Welcome and Proceedings

Welcome

- **All presenters in the same room (respecting social distancing)**

- **All attendees are muted**

- **Questions regarding the agenda items are to be submitted via 'chat'; they will be addressed at the end of each presentation**

- **All other questions are to be posted via SLIDO #81513 for the Q&A session. They will be addressed subject to time constraints.**

- **You are not obliged to wear a mask during the meeting**

Agenda

Time	Session	Speaker
14:00 - 14:20	**Welcome** What to expect from this NM B2B web services technical forum.	**Iacopo Prissinotti** Director Network Management
14:20 - 15:00	**B2B improvements** Technical evolutions, governance and support	**Sergio Lupi** EUROCONTROL
15:00 - 15:40	**New B2B services** NM Release 24.0 and foreseen services in NM Release 25.0.	**Ioana Coliban** EUROCONTROL
15:40 - 16:00	**Report on user audits** Improvements to your systems through our auditing.	**Benjamin Cramet** EUROCONTROL
16:00 - 17:30	**Q&A session** Your expectations from our B2B Web Services in a post-pandemic world.	**You** Our expert audience

Event Participation

The Impact and The Foreseen Future

iNM Status

B2B Tech Forum
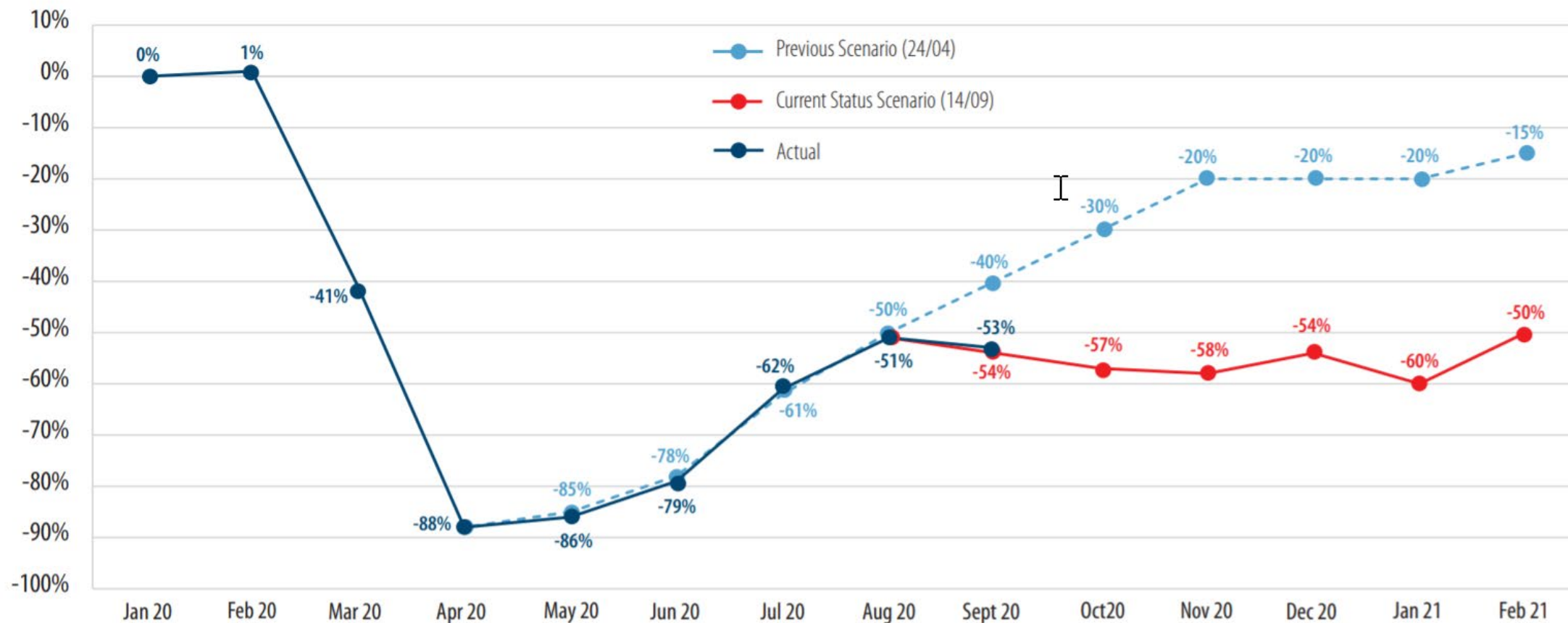
2 days → 3 hours

> 400 Registrations

Key Support to our Stakeholders' operations

B2B

iNM – integrated Network Manager

Technical debt of current systems

Architecture
No data integration
Fligh/flow inconsistencies
≠ HMIs

...

Limits of current systems

Performance
Agility
Resilience

"a world of change"
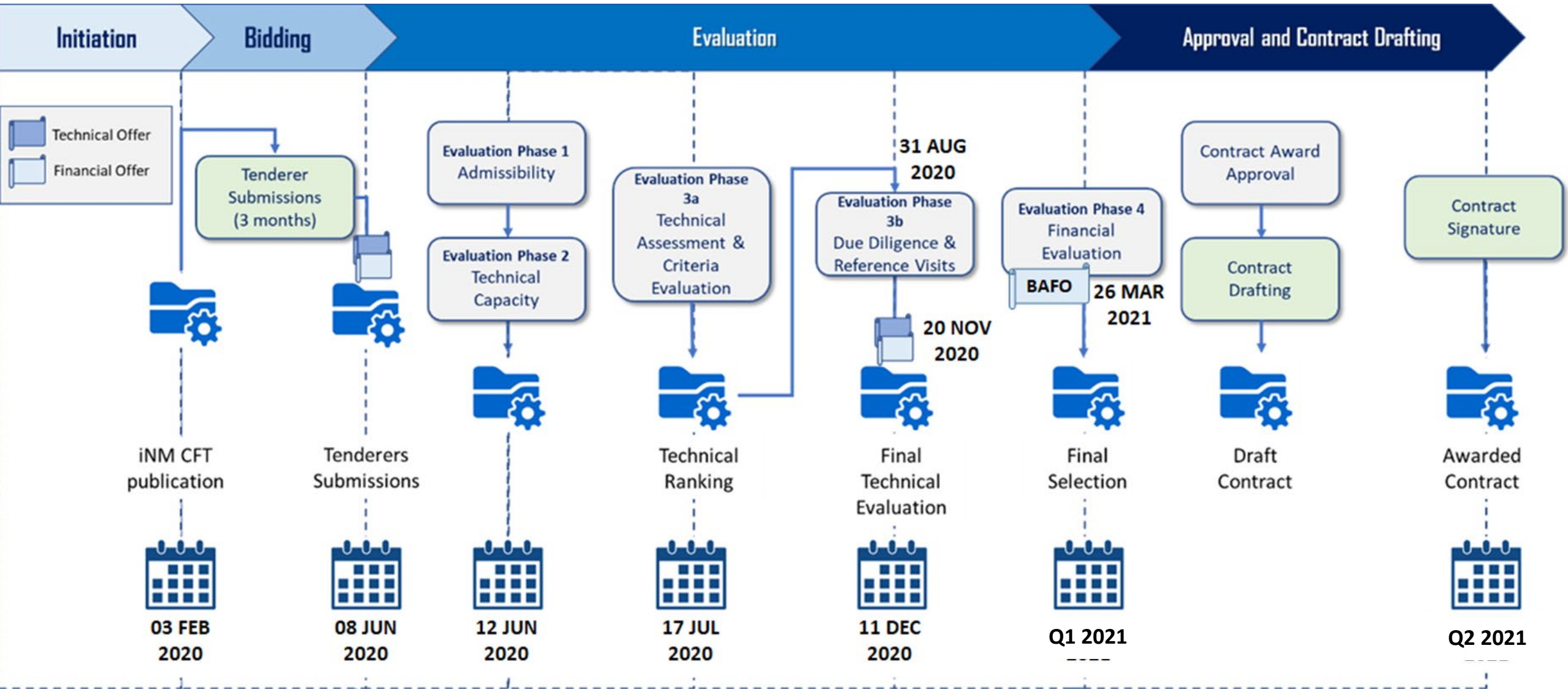### COVID-19

Data consistency

CACD

EAD

iDL: Integrated Data Layer

Value creation
...a concept of integrated data, provided by a single digital platform

EUROCONTROL

digital platform

data

B2B

data

iNM Call For Tender

Initiation | Bidding | Evaluation | Approval and Contract Drafting

Technical Offer
Financial Offer

Tenderer Submissions (3 months)

Evaluation Phase 1
Admissibility

Evaluation Phase 2
Technical Capacity

Evaluation Phase 3a
Technical Assessment & Criteria Evaluation

31 AUG 2020

Evaluation Phase 3b
Due Diligence & Reference Visits

20 NOV 2020

Evaluation Phase 4
Financial Evaluation

BAFO

26 MAR 2021

Contract Award Approval

Contract Drafting

Contract Signature

iNM CFT publication
03 FEB 2020

Tenderers Submissions
08 JUN 2020

12 JUN 2020

Technical Ranking
17 JUL 2020

Final Technical Evaluation
11 DEC 2020

Final Selection
Q1 2021

Draft Contract

Awarded Contract
Q2 2021

iNM timeline

2019	2020	2021	2022	2023	2024	...

iNM

iNM CFT publication   iNM contract award   Initial orders   First OPS deliverable

Provisional Council Approval

Call For Tender phase

DPLT

DPLT v1,0 (NM26)   DPLT v2,0

DPLT: Digital Platform

Technical Improvements

Sergio Lupi

Content

- B2B Organization in EUROCONTROL

- Technical Improvements

- Other Improvements

- Decommissioning of B2B versions

B2B Organization

Ioana Coliban Porosnicu

- Business domains
- Operational expertise
- Operational evaluation
- Business documentation
- Business evolution

Claire Simonini

- Point-of-Contact
- Client certificates
- User support & Coordination
- User events
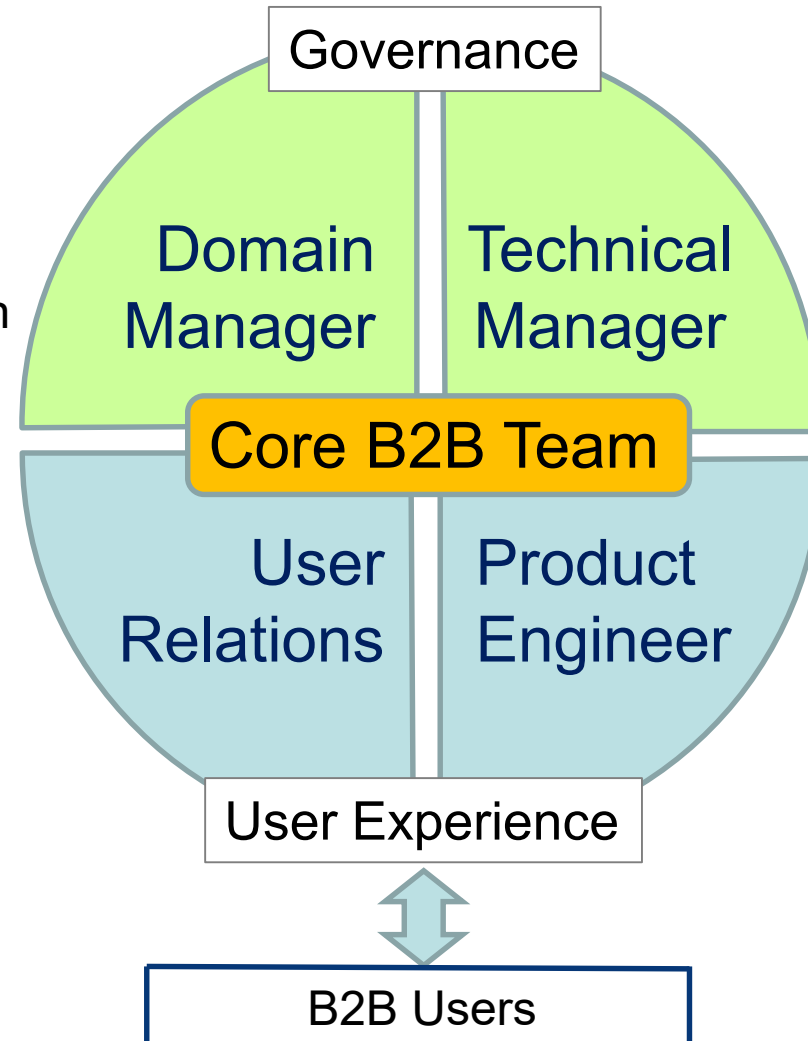
Sergio Lupi

