



2018
World ATM Congress



Implementation of an IP-based G/G data communication network

ENAIR e 

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Diagram illustrating the NewPENS architecture for a walking tour. The architecture shows a central cloud labeled "NewPENS" connected to four location pins on a map. The pins are connected to a dashed line representing the tour path. The path starts with a "Welcome" message and a speaker icon, followed by a "VoIP" box, then a "SWIM-based applications" box, and finally a "SWIM" box. The path ends with a "VoIP" box. The entire system is connected to an "IP G/G communication network".

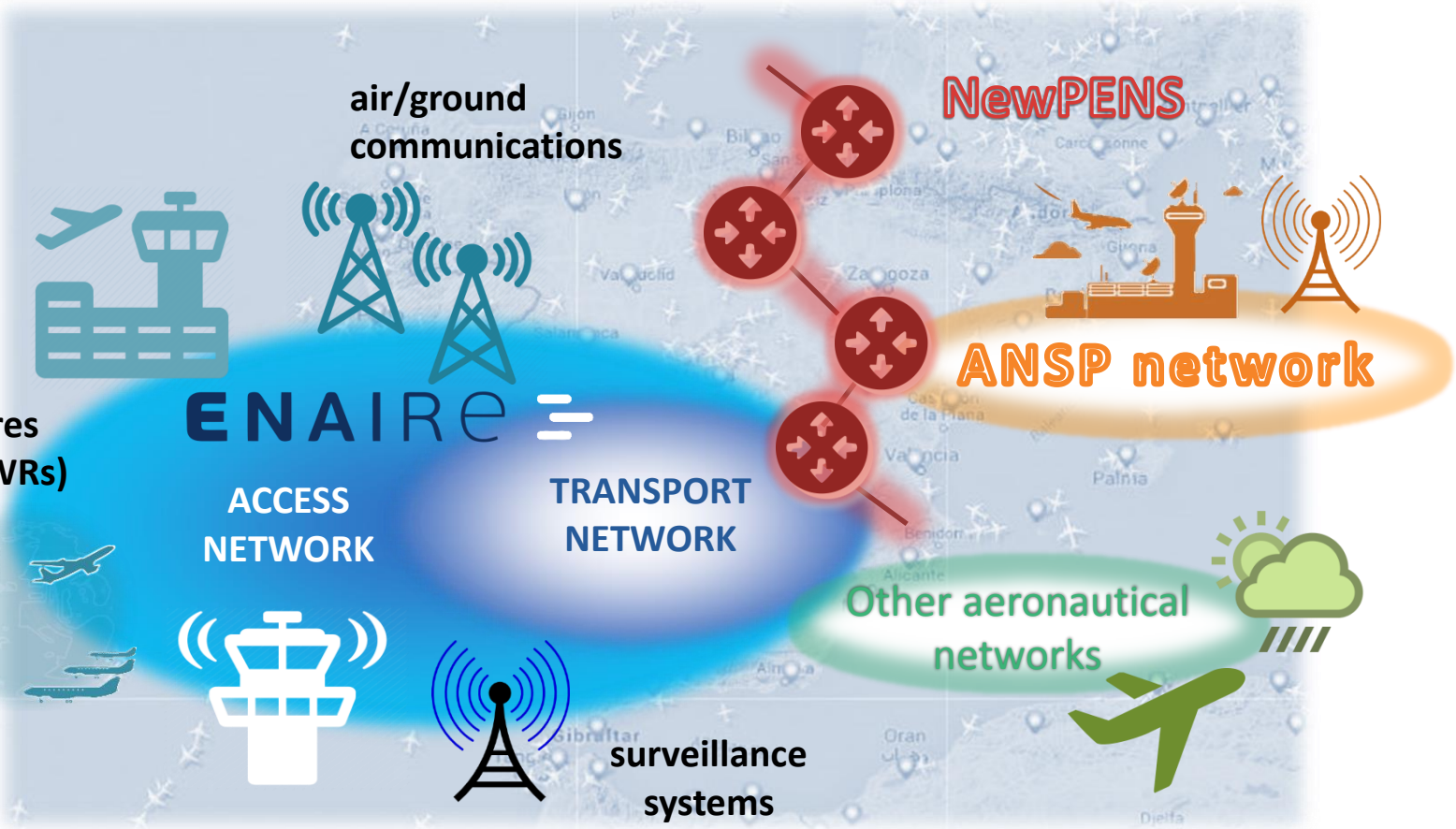
REDAN is a network consisting of transport and value-added elements that integrates data and voice communications for air navigation, providing coverage in all airports, ATC centres and, in general, sites acting as source or destination of aeronautical information.

