Remote digital tower
Enhancing military air traffic control

Mature, safe and secure solution
Scalable and deployable
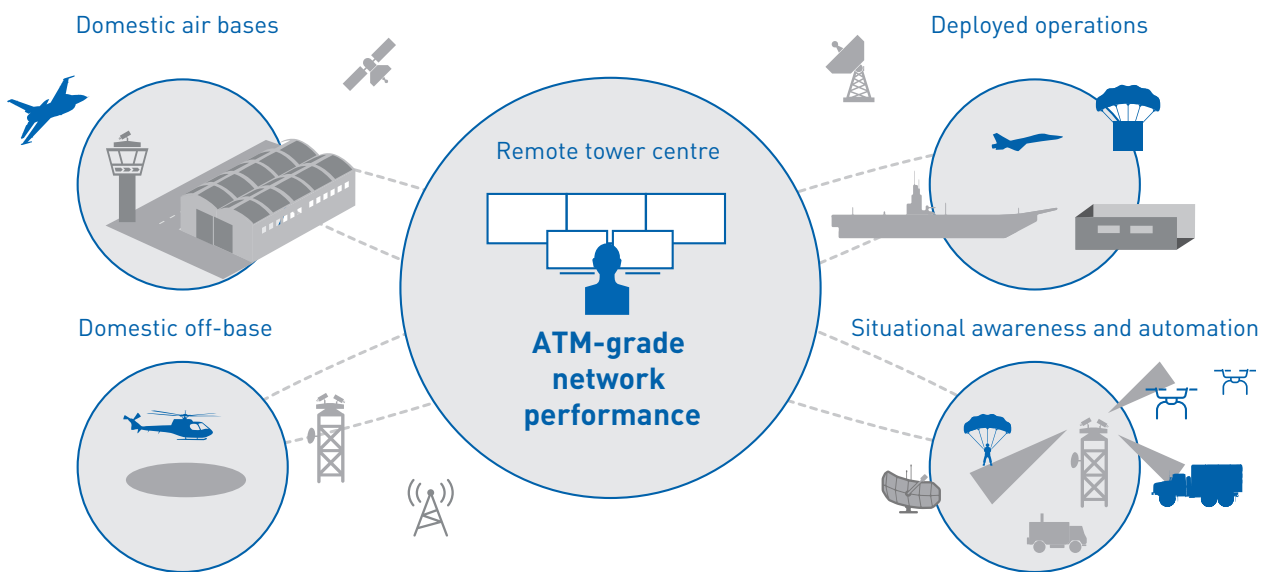Field-proven

Defence

FREQUENTIS
FOR A SAFER WORLD

Ensure mission success and safe air traffic control

Inefficient and insufficient air traffic control (ATC) staffing, operations with limited visibility, vulnerabilities of deployable ATC towers, as well as new challenges, such as non-cooperative drones, require modernisation of military air traffic management (ATM). In addition, air forces need to embrace innovations driven by increased automation, connectivity and data fusion at air bases.

Addressing the needs of military use cases

A remote digital tower replicates the visual tower view to provide ATC services from remote locations, thus improving operations and enhancing safety. It adds new operational capabilities for a number of military use cases in ATM and beyond to ensure accomplishment of different types of missions.

Domestic air bases

Deployed operations

Remote tower centre

ATM-grade network performance

Domestic off-base

Situational awareness and automation

Domestic airbase operations	**Domestic off-base operations**	**Deployed operations**	**Situational awareness and automation**
• Enhanced visibility and flight safety	• Quick ATC support for emergency landing strips	• Safe combat operations	• Information sharing and data fusion
• Efficiency for smaller airbases	• Safety for remote landing sites	• Fast humanitarian assistance	• Additional detection capabilities e.g. UAS
• Cost-efficient tower alternative	• Enhanced situational awareness	• Enhanced staff protection	• Enhanced airbase security and efficient protection
		• Cost-efficient contingency tower	

A mature solution designed by operators

Remote digital tower is a flexible and scalable solution that improves efficiency, safety and ensures mission success.

