



ICAO



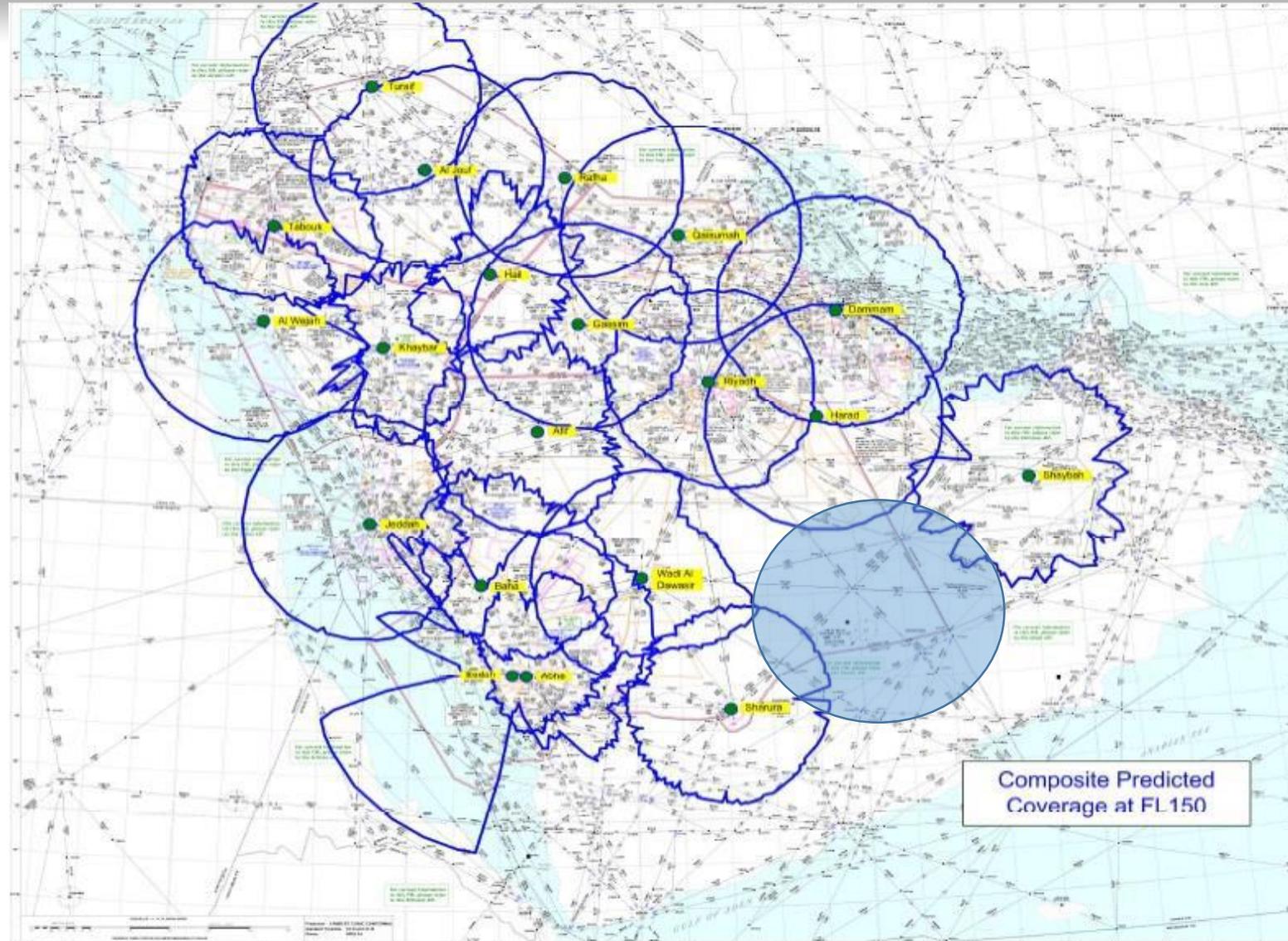
ICAO EMERGING SURVEILLANCE TECHNOLOGIES SYMPOSIUM

