilities of the solution you are buying
- Reduce the risk of buying a solution that is not interoperable with other implementations
- Prevent spending time and money on debugging AS4 related issues in production

- With the availability of the modularisation of the eDelivery AS4 profile and the ENTSOG specific module, the conformance test service is adapted accordingly and the ENTSOG clients will have a clearer view on their "fit" for each listed AS4 solution

eDelivery AS4 conformant solutions



eDelivery AS4 conformant solutions

This page lists the solutions that have passed or are in the process of passing the conformance testing according to the eDelivery AS4 profile:

- Axway
- Bizbrains
- Domibus (EC sample implementation)
- eefecta Server
- EESSI AS4.NET
- Edicom ASx Server
- Flame
- Holodeck
- IBM
- iFenix
- Laurentius
- Mendelson
- Navitasoft – IP Systems AS4-IP
- RSSBus
- ADES
- Integration Cloud

A document listing all vendors supporting AS4, including the ones that have not gone through the CEF conformance testing process, is available at bottom of this page.

LEGEND

CP Common Profile

4C Four Corner Topology

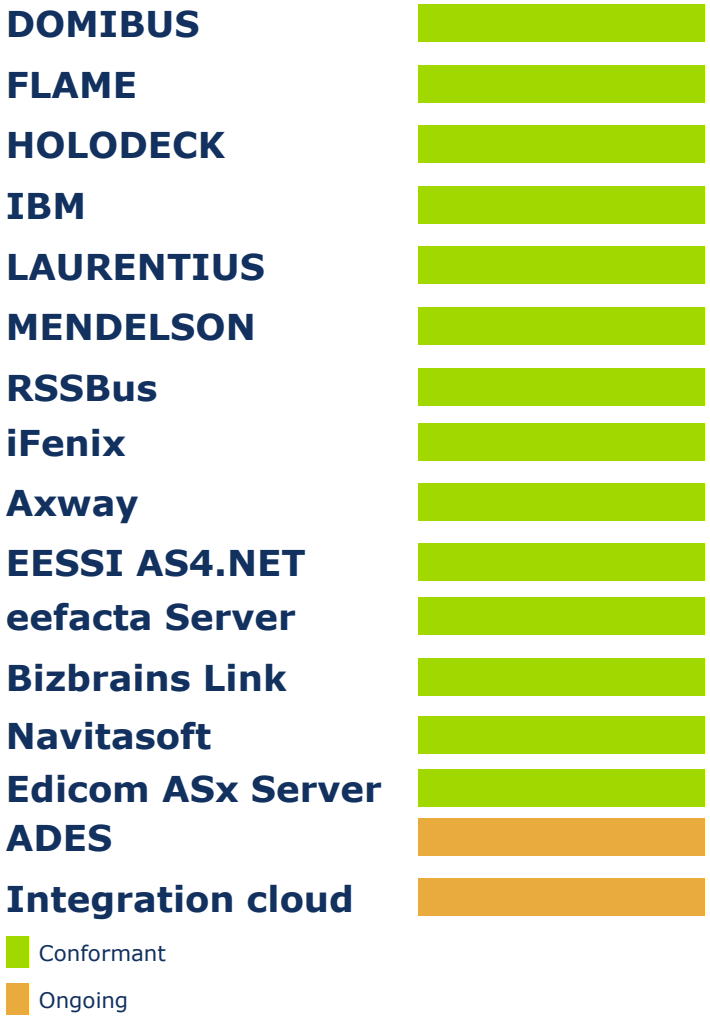
DS Dynamic Sender

DR Dynamic Receiver

SB Standard Business Document Header (SBDH)

More information on CEF Digital

Conformant Solutions >

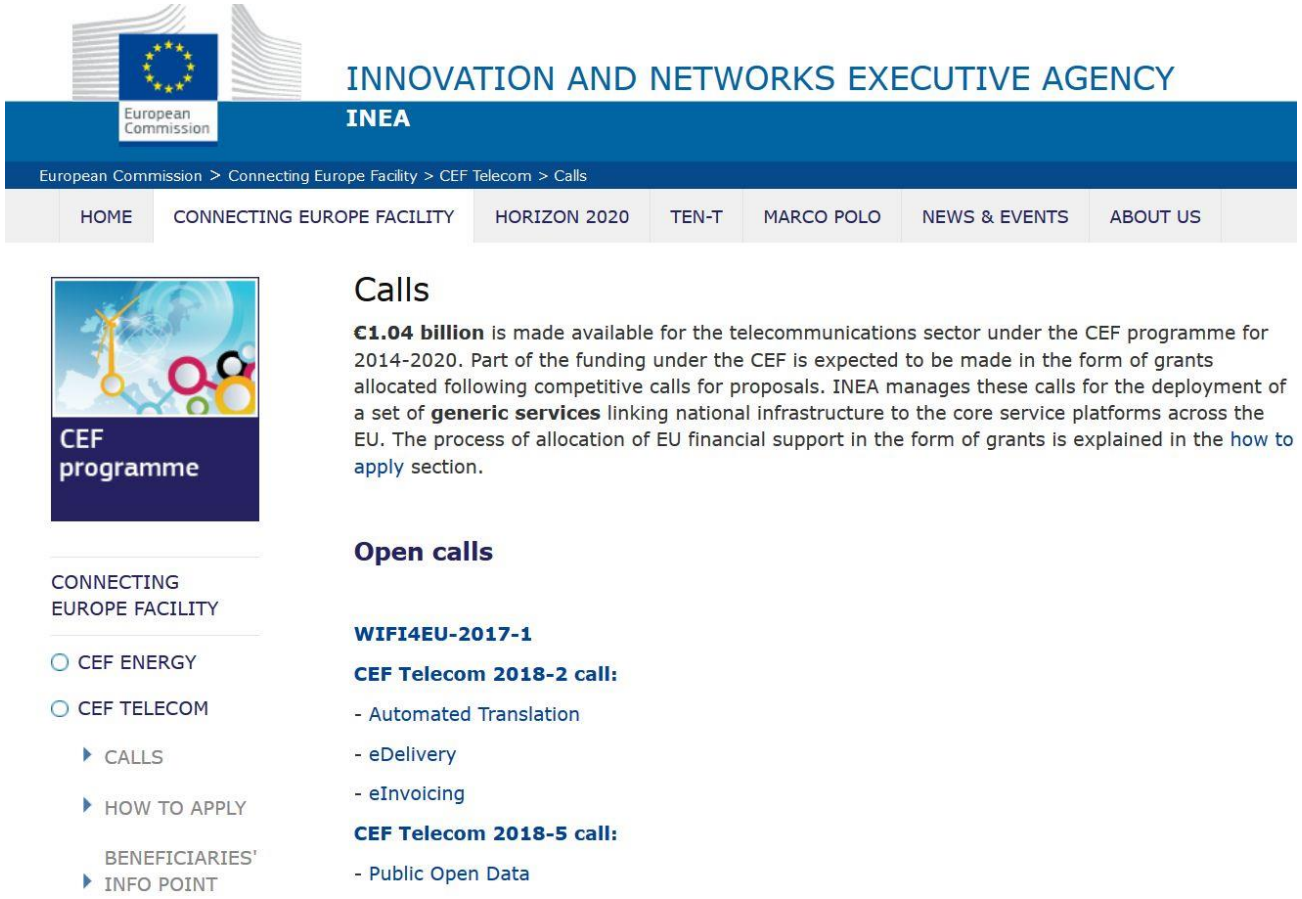


European Commission

4

Grants available from INEA

INEA Grants



What is covered?

- Deploying access points and/or operating access points for one year.
- Deploying SMPs and/or operating SMPs for one year.
- Upgrade of data exchange solutions (Commercial Off-the-Shelf, Open-Source Software and other) to support (and therefore fully comply with), the CEF eDelivery standards *(which can also cover interoperability testing with new or existing conformant solutions)*.

Call for action

- Check out the eDelivery AS4 profile

  https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/Access+Point+specifications

- Check out the Conformance Testing service

  https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/eDelivery+Conformance+testing

- Get listed as a conformant solution

  https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/eDelivery+AS4+conformant+solutions

- Apply for Grants to upgrade your solution

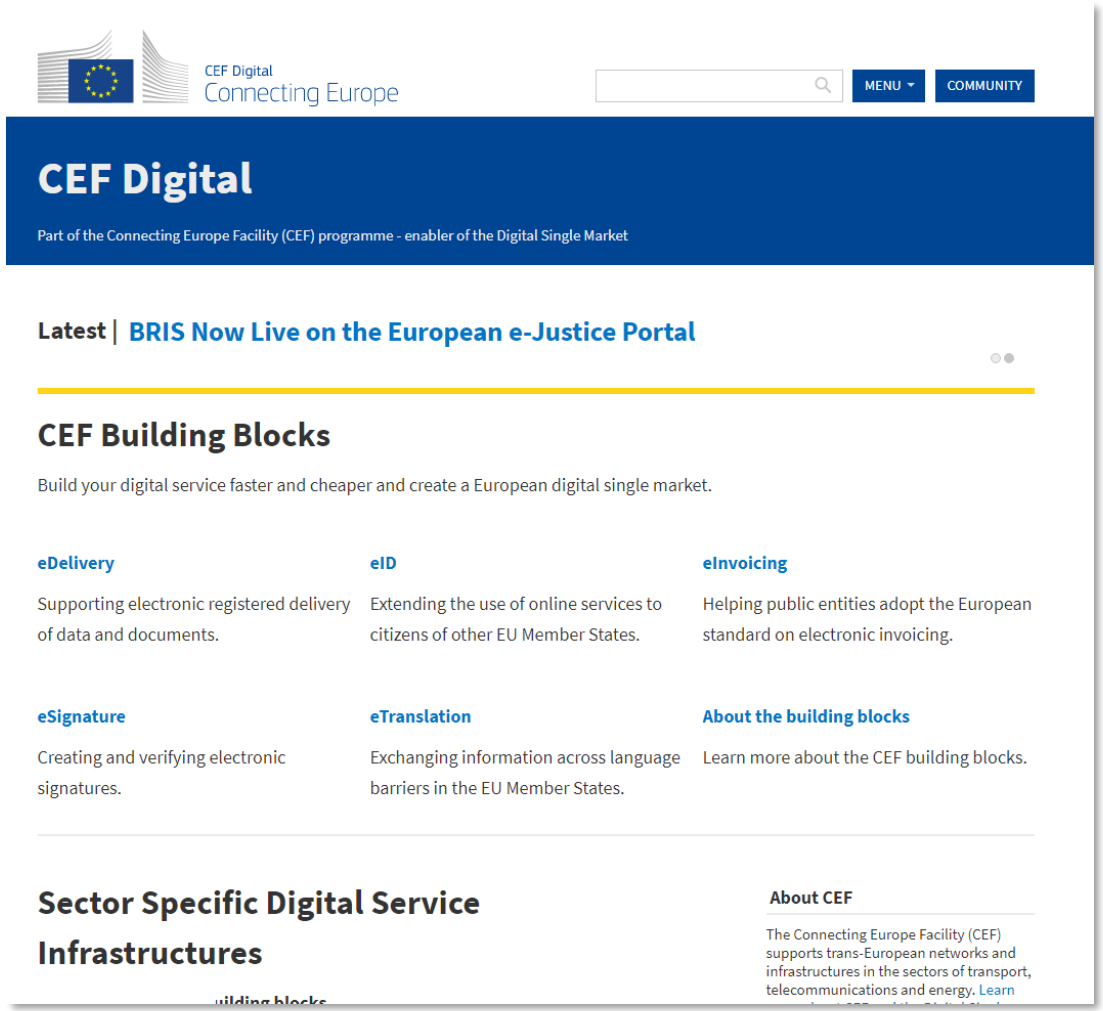
  https://ec.europa.eu/inea/en/connecting-europe-facility/cef-telecom/apply-funding

5

Q&A

Find out more on CEF Digital

ec.europa.eu/cefdigital



#BIG

REUSE

Contact us

CEF-BUILDING-BLOCKS@ec.europa.eu

Coffee Break

7. AS4 implementation case studies

Gergo Hajdu
IP System

AS4 - THE ROAD TO SUCCESS

ENTSOG AND EASEE-GAS JOINT WORKSHOP
ON DATA COMMUNICATION HARMONISATION FOR GAS TRANSMISSION

10/04/2018 –
Hotel "Thon EU" –
Rue de la Loi/Wetstraat 75, B-1040 Brussels

Gergo Hajdu – IP Systems Zrt.

IP systems

TOPICS

1. About IP Systems Zrt.
2. Implementation mismatches
3. Challenges during Configurations, Setups
4. Further experiences
5. Conclusion

INTRODUCTION

Who are we?

