



50 years of
**passion and
innovation**



IRIS – SUPPORT TO SAFETY – ANSP

Thierry SALEE

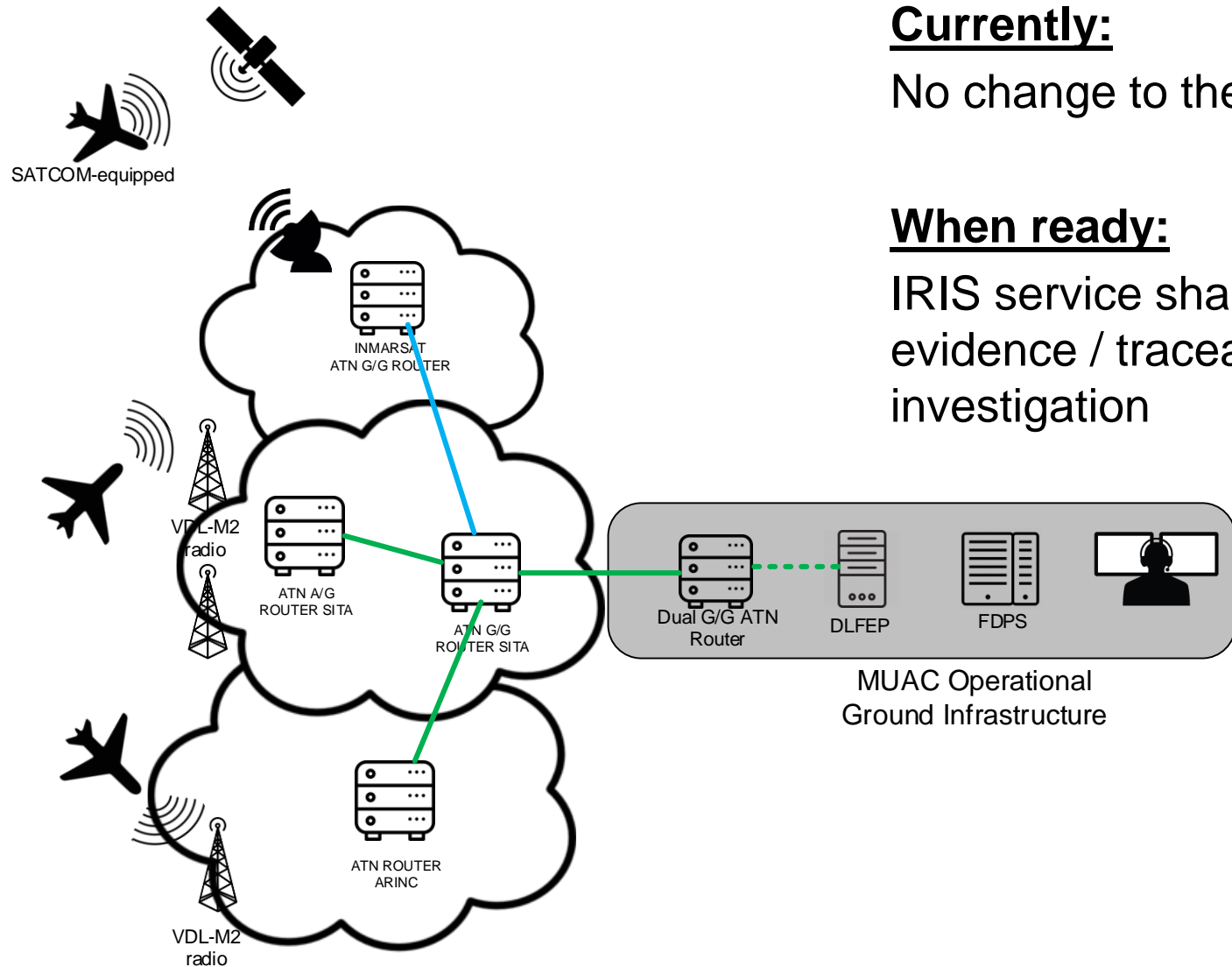
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Maastricht Upper Area Control Centre



