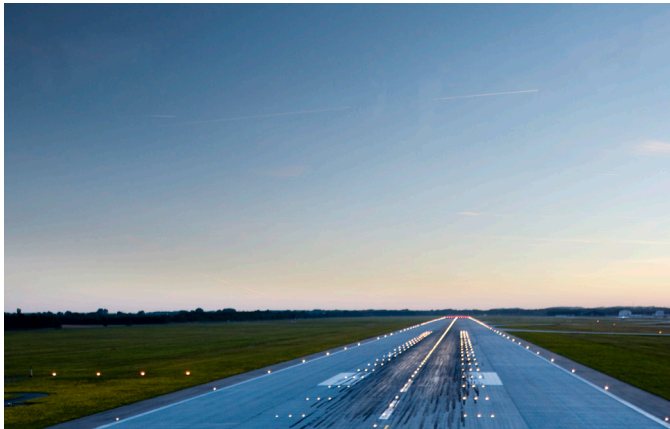


CERTIUM VCS FOR REMOTE TOWER APPLICATIONS



Your task

To optimize costs for air navigation service providers (ANSP), Single European Sky ATM Research (SESAR) and EUROCAE defined remote tower concepts that allow remote towers to be fully controlled from central locations while maintaining safety at the same level as local tower operations.

The changed operational concept for remote tower installations requires a new type of flexibility, different from today's static configuration of air traffic control (ATC) equipment in local towers. In addition, voice communications systems (VCS) must provide solutions that support the operational needs of remote towers: flexible and dynamic connectivity to remote locations several hundred kilometers away, ensuring reliable and high quality communications.

Rohde & Schwarz solution

IP based communications infrastructure such as the CERTIUM VCS is ideal for the challenges faced by remote tower installations.

Flexible and dynamic connectivity

The ED-137 standard issued by EUROCAE specifies the use of IP for voice communications in ATC environments. Taking advantage of this standard and the underlying IP infrastructure, IP VCSs are able to dynamically connect to relevant air-ground and ground-ground resources at different airports, providing safe and secure simultaneous ATC operations at multiple remote towers from a single central VCS. This also increases flexibility in airport operation, improving overall service to airport users.

Reliable communications

In the past, reliable communications was ensured at each airport via redundant and costly traditional VCSs. With the latest remote tower concept, one redundant IP based VCS is deployed at one central location and connects to different remote airports. This star topology approach covering several airports justifies the necessary investment in equipment and infrastructure to ensure highly reliable communications. Installing a VoIP system with the intelligence distributed over various devices results in even higher reliability and availability since a failure in one part of the system will not affect operation in the rest of the system.

Cost-effectiveness

Investing in one central IP based VCS instead of several VCSs dramatically reduces investment and operational costs. Furthermore, sharing the underlying IP infrastructure for all applications (including voice, video and radar) creates synergies in procurement, operation and maintenance – all of which lead to significant cost savings. The latest remote towers can be easily added to the existing IP infrastructure, keeping costs for extensions to a minimum.

Due to its full IP system architecture and distributed infrastructure, the CERTIUM VCS is ideal for remote tower applications.

Application Card | Version 02.00

ROHDE & SCHWARZ

Make ideas real



Application

An air navigation service provider wants to deploy a remote tower application for three remote towers that are operated from one central location with another tower. All four towers share the same voice communications infrastructure.

To meet these needs, Rohde & Schwarz provides one CERTIUM VCS voice communications system at the central location. Due to its full IP system design and distributed architecture, the CERTIUM VCS supports access to local and remote radios and telephony resources, making it possible to operate several remote towers from one central location. The CERTIUM VCS system provides the common air-ground and ground-ground communications services for the tower at the central location and also for the remote towers.