- Architecture
- Technical Evolution
- Technical documentation
- Technical subjects
- Transition to DPLT and iNM

Alessandro Prestigiacomo (replacing Benjamin Cramet)

- User engagement
- User experience
- User support
- Monitoring
- Auditing

Governance

Domain Manager

Technical Manager

Core B2B Team

User Relations

Product Engineer

User Experience

B2B Users

Technical Improvements - New Message Broker for Pub/Sub

- Currently based on Apache Active MQ
  - Need for more solid/robust solution
- Call For Tender for new Message Broker
  - Started in 2019
  - Final selection (October 2020)
- Deployment after NM 25.0
  - Work in progress to formalize a plan
  - Tentative deployment date: Autumn 2021
- Impact on B2B client applications
  - None foreseen
 - Will provide early access to a test environment

Technical Improvements - B2B over PENS (1/2)

- OPS B2B on PENS just approved by EASA (September 2020)
- New B2B VPN in the ANSP backbone
- Different B2B client certificates between Internet and PENS

- What you need to do:
  - Must be a member of the PENS network
  - Request access to EUROCONTROL (via normal channel)
  - Connect to PENS B2B VPN (request to BT)
  - Provide client IP to EUROCONTROL (for connectivity setup)
  - First PREOPS, then OPS (even if existing Internet client)
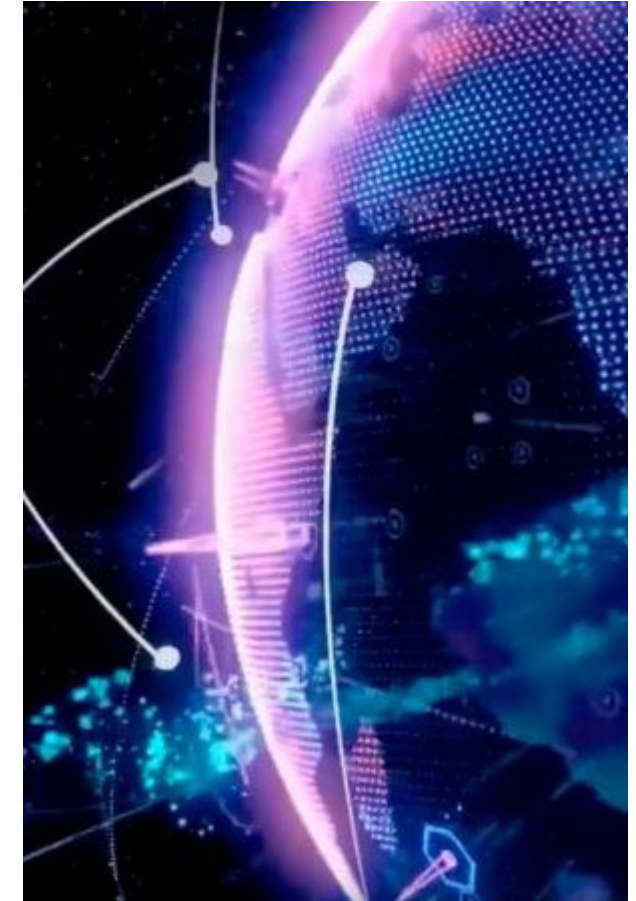
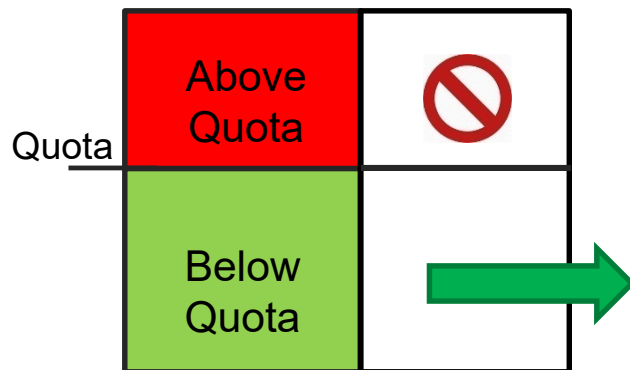# Technical Improvements - B2B over PENS (2/2)
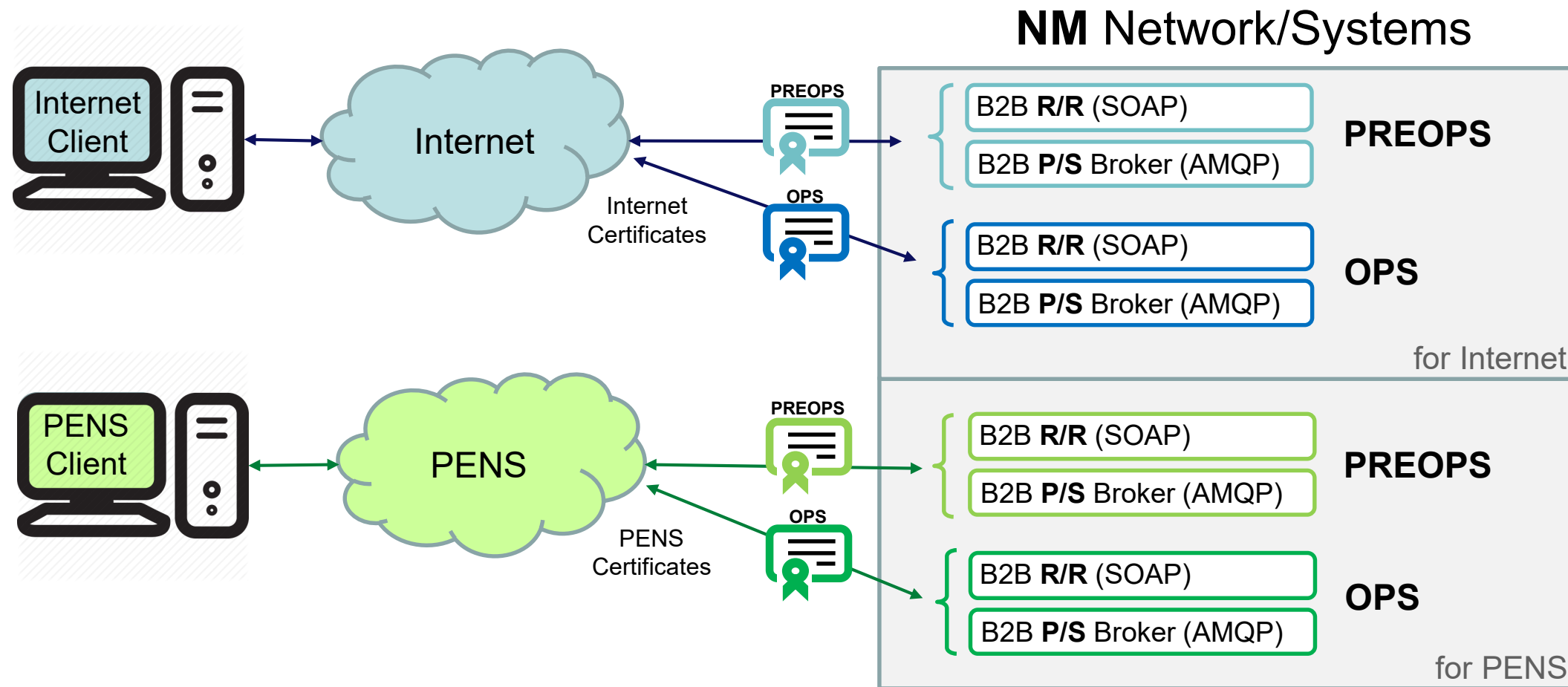
Technical Improvements - New Overload Protection (1/2)

Current behaviour (before 25.0)
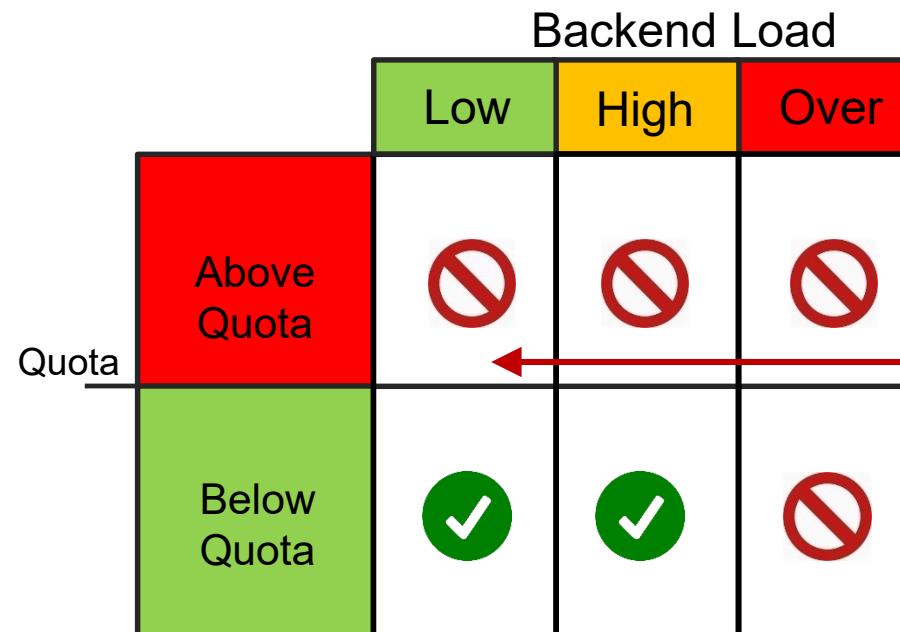
<u>For each Client Certificate:</u>

1. Bandwidth utilization
Bytes / Time

2. Number of Requests
Requests / Time

Two problems:

1. Request rejected although capacity available

2. Single error message for every case: OVERLOAD

Technical Improvements - New Overload Protection (2/2)

New behaviour (from 25.0)

- **New Principle**
  - Allow users to "slightly" exceed their **request quota** if there is enough capacity
  - New concept of "**Overbooking**"

- **Improved Reply**
  - Four rejection error codes:
    Overload, Bandwidth, #Requests, Overbooking

- Provide more information when available E.g.
  Warning:
  - *Normal request quota is **30/60sec***
  - *Current usage: **31/60sec***
  - *Overbooking allowed up to **36/60sec***

Backend Load

		Low	High	Overload
Overbooking quota	**Above all Limits**	🚫	🚫	🚫
	Overbooking Zone	✅⚠️	🚫	🚫
Normal usage quota	**Normal Usage Zone**	✅	✅	🚫

NOTE: No Overbooking for Bandwidth Limitation

Technical Improvements – Publish/Subscribe (1/2)