Integration of IRIS/SATCOM into existing architecture



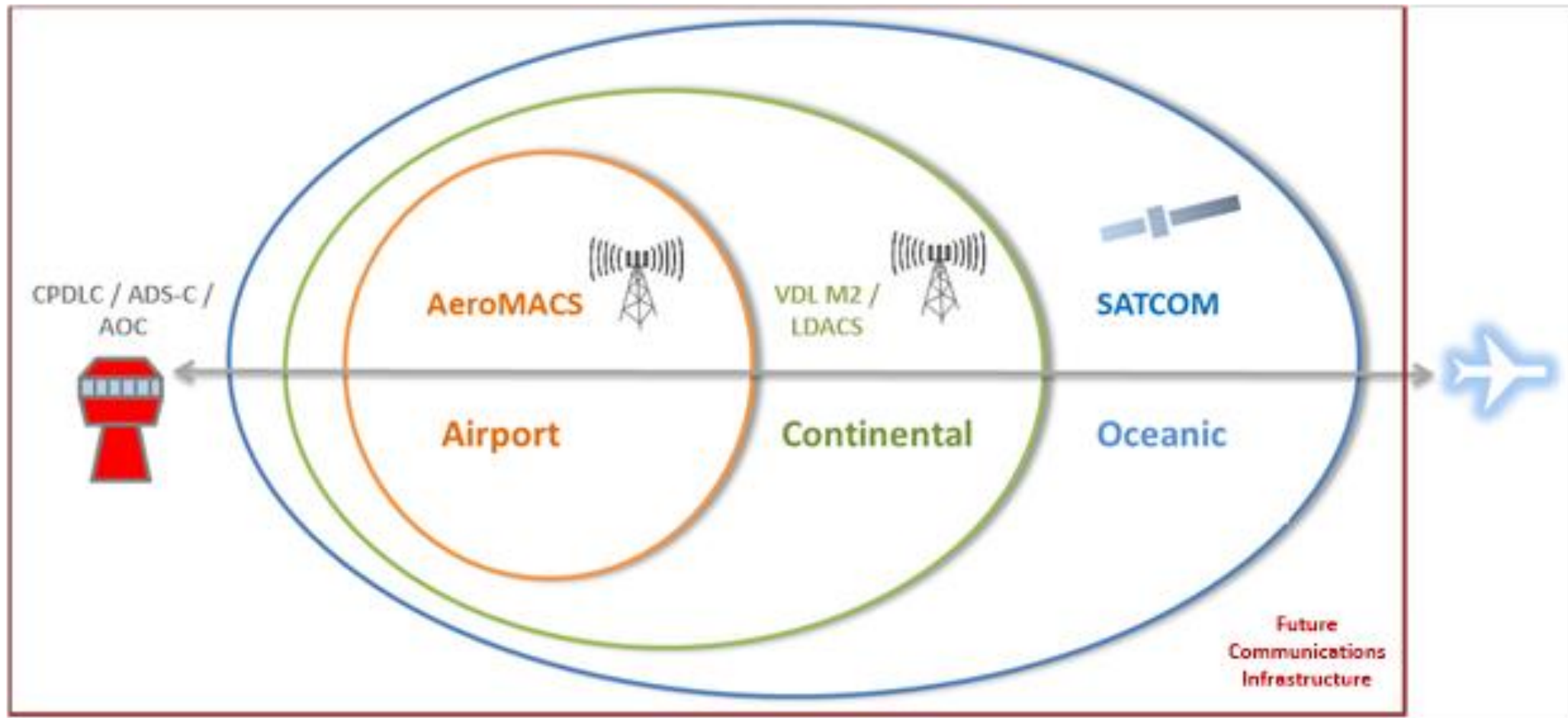
Currently:

No change to the ATN Connectivity (easy integration)