Use cases:

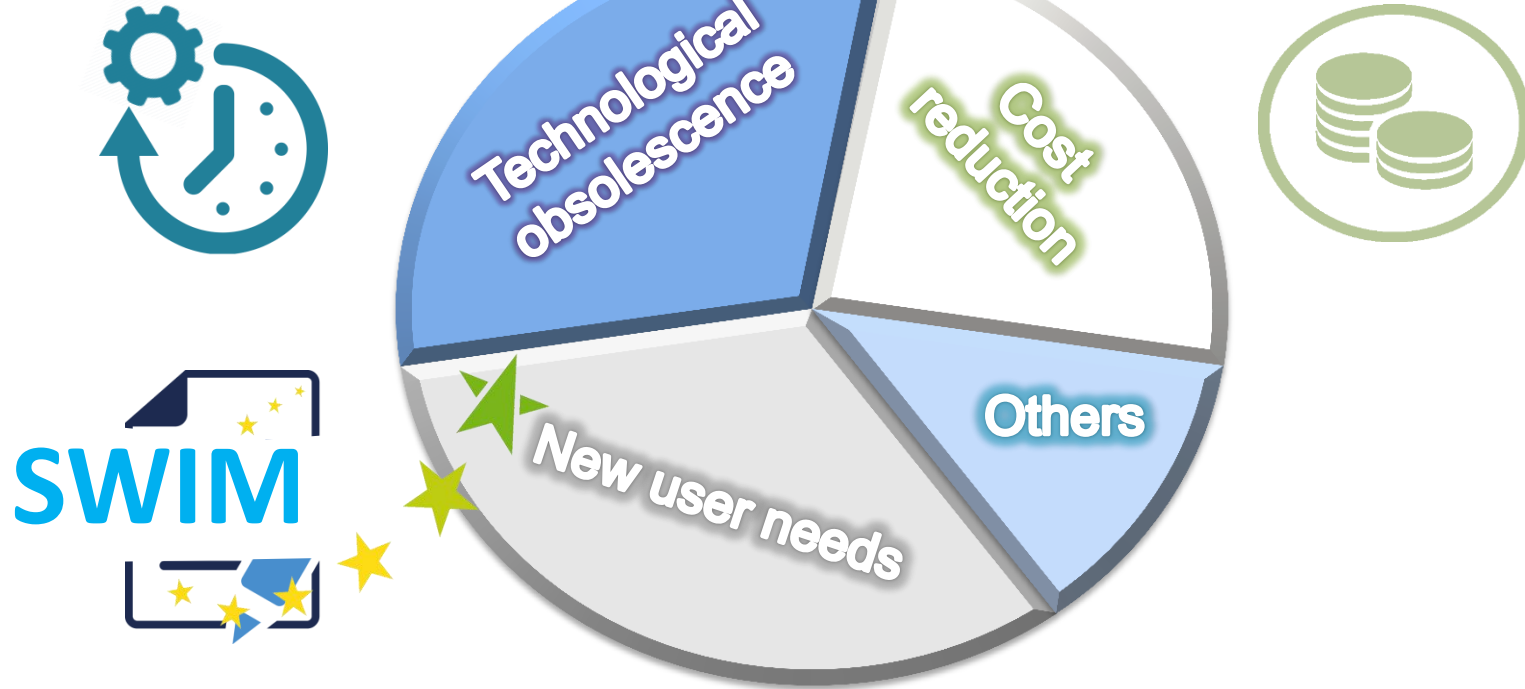
- *Flight plan exchange*
- *Radar data distribution*
- *Meteo/aeronautical info distribution*
- *Flow management*
- *Air traffic voice communications*
-

→ Interconnection of CNS/ATM systems within ENAIRE, providing data and voice services with the required quality of service (availability, flexibility and security).