Time

- **Use case 1**

AMQP client connected and consuming

Long time without messages

Queue

Subscription

Subscription is Active

➡ Inquire regularly about subscription status via SubscriptionManagement API

- **Use case 2**

AMQP client connected and consuming

AMQP client disconnects

Message Expires; Subscription Is paused

Technical Message published

Technical Message expires

AMQP client re-connects

Queue

Subscription

Subscription is Paused MSG_EXPIRED

Heartbeat Messages

➡ Inquire about subscription status via SubscriptionManagement API

Technical Improvements – Publish/Subscribe (2/2)

New Technical Message:
HeartbeatTechnicalMessage

- Contains (as a minimum):
  - Subscription UUID
  - Subscription state
  - Time to next pulse

- Frequency: 1 to 5 minutes
- Short TTL: related to frequency
- <u>By default always published also on PAUSED/SUSPENDED subscriptions</u> → Configurable?
- Only available for 25.0 subscriptions (to respect backward compatibility)
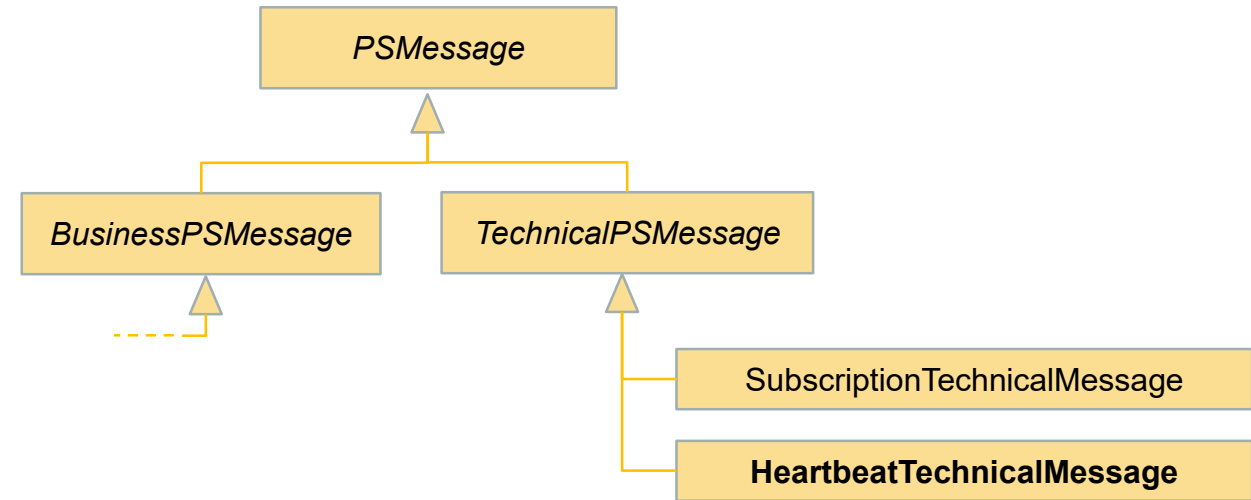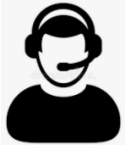
```
              ┌──────────────┐
              │  PSMessage   │
              └──────────────┘
                     △
        ┌────────────┴────────────┐
┌──────────────────┐      ┌──────────────────┐
│ BusinessPSMessage│      │ TechnicalPSMessage│
└──────────────────┘      └──────────────────┘
         △                         △
         ┆              ┌──────────┴──────────────────────┐
         ┆       ┌────────────────────────────────┐
         ┆       │ SubscriptionTechnicalMessage    │
                 └────────────────────────────────┘
                 ┌────────────────────────────────┐
                 │ **HeartbeatTechnicalMessage**   │
                 └────────────────────────────────┘
```

No need to continuously poll the subscription to check its state.
- Reduce system load and bandwidth utilization
- Only react if no Heartbeat Message received or if the subscription state is different than expected

Other Improvements (1/2)

User Support
- Decrease response time on Web Forum (usually 1-2 days; maximum 1 week)
  (The web forum is for questions and sharing knowledge with others, <u>not for incidents</u>!)
- More involvement from the business
- 24/7 L3 Support 1st April 2021

More formal **acceptance criteria** for OPS (for read-only services)
- Work in progress

Other Improvements (2/2)

Documentation

- More Use Cases (e.g. Slot-Swapping, i-DAP, AOWIR, ATFM Messages, etc.)
- More B2B examples in Operations Manuals (e.g. ATFM Messages)
- Earlier access to draft Reference Manuals (~4 months before deployment)
- Improved Release Notes and Reference Manuals:
  More explicit information on New/Altered/Removed elements and Impacted Operations/Messages

B2B 25.0 Release Notes

B2B 25.0 Flight Services Reference Manual

		CDM (Collaborative Design Making) information.
boolean	Optional	**slotIssued** Indicates that the flight is in state slot-issued or wa
ProposalInformation	Optional	**proposalInformation** NEW 25.0.0 General information about the proposal for the flg and there is an ongoing SIP, RVR, rerouting (RRF
TimeAndModel	Optional	**timeAtReferenceLocationEntry** Indicates the entry time at the reference location.

6.2.3.2. Impacts

1. **ALTERED** operation `FlightManagement.queryFlightsByKeys`
   a. **NEW** enumerator `FlightField.currentDepartureTaxiTimeAndProcedure`
   b. **NEW** enumerator `FlightField.proposalInformation`
   c. **NEW** attribute `Flight.currentDepartureTaxiTimeAndProcedure`
   d. **NEW** class `TaxiTimeAndProcedure`
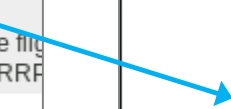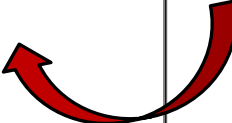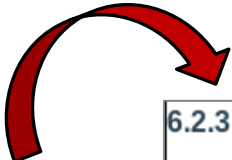   e. **NEW** attribute `Flight.proposalInformation`
   f. **NEW** class `ProposalInformation`
   g. **NEW** enum `ProposalKind`
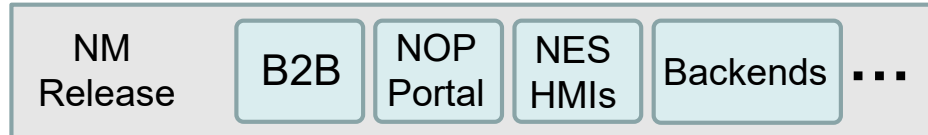   h. **REMOVED** enumerator `FlightField.currentlyUsedTaxiTime`
   i. **REMOVED** enumerator `FlightField.suspensionResponseBy`
   j. REMOVED enumerator FlightField.slotImprovementProposal

Decommissioning of B2B versions (1/3)

- **NM Release ≠ B2B Version**

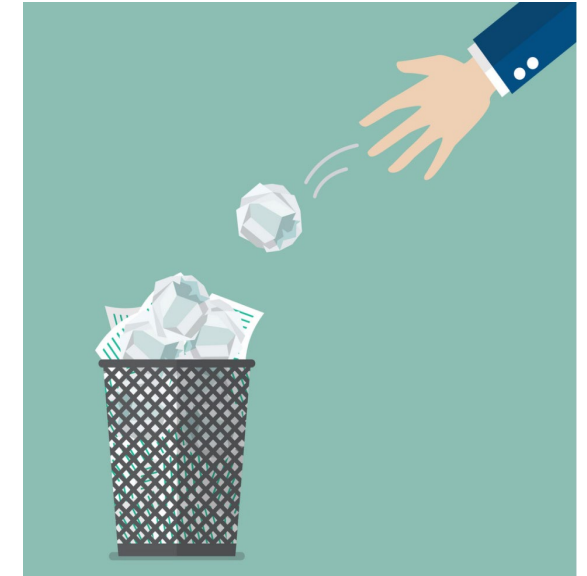| NM Release | B2B | NOP Portal | NES HMIs | Backends | . . . |

- **New NM Release lifecycle**

1. **One (major) NM Release per year** starting from NM 25.0
2. Minor NM releases may be deployed but should not impact B2B
   → **No minor B2B versions**
   Exceptions to the above rule may be considered on a case by case depending on the nature of the change and impact.
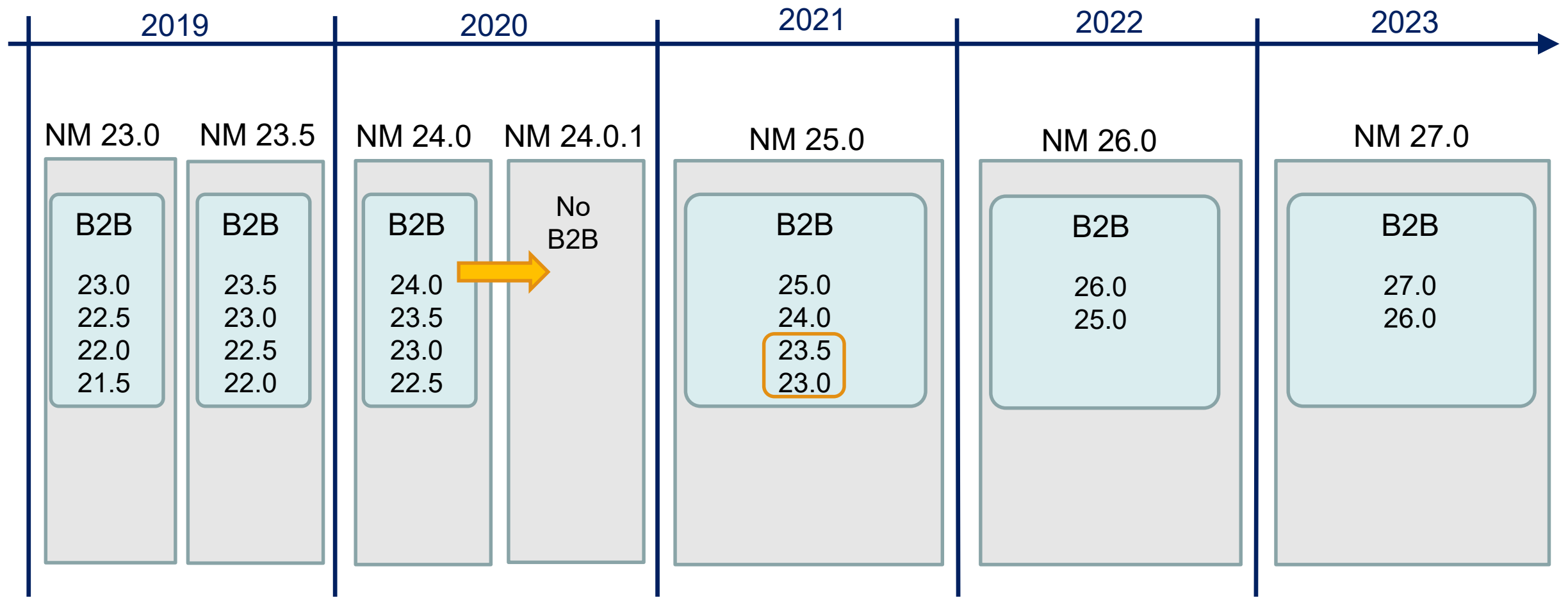3. Decommissioning of a B2B version only in Major Releases

☞ Honour the current deprecation policy (**2 calendar years**)

- NM B2B **23.0 lifecycle extended** due to COVID-19

Decommissioning of B2B versions (2/3)

2019		2020		2021	2022	2023
NM 23.0	NM 23.5	NM 24.0	NM 24.0.1	NM 25.0	NM 26.0	NM 27.0
B2B 23.0 22.5 22.0 21.5	B2B 23.5 23.0 22.5 22.0	B2B 24.0 23.5 23.0 22.5	No B2B	B2B 25.0 24.0 23.5 23.0	B2B 26.0 25.0	B2B 27.0 26.0