- On energy markets specialized IT service provider and consultant since 2008
- Develop, implement and support IT platforms:
  - Commercial Dispatching (TSOs, SSOs)
  - Balancing, Trading and Exchange Platform solutions
  - Communication (AS4, REMIT) tools
  - Trading (ETRM) solutions
- 150 IT projects in 10 countries in 10 years
- References from Switzerland, Czech Republic, Croatia, Romania, and Hungary
- More than 2570 satisfied users
- www.ipsystems.hu

AS4 MATCHING TEST WITH TSOs

TOPICS

1. About IP Systems Zrt.
2. **Implementation mismatches**
3. Challenges during Configurations, Setups
4. Further experiences
5. Conclusion

IMPLEMENTATION MISMATCHES

Data Format

- EDIG@S XML
  - Version and ID handling
  - Question of not mandatory fields
  - DELRES structure differences
  - Missing document unique ID

Communication Protocol

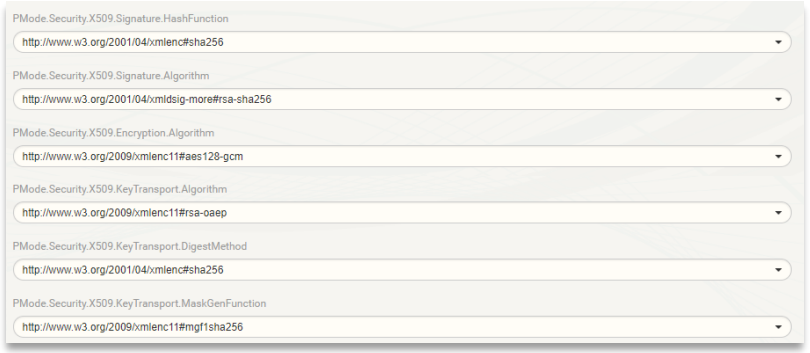
- ENTSOG AS4 Profile
  - Solutions are not Up-to-date
    - ServiceType
    - PartyIDType
    - Changes of existing mandatory/should parts
- **Algorithms**
- **Transfer Encoding**
- **ENTSOG Profile <-> OASIS ebMS 3.0**
- MessageProperties
  - *EdigasDocumentType*

TOPICS

1. About IP Systems Zrt.
2. Implementation mismatches
3. **Challenges during Configurations, Setups**
4. Further experiences
5. Conclusion

CHALLENGES DURING CONFIGURATIONS, SETUPS

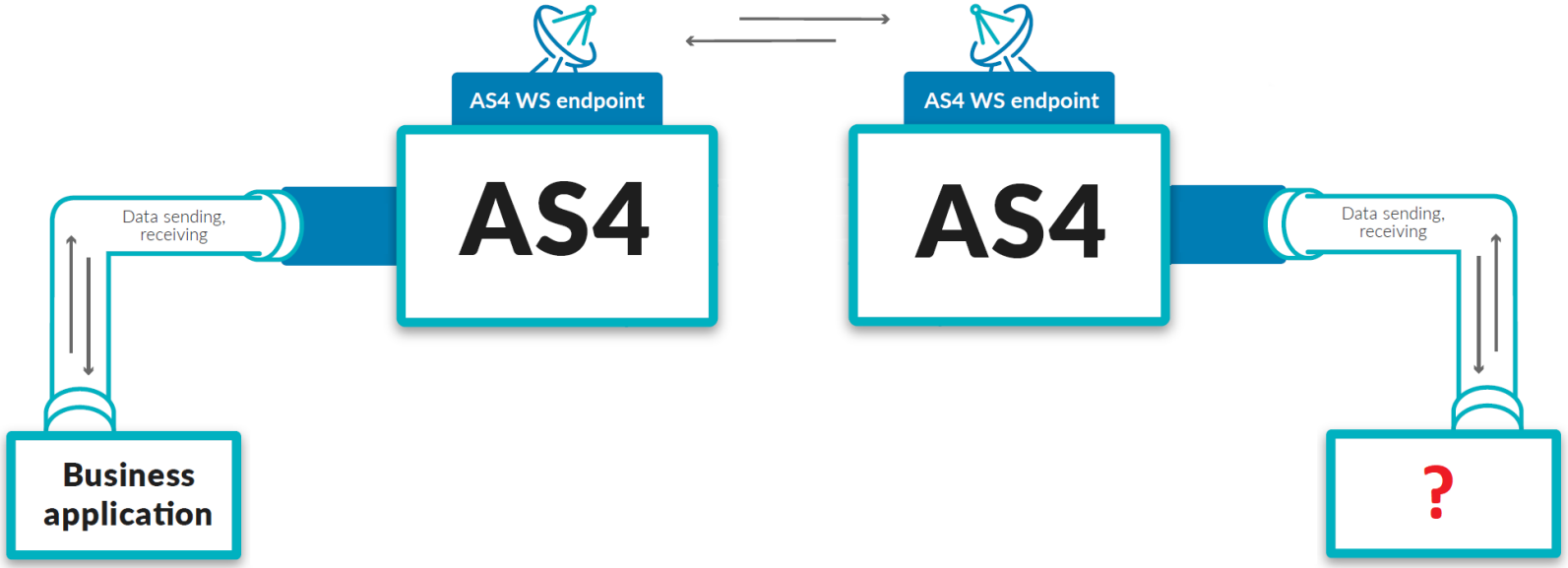
- Infrastructure
  - IP address and port
  - Firewall – whitelist
- Implementation differences
  - **Algorithms**
  - **Transfer Encoding**
  - **ENTSOG Profile <-> OASIS ebMS 3.0**
- Pmode mismatches
  - Content ID
  - AgreementID



TOPICS

FURTHER EXPERIENCES

- Business process testing:
  No test business application available
  - no way for safe preparation for live operation



- Fix budget, long implementation phase in case of mismatch

TOPICS

CONCLUSION

Issues to be solved:

- Implementation mismatches
  - Recommendation: Test ENTSOG AS4 System
- Difficulties of the Configurations, setups
  - Recommendation: ENTSOG Configuration Management Approach
- Business process testing
  - Still Open Issue

THANK YOU FOR YOUR ATTENTION!

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www.ipsystems.hu

7. AS4 implementation case studies

George Tzigkouras
DESFA

DESFA
Hellenic Gas Transmission System Operator S.A.

General Implementation of AS4

Brussels

October 2018

Why

- Network Code on Interoperability and Data Exchange Rules
- Interconnection Agreement

Scope

Information Flows of Common Data Exchange Solution Table implemented

Nomination and Matching Processes	BAL0453_160622_BRS on nominations_V17.docx	3.3.3.3	282	Nomination Authorisation	Registered Network User	Transmission System Operator	Private	
		3.4.1	338	Nomination	Registered Network User	(Initiating) Transmission System Operator	Private	Document Based
		3.4.1	338	Nomination	Registered Network User	(Matching)Transmission System Operator	Private	Document Based
		3.4.1	347	Forward single sided nomination	(Active) Transmission System Operator	(Passive) Transmission System Operator	Private	Document Based
		3.4.1	354	Processed Quantities	(Initiating) Transmission System Operator	(Matching)Transmission System Operator	Private	Document Based
		3.4.1	362	Matching Results	(Matching)Transmission System Operator	(Initiating) Transmission System Operator	Private	Document Based
		3.4.1	367	Confirmation Notice	(Initiating) Transmission System Operator	Registered Network User	Private	Document Based
		3.4.1	367	Confirmation Notice	(Matching)Transmission System Operator	Registered Network User	Private	Document Based
		3.4.1	375	Interruption Notice	(Initiating) Transmission System Operator	Registered Network User	Private	Document Based
		3.4.1	375	Interruption Notice	(Matching)Transmission System Operator	Registered Network User	Private	Document Based

Resources willing to spend

Minimum manhours possible

Restraints: development of the new Information System for Regulated Services at the same time required all effort.

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Scale

- 1 Interconnection Point within EU
- 1 Partner (TSO)

That is the minimum setup in any way, so we wanted the most cost effective solution in any perspective

Future

Another Interconnection Point at Nea Mesimvria between DESFA and TAP

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Where & Scale

When - Timeline

- Summer 2015: DESFA's IT Technical staff was informed to initiate research on AS4 Communication Protocol, in order to fulfill the upcoming requirements of the Interconnection Agreement
- 20 October 2015: 2nd AS4 Communication Protocol Workshop in Brussels
  - ✓ Informal meeting and discussion with Technical staff of Bulgartransgaz EAD (TSO - AS4 Partner)
  - ✓ At that time they already had conducted some research and tests on AS4
- November 2015: DESFA's IT established a test AS4 Connection between 2 servers on corporate LAN with Holodeck B2B 2.0 without SSL Client Authentication.
- January 2016: Holodeck Support Team gives hint on how to add SSL client authentication support to Holodeck B2B 2.0.
- June 2016: Interconnection Agreement Signed, effective date defined
- June 2016: Preparations to Go Live

Facts

- DESFA's IT staff had experience with AS2 Protocol by using RSSBus Connect™ to establish an AS2 Connection with GIE. Unfortunately, at that time RSSBus Connect™ did not support AS4 Connections
- Minimal AS4 setup to establish
- Looking for a cost effective solution
- At that time we were not willing to take any risks and spend any time for possible interoperability issues between incompatible solutions

Decision

"Play safe" for the time being - Use the same software as partner does

HOLO DECK B2B

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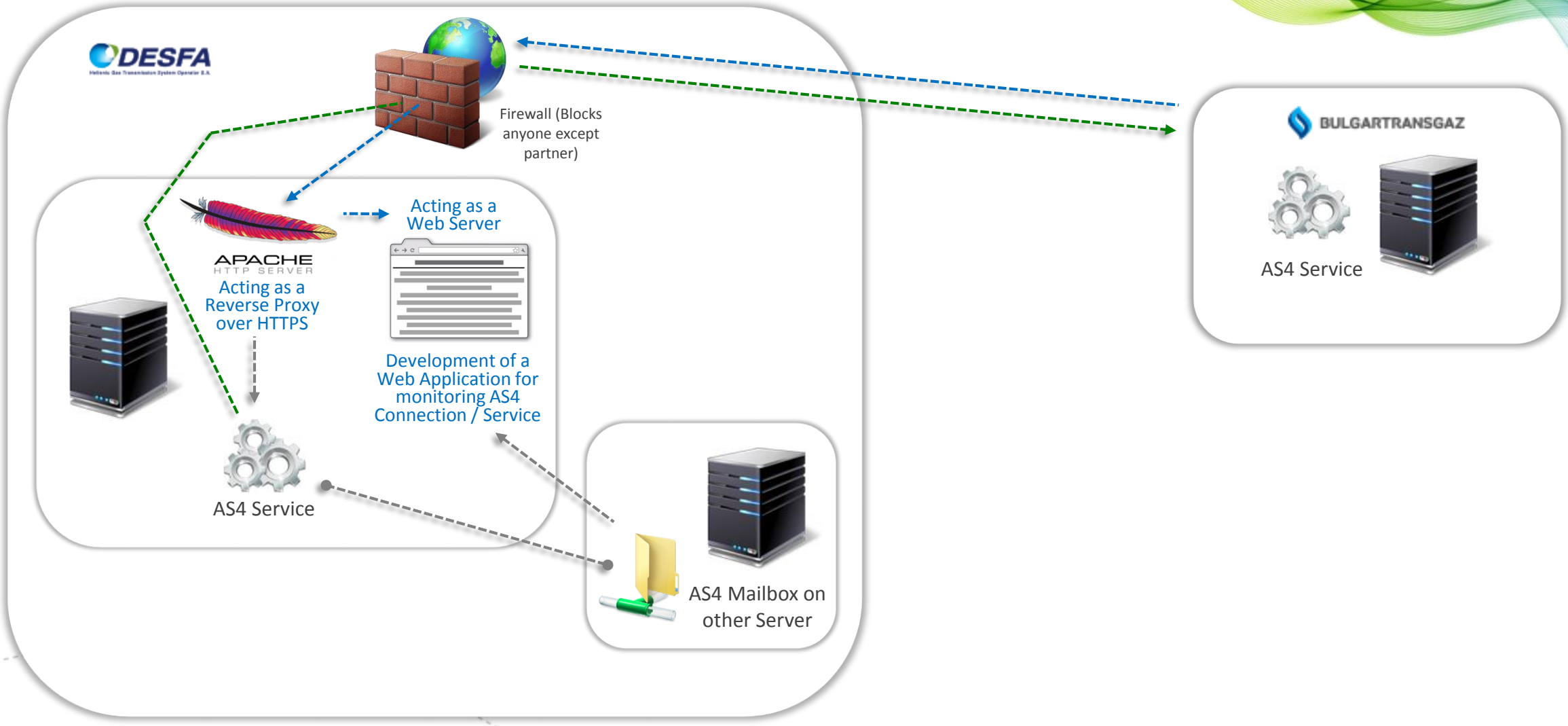

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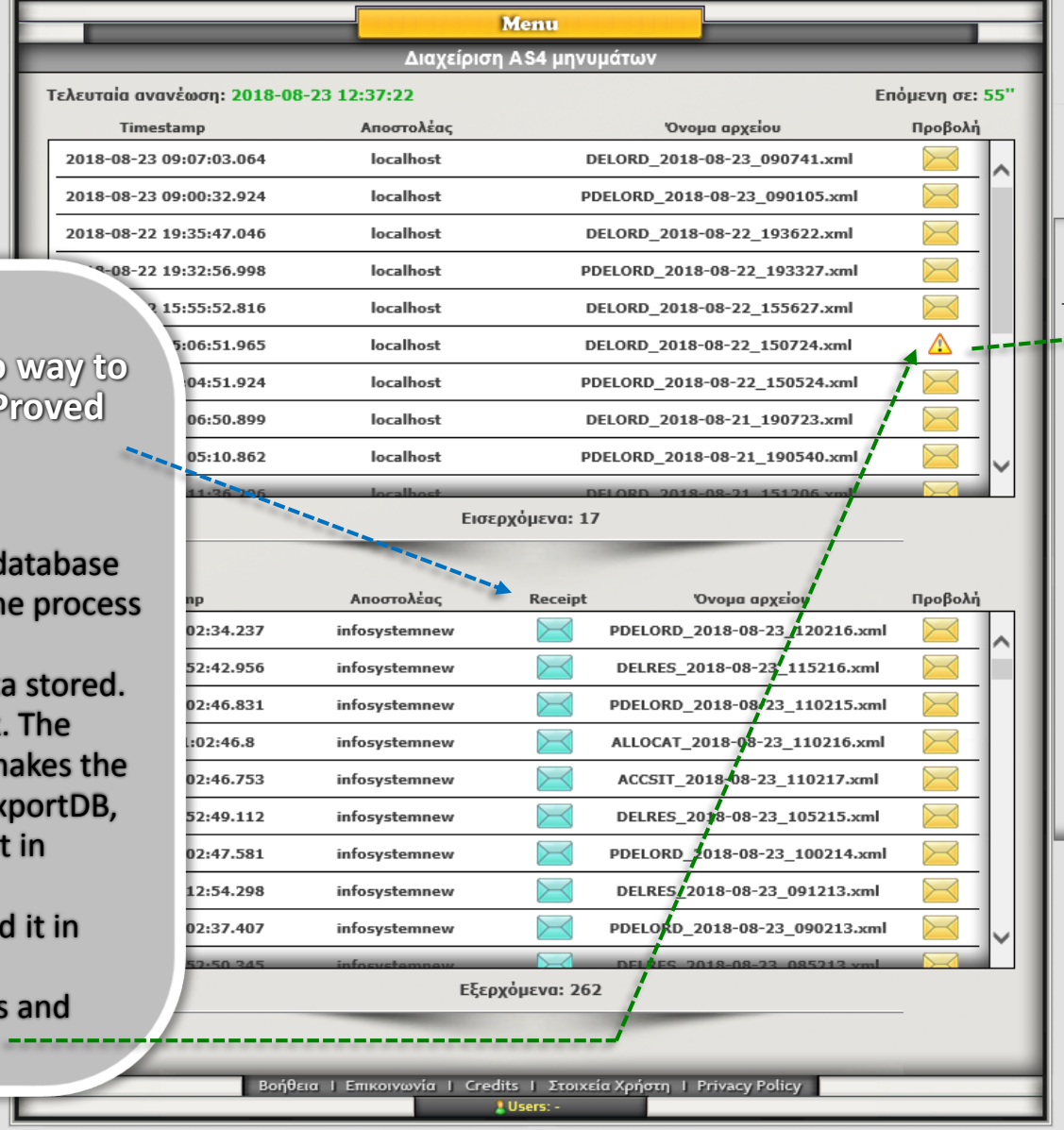
How - Solution

Development of a Web Application for monitoring AS4 Connection / Service and handle Receipts

Κάθε Κυριακή στις 23:00 θα γίνεται αυτόματο backup και εκκαθάριση των Μηνυμάτων



Ώρα Εξυπηρετητή
23/08/2018, 12:37:21

AS4 Service Log (Axis Log)
2018-08-23 12:37:22 - 6,9 MB
1 Errors / Warnings
από 2018-08-21 11:03:06

2018-08-22 15:07:39,664 [WARN] org.holodeckb2b.msgproc.RESPONDER_IN_FLOW.DeliverUserMessage - Usermessage [5d0a3a68-0310-4a1e-b5bf-10a4b9af46ae@localhost] is already being delivered!

