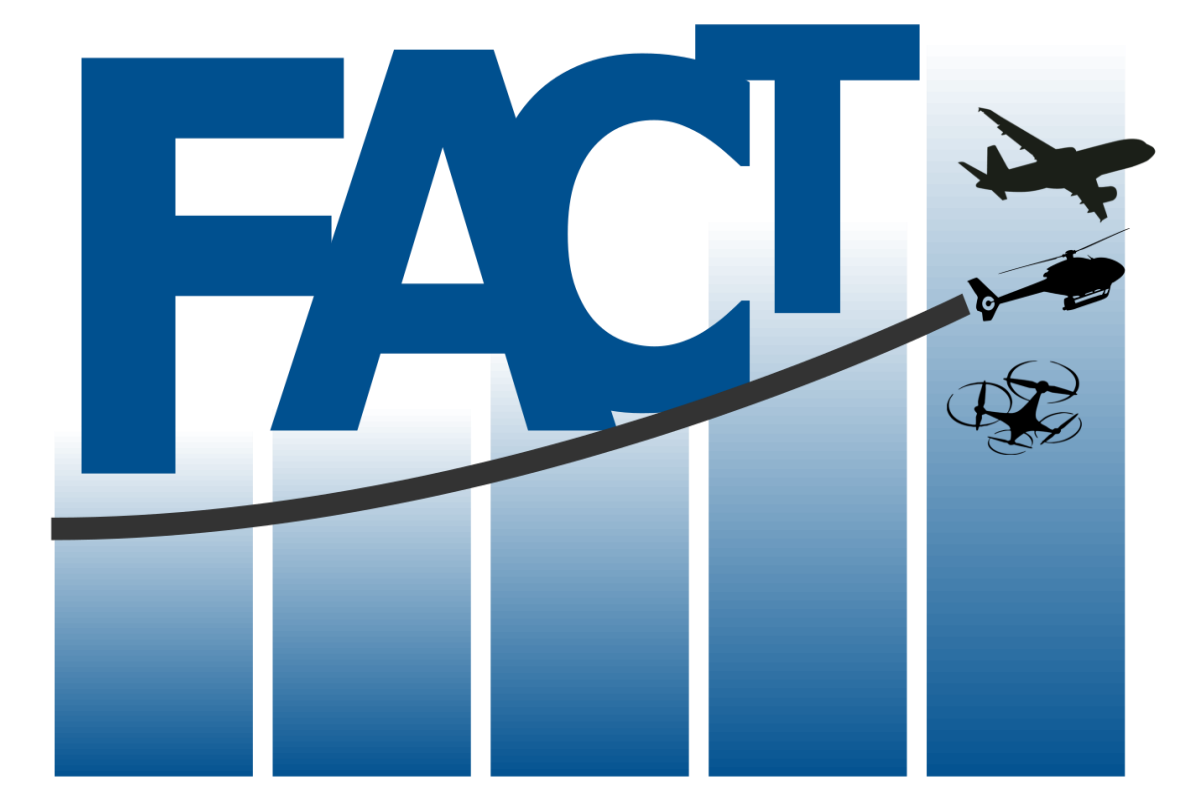


5G for Low Altitudes



Integrated CNS for mixed operations

FUTURE ALL AVIATION CNS TECHNOLOGY

Main R&D Questions addressed:

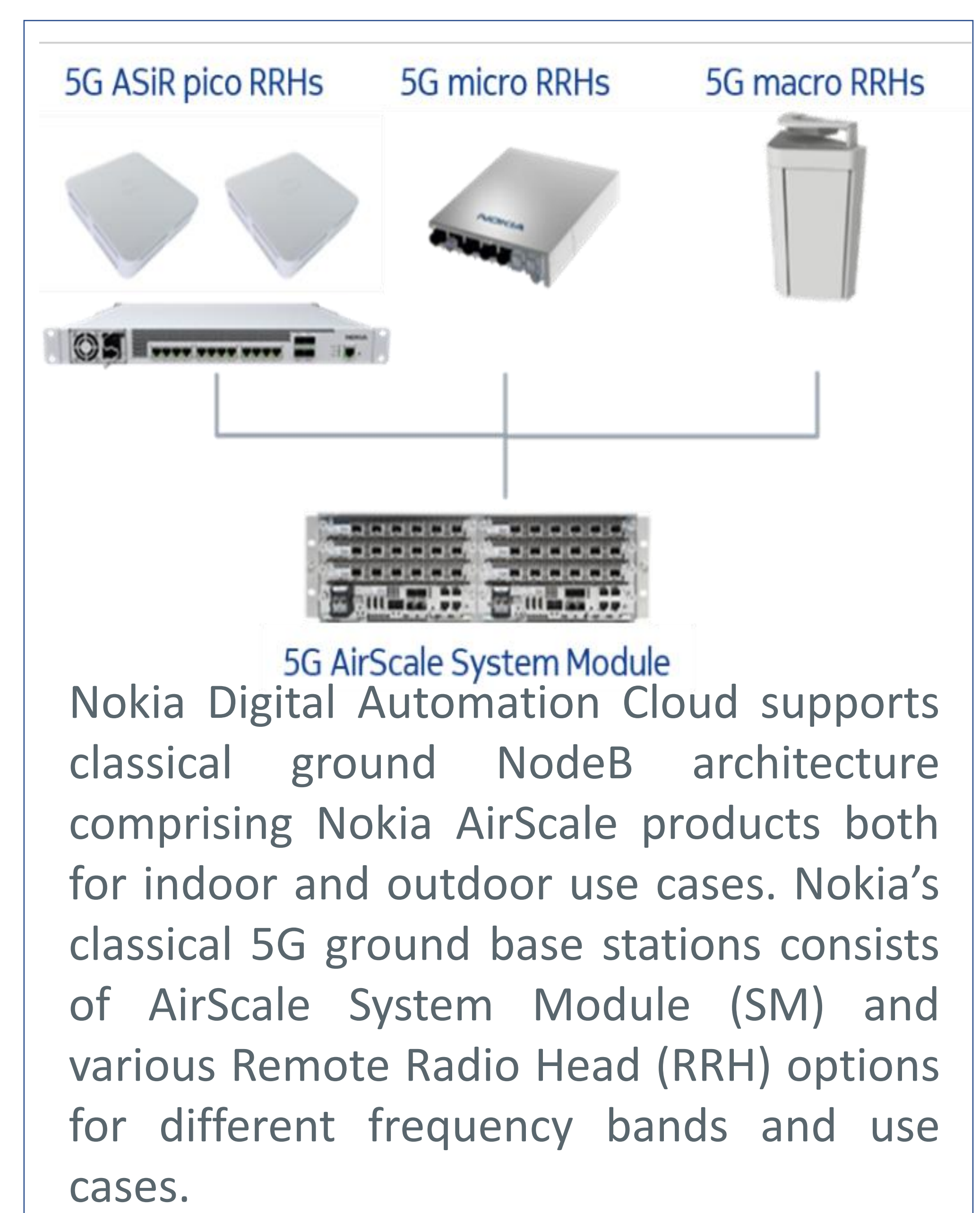
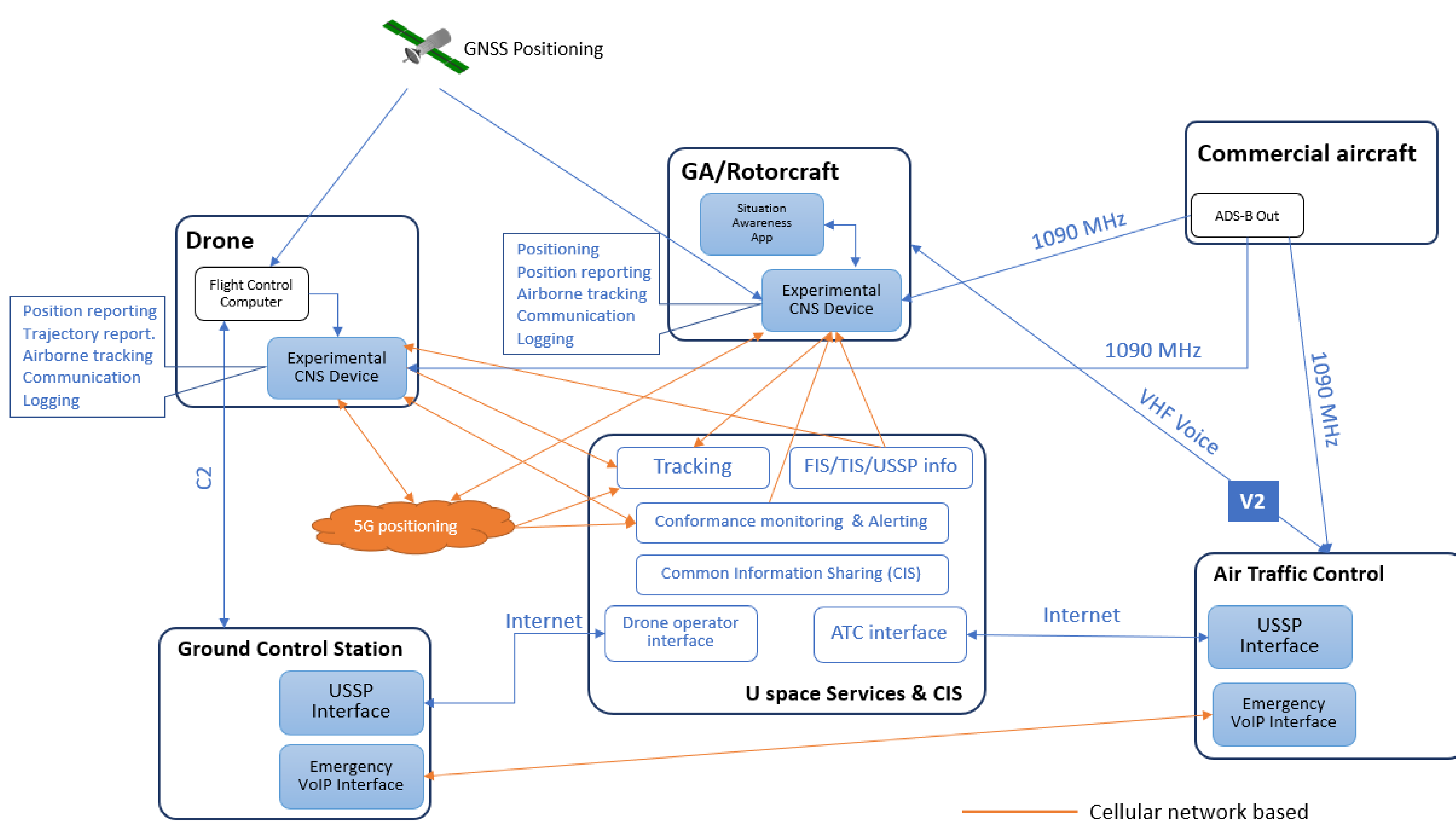
- Possible implementation of performance-based CNS for heterogeneous low altitude traffic (GA, rotorcraft/eVTOL, drones)?
- How to maximize benefits from cellular network infrastructure for low altitude operations?