Decommissioning of B2B versions (3/3)

NM releases

	...	2018		2019		2020		2021	2022	2023
	...	22.0	22.5	23.0	23.5	24.0	---	25.0	26.0	27.0
...										
20.5		■								
21.0		■	■							
21.5		■	■	■						
22.0		■	■	■	■					
22.5			■	■	■	■	■			
23.0				■	■	■	■	■		
23.5					■	■	■	■		
24.0						■	■	■		
25.0								■	■	

26.0									■	■

27.0										■

B2B versions

Minimum supported period: 2 years

Questions

Content

- **What was new in NM24.0?**
- **What is new in NM25.0?**
  - **Airspace Services**
  - **Flight Services**
  - **Flow Services**
  - **Publish Subscribe**
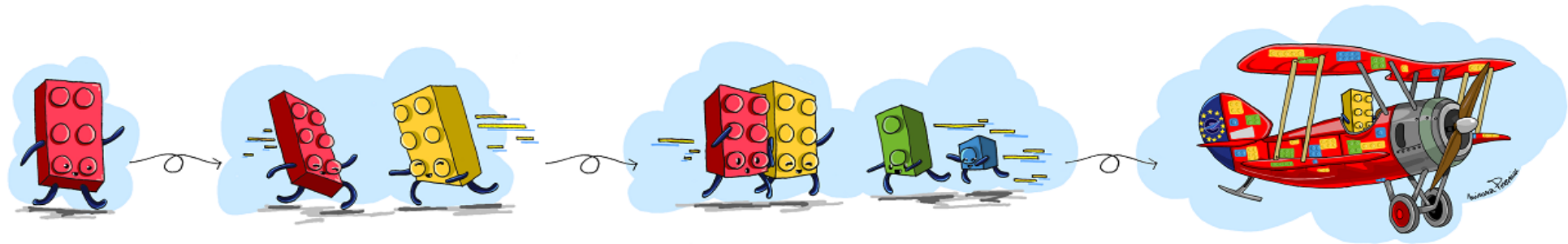
NM Releases

- **NM Release 24.0**
    - Airspace Services
        - Dynamic changes on Traffic Volume compositions
        - NPZ (Non Planning Zone) processed via AUP/UUP
    - Flight Services
        - ATFM dialogue messaging for AOs
        - AOWIR
        - Target Time improvements (to support for DCT STAR in API and FlightUpdate messages)
        - FF-ICE filing function - file eFPL – improvements
        - Predictability Improvements - make YoYo tool available
    - Flow Services
        - iDAP – Integrated Digital ATFCM Platform
    - Publish Subscribe Services
        - New fields added due to the above services
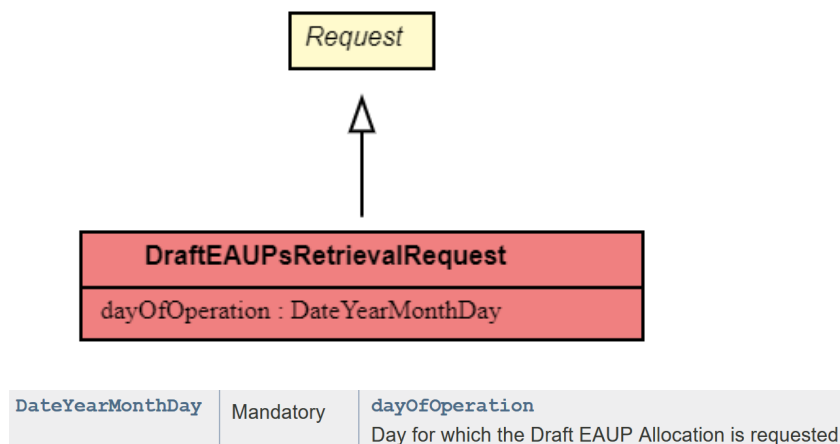   - Fixes and corrections in all the services

NM Releases

- **NM Release 25.0**
  - Airspace Services
    - Advanced FUA process improvement – Access to draft rolling EAUP
    - Timesheets will contain the related country
  - Flight Services
    - Target Time improvements (to include InitialApproachFix and wakeTurbulanceCategory)
    - AOP/NOP Integration
    - Diversion management - ALTN aerodromes
    - FF-ICE filing function - file eFPL – improvements
    - Predictability Improvements – make SharpTurnAngle tool available
    - Usage of spaces-based ADS-B data (AIREON)
  - Flow Services
    - iDAP (Integrated Digital ATFCM Platform) and Future EHelpDesk
  - Publish Subscribe Services
    - New fields and topics added due to the above services
  - Fixes and corrections in all the services

Airspace Services

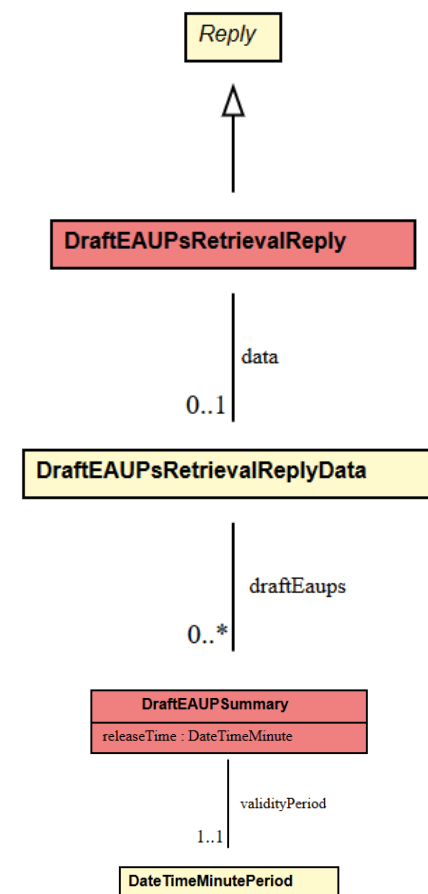- **Advanced FUA process – Access to draft rolling EAUP**
  - New B2B requests in airspace.AirspaceAvailability port type: Airspace Services
    - *retrieveDraftEAUP*
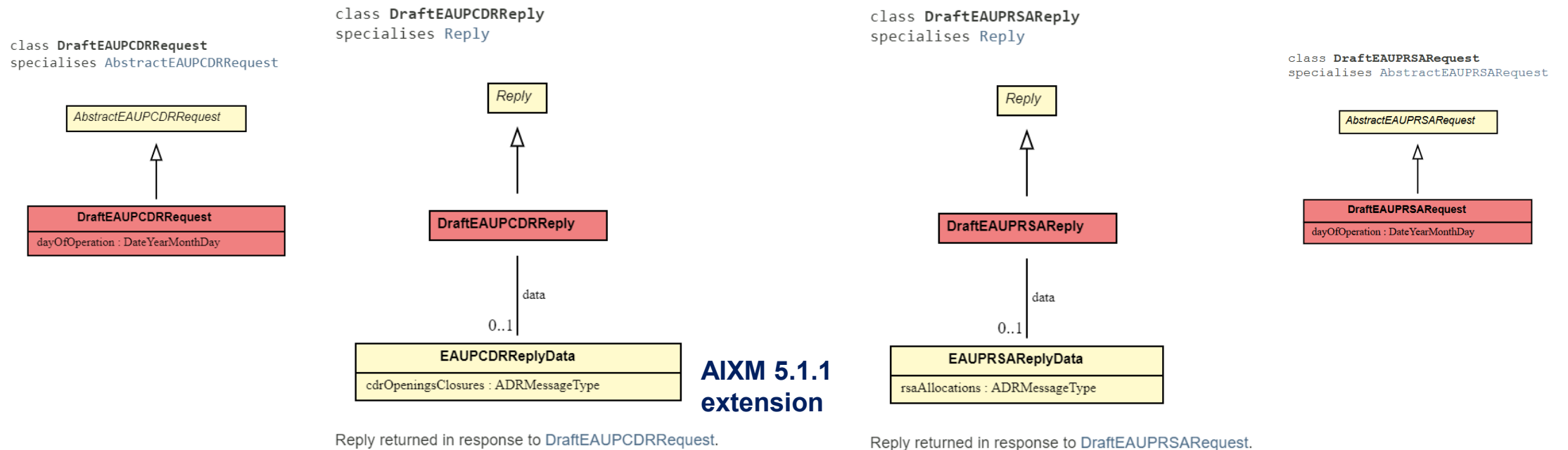   - retrieveDraftEAUPRSAs
    - retrieveDraftEAUPCDRs

class **DraftEAUPsRetrievalReply**
specialises Reply

Reply

↑

DraftEAUPsRetrievalReply

| data

0..1

DraftEAUPsRetrievalReplyData

| draftEaups

0..*

DraftEAUPSummary
releaseTime : DateTimeMinute

| validityPeriod

1..1

DateTimeMinutePeriod

class **DraftEAUPsRetrievalRequest**
specialises Request

Request

↑

DraftEAUPsRetrievalRequest
dayOfOperation : DateYearMonthDay

DateYearMonthDay	Mandatory	**dayOfOperation**
		Day for which the Draft EAUP Allocation is requested

Airspace Services

- ## Advanced FUA process – Access to rolling draft EAUP
  - New B2B requests in airspace.AirspaceAvailability port type: Airspace Services
    - *retrieveDraftEAUPRSAs*
    - *retrieveDraftEAUPCDRs*

class **DraftEAUPCDRRequest**
specialises AbstractEAUPCDRRequest

class **DraftEAUPCDRReply**
specialises Reply

class **DraftEAUPRSAReply**
specialises Reply

class **DraftEAUPRSARequest**
specialises AbstractEAUPRSARequest

AbstractEAUPCDRRequest

Reply

Reply

AbstractEAUPRSARequest

DraftEAUPCDRRequest

dayOfOperation : DateYearMonthDay

DraftEAUPCDRReply

DraftEAUPRSAReply

DraftEAUPRSARequest

dayOfOperation : DateYearMonthDay

data

0..1

data

0..1

EAUPCDRReplyData

cdrOpeningsClosures : ADRMessageType

EAUPRSAReplyData

rsaAllocations : ADRMessageType

AIXM 5.1.1 extension

Reply returned in response to DraftEAUPCDRRequest.

Reply returned in response to DraftEAUPRSARequest.

Airspace Services

- **Advanced FUA process – Access to rolling draft EAUP**
  - Authorisation – same as for the regular EAUP retrieval operations

Role	Use Case	B2B requests
b2b_airspace_availability_rsa_role	b2b.AirspaceAvailability_RSA	retrieveDraftEAUPSummaries + retrieveDraftEAUPRSAs
b2b_airspace_availability_cdr_role	b2b.AirspaceAvailability_CDR	retrieveDraftEAUPSummaries + retrieveDraftEAUPCDRs

Airspace Services

- **Timesheets will contain the related country**

  Exporting airspace data containing schedules with special dates,

  CACD calculates the related country. The relationship.