Why

- By searching on Holodeck B2B 2.0 Mailbox there is no way to correlate a Message Receipt with the Message Sent. Proved that the necessary info is stored in Holodeck's DB
- Start investigating Holodeck's deployment
  - Holodeck is using Apache Derby (an open source relational database implemented entirely in Java) in embedded mode → only one process is allowed to access the Derby database files in that mode.
  - Develop a java console app to examine DB structure and data stored. Find a way to use it by one process in parallel with Holodeck. The process copies DB while DB running by Holodeck and then makes the connection. Finalize development by creating 3 functions: ExportDB, GetInbox, GetOutbox that collects data from DB and stores it in custom XMLs files.
  - Develop a PHP web app for visualizing those data, embedded it in existing Information System for Regulated Services.
  - Develop script to quickly search Holodeck's logs for warnings and errors, visualize results on web app.

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Development Phase

Collaboration with Partner: Feb 2016 – April 2016

- Although using the same product for the AS4 Connection eliminated interoperability issues, many problems arose during configuration and tests.
- Partner ran into the same difficulties on setting up Client Authentication on Holodeck.
- AS4 Messages delivered only from DESFA to BTG caused by misconfigurations on Partner's side.
- Confusion with the proper use of certificates of each party and configuration issues.

Quick & Easy solution

- Share everything that might help Partner (configurations, files, installations).
- If problems still persist, use your installation, prepare a duplicate, make the proper configurations and adjustments, simulate Partner's Installation and give them all necessary configurations.

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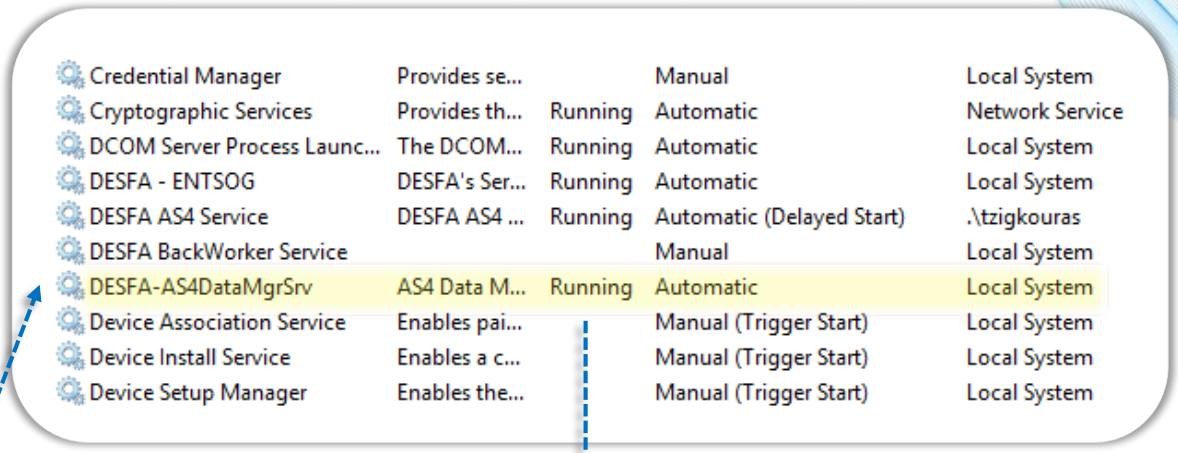
Production Phase

- June 2016: Effective date – Go Live
- Starting to close monitoring the AS4 service
  - Fatal Error on AS4 Service. Service crashed unexpectedly after a long period of smooth running.
  - Need for a quick fix.
  - Quick steps:
    - ✓ Backup Holodeck's DB and Logs
    - ✓ Reset DB and logs
    - ✓ Restart Service
  - Check: all up and running.
  - Continue to monitor.
  - Fatal Error happened again after similar period running smoothly.
  - Need for a permanent fix - workaround.
  - Develop a Windows Service to automatically apply quick steps once a week.
  - Gather scripts that feed Web App with holodeck's data and are triggered to run by the Web App and integrated them under the new Windows Service, which runs independently of the Web App, so as to support unlimited concurrent internal users monitoring service on the Web App,
  - Create logging for monitoring automation,



Credential Manager	Provides se...		Manual	Local System
Cryptographic Services	Provides th...	Running	Automatic	Network Service
DCOM Server Process Launc...	The DCOM...	Running	Automatic	Local System
DESFA - ENTSOG	DESFA's Ser...	Running	Automatic	Local System
DESFA AS4 Service	DESFA AS4 ...	Running	Automatic (Delayed Start)	.\tzigkouras
DESFA BackWorker Service			Manual	Local System
DESFA-AS4DataMgrSrv	AS4 Data M...	Running	Automatic	Local System
Device Association Service	Enables pai...		Manual (Trigger Start)	Local System
Device Install Service	Enables a c...		Manual (Trigger Start)	Local System
Device Setup Manager	Enables the...		Manual (Trigger Start)	Local System

Briefly

- A Windows Service written in C#
- Which is calling PHP Scripts
- One of the PHP Scripts is calling the Java Console App, which access Holodeck's DB and feeds with data the Web App

After applying fix update, fatal errors on AS4 Service never happened again.

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Windows Service Log

```
20/10/2017 3:28:15 μμ: AS4 Data Management Service Started
20/10/2017 3:29:20 μμ: No error on execution
20/10/2017 3:30:18 μμ: No error on execution
20/10/2017 3:31:18 μμ: No error on execution
20/10/2017 3:32:18 μμ: No error on execution
20/10/2017 3:33:18 μμ: No error on execution
```

Web App Data feed Log

```
2017/10/20/ 15:30:16
Copying DB...Done!
Reading & Exporting Inbox Data...
Inbox: 42 Messages
Reading & Exporting Outbox Data...
Outbox: 506 Messages

Execution time: 2,2 sec
-------------------------
```

Holodeck DB Backup & Maintenance Log

```
12/11/2017 23:00:29
The DESFA AS4 Service service is stopping.
The DESFA AS4 Service service was stopped successfully.
Deleting derby.log: OK
Renaming db->db_old_2017-11-12_230029: OK
Deleting all log files: 5/5
The DESFA AS4 Service service is starting.
The DESFA AS4 Service service was started successfully.
-------------------------------------------------------------
```

Keep good Logs of automated procedures, in order to be able to debug well if an error occurs

- ✓ AS4 Messages In/Out: 80/day or 2400/month
- ✓ Errors on delivery per week: 0
- ✓ Errors on receive per week: 0 – 4

- ❑ If you are going to proceed in major setup / configuration changes like:
  - New Server, external IPs, Certificates

Inform other Partner early enough and in any way not after applying them!

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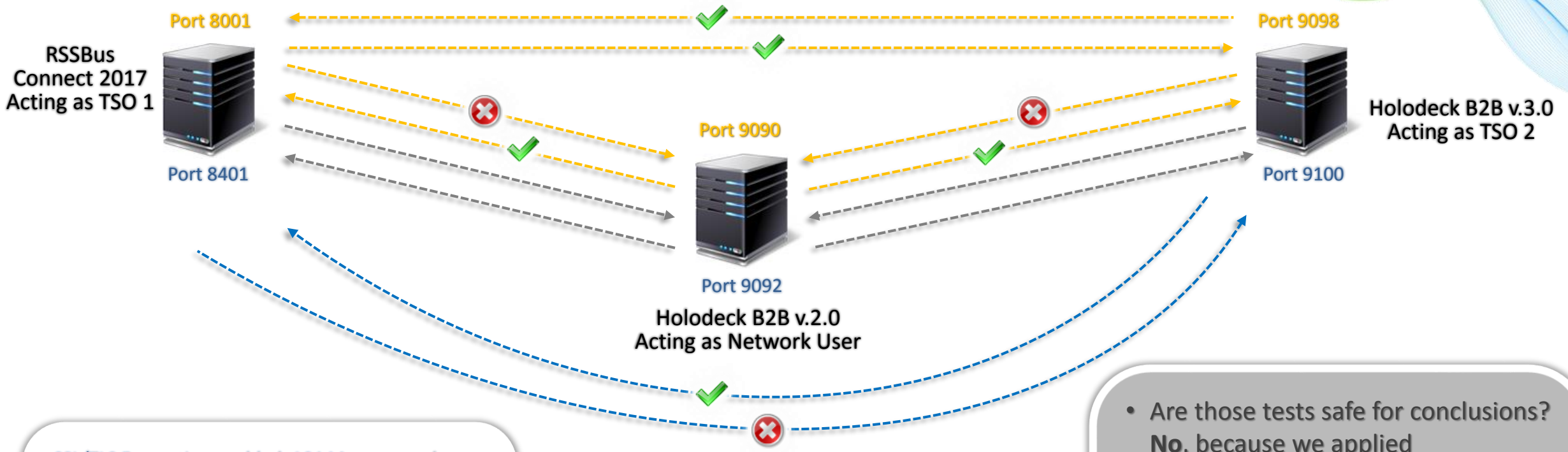
Conclusions after 2 years from Go Live



SSL/TLS Encryption enabled, AS4 Message exchange with compression, signing and encryption

SSL/TLS Encryption disabled

Not Tested

- Are those tests safe for conclusions? **No**, because we applied configurations, performed the tests, reconfigured once again in case of errors and marked the result
- So these errors do not suggest that communication cannot be established, but of course nothing is a **"plug & play"** solution.

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Interoperability tests with new Versions

Thank you for your attention!

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Hellenic Gas Transmission System Operator S.A.

7. AS4 implementation case studies

David Magryta
Thyssengas

AS4 implementation Thyssengas

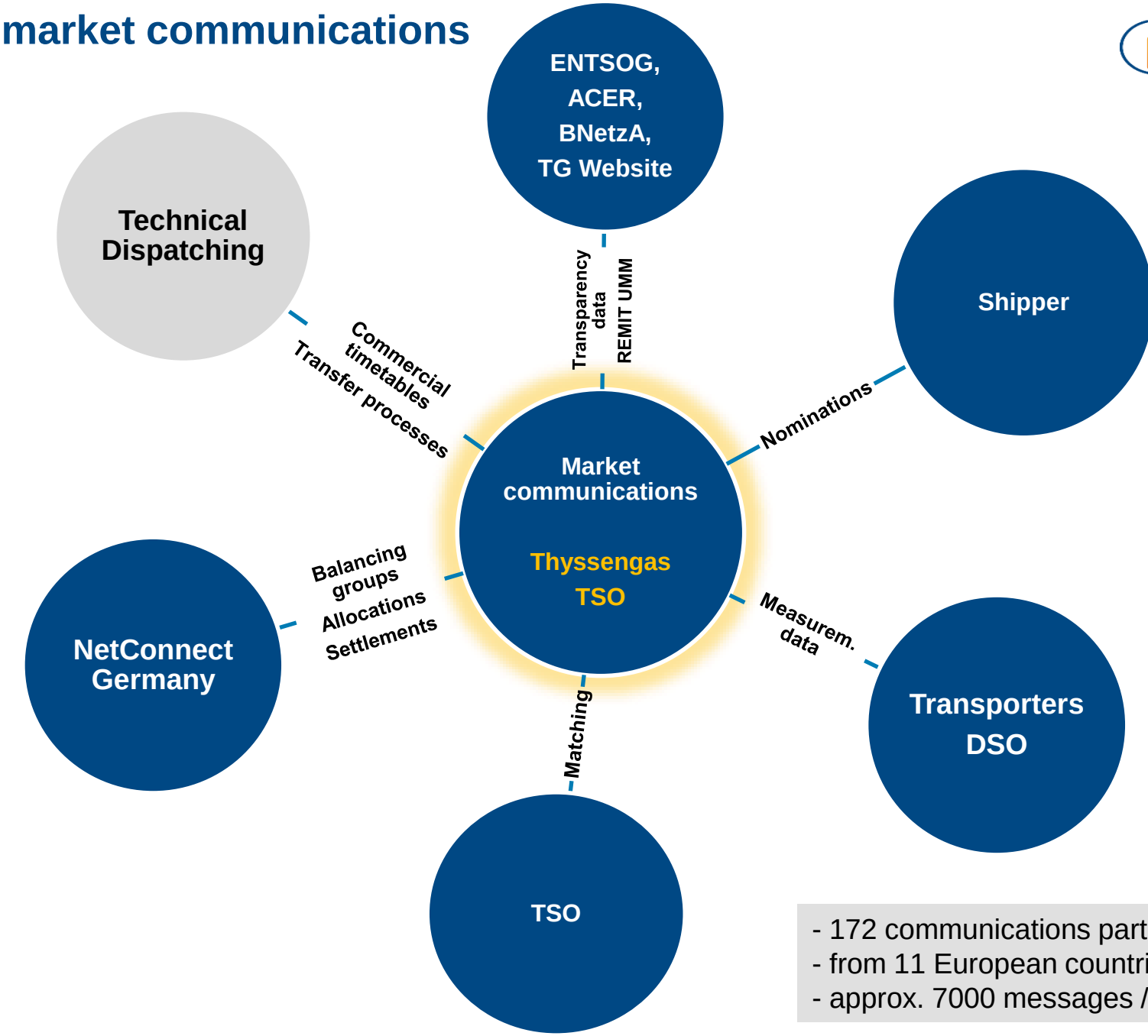
Changeover to a new EDI software solution

for market communications

Data Management, David Magryta

4th October 2018

EDI market communications



- 172 communications parties
- from 11 European countries
- approx. 7000 messages / day