Main technological topics: integrated CNS, 4G/5G, TIS/FIS, 4D trajectories, services for GA and U-space services

Targeted Operational Environment: U-space in controlled and uncontrolled airspace

U-space services considered: Tracking & position reporting, Monitoring, Surveillance data exchange, Geo-fence provision, Traffic Information & Flight information (drone aeronautical information).

Final Operational Demo: Eskisehir airport and its proximity with mixed GA/drones operations within experimental 5G network.



Sikorsky S76B Helicopter



Socata TB-20 Trinidad Aircraft



ITU Drone



Nokia subrack example



ESTU LTBY Hasan Polatkan International Airport at Eskisehir

Main Validation Objectives:

- Technical Validation of CNS performance (feasibility): datalink & positioning using cellular network (4G/5G) to complement current aero technologies:
 - Public networks – specific performance evaluations 4G and 5G in different environments
 - Dedicated networks – Nokia's experimental network for operational demo at Eskisehir
- Demonstration of benefits due to CNS enhancements: GA pilots, drone remote pilots, Air Traffic Controllers

Final Operational Demo

- The Faculty of Aeronautics and Astronautics of ESTU operates own international airport: ESTU LTBY (Hasan Polatkan International Airport) – multiple mixed traffic scenarios planned
- Experimental dedicated 5G network will be deployed by Nokia



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