  'appliesSpecialDatesOf' is exported whenever there are Timesheets containing special dates.
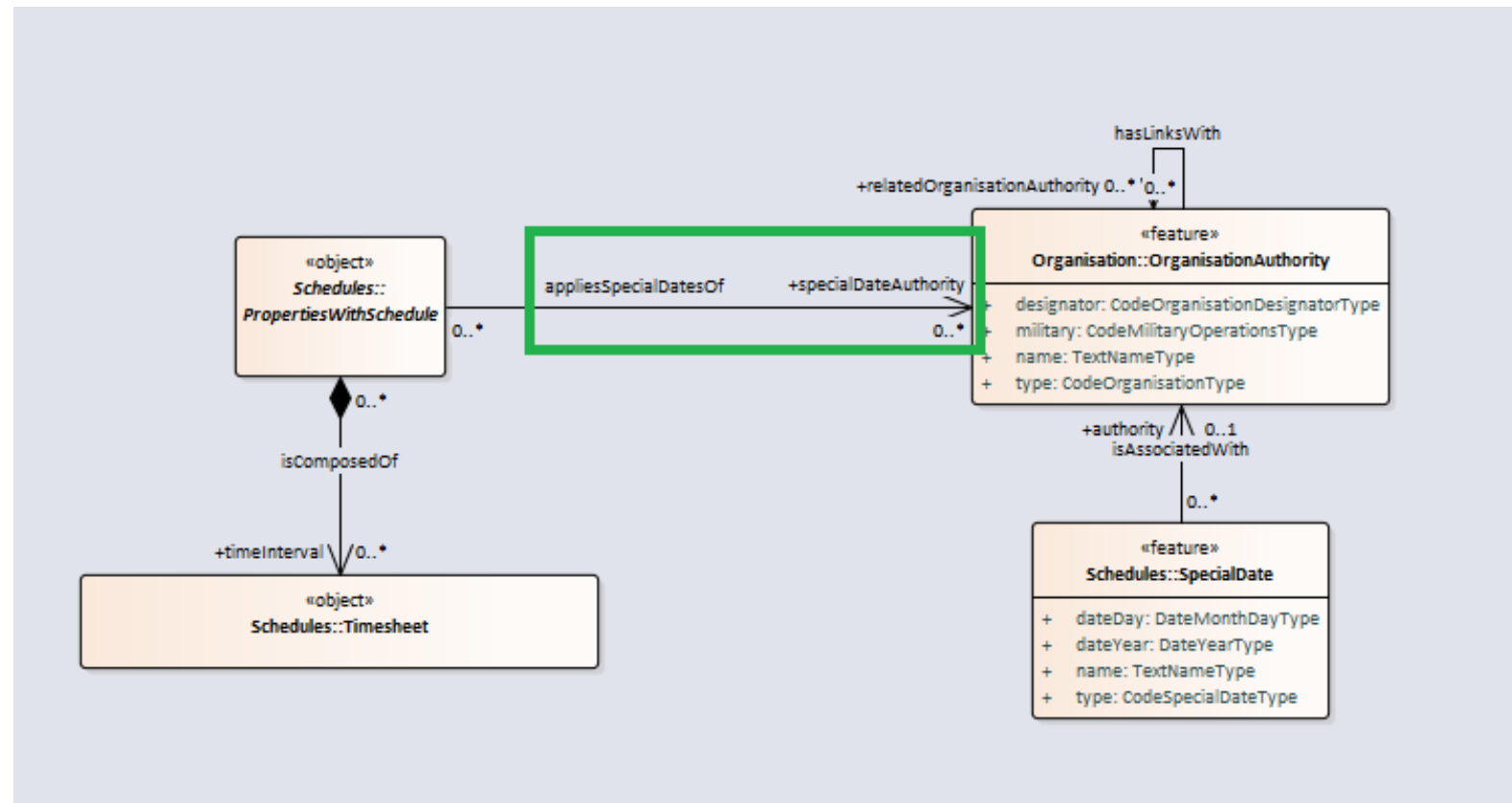
Flight Services FF-ICE - Contents

1. **FF-ICE and FIXM 4.2**

2. **New FF-ICE Services**

3. **Points of Note**
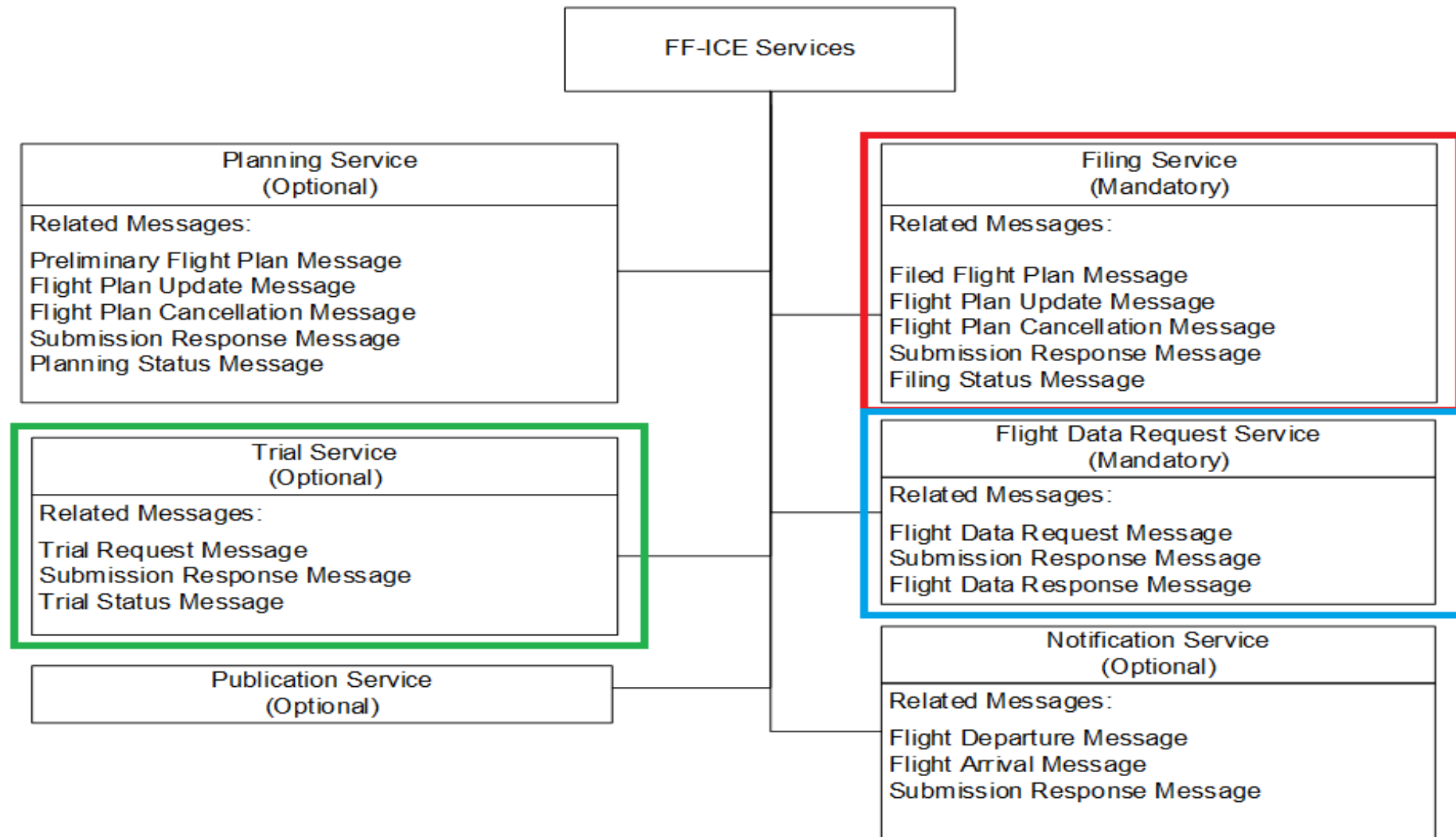
Figure 1 FF-ICE Services

Flight Services FF-ICE – B2B services

1. **New B2B services**

3.1.2.3. FilingReply

4.1. FficeFilingReply

(1) TODO

(2) Attributes:

    a) **FilingStatus_v4_2** `filingStatus_v4_2` *(Optional)*
       TODO

    b) **SubmissionResponse_v4_2** `submissionResponse_v4_2` *(Optional)*
       TODO

(3) Used by: FlightDataReply, FlightDataReplyChoice, FilingReply.

Figure 3.2. FilingReply Class Diagram

Flight Services FF-ICE – Points of Note

1. Update Service requires a full update
2. Limitations
   1. Units of Measure – FIXM offer Double precision, yet the type in NM for FL, M, KM, NM returned as integers
   2. Issues with SID/STAR Alignment
   3. It's new, bug reports welcome
3. No FIXM support in FlightPlanCreation, FlightPlanUpdate FlightPlanValidationRequest from NM 25.0
4. FIXM 4.2 FlightData support for Publish Subscribe, Routing Assistance Request
5. Contact the FPFDE (Flight Plan and Flight Data Exchange) to obtain further information.

Flight Services

- ## Diversion management support
  - alternateAerodromes – new FlightField – only in R/R* and P/S* Flight Plans (but not in P/S Flight Data)

    *R/R – Request/Reply *P/S – Publish/Subscribe

- ## Predictability improvements – make STA tool available
  - New light requestFlightField called staFlightForLocation
  - FlightList queries to expose Sharp Turn Angles (STA)

```
Shows presence/intersection of STA(s).
. .
| |_ Model airspace intersection: (upper case => critical STA)
|      I or i if a STA is inside the airspace
|      O or o if a STA is outside airspace
|    Model presence:
|      Y if a Critical STA is present
|      y if a non-Critical STA is present
|        if no STA is present
|
```
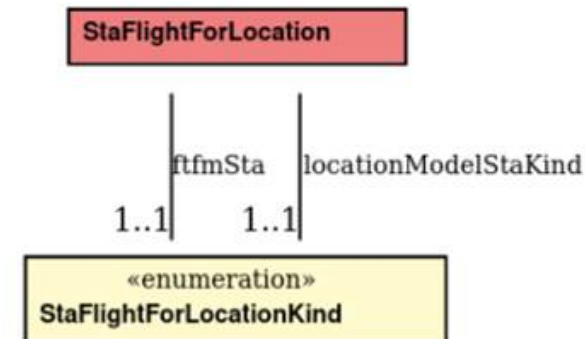
  - Error Management restrictions can be defined operationally

    to react (Reject/Ignore etc) to yoyo/STA related errors

   (included in REJ message)

class **StaFlightForLocation**

Flight Services

- **Target Time Improvements**
  - initialApproachFix is present in the arrivalInformation (R/R and P/S)
  - wakeTurbulanceCategory (R/R and P/SFD)