Starting point 2017

- EDI System solution from a service provider company of Innogy
- Shared- and full-service solution since 2007
- Deficits
  - little intervention possibilites / high dependency on the service provider
  - many implementations not visible
  - convenience of operation was outdated / a renewal was inefficient

➔ Legally prescribed conversion of communication with AS4 on 1st Feb 2018 offered favorable time for system change

New communication solution with AS4

- Service Provider: Virtimo AG
- Software: BOSCH SI Inubit
- ENTSOG profile used
- Inubit used by different clients in Germany: Thyssengas, OGE, Gascade, Gasunie, GRT, NCG, Nowega
- Project Kickoff April 2017; End of migration December 2017
- At the same time market-wide introduction of AS4 communication as well as new signing and encryption requirements for national AS2 and SMTP connections
- Migration in three months
- 177 parties connected
  - AS4: 51
  - AS2: 17
  - SMTP (e&s): 109

Experiences AS4 implementation

- Communication Profile kept simple

Inbound AS4-Parameter		
Testmodus:		☐
IP-Adresse(n) des Senders:		
Sender-Code:		21X-DE-C-A0A0A-T
Sender-Rolle:		ZSO
Empfänger-Code:		21X-DE-G-A0A0A-U
Empfänger-Rolle:		ZSO
Service:		A06
Action:		http://docs.oasis-open.org/ebxml-msg/as4/200902/action
Quittung signieren:		☑
Binary Security Token verwenden:		☐
Outbound AS4-Parameter		
AS4-Zieladresse:		http://195.203.130.196/ibis/as4/sync
IP-Adresse(n) des Zielsystems:		195.203.130.196
zu verwendendes Agreement:		Agreement 1
Sender-Code:		21X-DE-G-A0A0A-U
Sender-Code-Typ:		http://www.entsoe.eu/eic-codes/eic-party-codes-x
Sender-Rolle:		ZSO
Empfänger-Code:		21X-DE-C-A0A0A-T
Empfänger-Code-Typ:		http://www.entsoe.eu/eic-codes/eic-party-codes-x
Empfänger-Rolle:		ZSO
Service:		A06
Service-Typ:		http://edigas.org/service
Action:		http://docs.oasis-open.org/ebxml-msg/as4/200902/action
Nachricht komprimieren:		☑
Nachrichten signieren:		☑
Nachricht verschlüsseln:		☑
Verschlüsselungsalgorithmus:		AES128-GCM
Maskierungsfunktion:		MGF1-SHA256
Binary Security Token verwenden:		☐

… Live-Demo

Experiences AS4 implementation

- Support multiple private certificates and multiple partner certificate configurations by validity period

▼ Agreement 1				
AgreementRef:	ⓘ	http://entsog.eu/communication/agreements/21X-DE-C-A0A0A-T/21X-DE-G-A0A0A-U/2	✖	
eigenes Zertifikat:	ℹ	aus primärem Schlüssel		
Partnerzertifikat:	ⓘ	-----BEGIN CERTIFICATE----- MIIF0TCCA7mgAwIBAgIURUEGTeZvdvoeVJJLoQEgTCZL1pYwDQYJKoZIhvcNAQEL BQAwSTELMAkGA1UEBhMCQk0xGTA...	✖	🗁
Zertifizierungsstelle:	ℹ	C=BM, O=QuoVadis Limited, CN=QuoVadis Issuing CA G4		
Eigentümer:	ℹ	C=DE, O=Open Grid Europe GmbH, OU=System Operator, OU= EASEE-Gas , CN=21X-DE-C-A0A0A-T		
gültig von:	ℹ	2015-11-03T09:54:03		
gültig bis:	ℹ	2018-11-03T09:54:01		
Seriennummer:	ℹ	45:41:06:4D:E6:6F:76:FA:1E:54:92:4B:A1:01:20:4C:26:4B:D6:96		
URLs der Zertifikatssperrliste:	ℹ	http://crl.quovadisglobal.com/qvicag4.crl		🗁
▼ Agreement 2				
AgreementRef:	ⓘ	xxx	✖	
eigenes Zertifikat:	ℹ	aus primärem Schlüssel		
Partnerzertifikat:	ⓘ			🗁
Zertifizierungsstelle:	ℹ			
Eigentümer:	ℹ			
gültig von:	ℹ			
gültig bis:	ℹ			
Seriennummer:	ℹ			
URLs der Zertifikatssperrliste:	ℹ			🗁

Experiences AS4 implementation

- Helpful AS4 test club by Virtimo / pool of TSO customers
- UAT connections are available / most prefer testing on production level

- Agreement reference
  - not everyone is using the alphabetical order of EIC-parties
  - not everyone handles the id http://entsog.eu/communication/agreements/Party-A-EIC/Party-B-EIC/1
- Sender/receiver role (ZSH/ZSO)
  - We can set it, but most do not check it

Current experiences on AS4

- Easy to configure
- Connection is working after 1 or 2 tests with a helpful organized partner
- Configuration changes are logged / roll-back options
- Implementation of the test service (Entsog Profile)
- No unexpected issues after going live with AS4
- Self-service in market communications operations

- The organization in the market is the issue – not the implementation!

→ Very important for a smooth migration of certificates and other changes on AS4!

Thank you

Lunch Break

8. Presentation of the proposed version of Edig@s v. 6

EASEE-Gas

Message and Workflow Design Working Group

© Kaarsto, Statoil by Markus Johansen

EASEE-gas

streamlining the gas business

Edig@s Version 6

Why create a new version

What are the main changes

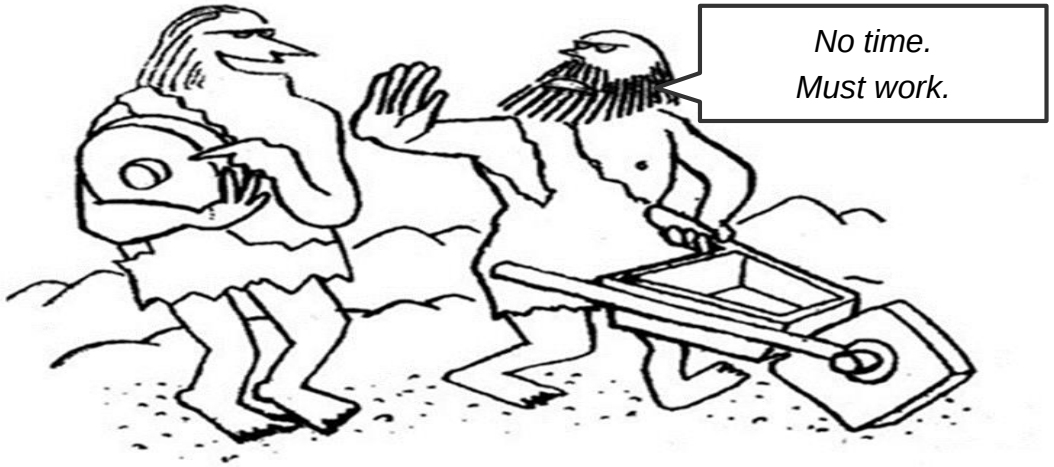
When will it be ready

Introduction

Jarle Rønnevik

Equinor ASA

Why create a new version of Edig@s?



Why Version 6?

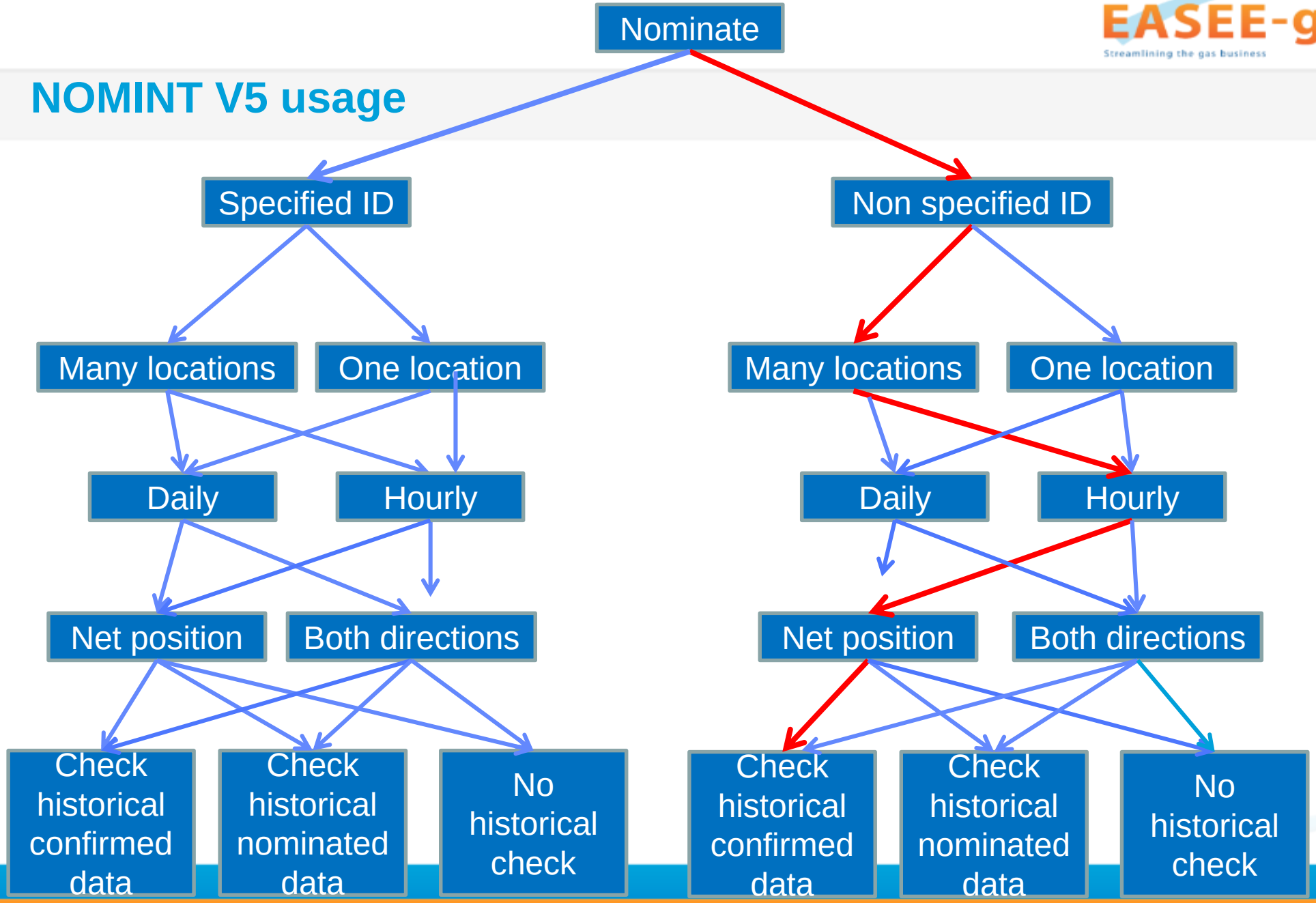
1. Harmonise message use (avoid different implementations of the same process).
2. Harmonise the core components and code lists
3. Review all processes because of market changes.
4. Align with the harmonised role model (roles and processes)

1. Harmonise message use

Harmonise message use

- Ensure that message submissions do not require specific developments depending on the receiving party.
- Ensure that the document is not open to interpretation by being more explicit and by introducing decision tables.

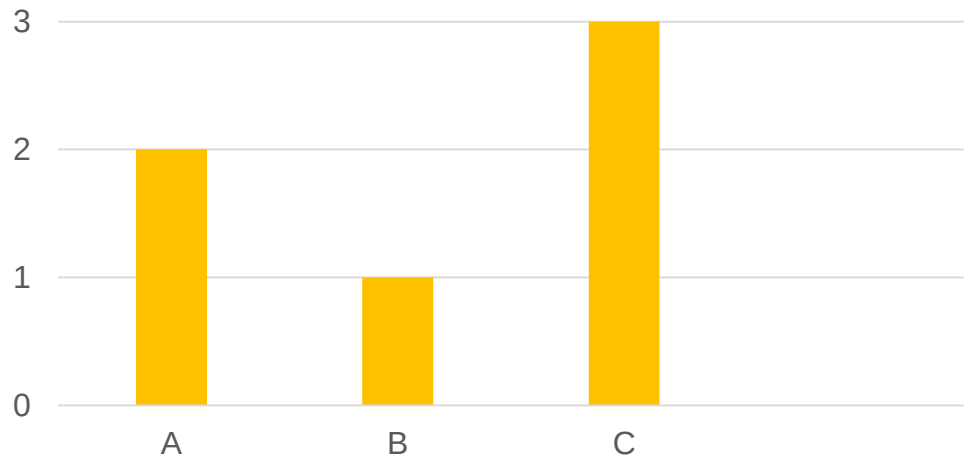
NOMINT V5 usage



Question and answers sent to 6 TSO’s

If a BRP have a capacity of 20 GWH but nominate 22 GWH how will your system react (check responses)?