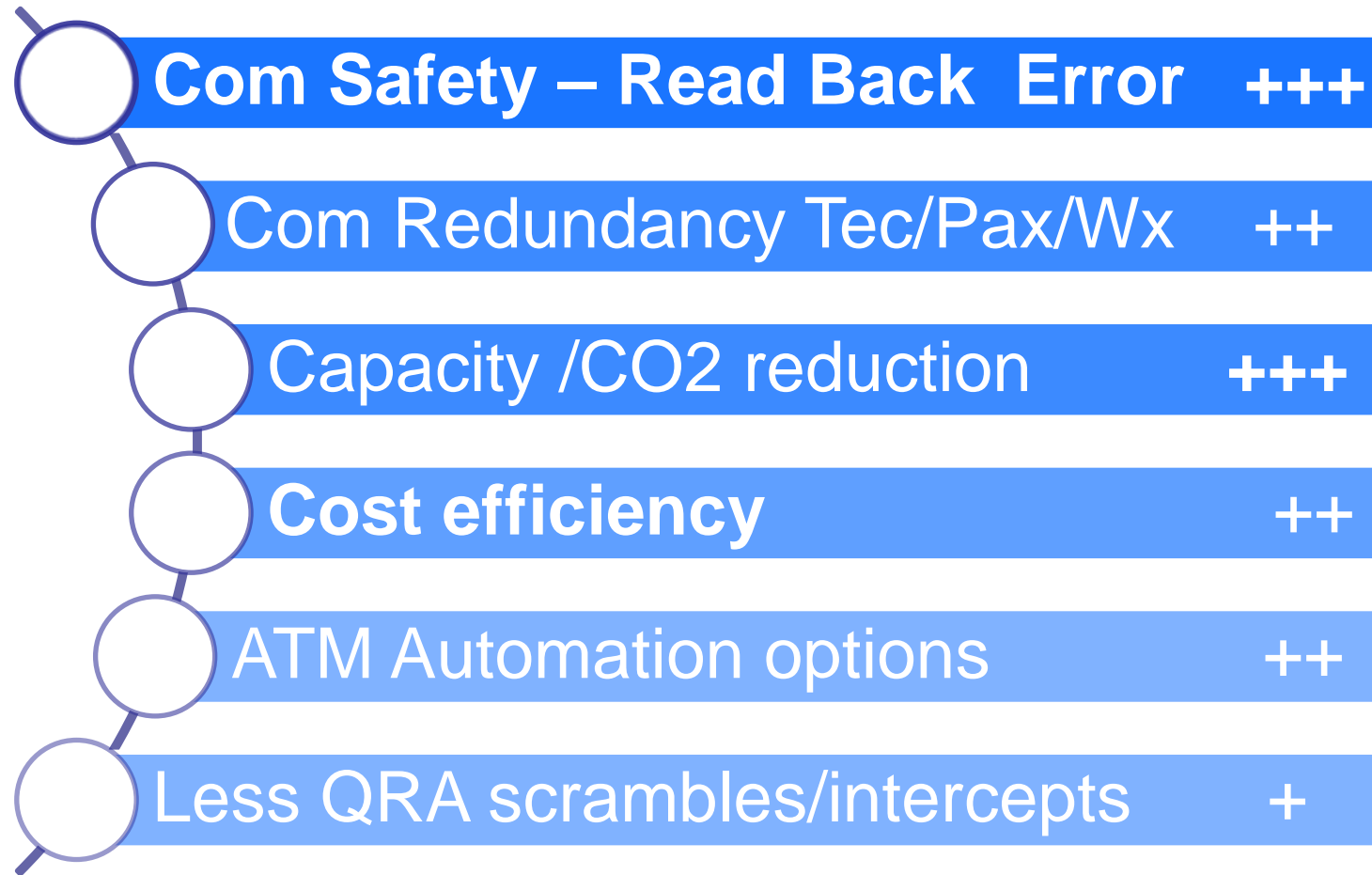
When ready:

IRIS service shall be certified and provide necessary evidence / traceability / tracking / support for investigation

FCI IRIS as a means of communication (part of multilink)



CPDLC Benefits



1. CPDLC Communication Safety

- No misunderstandings.
- No Read Back / Hear back errors.
- Less simultaneous VHF double transmissions.
- Less ATM COM incidents / (60% Com aspects)