→ Interconnection of CNS/ATM systems of ENAIRE with systems of other ANSPs and, moreover, any network for aeronautical purpose (PENS, AIRCOM, airlines, etc).



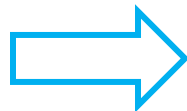
And... why a new REDAN?



REDAN V: Benefits/Performance Assessment

REDAN V is a facilitator

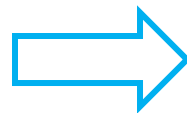
providing the communication services required by air navigation applications, in order to facilitate the achievement of the indicators and targets of ENAIRE's Business Plan, European ATM Master Plan and other SES directives and regulations



Safety
Capacity
Operational efficiency
Systems maintenance optimization

REDAN V generates savings

coming from migrating the current communication leased line infrastructure (analog + digital) to a new MPLS technology with less operation and maintenance costs



Cost efficiency

REDAN V: General Architecture

Meteo/AIS info

Flight plans

Radar data

IP data

VoIP

Analog voice



Transmission media – VLL service

REDAN V: ATC voice integration

- Obsolete interfaces (radio and telephony) no longer provided by telecom operators



Need to evolve to digital technology.

- Limited growth capability to cope with the capacity increase of ATS communications.



Need a more scalable and flexible voice communication system.

- High cost of analog circuit renting.



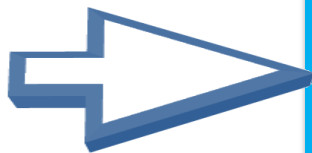
Need to reduce exploitation costs and optimize the capacity/cost ratio.

REDAN V: ATC voice integration

- Use of **VoIP** protocol (radio and telephony)

Defined in standards from EUROCAE WG67

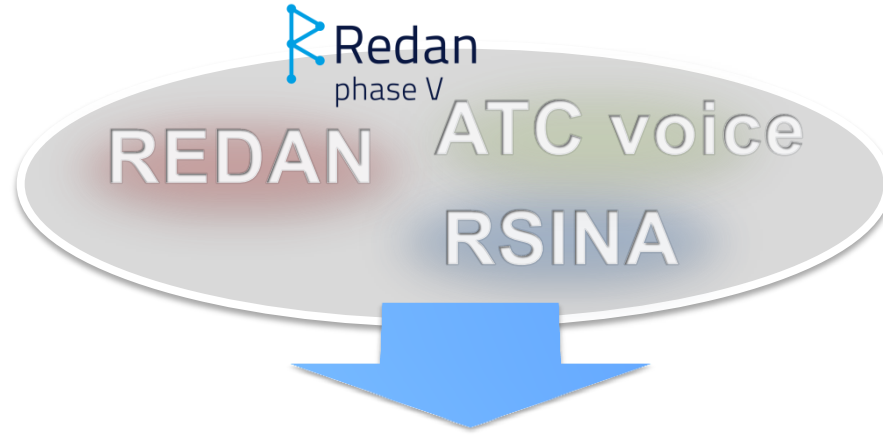
- Integrate all voice services in **REDAN (phase V)**
 - Native VoIP (final scenario)
 - Legacy protocols



Gateways to convert legacy protocols to VoIP according to EUROCAE WG67 standards.