- A. Accept 20 GWH but notify about the over nominated volume.
- B. Accept 22 GWH as over nomination
- C. Reject the nomination (0) but notify



2. Harmonise core components and code lists

Harmonise code components and code lists

The codelists have been inherited since version 3 without review. For Version 6 therefore they were reviewed to:

- Harmonise naming convention for codes
- Remove redundant codes from lists
- Move incompatible codes from code lists
- Create new code lists where necessary

3. Review all processes because of market changes

Review all processes

All processes were reviewed:

- To ensure alignment with the network codes
- To remove country specific requirements.
- To introduce new processes where necessary (Balancing and reconciliation)

4. Align with the harmonised role model

Harmonised Role Model

Peter Meeuwis
Gasterra

Storyline

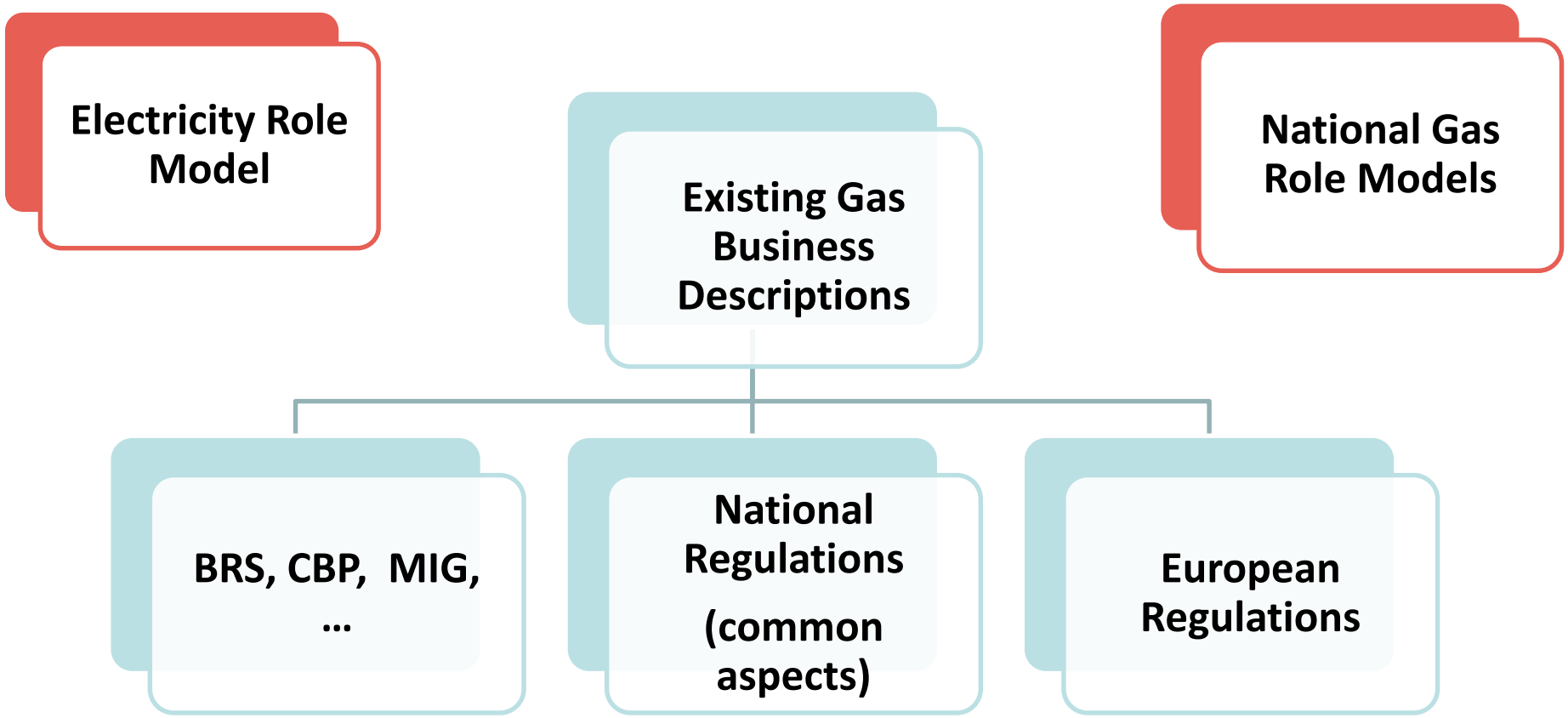
- Why a Harmonised Gas Role Model?
- Sources of information
- Define & assign responsibilities to parties
- Amount of roles determines amount of couplings
- Drivers
- Next Steps

Why a Harmonised Gas Role Model?

- Provide coherent terminology between regulatory definitions and commonly used gas market terms.

- Provide an overview of the common interactions within the gas market.

Sources of information



Define & assign responsibilities to parties

Definition

A role model contains a collection of roles that each represent a responsibility. Roles are assigned to parties.

Usage

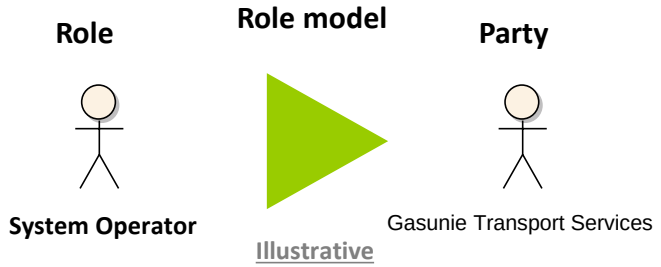
A role model is used to harmonize the **couplings** between the parties.
Couplings are the combination of the processes, transactions, messages and information services (interfaces and portals) required to deliver and receive (operational) information to and from a party

Interoperability

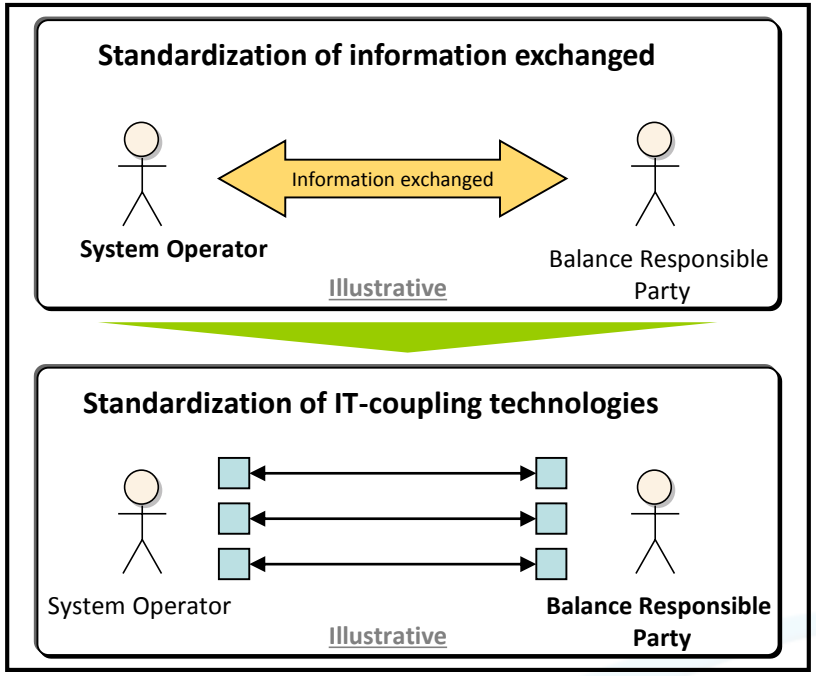
A role model is the first of three steps to minimize interoperability issues that prevent efficient cooperation, and synergies during and after mergers:

The three steps are:

1) standardization of role model
2) standardization of information exchanged,
3) standardization of IT coupling technologies



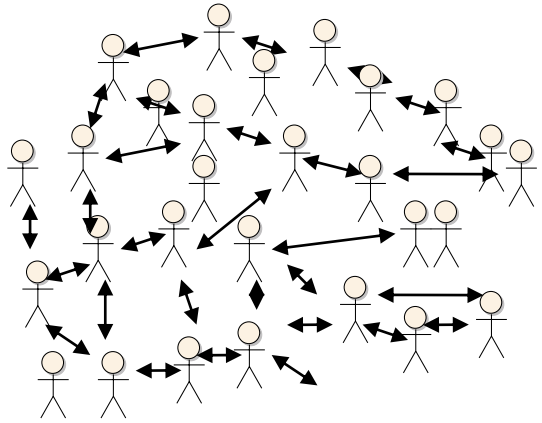
Input for



Amount of roles determines amount of couplings

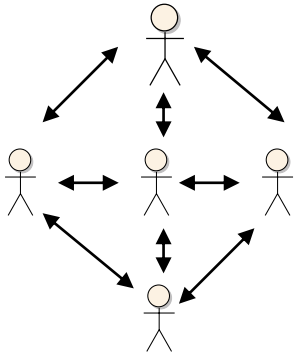
Many roles means:

- Large amount of couplings to be harmonized with all parties in the EU
- Very limited room for individual differences in each region
- Focus will be on a mixture of minor and major (market) couplings



Fewer roles means:

- Minimal amount of couplings to be harmonized with all parties in the EU
- Room for differences within each role in each region
- Focus will be on the major (market) couplings



Drivers 1/2

Encourages the use and implementation of a harmonized gas role model across EU

A **The trend of consolidation and intensifying cross-border cooperation of market areas in EU**

- Different standards for information exchange making access to (other) market areas and cooperation difficult to achieve for market parties and TSOs; it limits the ability to attract and export energy flows from and across different regions in the EU

B **The trend of cooperation/mergers between System Operators (and between *BRPs*)**

- The current different standards make cooperation and synergies difficult to achieve when partners need to uphold the current differences in each historical grown domains

C **BRPs who are involved in both E and G (which are required to be more efficient)**

- Market mechanics pushes the energy suppliers to be more operationally efficient. They have to manage E and G activities separately while many similarities exist, making synergies difficult to achieve

Harmonized role model between Electricity and Gas

Harmonized gas role model across EU

Drivers 2/2

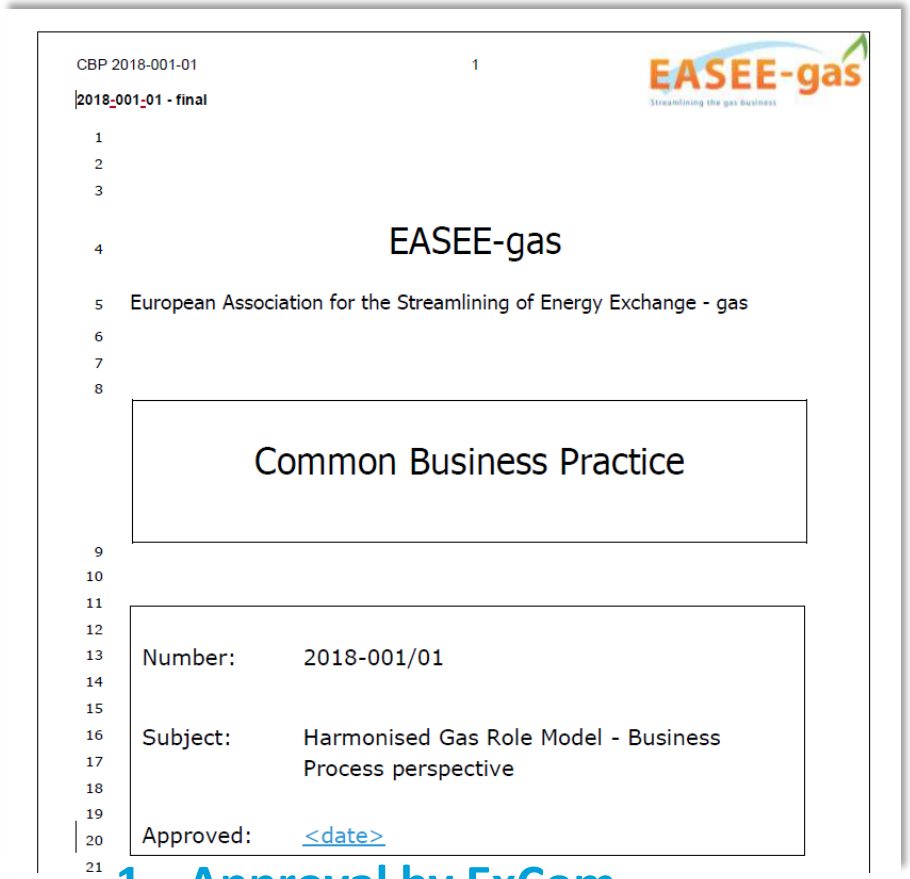
Push towards an updated and harmonized role gas model between E and G, and upstream/downstream

D **Downstream consumers that are becoming equal to (upstream) producers ('prosumers'); decentralization and diversification of production**

- The supply will diversify and decentralize in the future (Bio-gas, household solar/wind field producers, MicroWKK, storage) to local regions. Local distribution companies have to manage a system with local varying input and output, and deliver regional energy (administratively) to an integrated EU energy market.