Since the CERTIUM VCS is in line with the EUROCAE ED-137 standard, it supports integration of ED-137 compliant radios at the local and remote tower locations. Due to budgetary constraints, existing radios with analog/digital audio interfaces at the remote locations will not be replaced. They will be integrated into the communications

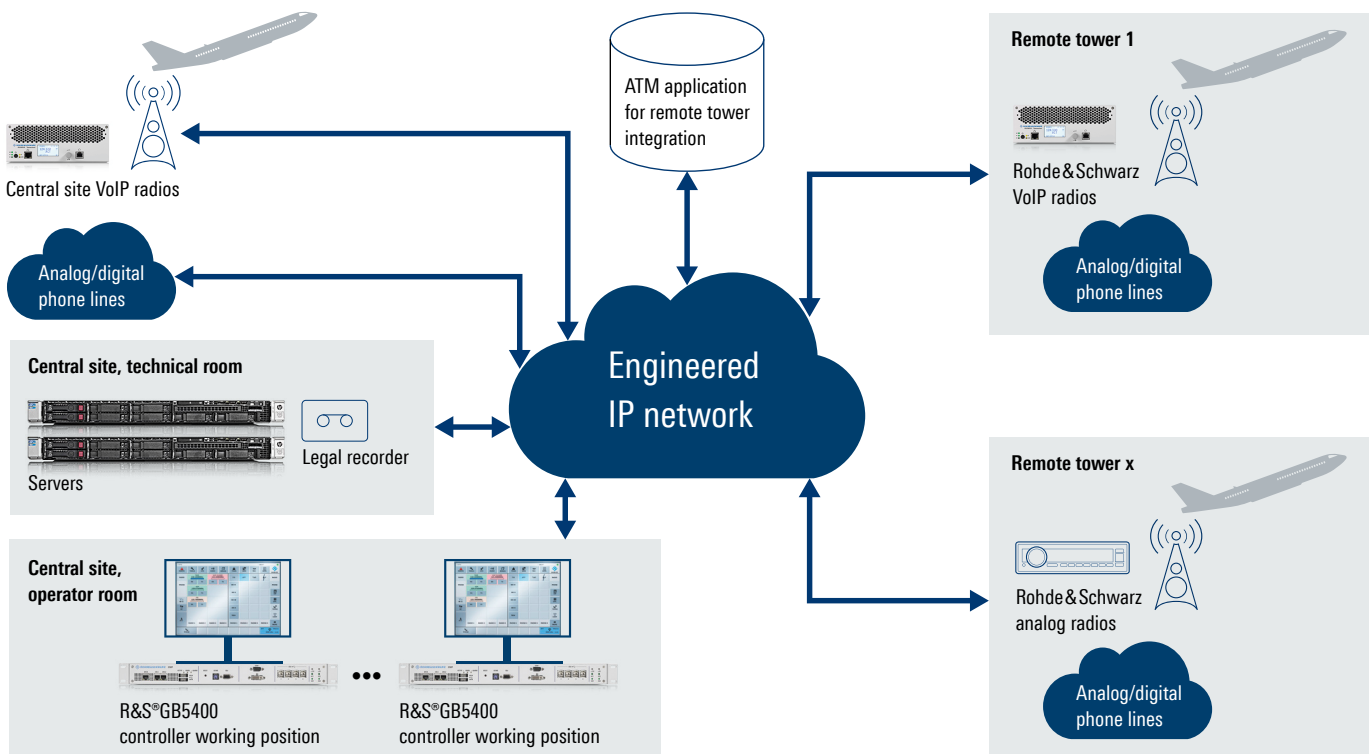
systems via gateways. The gateways convert EUROCAE ED-137 signaling and audio from the IP VCS to analog/E1 signals/audio for the existing radios, and vice versa. As soon as the end of life of the analog radios has been reached, they can be replaced by EUROCAE ED-137 compliant radios without the need to update or add CERTIUM VCS components.

A redundant engineered IP network capable of providing service levels relevant for VoIP communications according to EUROCAE ED standards interconnects central and remote locations. The same IP infrastructure will be shared with other media, e.g. video or radar data.

System overview:

- ▶ CERTIUM VCS controller working positions
- ▶ CERTIUM VCS server infrastructure
- ▶ Interconnection to analog and VoIP radios from different suppliers at the central and remote tower locations
- ▶ Interconnection to analog and digital telephone lines at the central and remote tower locations
- ▶ Integration with ATM applications for advanced role selection mechanisms, video feeds integration, etc.

CERTIUM VCS deployment for a remote tower solution



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PD 3607.1088.92 | Version 02.00 | July 2023 (jr)
CERTIUM VCS for remote tower applications
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