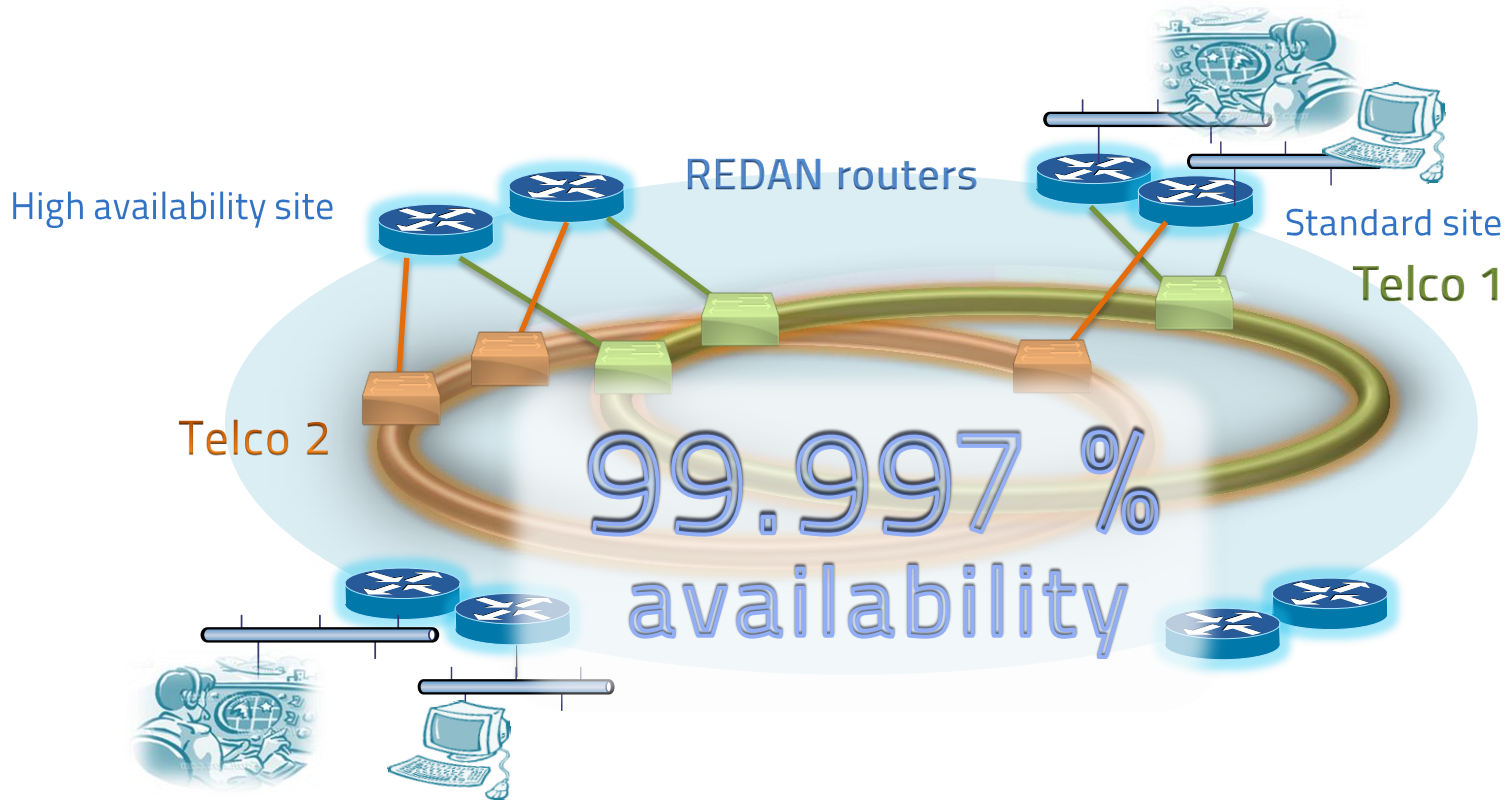
Gateways from two different manufacturers to minimize the likelihood of failure