Enumerators	
Enumerator and Description	
LIGHT	Aircraft type with a maximum certificated take-off mass of 7.000 kg or less
MEDIUM	Aircraft type with a maximum certificated take-off mass of less than 136.000 kg but more than 7.000 kg
HEAVY	Aircraft type with a maximum certificated take-off mass of 136.000 kg or more
SUPER	Super heavy aircraft type in the order of 560.000 kg
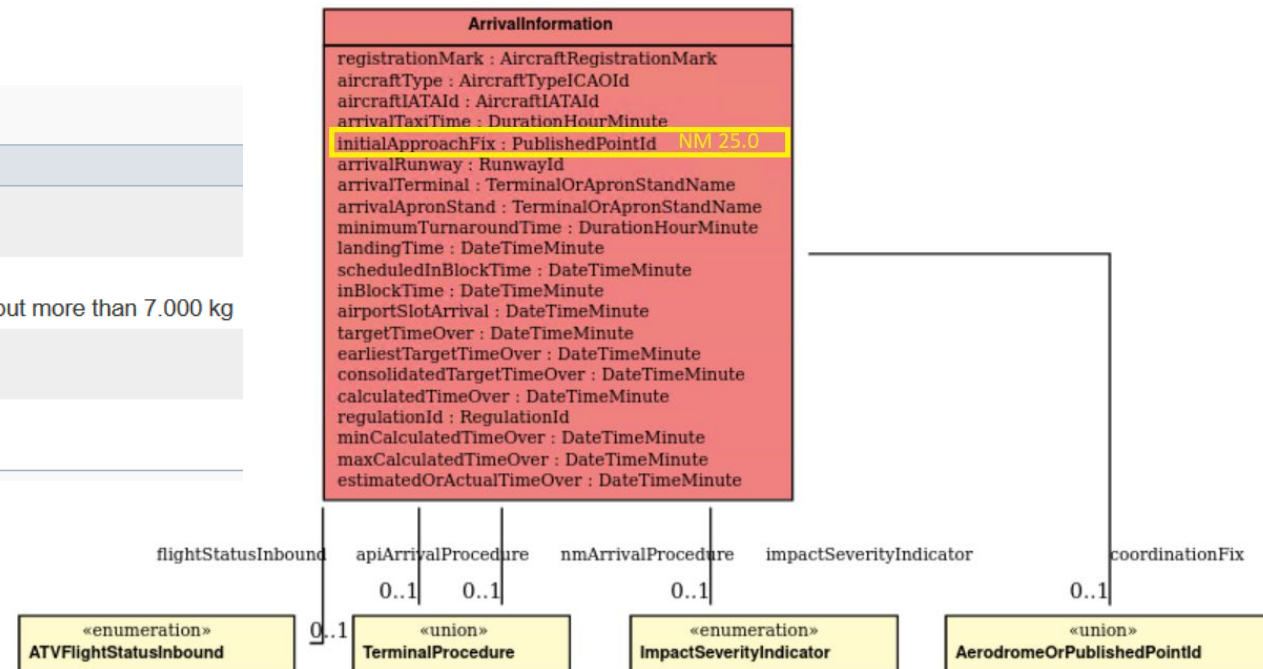
Flight Services

- **AOP/NOP Integration**
  - include missing fields for airports P/SFD
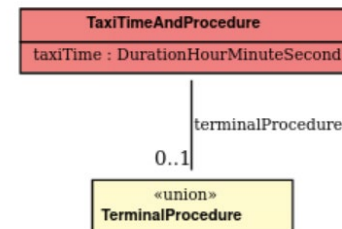 - flight.proposalInformation

class **ProposalInformation**

- Flight.currentDepartureTaxiTimeAndProcedure:
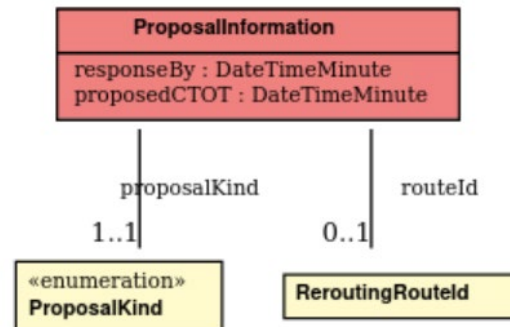
class **TaxiTimeAndProcedure**

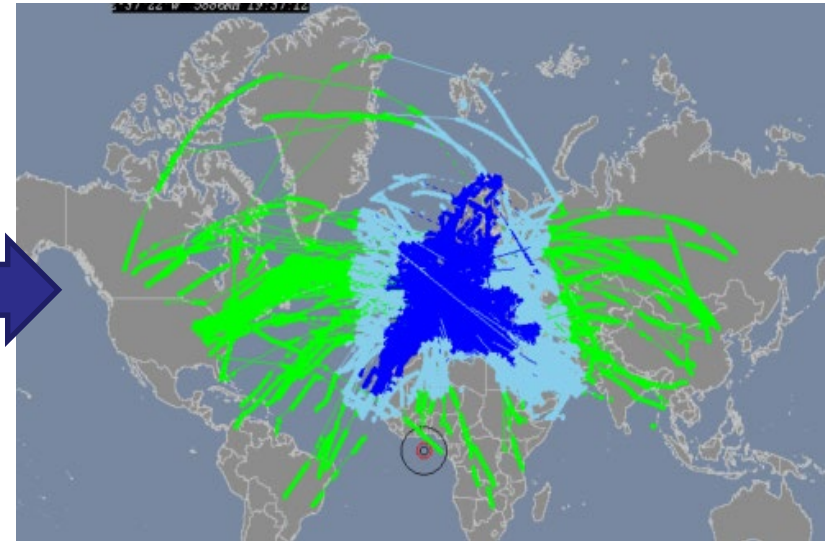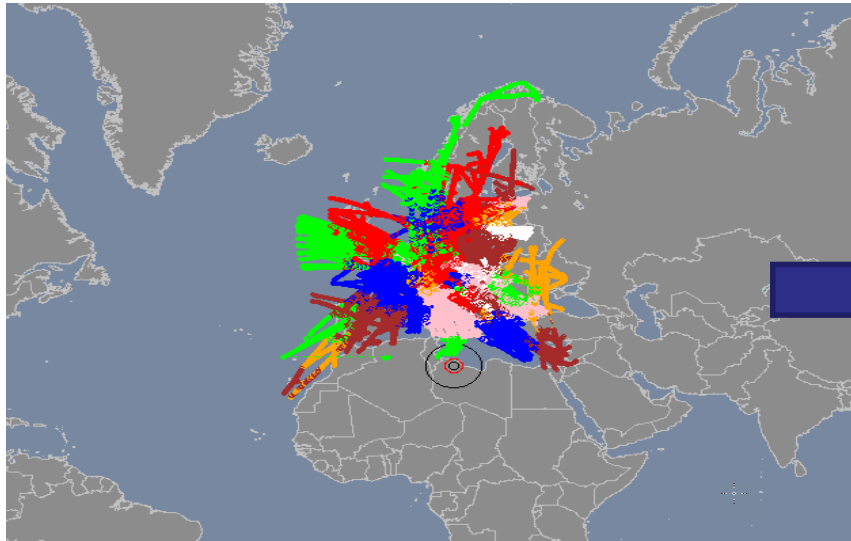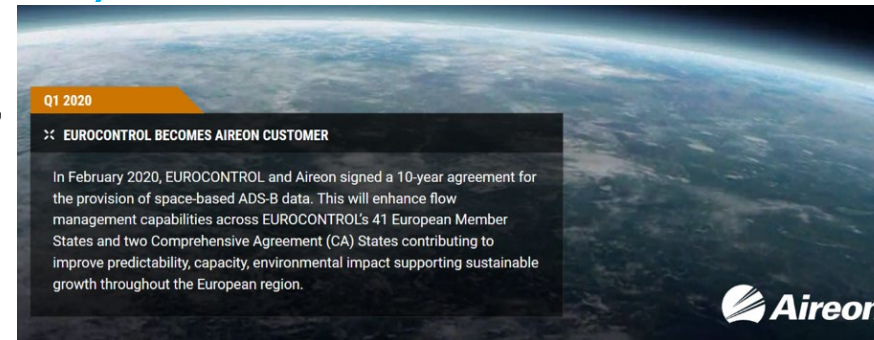| B2B R/R field	B2B P/S field
departureTolerance (existed)	departureTolerance (new)
apiSubmissionRules (existed)	apiSubmissionRules (new)
proposalExists (removed) slotImprovementProposal (removed) suspensionResponseBy (removed) reroutingReference (removed) proposalInformation (new)	slotImprovementProposal (removed) suspensionResponseBy (removed) reroutingReference (removed) proposalInformation (new)
cfmuFlightType (existed)	cfmuFlightType (new)
slotSwapCounter (existed)	slotSwapCounter (new)
slotZone (existed)	slotZone (new)
currentlyUsedTaxiTime (removed) currentDepartureTaxiTimeAndProcedure	currentlyUsedTaxiTime (removed) currentDeparturTaxiTimeAndProcedure

Flight Services

- ## Usage of space-based ADS-B data (AIREON)

  - Why AIREON?

    - partnership with ANSPs (NAV Canada, ENAV, NATS, IAA, Navair) and Iridium Communication
    - 24/7365 operations center
    - certified by EASA
    - partners with FlighAware and Airbus

Q1 2020

⚹ EUROCONTROL BECOMES AIREON CUSTOMER

In February 2020, EUROCONTROL and Aireon signed a 10-year agreement for the provision of space-based ADS-B data. This will enhance flow management capabilities across EUROCONTROL's 41 European Member States and two Comprehensive Agreement (CA) States contributing to improve predictability, capacity, environmental impact supporting sustainable growth throughout the European region.

Aireon

Flight Services

- ## Usage of space-based ADS-B data (AIREON)
  - More P/S FD for the flights affected by the AiREON data

  (example AFR007 KJFK/LFPG 2330 200921

  without AIREON data 48 P/S FD while airborne
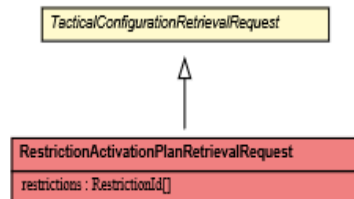
  With AIREON data 88 P/S FD while airborne)

No AIREON data

AIREON data
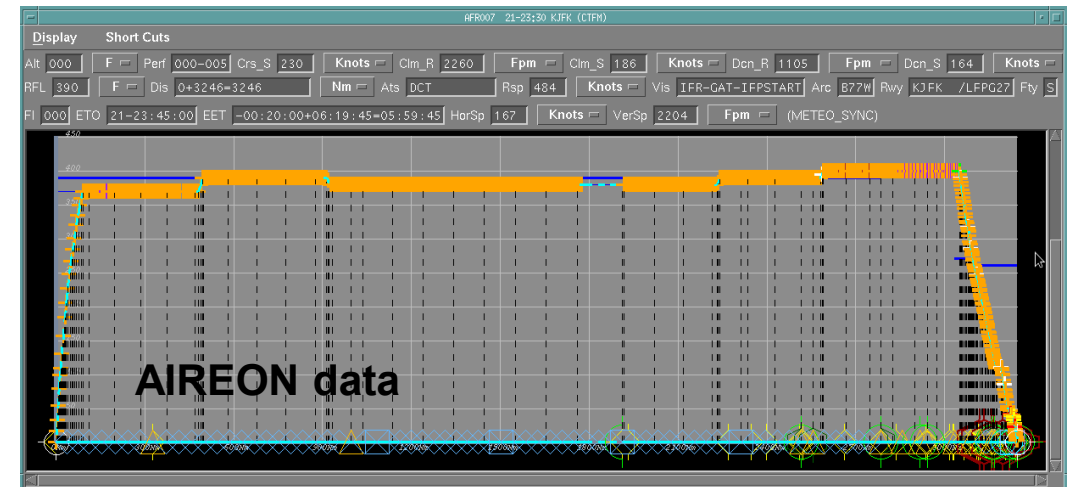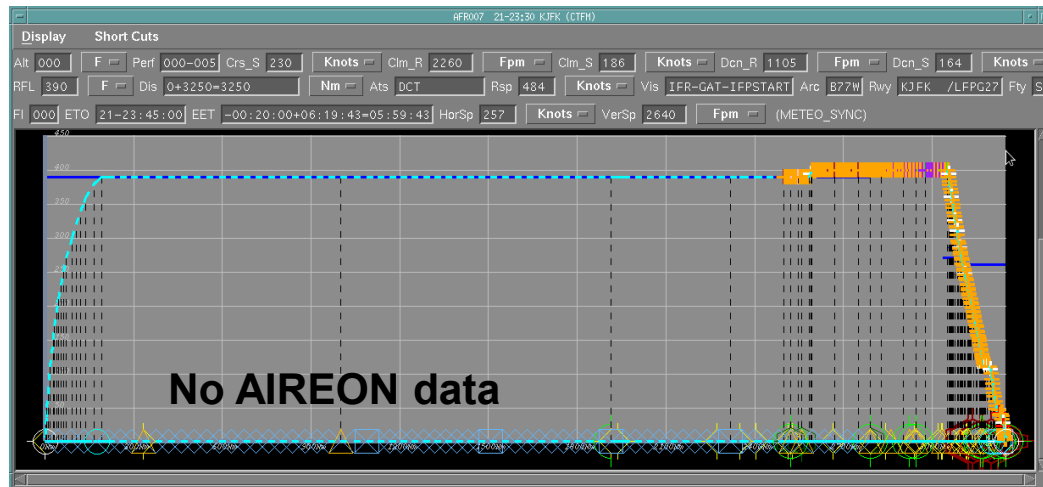
Flow Services

