VoIP for air traffic control

R&S®VCS-4G facilitates migration from analog/TDM to VoIP networks

Your challenge

Air navigation service providers (ANSPs) often do not own the network infrastructure that connects their control centers with one another and with the remote radio sites. The networks are made available by national telecommunications service providers (telcos).

As telcos follow their own business strategies independent of ANSPs, it can happen that they no longer support traditional communications lines such as ISDN and E1, and instead offer ANSPs dark fiber or packet-based communications infrastructures.

While ANSPs still run their traditional radios and voice communications systems (VCS) with analog/E1 interfaces, solutions are required to connect these radios and VCSs to the new, packet-based communications networks, supporting a smooth step-by-step migration.

Rohde & Schwarz solution

The challenges faced during analog/TDM to VoIP transition are well addressed by deploying gateways that support a variety of different interface types for air-ground and ground-ground communications.

Smooth migration

State-of-the-art gateways allow traditional VCSs to be connected to EUROCAE ED-137 compliant VoIP communications infrastructures without any modifications to the interfaces of these legacy VCSs. It is even possible to have mixed installations of traditional VCSs/radios with analog/digital audio interfaces and all-IP VCSs/radios with VoIP interfaces in the same network. This gives ANSPs full freedom to decide when to replace what legacy communications system at what site with a new all-IP system.

Future-ready

Taking the above approach, ANSPs can migrate their infrastructures smoothly to EUROCAE ED-137 compliant IP technology and establish future-ready communications systems step by step, taking into account the plans of telecommunications service providers regarding migration of their transport networks.

Investment protection

This step-by-step migration concept not only enables a smooth transition for ANSPs, it also allows them to distribute their IP infrastructure investments over several years. Every newly installed building block of the final VoIP infrastructure will smoothly integrate into and interwork with already deployed equipment due to the use of standardized interfaces based on EUROCAE ED-137. There is yet another benefit: when a traditional VCS/radio is replaced with a EUROCAE ED-137 based all-IP VCS/radio, the previously installed gateways are no longer needed and can be removed and reused wherever necessary. The new all-IP VCSs/radios will then communicate directly with other IP network components in line with the EUROCAE ED-137 standard.

The R&S®VCS-4G IP-based voice communications system with its large choice of gateways features all these advantages to the benefit of the ANSP.

ROHDE & SCHWARZ

Deployment

Rohde & Schwarz delivered a state-of-the-art media gateway solution to Morocco's national airports authority (Office National des Aéroports, ONDA) in order to support the countrywide transition phase from analog/TDM to VoIP.

The 23 new media gateways for air traffic control (ATC) interconnect any traditional voice communications systems at Morocco's national airports and in the Casablanca area control center (ACC) via ONDA's own IP network. The gateways convert analog signals to EUROCAE ED-137 based VoIP data. This capability is required at all locations that still employ legacy VCSs. Existing state-of-the-art IP-based VCSs such as the Rohde & Schwarz R&S®VCS-4G at Agadir Al Massira Airport are directly connected to the IP infrastructure without any gateway.

This forward-looking concept allows ONDA to benefit from the advantages of a fully IP-based backbone network now, while migrating step-by-step from legacy to fully IP-based VCSs in the coming years.
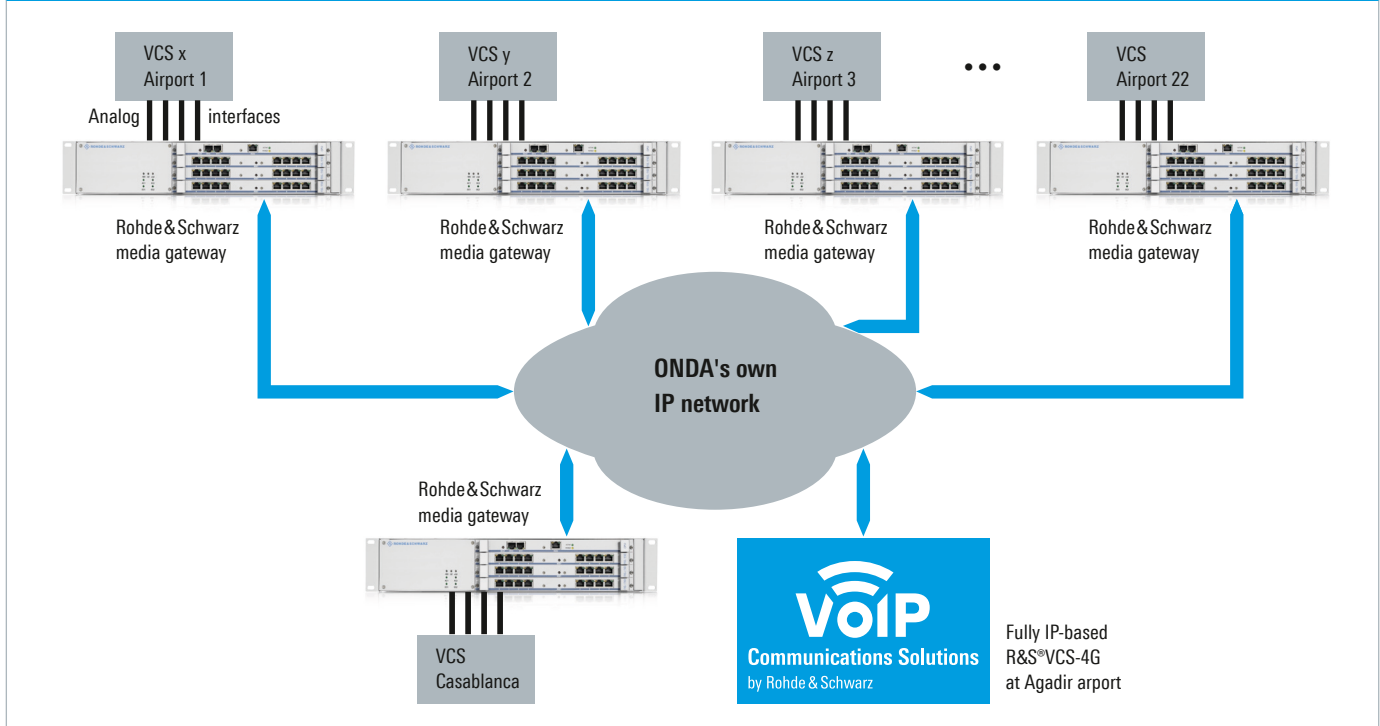
Rohde & Schwarz successfully combined VCSs from different manufacturers into one integrated solution, making ONDA's ATC communications independent from any legacy, analog/TDM based backbone network. The Rohde & Schwarz solution provides reliable, secure and high-quality VoIP communications throughout the country.

System overview:
ı Rohde & Schwarz media gateways for air traffic control

The system was integrated by Rohde & Schwarz Topex SA.

Map of Morocco.

R&S®VCS-4G deployment during analog/TDM to VoIP transition

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