Turning challenges into opportunities

Remote digital tower increases flexibility and situational awareness, while keeping controllers out of harm's way by locating them in secure environments.

The operationally proven and tested controller workplace ensures safe operation of air traffic. The sensor mix with different spectral bands increases the overall situational awareness under standard and silent operations.

Advanced sensor technology in combination with sophisticated video processing and tracking capabilities creates data feeds, which can be used beyond ATC in base and technical operations, for purpose of surveillance, general defence and airbase security.

Flexibility and efficiency gains

- Service on demand
- Several bases managed remotely from one centre
- Lower investment and expenses
- Decreased workload by automation

Enhanced vision

- Enhanced situational awareness
- Increased night vision
- Blind spot coverage

Safety and protection

- Protection of operators
- Object and threat detection

Maximum performance with minimised risk

The joint solution modernises and improves the aviation standard, while meeting regulatory requirements at a reasonable cost-benefit ratio.

Maturity and user acceptance

Remote digital tower draws on extensive experience in ATM. It is operationally approved, tested and accepted by DFS (German ANSP).

Successful change management

Risk is mitigated by applying an incremental change management process supported by DFS consulting services and long-term support and maintenance commitments.

Flexibility, scalability and integration

The solution is flexible and highly customisable to individual defence customer needs and builds upon a fully integrated solution portfolio.

High-end electro-optical daylight and infrared visualisation systems

Sophisticated visual and IR technology supported by advanced object detection, bounding and tracking improves flight safety.

Product safety and security

Highest standards – including secure data backbone solutions – guarantee continuous operation by using an intelligent mix of redundant technology and sensors.

One step ahead

Deployability, mobility, drone detection and additional smart airbase features complement the solution, by using advanced sensors, tracking and video processing capabilities.

Remote digital tower success stories

The solution benefits from extensive experience in vision enhancement and commitment to mission-critical ATM and communication solutions for military users. Frequentis is actively driving the evolution of image processing- and remote tower solutions across the world through involvement in major research programs, such as Fraunhofer Institute, SESAR, and by driving standardisation, e.g. via the EUROCAE working group.

Saarbrücken Airport, Germany (DFS)

Saarbrücken is the largest international airport that is fully remotely controlled. Equipped with remote tower technology, it manages approx. 15,000 traffic movements per year. 360° visual and IR cameras provide a seamless panorama view, supported by a high-performance PTZ camera with visual and IR sensors. Advanced video tracking enables the detection and marking of aircraft and vehicles, detailed surveillance information increases situational awareness. Since 2018, Saarbrücken has been controlled from the remote tower centre in Leipzig, 400km away.

Santa Cruz, Brazil (DECEA, CISCEA)

This is a first-of-its-kind project in South America to provide remote air traffic control services using digital tower technology. The solution provides controllers with a real-time 360° visualisation of the airport and its surroundings in a remotely operating environment. Digital support tools such as automatic object detection, surveillance labelling, image recognition and tracking are some of the major features of this solution, which will support the safety-critical and high-pressure work of controllers.

US Department of Defense (DoD)

Frequentis installs two fixed-base systems and two deployable systems for the US Airforce and other DoD agencies. By enabling the provision of milATC services on demand and remotely, RDT will reduce the risk to controllers and infrastructure, while reducing capital investment and allowing for the optimisation of resources. It provides milATC the resilient situational awareness DoD demands while keeping controllers out of harm's way in secure environments.

Remote digital tower product portfolio

→ smartVISION visualisation and surveillance
→ smartTOOLS information display and control
→ smartSTRIPS flight data handling
→ iSecCOM red/black voice communication system
→ QUADRANT ADS-B and multilateration
→ DIVOS recording and replay
→ Implementation, operation and technical services

Related solutions and extensions

→ vitalsphere™ ATM-grade network performance
→ Deployable Remote digital tower
→ Drone detection system
→ Airbase security solutions
→ PRISMA approach automation solution

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