- ## Dynamic PTR – allow FMP to update PTRs
  - Two new requests in flow.TacticalUpdates port type
    - retrieveRestrictionActivationPlan
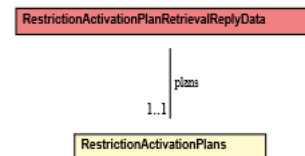   - updateRestrictionActivationPlan

```
class RestrictionActivationPlanRetrievalRequest
specialises TacticalConfigurationRetrievalRequest
```

TacticalConfigurationRetrievalRequest

RestrictionActivationPlanRetrievalRequest
restrictions : RestrictionId[]

```
class RestrictionActivationPlanRetrievalReply
specialises Reply
```

Reply

RestrictionActivationPlanRetrievalReply
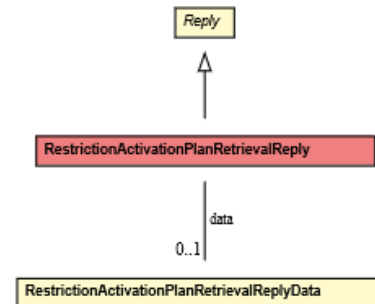
data
0..1

RestrictionActivationPlanRetrievalReplyData

```
class RestrictionActivationPlanRetrievalReplyData
```

RestrictionActivationPlanRetrievalReplyData

plans
1..1

RestrictionActivationPlans

```
class RestrictionActivationPlanUpdateRequest
specialises Request
```

Request

RestrictionActivationPlanUpdateRequest

plans
1..1

RestrictionActivationPlans
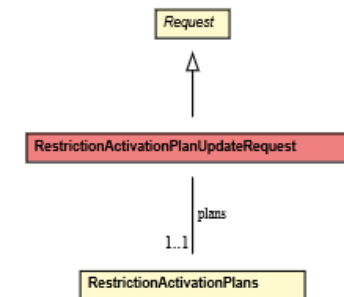
- Request to update the restriction activation plan for a given set of restriction (count PTR) on a given day. The update of several restrictions is possible in the same B2B request.
- Service available in Flow and Simulation (all the restrictions not only the count PTR).

Flow Services

- ## I-DAP, Future EHelpDesk and rerouting
  - ### MCDM available via Publish/Subscribe for
    - Proposal Regulations
    - Scenario repository based rerouting & Cherry picked regulations
      - MCDMMessages for both measure and concerned flights
    - Detailed B2B workflow&OI docs available describing the details (with examples)
    - MCDMMessages not available in simulations
    - Only MCDM aspect (not measure changes themselves)

Union MCDMMessagePayload

union MCDMMessagePayload
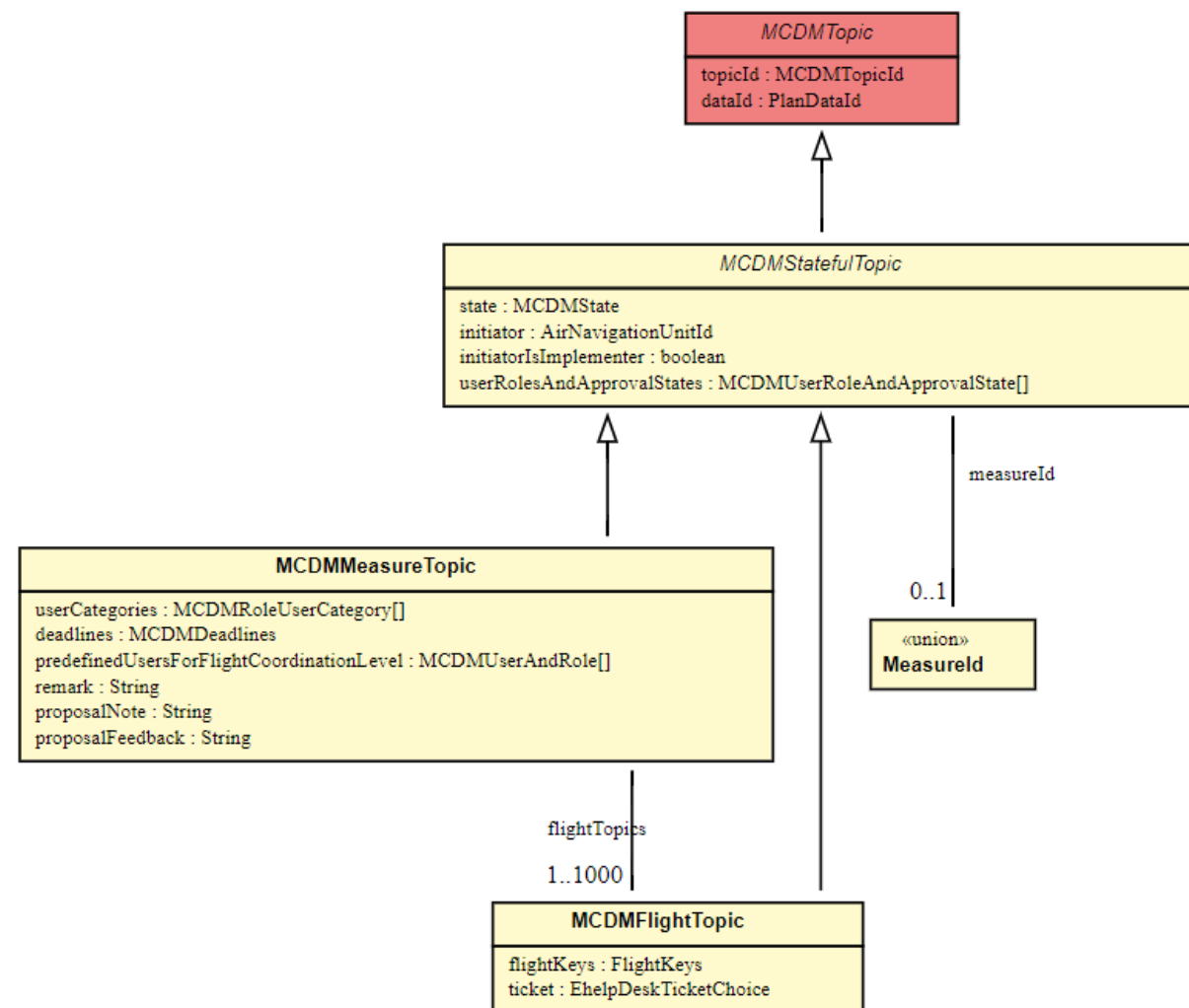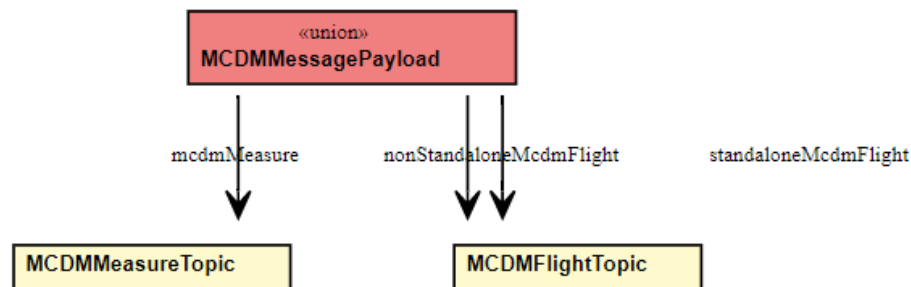
Flow Services

- ## I-DAP, Future EHelpDesk and rerouting
  - MCDM available via Publish/Subscribe for
    - Proposal Regulations

FMP Workflow Proposal Regulations

1. submit regulation proposal via B2B

```
RegulationProposalFilingReply          fileRegulationProposal(RegulationProposalFilingRequest request)

RegulationProposalUpdateReply          updateRegulationProposal(RegulationProposalUpdateRequest request)

RegulationProposalRevocationReply      revokeRegulationProposal(RegulationProposalRevocationRequest request)
```

with String proposalNote (added already for R/R in NM 24.0)

2. receive Publish/Subscribe MCDMMessage (MCDMMeasureTopic) indicating MCDM state proposed

3. NMOC accepts/rejects
   → receive MCDM Publish/Subscribe msg indicating :
     implemented (accepted) or interrupted (rejected) MCDM state
       with String proposalFeedback (added already for R/R in NM 24.0)

4. Check what NMOC has actually implemented
   - Via R/R queryRegulations or Publish/Subscribe RegulationMessage

Flow Services

- **I-DAP,Future EHelpDesk, rerouting**
  - MCDM available via Publish/Subscribe for
    - Scenario repository based rerouting & Cherry picked regulations
      - MCDMMessages for both measure and concerned flights
    - Detailed B2B workflow&OI docs available describing the details (with examples)

FMP Workflow CP regulations

- For NMOC to approve
- both flights and measures MCDM are concerned:
  - NMOC can also reject some individual flights.
  - See detailed B2B workflow&OI docs
- Changes in NM 24.0 B2B (wrt NM 23.5 B2B)
  - Use

EhelpDeskTicketCreationReply	createEhelpDeskTicket(EhelpDeskTicketCreationRequest request)
EhelpDeskTicketUpdateReply	updateEhelpDeskTicket(EhelpDeskTicketUpdateRequest request)
EhelpDeskTicketRevocationReply	revokeEhelpDeskTicket(EhelpDeskTicketRevocationRequest request)

  Instead of (NM 23.5 B2B) :

UpdateFlightsInMeasureReply	updateFlightsInMeasure(UpdateFlightsInMeasureRequest request)

FMP Workflow scenario based rerouting

1. submit rerouting via B2B

ReroutingCreationReply	createRerouting(ReroutingCreationRequest request)
ReroutingUpdateReply	updateRerouting(ReroutingUpdateRequest request)
ReroutingCancelReply	cancelRerouting(ReroutingCancelRequest request)

2. receive Publish/Subscribe MCDMMessage (MCDMMeasureTopic) indicating MCDM state draft (when request is batch processed)
3. set initiator actor & add flights to rerouting (please add all flights in one R/R)

MCDMTopicUpdateReply	updateMCDM(MCDMTopicUpdateRequest request)
UpdateFlightsInMeasureReply	updateFlightsInMeasure(UpdateFlightsInMeasureRequest request)