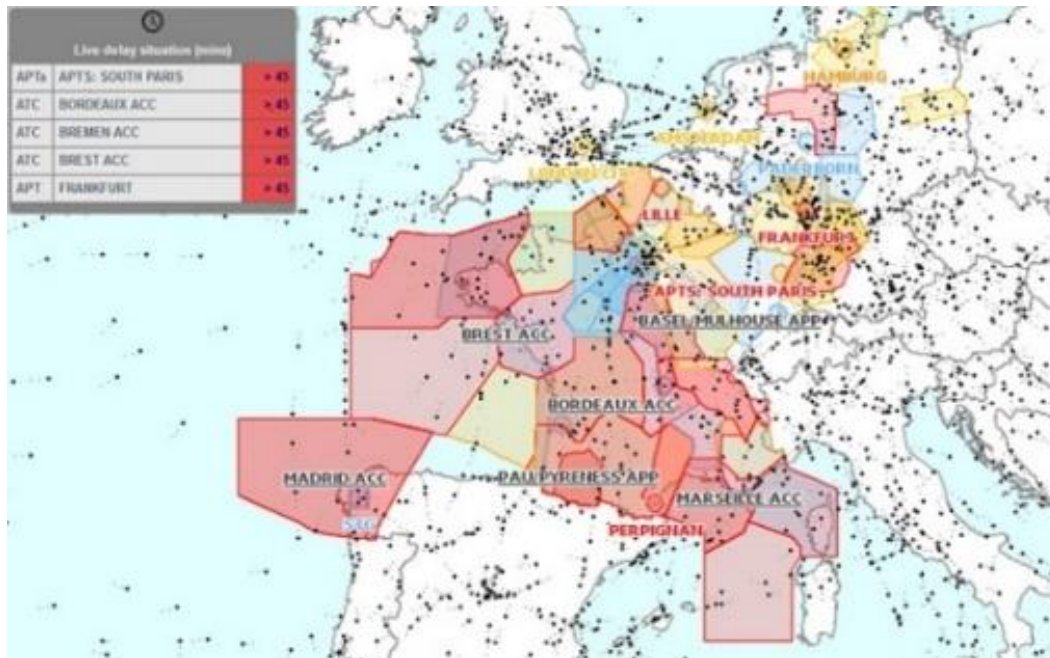
2. VHF Communication redundancy

- COM risk mitigation :
- Less Analogue VHF interference,
 - Static interference/noise or convective weather.
 - Loss of COM due to leaving optical VHF range.
 - Frequency blockage, due stuck PTT
- or unintentional PA announcements.



3. ATM (cost) efficiency capacity gains

- No: “say again”
- Time saving, SSR UL, freq. change
- Lower VHF frequency load, higher efficiency.
- Option of Multiple nearly parallel UL instructions.
- Freeing capacity to improve flight profiles CO2 reduction.



4. ATM Capacity Gains, > 11%

- Based on simulations, 75% equipage.
- Not (yet) formally translated into TMV, but additional capacity is observed

5. Support to Automation

- Automation examples:
 - Auto SSR change UL /Automatic CONTACT UL /Resume own navigation.
- Support to ATCO
 - (Semi) Automatic control/conflict resolution?

6. Support to CP1 (EPP/ADS-C)

- Enabler for i4D operations.
- Continuous Climb/Descent operation (TOC/TOD) - CO2 saving.
- Optimal flight trajectory information TOC/TOD to enable CCP/CDP
- Active Flight plan conformance monitoring, flight path safety.
- Provide optimal flight profiles to airlines.
- Improved AMAN.
- Technical: Improved technical performance, 1PA per 100 CPDLC hours.

MUAC's overview on IRIS benefits in addition to VDLm2

Ground side / ANSP

Improved Safety and Capacity

- Increase technical reliability
- Introduce redundancy
- Expected better **performance, based on flight trials**
- Additional capacity for CPDLC, ADS-C
- Larger bandwidth – enable EPP downlink



IRIS Service

- Certified service (Pan European Service Provider)
- New avionics / equipment
- But... open question about global deployment in Europe, active support by operators/ANSP, costs

Infrastructure

- No VHF interference on CSC or alternate Freq
- No “hopping” from VGS to VGS
- Security:
 - Authentication and restricted access to the network (PKI), No tapping possible
- Backup to VDLm2 in case of overload
- Backup of VDLm2 in case of ATN A/G router failure

MUAC's overview on challenges of SATCOM

Ground side / ANSP

Improved Safety and Capacity

- All improvements to be confirmed during **large scale** deployment:
 - Better performance?
 - Additional capacity ?
 - Larger bandwidth – enable EPP downlink
 - No (new) technical problems?
- Performance of new avionics / equipment ?



