VoIP for air traffic control

ATC on its way to voice over IP

Your challenge

The ATC world is currently undergoing a game-changing development in voice communications infrastructure. There are two key factors driving this change:

- Telecom service providers are now phasing out their leased line TDM services
- Eurocontrol, the Federal Aviation Administration and other organizations are mandating interoperability requirements in order to handle increased air traffic

ATC authorities need to understand how these factors affect their business and make plans now for transition, system interoperability, flexible assignment of airspace and cost-effectiveness.

VoIP as a key ATC technology

The challenges now facing the ATC world will be met with the increasing use of IP technology. VoIP offers operational functionality and flexibility that would have been unthinkable with the TDM-based systems of the past. It also provides significant financial advantages.

Reduced system costs

Many ATC system operators are already using IP networks to transmit radar and flight plan data. Using this IP infrastructure also for voice creates synergies in procurement, operation and maintenance, resulting in significant savings.

In the past, TDM-based systems relied on large centralized switching nodes. In contrast, modern IP-based systems make use of distributed network intelligence and do not require a central switching entity, thereby providing pay-as-you-grow scalability. As a result, ATC authorities no longer need to invest in large systems right from the start. This has a direct impact on your return on investment.

Increased reliability

Reliability in TDM systems typically depended on duplicating high-cost centralized equipment. VoIP systems, however, migrate intelligence away from the network core to peripheral equipment. With the intelligence distributed over various elements, a failure at one part of the system does not affect operation in the rest of the system. The direct result is higher reliability and availability.

Interoperability

The ED-137 issued by EUROCAE specifies the use of IP for voice communications in ATC environments. This standard was defined jointly by EUROCAE, ATC authorities and ATC equipment manufacturers. Customers who select equipment that meets this standard can be assured that the various system components interoperate properly with one another.

ROHDE&SCHWARZ

Your partner from the microphone to the antenna

Rohde & Schwarz offers a wide selection of VoIP-based products designed specifically for the needs of ATC customers around the world. The company provides system solutions from the microphone to the antenna. This eliminates the need for complex and costly integration work and helps to minimize project risks.

IP-based VCS

The R&S®VCS-4G voice communications system (VCS) takes full advantage of IP technology, making it scalable, cost-effective, and ready for the future. It fulfills the needs of both small-scale and large-scale area control centers (ACC) as well as backup systems and tower installations. The R&S®VCS-4G meets the highest standards for availability, reliability and safety. It supports traditional VCS services, such as air-ground communications, intercom and telephony services. The IP-based distributed architecture provides additional benefits, such as the integration of new services (e.g. video) and pay-as-you-grow scalability. The R&S®VCS-4G adheres to EUROCAE ED-137.

IP-based radio remote control units

The R&S®GB4000T control unit and the R&S®GB4000V audio unit are IP-based components for small-scale systems that consist of only a few working positions for air-ground communications. Their compact design minimizes space requirements in operator consoles. The R&S®GB4000V adheres to EUROCAE ED-137.
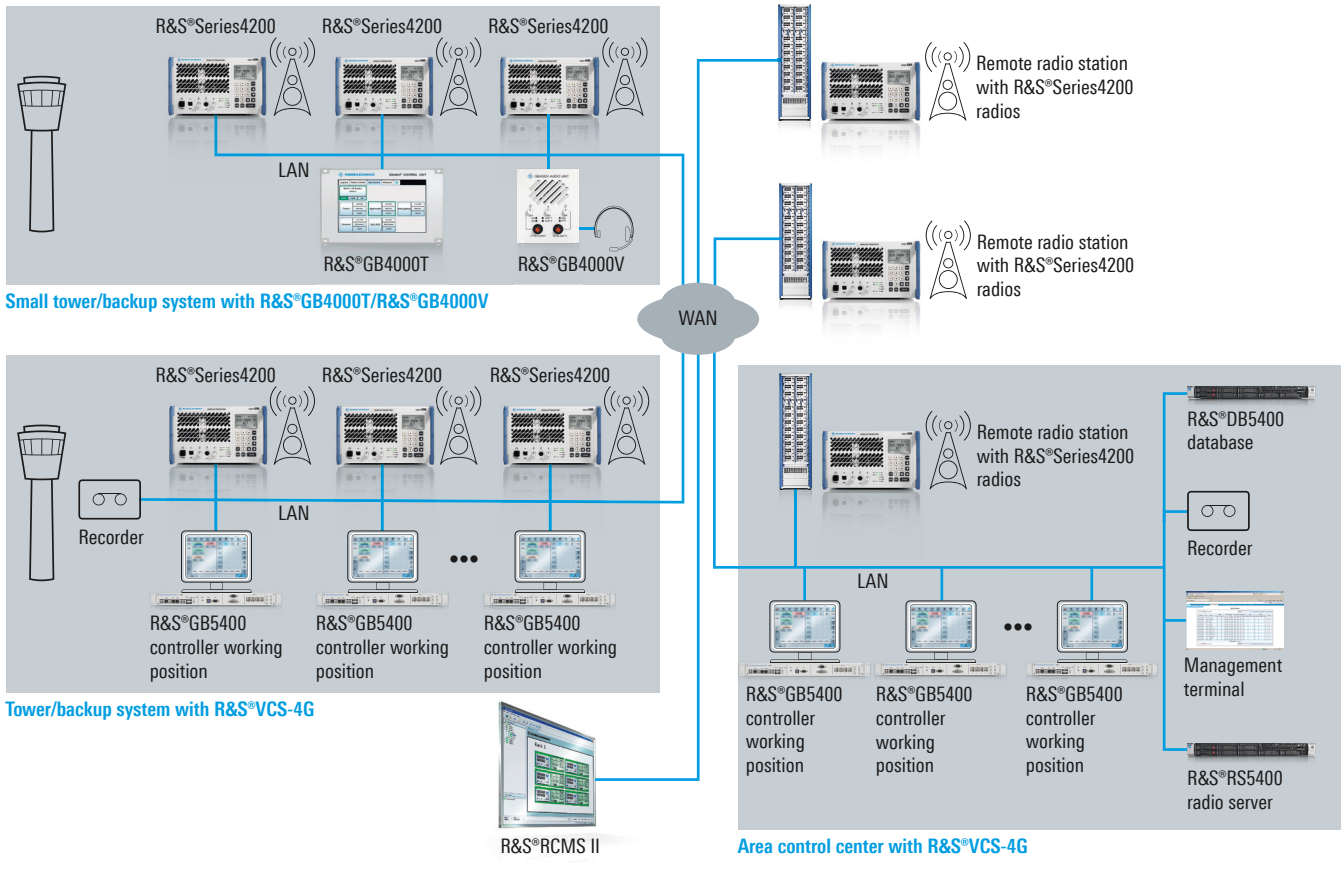
VoIP radios

The R&S®Series4200 radio family is one of the newest available on the ATC market. The radios have been deployed across the globe and have earned themselves a reputation for a high level of reliability and dependability. The latest model of the R&S®Series4200 is fully VoIP enabled and adheres to EUROCAE ED-137.

IP-based remote control and monitoring

The R&S®RCMS II remote control & monitoring system serves as a single software solution for remote monitoring of the R&S®VCS-4G system and R&S®Series4200 radios. It can also monitor third party SNMP-capable devices, making it the tool of choice for a complete situational overview of remote radio and VCS sites.

Application scenarios for Rohde & Schwarz VoIP solutions

Small tower/backup system with R&S®GB4000T/R&S®GB4000V

Tower/backup system with R&S®VCS-4G

Area control center with R&S®VCS-4G

5214518492