4. receive MCDMMessages (nonStandaloneMCDMFLight MCDMFlightTopic) indicating MCDM state draft for each flight (when request is batch processed)
5. evaluate effect (by using R/R to get proposal flights flightlist/ counts/ Network_Impact_Assessment)
6. optionally : if MCDM coordination is needed to get approval from other FMP (and other FMPs have implemented this feature in their B2B))
   - → change MCDM Measure state to proposed and update MCDM actors for_approval (measure and/or flight level)
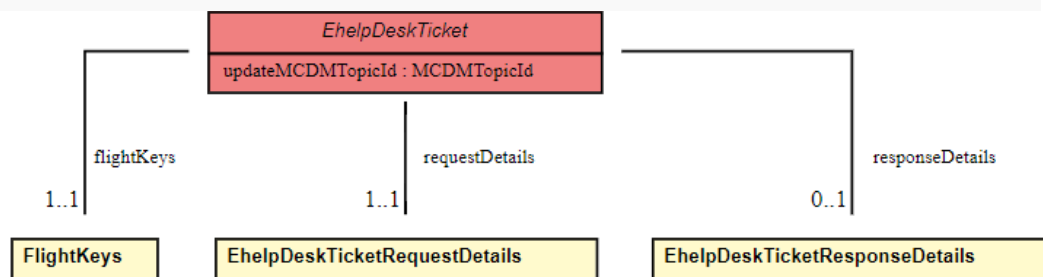
MCDMTopicUpdateReply	updateMCDM(MCDMTopicUpdateRequest request)

   → receive MCDMMessages (MCDMMeasureTopic & MCDMFlightTopics) indicating initiator changes and actor changes & approvals/rejections
7. set MCDM state to FOR_IMPLEMENTATION
   - Send RRP messages :AFTN & B2B :R/R & Publish/Subscribe(new since NM 24.0)
   - Allows AO's to accept/reject the proposal : NOP & CHMI & B2B(new since NM 24.0)
8. receive MCDMMessages (MCDMFlightTopics) indicating AO's accept/reject

Flow Services

- **I-DAP, Future EHelpDesk, rerouting**
  - MCDM available via Publish/Subscribe
    - Ehelpdesktickets (AO & FMP & TWR)
      - NMOC to accept reject
      - Detailed B2B workflow&OI docs available describing the details (with examples)

Union EhelpDeskTicketChoice

Choices	
Discriminant	**Type and Description**
forceFlightsInRegulation	EhelpDeskForceFlightsInRegulation
unforceFlightsInRegulation	EhelpDeskUnforceFlightsInRegulation
excludeFlightFromRegulation	EhelpDeskExcludeReIncludeFlightInRegulation
reIncludeFlightInRegulation	EhelpDeskExcludeReIncludeFlightInRegulation
improveSlotInRegulation	EhelpDeskImproveSlotInRegulation
extendSlotInRegulation	EhelpDeskExtendSlotInRegulation
swapSlotsInRegulation	EhelpDeskSwapSlotsInRegulation
information	EhelpDeskInformationTicket
other	EhelpDeskOtherTicket

EhelpDeskTicket
updateMCDMTopicId : MCDMTopicId

flightKeys 1..1 FlightKeys
requestDetails 1..1 EhelpDeskTicketRequestDetails
responseDetails 0..1 EhelpDeskTicketResponseDetails

Workflow EhelpdeskTicket (AO & FMP & TWR)

1. submit EhelpdeskTicket via B2B (added in NM 24.0)

EhelpDeskTicketCreationReply	createEhelpDeskTicket(EhelpDeskTicketCreationRequest request)
EhelpDeskTicketUpdateReply	updateEhelpDeskTicket(EhelpDeskTicketUpdateRequest request)
EhelpDeskTicketRevocationReply	revokeEhelpDeskTicket(EhelpDeskTicketRevocationRequest request)

   replaces (&extends) NM 23.5 B2B(FMP only) :

UpdateFlightsInMeasureReply	updateFlightsInMeasure(UpdateFlightsInMeasureRequest request)

   Since NM 24.0 : Update FlightsInMeasure only needed for simulations or reroutings
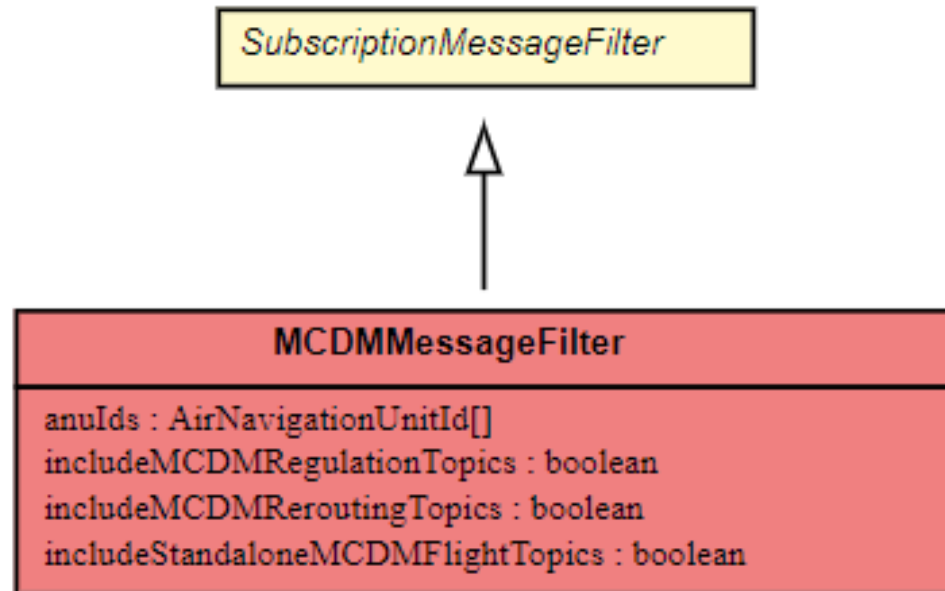   - AO & FMP & TWR: with optional String requestText (new in NM 24.0)

2. receive Publish/Subscribe MCDMMessage (StandaloneMCDMFLight MCDMFlightTopic) indicating MCDM state draft/proposed & EhelpdeskTicket info(new in NM24.0)
   → Optionally: FMP evaluates effect (by using R/R Network_Impact_Assessment) and then changes MCDM state from draft to proposed

3. NMOC accepts/rejects EhelpdeskRequest

4. receive MCDM Publish/Subscribe msg indicating :
   - implemented (accepted) or interrupted (rejected) MCDM state
     - with String (NMOC) responseText (added NM 24.0 R/R)
     - with EhelpDeskTicketResponseDetails (added NM 24.0 R/R)
       - New CTOT (a.o.)

Flow Services

- **I-DAP, Future EHelpDesk and rerouting**
  - MCDM available via Publish/Subscribe
    - Subscription Filter
      - Mainly ANU only based filtering
        - Special authorization to get all ANU
      - R/R has more elaborated filtering
        - MeasureId & TopicId

```
final class MCDMMessageFilter
specialises SubscriptionMessageFilter
```


UML diagram:

SubscriptionMessageFilter

▲

MCDMMessageFilter

anuIds : AirNavigationUnitId[]
includeMCDMRegulationTopics : boolean
includeMCDMReroutingTopics : boolean
includeStandaloneMCDMFlightTopics : boolean

Flow Services

- **I-DAP and Future EHelpDesk**
  - New R/R service to set/revoke FlightCriticality
    - FlightCriticalityReply submitFlightCriticality (FlightCriticalityRequest request)
    - Already available in NOP from NM 24.0
  - Flight criticality available via R/R flightlist & FlightData Publish/Subscribe
    - Field : flightCriticality (light field)

Flow Services

- **Network Impact Assessment –evolutions (NIA) (mainly for FMP)**
  - NM 24 (and before): allows to get the counts & delay changes on impacted TVs &regulations
    - When creating/updating regulations or rerouting (mainly simulations context)
  - Extend retrieveNetworkImpactAssessment service (NM 25.0)
    - "mainly" FMP Local tools (B2B) can show the same info as NMOC when doing a (local) Network Impact assessment
    - Context: what-if for Measure creation & modification and EhelpdeskTicket creation(below NMOC NIA example)

Flow Services

- ## **Network Impact Assessment –evolutions (NIA) (for FMP)**
 - Extend retrieveNetworkImpactAssessment (FMP only) service to
    - Get results as well for EhelpdeskTickets (new NM 25.0)
      - Via NetworkImpactAssesmentKind
        - Measure (as before : MCP or in simulations: Regulations/rerouting create/ modify)
        - EH tickets (new in NM 25.0) : filter by EHTickets for MeasureId (concerning a regulation)
      - Get Impact Assessment (what-if) before submitting to NMOC
        E.g. slot improvement NIA will return info based on minimum CTOT
        - B2B EhelpdeskTicketCreation does not create proposal flights anymore (except for forceCTOT) (change in NM 24.0)
    - Extra filters (NetworkImpactAssessmentFilters : new NM 25.0)
      - Allow to also include individual TVs (tvs) and completely inactive TVs (additionalTvs) in results
    - Payload configuration (new)
      - Allows to request FlightsChanges info (new NM 25.0)
        - a.o. : IFPS errors and CTO in concerned regulations: before/after change
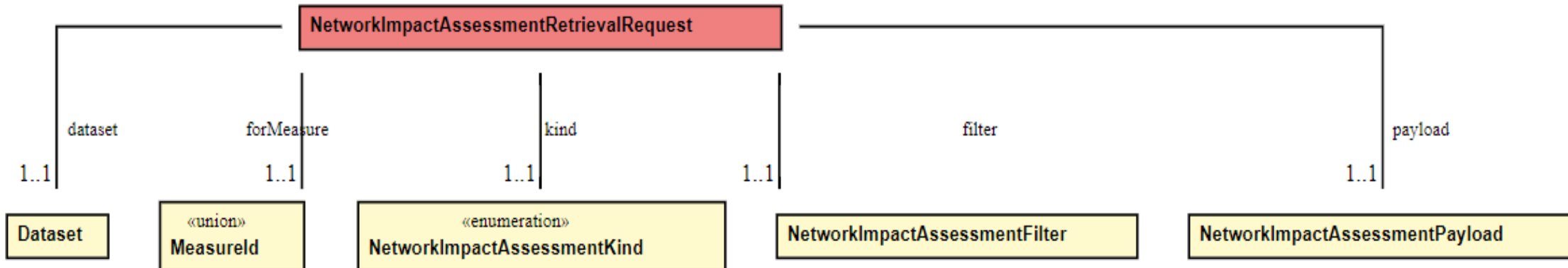
Publish Subscribe

- **New FlightData fields**
  - light
    - calculatedOffBlockTime (COBT – model RTFM)
    - actualOffBlockTime (AOBT – model CTFM)

Reports on User Audits

Improvements to your systems through our auditing

Benjamin Cramet

Supporting European Aviation

EUROCONTROL

FOUNDING MEMBER SESAR JOINT UNDERTAKING

NETWORK MANAGER

Content

- **Definition of an Audit**

- **Why we run them ?**

- **Last year results**

Definition of an Audits

Our Declarative methodology

The business case

Miss match between

Business case and Usage

Enforced by your contact NM B2B Agreement

B2B is a common good

Support your business

No blind rules apart from Thresholds

Why an audit ?

Controlled growth on OPS

+190 % of active users in 2,5 years

only +12% in traffic size

(all time peak in Aug 2019)

10 Audits last year

Positive outcomes

Move to Publish Subscribe

Incident on B2B with big impact on IFPS/ETFMS

- A complaint received by NM Incident team (from ANSP) about jumping traffic counts/loads in their airspace/traffic volume.
- The investigation showed that repetitive testing FPL were filed to IFPS operational system, followed by immediate cancelation.

- Therefore, an important reminder from IFPS Users Manual:

Submission of "test" flight plans to IFPS is not allowed. Message originators who wish to test flight plans shall use the IFPUV (IFPS test system). Access to IFPUV is possible via AFTN, SITA, NOP (Public & Protected), CHMI and B2B [see section IFPS Test System (IFPUV) for more details].

- NM Action : CR_049008 - Monitor and raise alarm when B2B test flight plans are filed to IFPS ops

- NM AO/CFSP: Assure that *NO* testing FPLs are filed to IFPS operational system