IRIS Service

- Service provision (still) to be deployed
- Cost for the AU?
- Cost for the ANSP?
- Open question about how to get deployment in all European countries (at once)
- Increase the real operation

Coming :

- 10+ Flight Trials
 - A320 NEO's,
 - EZY. ATN B1+B2 equipped
 - How to get all ANSP involved



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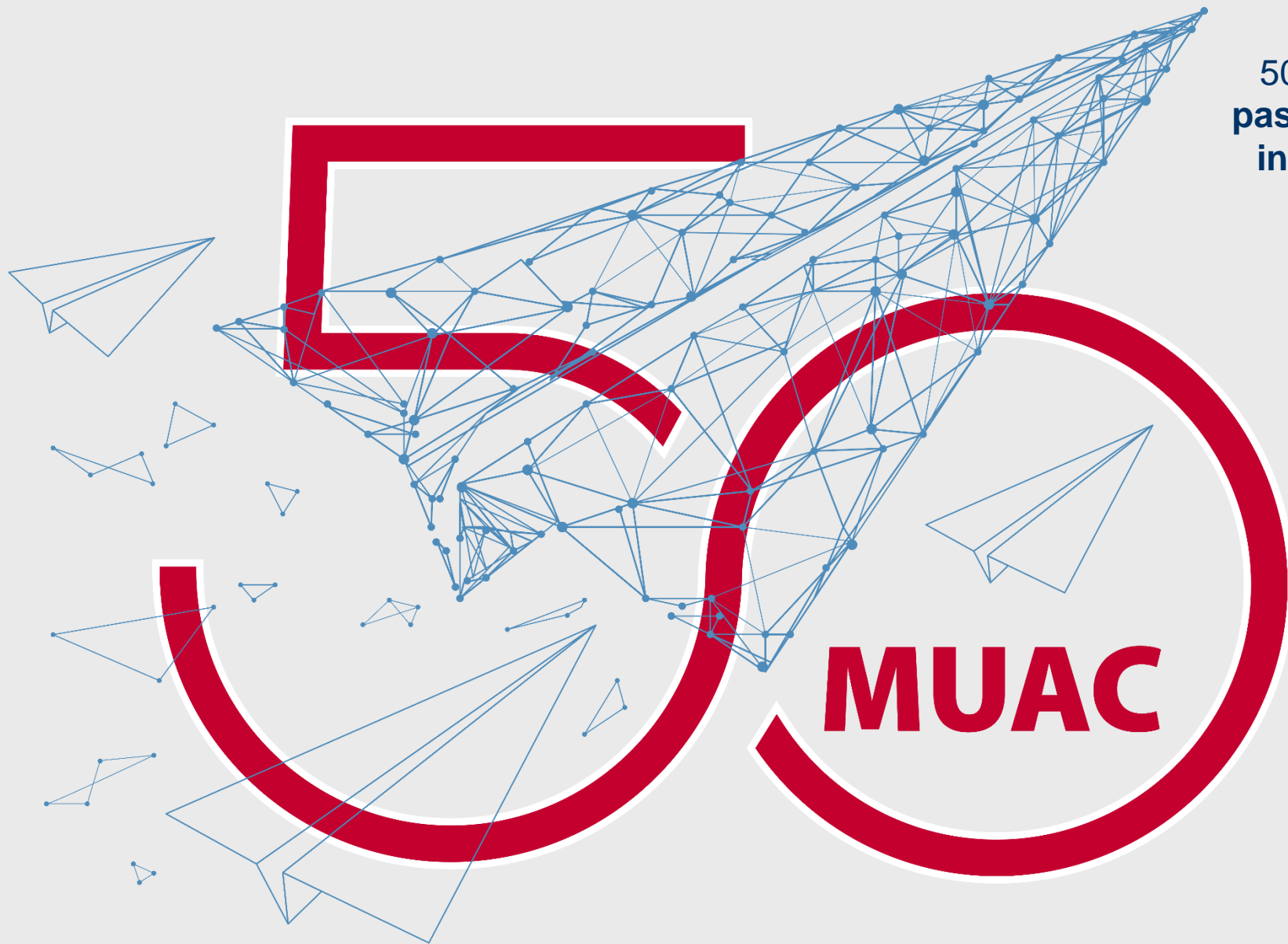
Questions?

Thank you for attending!

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