

# Advanced network management

## Empowering proactive and efficient end-to-end ATM operations

Many specific systems and subsystems are used to provide services to stakeholders in air traffic management (ATM). Together, those systems are connected within vitalsphere, the ATM-grade network solution, supporting the safe and secure exchange of information. To ensure that technical personnel have all the information they need in real time, there should be a holistic end-to-end situational awareness about the status of all the systems, subsystems and networks being used in the air navigation service provider's (ANSP) operations. Frequentis' advanced network management solution (A-NMS) gives ANSPs full situational awareness about their network and the freedom to focus on other tasks.

## Key features

### ATM-grade architecture & functionalities

Based on more than 75 years of ATM industry knowledge, A-NMS contains a set of functions within the ATM-grade networks portfolio vitalSphere, supporting the safe and efficient operation of technical assets and management of resources. Functions such as end-to-end critical service monitoring and reporting, ED-138 compliance, and objective mean opinion score (MOS) measurements further enable operators to act proactively before any failure happens. The solution architecture is highly resilient and fully aligned with the needs of the air traffic industry.

### Integrated active network monitoring

A-NMS is integrated with the NetBroker probe, a built-in software module providing an invaluable end-to-end performance measurement of the network. The probing is flexible and the methodology allows its usage in any network, including VSAT networks where every bit of transported data counts.

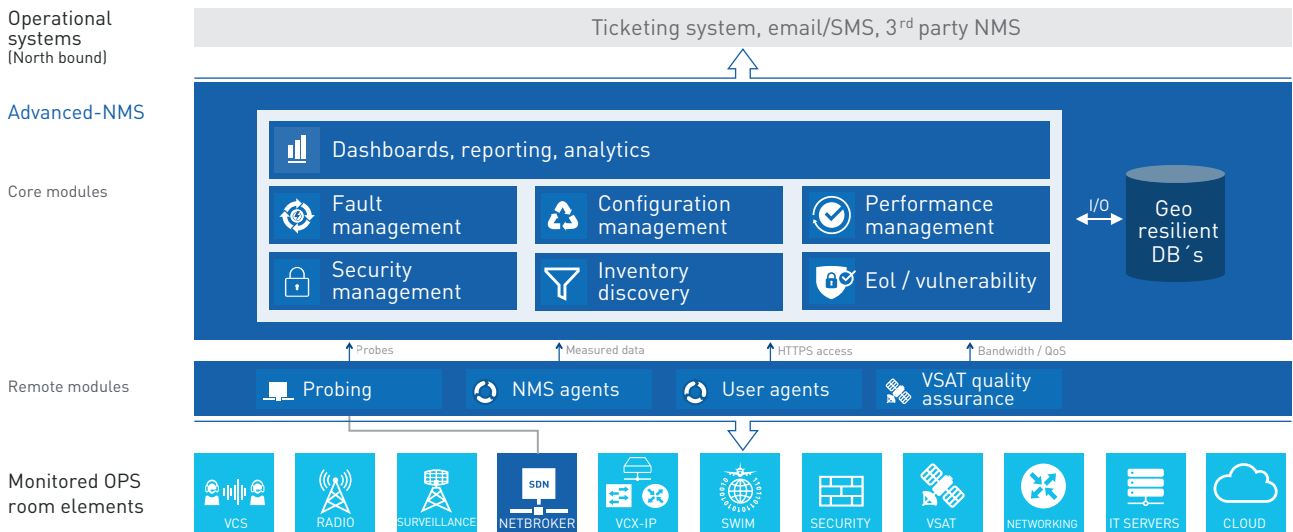
### ANSP environment – proven platform

Frequentis leverages decades of hands-on experience. The underlying software platform is already used in multiple ANSP environments, many safety- and mission-critical networks as well as by a large telco organisation. These are long-term contracts and ensure long-term vendor and lifecycle support.



## A-NMS at a glance

- Part of vitalsphere, the Frequentis portfolio that helps ATM providers achieve the levels of performance, availability and safety that distinguish a network as ATM-grade.
- 24/7 situational awareness
- End-to-end critical service monitoring
- Integrated probing
- Built-in business continuity
- Flexible and scalable
- ED-138 compliance reporting
- Resilient



## Benefits

### Proactively prevent failures

A-NMS contains a set of tools and functions for the detection of mission-critical situations with greater ease and forewarning. This enables a proactive approach and faster problem mitigation, which minimises the impact on operations.

### Highest situational awareness

The ability to monitor and report on critical ATM services from end to end (for example end-to-end A/G radio monitoring) delivers excellent situational awareness for technical personnel. Together with the active

monitoring of network performance and use-case based visualisation tools, operators have the required information presented in the proper way. This helps them to understand the situation and make the right decisions safely and in good time.

### Zero touch optimisation

The solution covers automation tools and allows low-effort integration of many different relevant systems for safe operations. A-NMS as an “umbrella” management system supports ANSPs in keeping their TCO optimised, as only one central tool is used to cover multiple tasks.

## Technical specifications

Network size	Scales from very small to very large networks
Supported systems	ATM systems (e.g. VCS, VHF Radio, ADS-B) and COTS HW (e.g. switches, routers, servers)
Number of monitored devices/services	No hard limit
Graphical interface	Modern user-friendly GUI
Network technologies	Every network (IP/MPLS, VSAT, TDM, Microwave, etc.)
Network management model	FCAPS (Fault, Configuration, Accounting, Performance, Security)