Harmonized gas role model between upstream and downstream

Next steps



CBP 2018-001-01 1

2018-001-01 - final

EASEE-gas

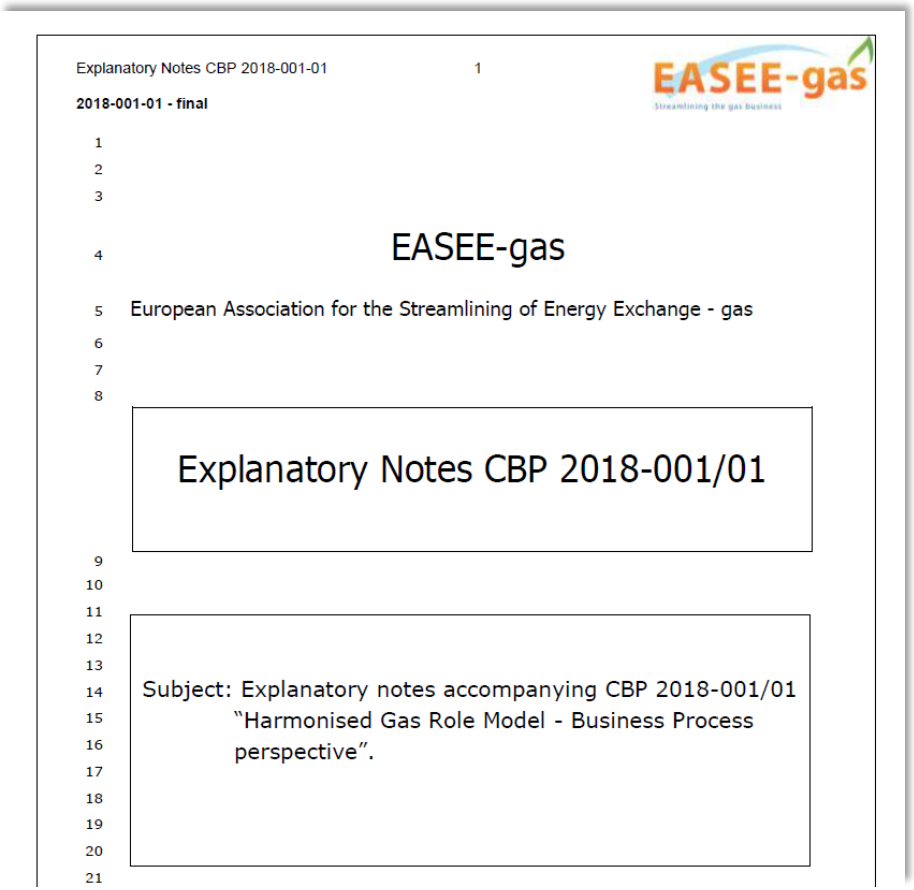
European Association for the Streamlining of Energy Exchange - gas

Common Business Practice

Number: 2018-001/01

Subject: Harmonised Gas Role Model - Business Process perspective

Approved: <date>



Explanatory Notes CBP 2018-001-01 1

2018-001-01 - final

EASEE-gas

European Association for the Streamlining of Energy Exchange - gas

Explanatory Notes CBP 2018-001/01

Subject: Explanatory notes accompanying CBP 2018-001/01 "Harmonised Gas Role Model - Business Process perspective".

1. Approval by ExCom
2. Consultation among members
3. Publishing at EASEE-gas website of CBP & Explanatory Note.

Final words

A role model is never finished.

But at a certain time ….

it needs to be ready.

What will change in Edig@s version 6

HARMONISATION

Henk Koorenhof

Gasunie Transport Services

A revised structure to reflect market requirements

1. Capacity Allocation ***(NC + BRS)***
   a. Capacity allocation initialisation
   b. Capacity allocation bidding and settlement
2. Exchange Trade
   a. OTC Trade Process
   b. Exchange trade process
3. Nomination and Matching ***(NC + BRS)***
4. Balancing and Settlement ***(NC)***
   a) Metering
   b) Allocation
   c) Balancing
   d) Settlement
5. REMIT and Transparency ***(Regulation)***
   a) Market transparency
   b) Regulator transparency

Make use of decision tables to clarify message content use

ATTRIBUTE NAME					
Class: [DocumentName]_Document **Attribute:** documentCode	List of document codes permitted within the message definition				
Class: [codelist_Name] **Attribute:** [Codelist_Name]Code	List of [Codelist_Name] codes permitted for each document code				

May also include specific rules

- The first row contains in the first column the identification of the message as well as in the second and following columns all the DocumentCode codes permitted.
- The second and following rows contains in the first column the identification of a codelist used in the message as well as in the second and following columns the codes that are permitted for the DocumentCode identified in the top of the column.

Make use of decision tables to clarify message content use

DocumentCode	14G	16G	94G	95G
	Imbalance notification	Reconciliation notification	Account position	Provisional allocation report
AccountCode	ZOC = Internal account ZOD = Supplier Account ZOE = Shipper Account ZOF = System Operator Account ZUI = Total Market Account	ZOC ZOD ZOE ZOF ZUI	ZOC ZOD ZOE ZOF ZUI	ZOC ZOD ZOE ZOF ZUI
BusinessCode	ZXJ = Opening Position ZXK = Closing Position ZXL = Transaction ZXM = Imbalance Z40 = Correction for imbalance.	ZXJ ZXK ZXL ZXM Z40	ZXJ ZXK ZXL ZXM Z40 not allowed	Z01 = Allocated. Z03 = Measured. Z02 = Nominated. Z04 = Confirmed. Z41 = Allocated maximum hourly gas flow. Z42 = Negative correction to allocated amount (decrease). Z43 = Positive correction to allocated amount (increase). ZFG = Consumption ZFH = Metered consumption ZFI = Profiled consumption
AccountDirectionCode	ZPD = Debit quantity. ZPE = Credit Quantity.	ZPD ZPE	ZPD ZPE	Z02 = Input quantity Z03 = Output quantity
StatusCode	03G = Estimated value. 04G = Provisional value. 05G = Definitive value. 21G = Value estimated by Network company, after consultation of other parties.	03G 04G 05G 21G not allowed	03G 04G 05G 21G not allowed	Not used

Different codes

Different codes

Recommendation for message identification

Many questions asked requesting a harmonised identification for messages

[Date][SEQUENCE]

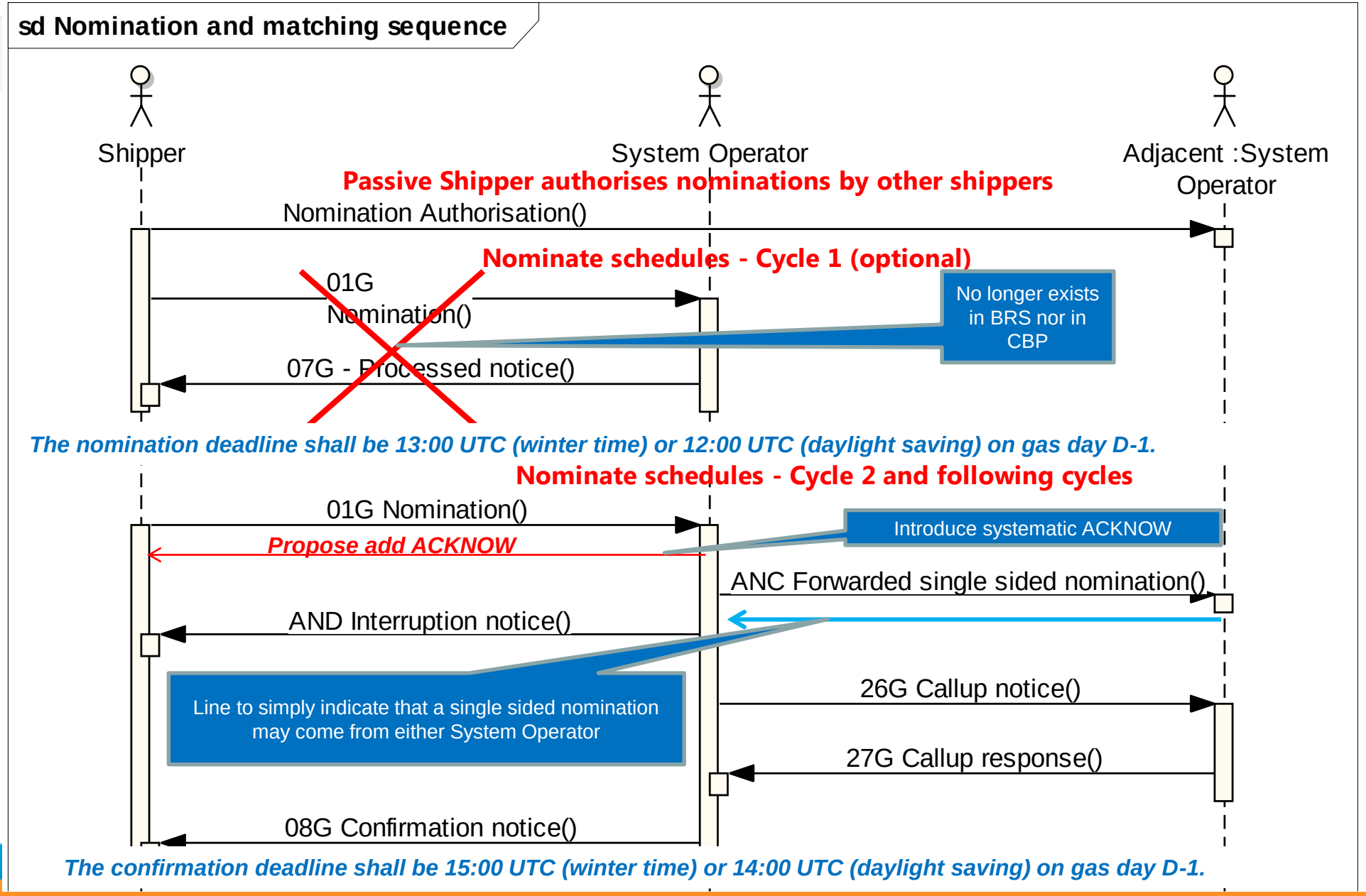
Where

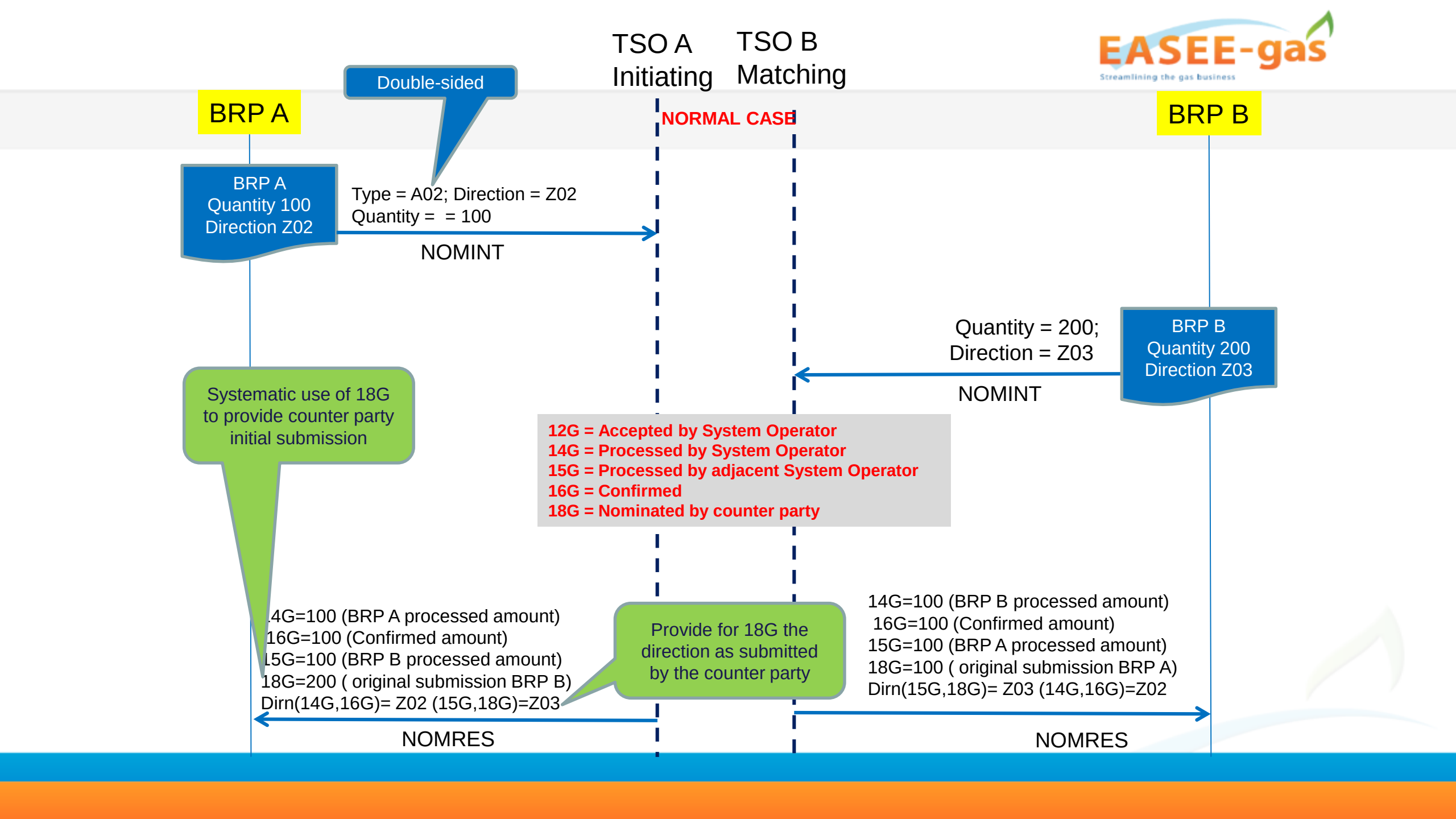
- DATE = YYYYMMDD – recommend the date that the first version of the message was generated by the sender
- SEQUENCE = 5 alphanumeric characters to uniquely identify a message. (i.e. 00001 or AAAAA)

The IDENTIFICATION MUST be managed within the SENDERs environment.

Note 1: Retransmissions of the same message MUST keep the original IDENTIFICATION and make use of the VERSION attribute in the message to indicate the new retransmission

Note 2: The receiver of a message must not check structure but only verify the uniqueness of the identification.


sd Nomination and matching sequence
Shipper
System Operator
Adjacent :System Operator
Passive Shipper authorises nominations by other shippers
Nomination Authorisation()
Nominate schedules - Cycle 1 (optional)
01G Nomination()
No longer exists in BRS nor in CBP
07G - Processed notice()
The nomination deadline shall be 13:00 UTC (winter time) or 12:00 UTC (daylight saving) on gas day D-1.
Nominate schedules - Cycle 2 and following cycles
01G Nomination()
Introduce systematic ACKNOW
Propose add ACKNOW
ANC Forwarded single sided nomination()
AND Interruption notice()
Line to simply indicate that a single sided nomination may come from either System Operator
26G Callup notice()
27G Callup response()
08G Confirmation notice()
The confirmation deadline shall be 15:00 UTC (winter time) or 14:00 UTC (daylight saving) on gas day D-1.


