VoIP for air traffic control

R&S®VCS-4G for geographically distributed voice communications systems

Your challenge

Safety is a major concern for ATC. Voice communications systems (VCS) are an essential part of the infrastructure used by air navigation service providers (ANSP) to ensure safe and economical air traffic operation. Geographical redundancy with VCS elements placed at different locations provides additional resilience against system failure.

Each ANSP also has to operate profitably, while taking into consideration the airlines' need to continuously optimize service fees. A VCS not only has to be reliable and interoperable, it also needs to provide a cost-effective overall system solution.

Rohde&Schwarz solution

The challenges facing geographically distributed VCS installations can be well addressed by deploying an IP-based communications infrastructure such as the R&S®VCS-4G.

Reliability

Reliability in TDM systems requires the duplication of centralized equipment at a single location. VoIP systems migrate intelligence away from the network core to the peripheral equipment. Since intelligence is distributed over various elements, a true IP-based VCS no longer needs to remain in one location – it can be shared among several sites. A possible failure in one part of the system does not affect the operation of the rest of the system. Furthermore, even if there is a complete failure at a location, the remaining system can continue functioning. The direct result is higher reliability and availability.

Interoperability

The ED-137 standard issued by EUROCAE specifies the use of IP for voice communications in ATC environments. By deploying radio and VCS equipment that follows this standard, ANSPs can be assured that the various system components interoperate properly with one another.

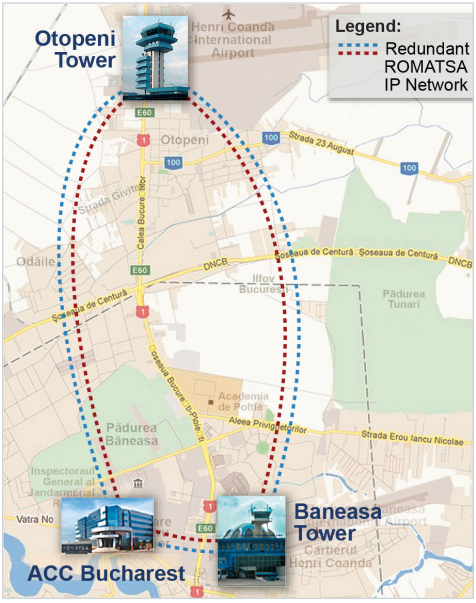
Cost-effectiveness

Sharing the same VCS resources between different operational locations connected via redundant layer 2 networks significantly reduces the investment required of ANSPs. Using the underlying IP infrastructure to transmit not only voice but also other data creates synergies in procurement, operation and maintenance, all of which leads to significant savings.

In conclusion, with true IP-based VCSs, geographically distributed systems are possible, providing maximum benefit to ANSPs. "ATC in the trusted cloud" is already a reality with R&S®VCS-4G.

Deployment

Romanian air navigation service provider ROMATSA relies on an IP-based VCS from Rohde&Schwarz for its distributed tower and approach installations at three locations in Bucharest.



Distributed tower and approach installation for ROMATSA.

The fully IP-based VCS provides air-ground and ground-ground communications services at the Henri Coanda International Airport in Otopeni, the former international airport in Baneasa (now the general aviation Aurel Vlaicu Airport) and the APRON at Bucharest ACC. All three locations have their own controller working positions that are interconnected via redundant IP links of the ROMATSA wide area network to the redundant server installation at the technical room in Otopeni.

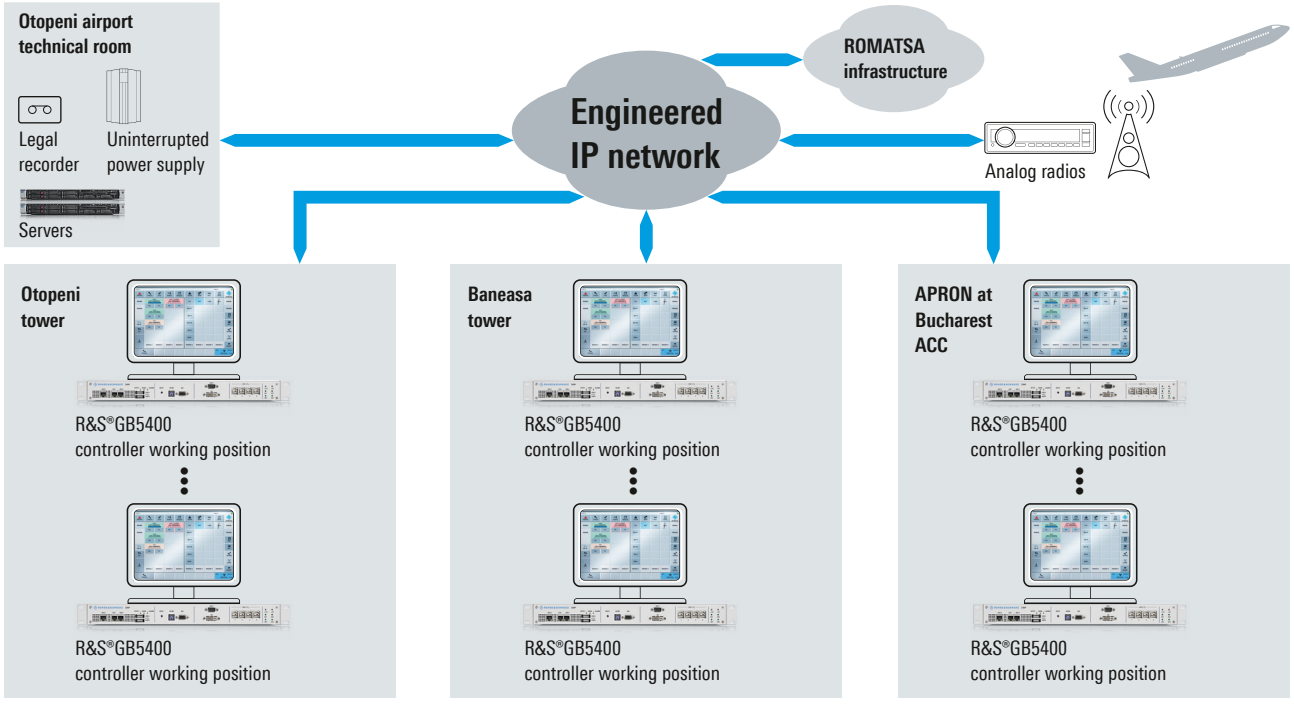
ROMATSA staff at the two towers handles all traffic at the two airports, while APRON staff at Bucharest ACC handles the approach and departure traffic of these towers.

System overview:

- Rohde&Schwarz controller working positions at three locations
- Interconnections to local and remote analog radios
- Analog and digital telephony interfaces
- IP interconnections to ROMATSA infrastructure for accessing national and international destinations
- Radio bypass system

System integration was performed by Rohde&Schwarz Topex SA.

Rohde&Schwarz IP-based VCS, distributed installation for ROMATSA



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