REDAN V: Data & voice network integration



Need of a very high reliable network infrastructure

REDAN V: Dual-telco infrastructure



REDAN V – NewPENS - SWIM

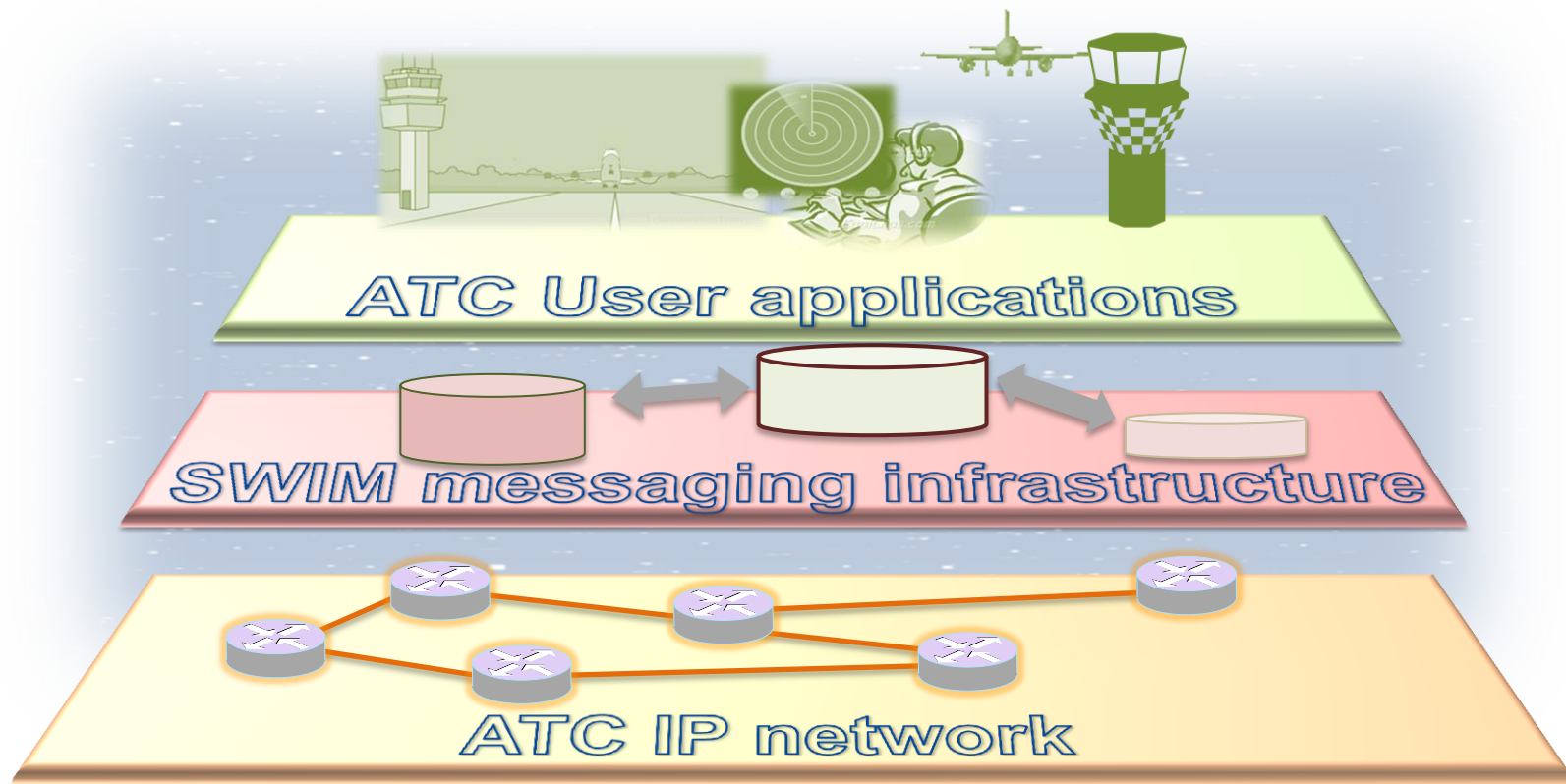
NewPENS is the future pan-European network that will provide ground/ground infrastructure in order to meet air traffic communication requirements.