TSO A
Initiating
TSO B
Matching
NORMAL CASE
BRP A
BRP B
Double-sided
BRP A
Quantity 100
Direction Z02
Type = A02; Direction = Z02
Quantity = = 100
NOMINT
Quantity = 200;
Direction = Z03
BRP B
Quantity 200
Direction Z03
NOMINT
Systematic use of 18G
to provide counter party
initial submission
12G = Accepted by System Operator
14G = Processed by System Operator
15G = Processed by adjacent System Operator
16G = Confirmed
18G = Nominated by counter party
14G=100 (BRP A processed amount)
16G=100 (Confirmed amount)
15G=100 (BRP B processed amount)
18G=200 (original submission BRP B)
Dirn(14G,16G)= Z02 (15G,18G)=Z03
Provide for 18G the
direction as submitted
by the counter party
14G=100 (BRP B processed amount)
16G=100 (Confirmed amount)
15G=100 (BRP A processed amount)
18G=100 (original submission BRP A)
Dirn(15G,18G)= Z03 (14G,16G)=Z02
NOMRES
NOMRES

Processing requirements

A Nomination is submitted to a System Operator on a daily basis. The following rules must be respected:

- A nomination must be submitted for a single Balance Responsible Party internal System Operator account.
- The nomination must make reference to a single Connection Point.
- Any re-nominations shall be identified by the use of the document version number.
- All NOMRES documents must provide 18G

Choices to make – Nomination and matching process

- Transmit both directions or net quantities:

Both directions	Only net quantities
Pro: appropriate only when daily quantities matched with hourly quantities	Pro: No useless information in message, Pro: easier to validate

Harmonised approach: proposal to make both directions only when daily and hourly values are matched. In all other cases only net values should be allowed

Choices to make – Nomination and matching process

- When to send confirmation:

Every hour (even if no change)	Only after change of quantities or received nomint
Pro: repetitive-process	Pro: less messages

Systematic validation of historical data

To be resolved:

- Check that :
  - Historical data is confirmed data
  - Historical data is the last accepted nomination data
  - Carry out no checks

REMINDER: Cancel and replace principle

- If a message is received with a document identification that is the same as a previously sent document but with a version that is greater than the version in the previously sent document then the newly received document replaces the previously sent document and the previously sent document is cancelled.
- This is true for every Edig@s document.

e-Invoicing for gas

Electronic invoicing is becoming more and more prevalent for the automation of accounts payable where considerable savings can be obtained:

- Reduce the time, effort and cost involved in the paper-based invoicing process
  - Low error rate
  - Improved process – automatic validation
  - Increased staff productivity
- Facilitates European VAT audit and transparency requirements

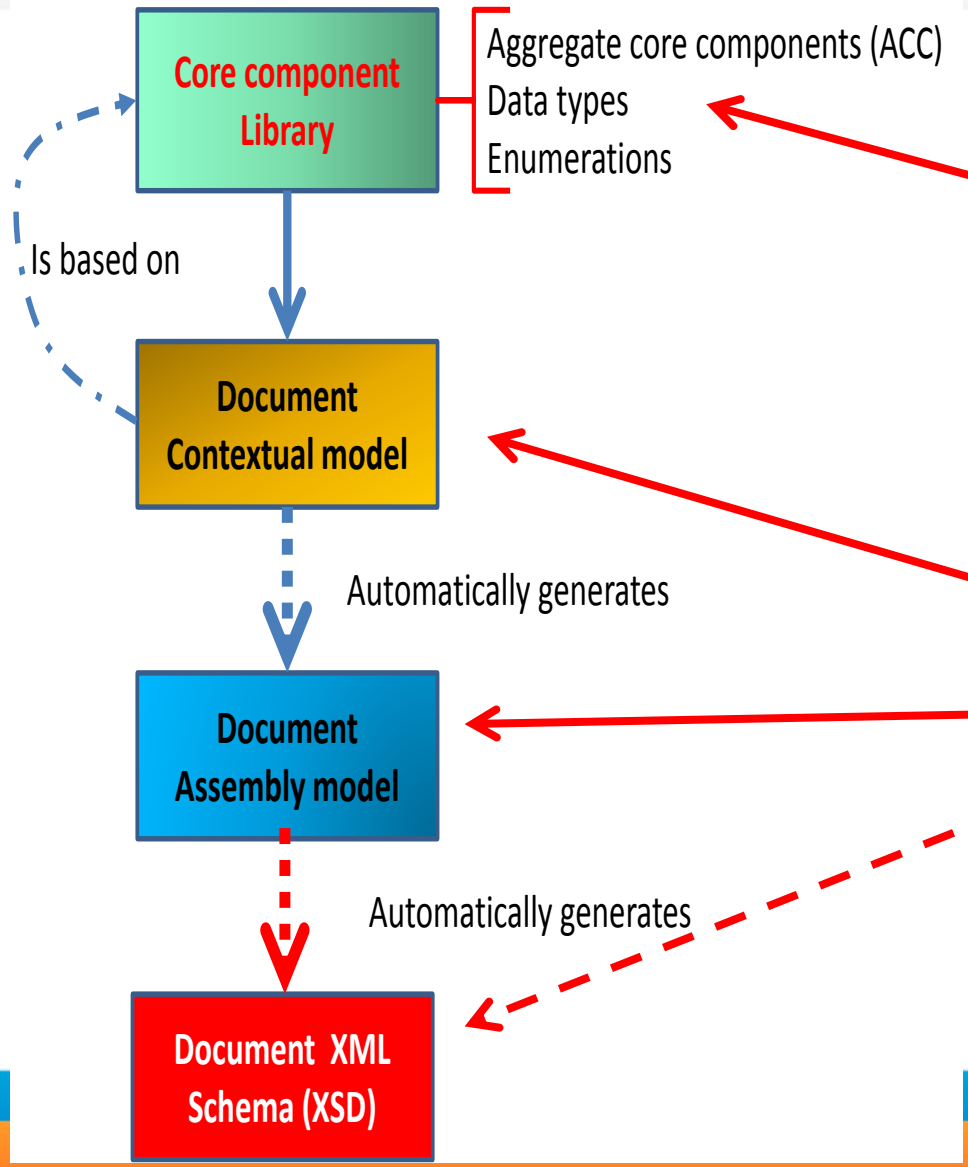
Proposal to develop Edig@s Invoice message using the **ISO/IEC 19845 (**UBL) standard invoice boilerplate.

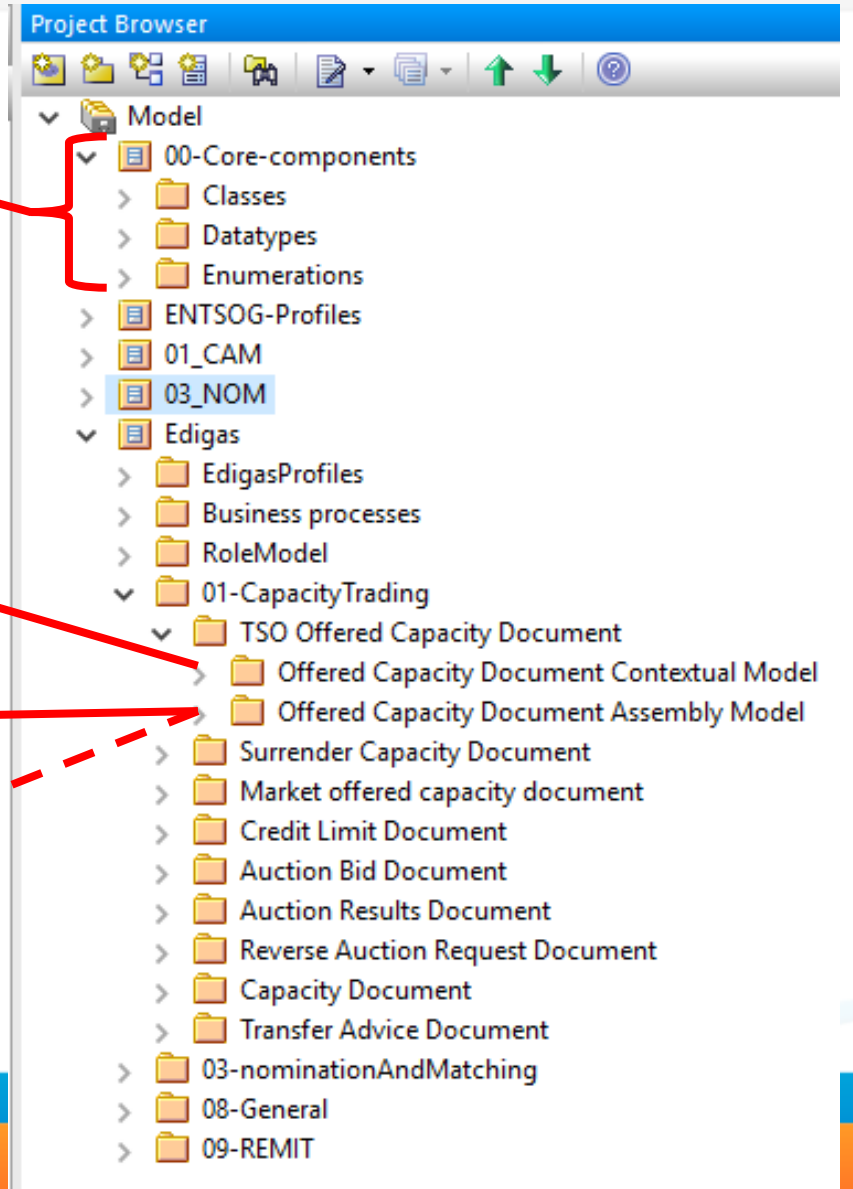
Code lists

Olivier Termont

ENI

Core component use and structure





Codelist harmonisation for codes

All codelist attributes harmonised to

- Attribute name = xxxxCode
- Datatype = xxxxCodeType
- Codelist name : xxxxCodeTypeCodeList

Remove redundant codes from codelist

Including codes that are not used.

Example: AccountDirection - removed

- Credit quantity outside limits
- Credit quantity inside limits
- Debit quantity outside limits
- Debit quantity inside limits

- Redundancy such as “Inside/outside” in the above codes are not required for version 6

Remove incompatible codes

Measurement Type List

For example removed

- Connection point
- Route
- No location specified

Unit of measure typelist

- Removed all codes relating to meteorological, physical and chemical properties (not units of measure)

Create new code lists

Created codelists for:

- MeteorologicalPropertyCodeTypeCodelist
- PhysicalPropertyCodeTypeCodelist
- ChemicalCompoundCodeTypeCodelist

These properties were initially in the UnitOfMeasure TypeList.

Deleted code lists

Deleted the following code lists:

Other means to implement if necessary

- CapacityMarketTypeList (codes to indicate primary or secondary market)
- CapacityTypeTypeList (codes to indicate bundled or unbundled – moved as an indicator in the Quantity class)
- CharacteristicTypeList (used only in the case of one TSO)

Never used

- CategoryTypeList (no existing codes)
- CountryTypeList (no used)
- SettlementTypeList (code to indicate physical or financial settlement)

Code lists

All Code List changes were approved by the EASEE-Gas community.