REDAN V is a precursor of NewPENS and both networks are aligned in the high level design principles:

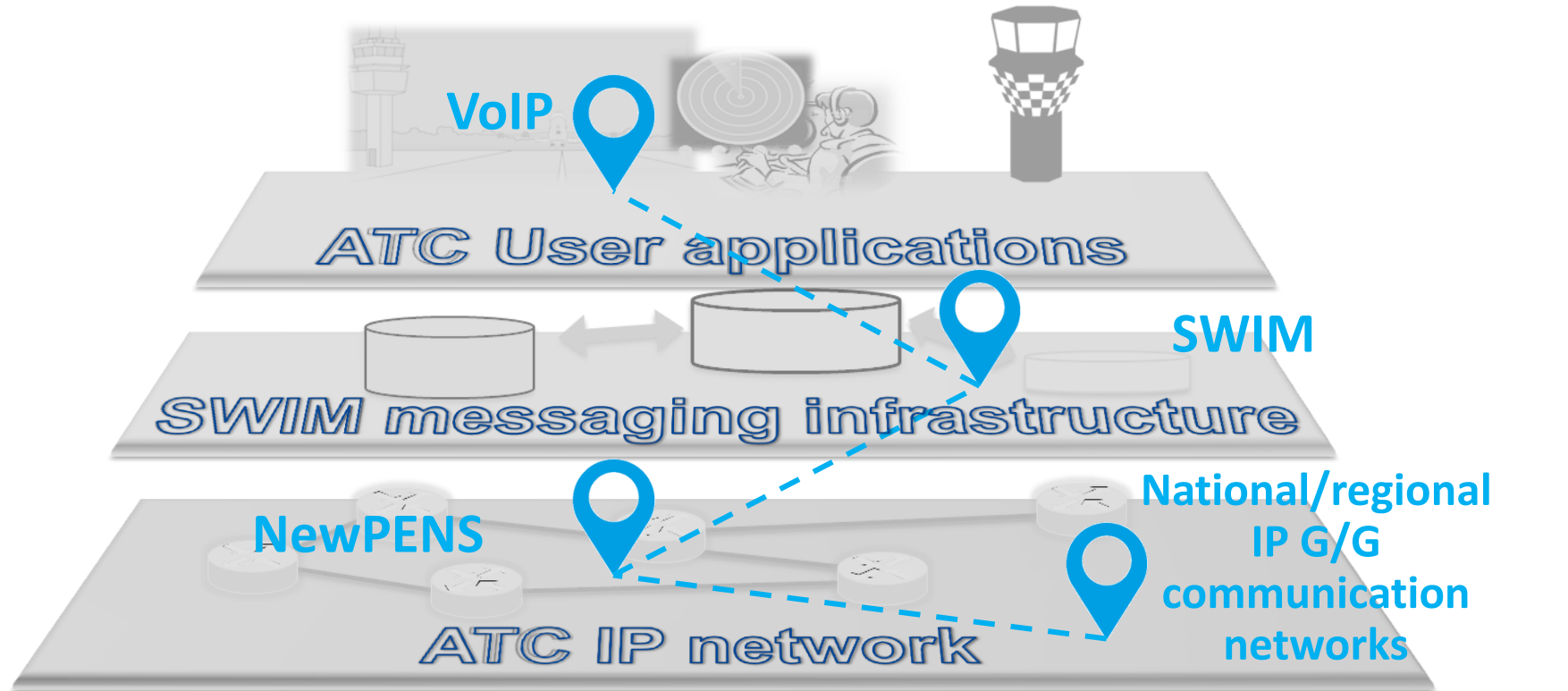
- ✓ Voice and data integration
- ✓ Dual core infrastructure
- ✓ Virtual private networks
- ✓ Security



REDAN V – NewPENS - SWIM



Summarizing walking tour 10...





For more information:

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