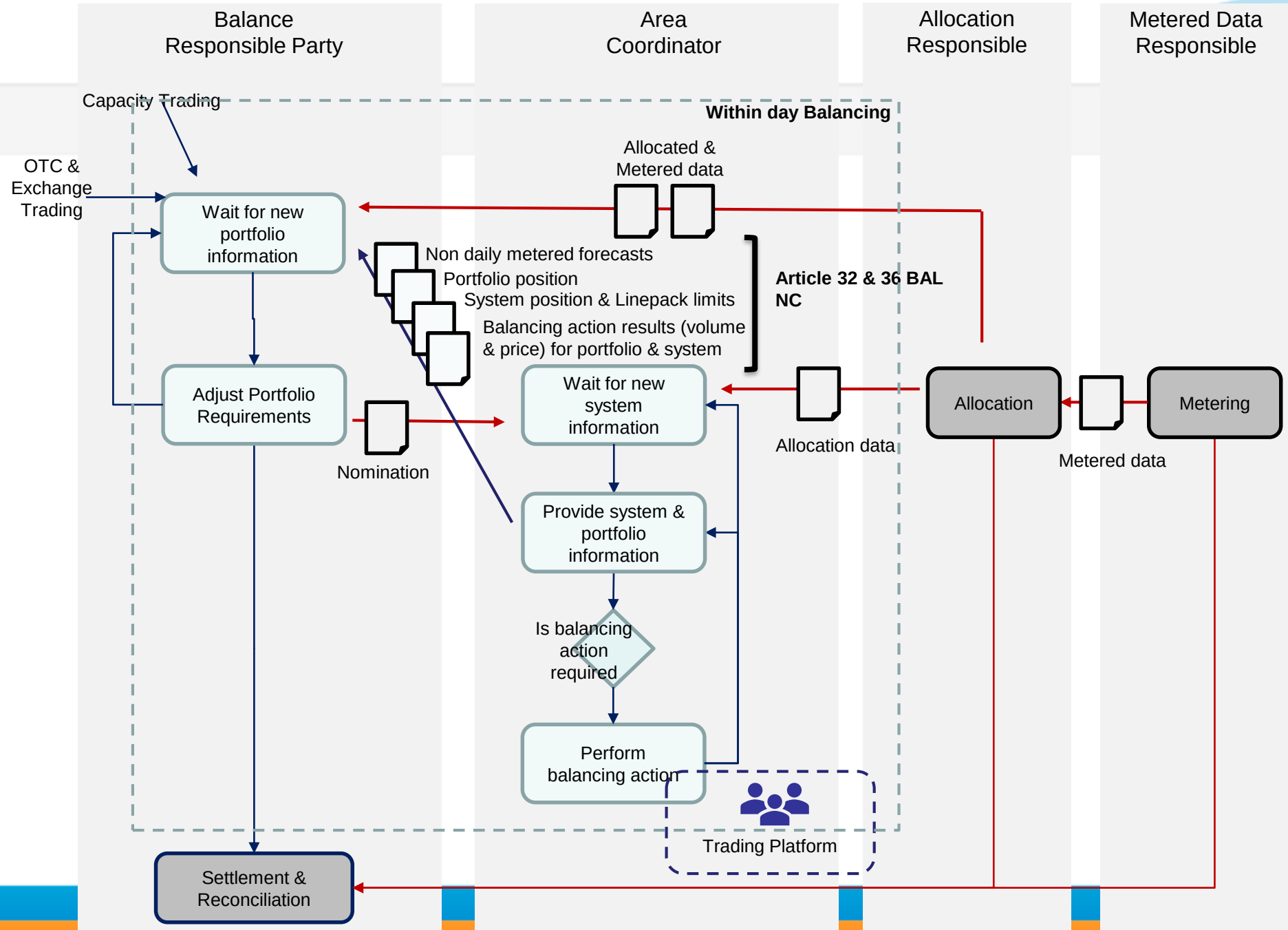
Processes

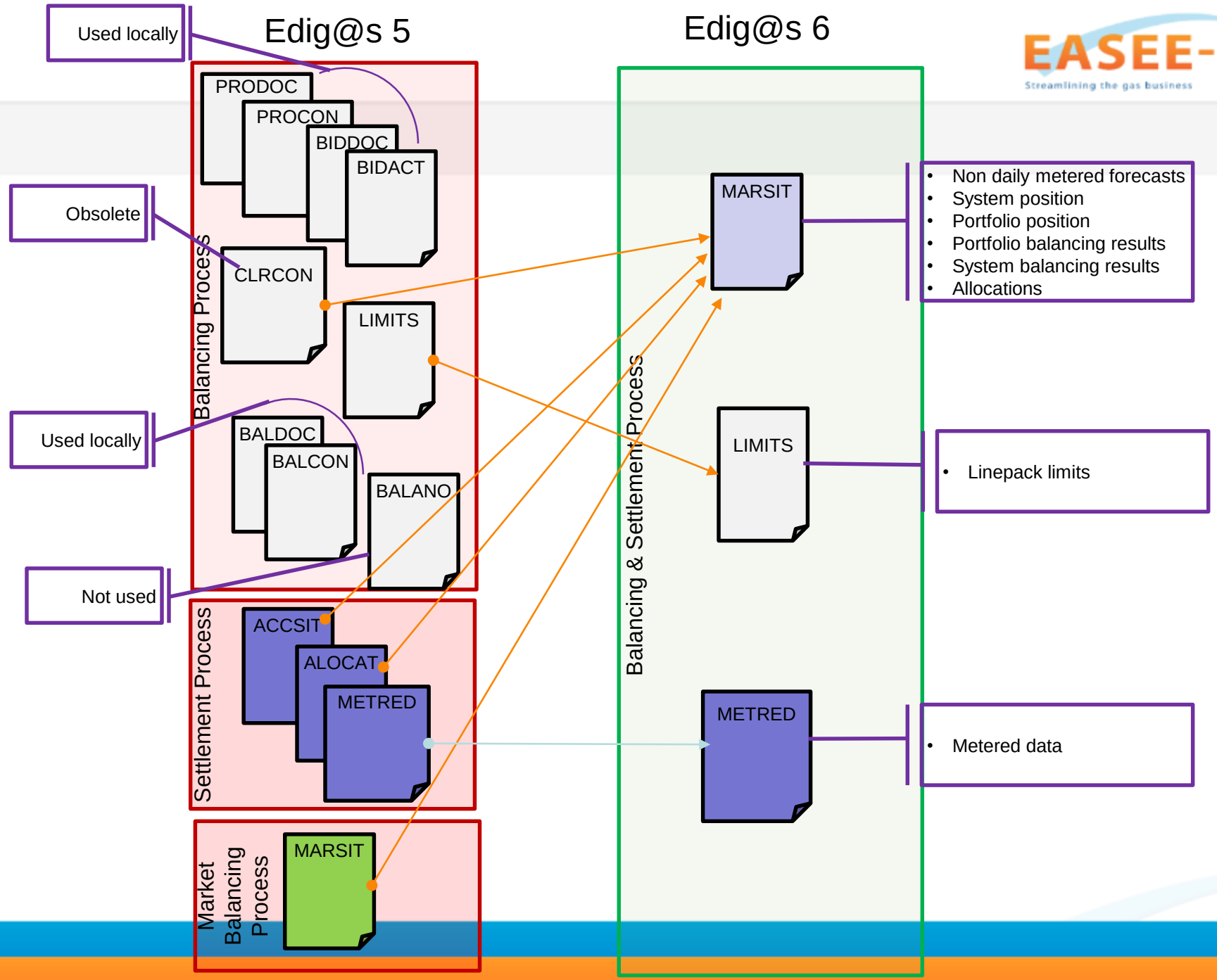
Svetlana Pozdycheva
Engie

Introduction

The Balancing process described in Edig@s 5 is not in compliance with the current market situation and NC BAL obligations :

- Locally managed messages
- TSO specific balancing processes
- Difficulties to respect NC BAL, article 32 & 36 on information provision


Balance Responsible Party
Area Coordinator
Allocation Responsible
Metered Data Responsible
Capacity Trading
OTC & Exchange Trading
Within day Balancing
Allocated & Metered data
Wait for new portfolio information
Non daily metered forecasts
Portfolio position
System position & Linepack limits
Balancing action results (volume & price) for portfolio & system
Article 32 & 36 BAL NC
Adjust Portfolio Requirements
Nomination
Wait for new system information
Allocation data
Allocation
Metering
Metered data
Provide system & portfolio information
Is balancing action required
Perform balancing action
Trading Platform
Settlement & Reconciliation


Edig@s 5
Edig@s 6
Used locally
Obsolete
Used locally
Not used
PRODOC
PROCON
BIDDOC
BIDACT
CLRCON
LIMITS
BALDOC
BALCON
BALANO
Balancing Process
ACCSIT
ALOCAT
METRED
Settlement Process
MARSIT
Market Balancing Process
Balancing & Settlement Process
MARSIT
LIMITS
METRED
Non daily metered forecasts
System position
Portfolio position
Portfolio balancing results
System balancing results
Allocations
Linepack limits
Metered data

Harmonised Gas Role Model

Jarle Rønnevik

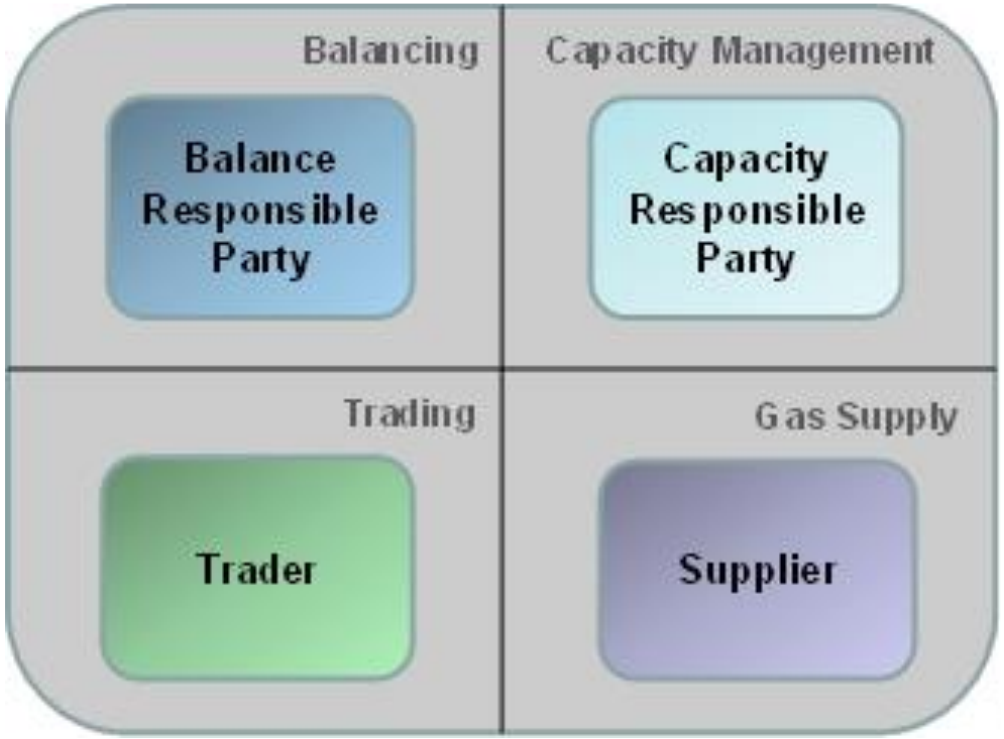
Equinor ASA

Align with harmonised role model

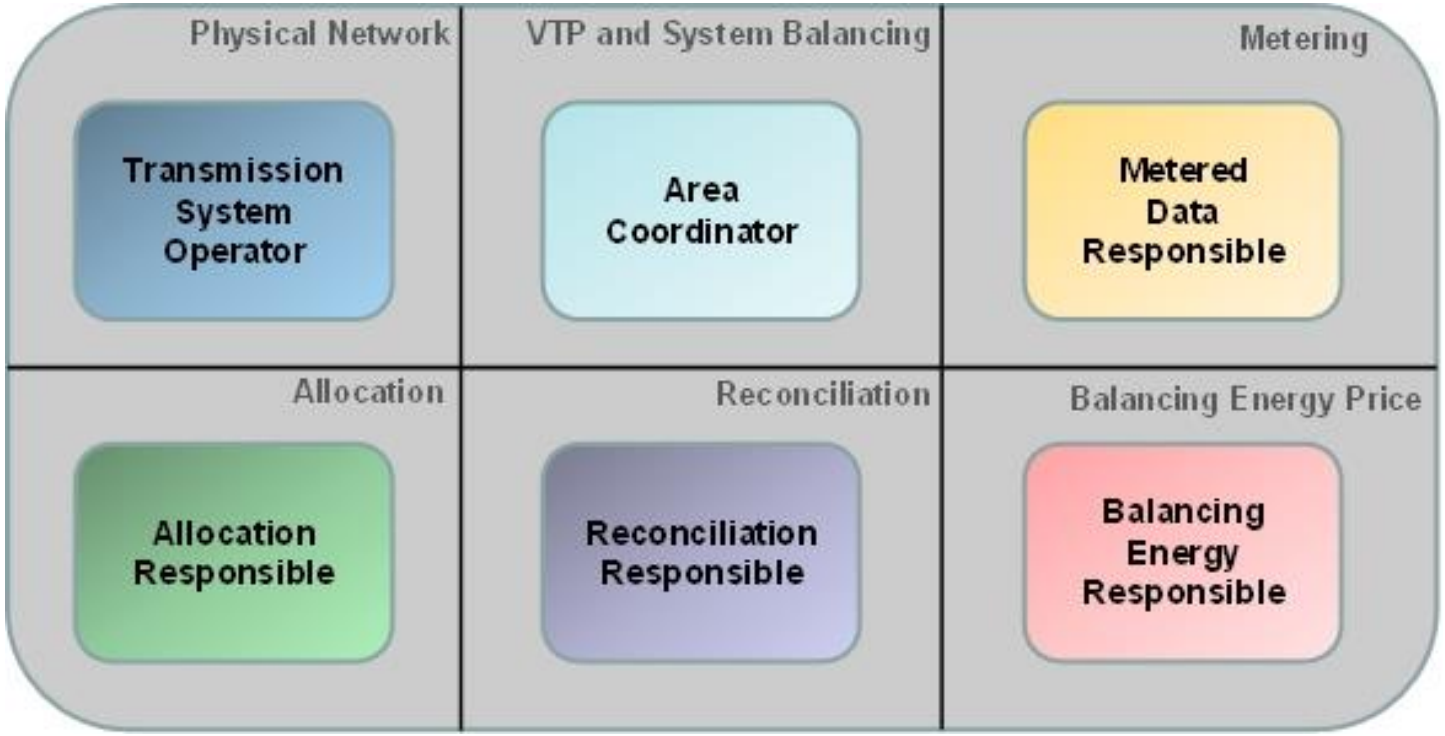
Align the roles as defined in the role model

Align the business processes covered by the role model with the implementation guidelines.

Where to find former “Shipper” / “Network User” in the role model



Where to find former “TSO” in the role model



When

Jarle Rønnevik
Equinor ASA

When should Edig@s version 6 be available?

Planned to be available in the second quarter of 2019

Implementation for 2022

© Statoil by Oyvind Hagen

Thank you for your attention

For more information:

www.easee-gas.eu

Coffee Break

9. Implementation Status of Configuration Repository (EASEE-Connect)

EASEE-Gas

©Storengy

Technology Standards Working Group

Communication party – configuration management

Context

- AS2 and AS4 communication requires management of configuration parameters.
- Exchange of these parameters is cumbersome, highly manual, error prone and sometimes leads to unsecure situations (e.g. exchange of private certificates by e-mail). Typically, target systems need to be updated manually upon reception of new configuration parameters.
- ENTSO-g is developing a standard for exchange of configuration parameters in band of AS4

Proposed solution

- Creation of a centralized repository where companies could organize their portfolio of communication parties with their respective configuration parameters that can be accessed interactively and/or automated

- Each company would be responsible of keeping its configuration data correct and in return could access the data of the companies in its portfolio

Value proposition for members

- Increased efficiency.
  - We expect less errors in configuration management as a result of the automation
  - Portfolio management would become easier
- Increased security
  - Less secure communication through e-mail can be avoided

Thank you for your attention

For more information:

www.easee-gas.eu

10. Open Questions / Next Steps

Next Steps

- Distribution of the presentation via email after the meeting
- Invitation for a public consultation
  - Feedback on the ENTSOG AS4 profile 3.6
  - Questions regarding the way forward regarding the Edig@s v6 development
  - Possible implementation period for Edig@s v6

Your Questions / Comments

- Please feel free to raise your questions
- Do you need any support or additional Information?
- Please contact us:
  - www.entsog.eu
  - marin.zwetkow@entsog.eu | info@entsog.eu

… search engines' results are not always correct – we are happy to help you.

Thank You for Your Attention

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