ADS-B Kingdom Wide project Saudi Arabia

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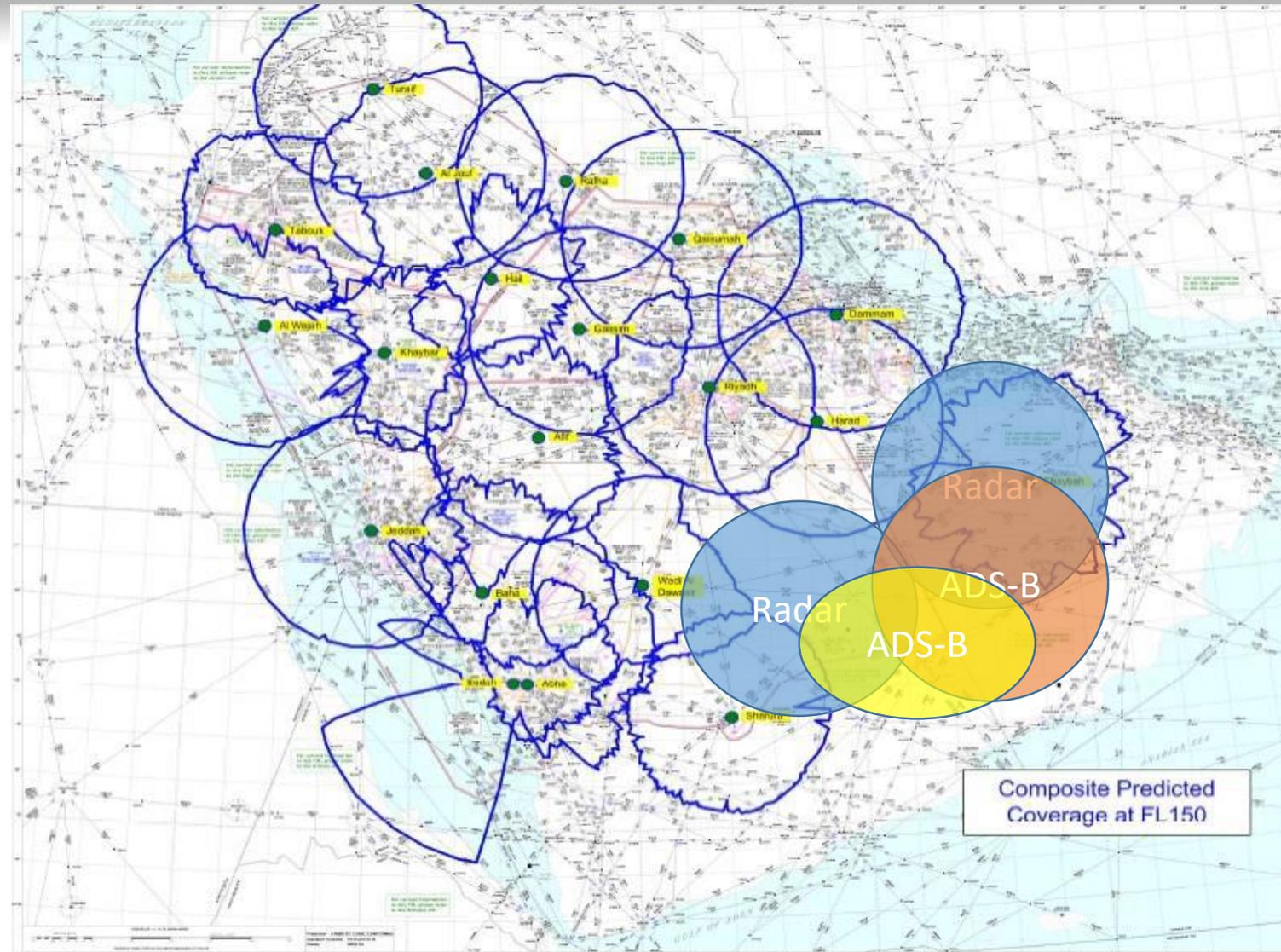
Current Surveillance service is Based on Radar Systems

- Constellation of (27) MSSR and (5)PSR systems provide En-route and TMA surveillance coverage throughout the Kingdom FIR.
- The project has led to a significant improvement in the:
 - Reliability and availability of Radar service
 - High integrity surveillance data to ATC
 - Improving the levels of safety .
 - And the ATC class of service provided within the FIR.



Empty Quarter Airspace

- The Gap is filled with Mode-s Radar
 - Duplicated Layers (two Radar Stations) per site
 - Fulfilling minimum vector altitude(FL250 and Above) .
- Installation is expedited for Two ADS-B stations at two different sites in June 2022.
- ADS-B performance is under evaluation compared with Radar data (ADS-B in Radar Environment).



ADS-B Kingdom Wide Coverage

Objective:

- To Meet ICAO strategy for ASBU, ADS-B OUT systems will improve:
 - Safety, search and rescue.
 - Capacity through separation reductions and position awareness.
- To meet GACA strategy for ADS-B mandating plan.
- Providing further improvement for the levels of safety and enhance the ATC service within the Saudi FIR.

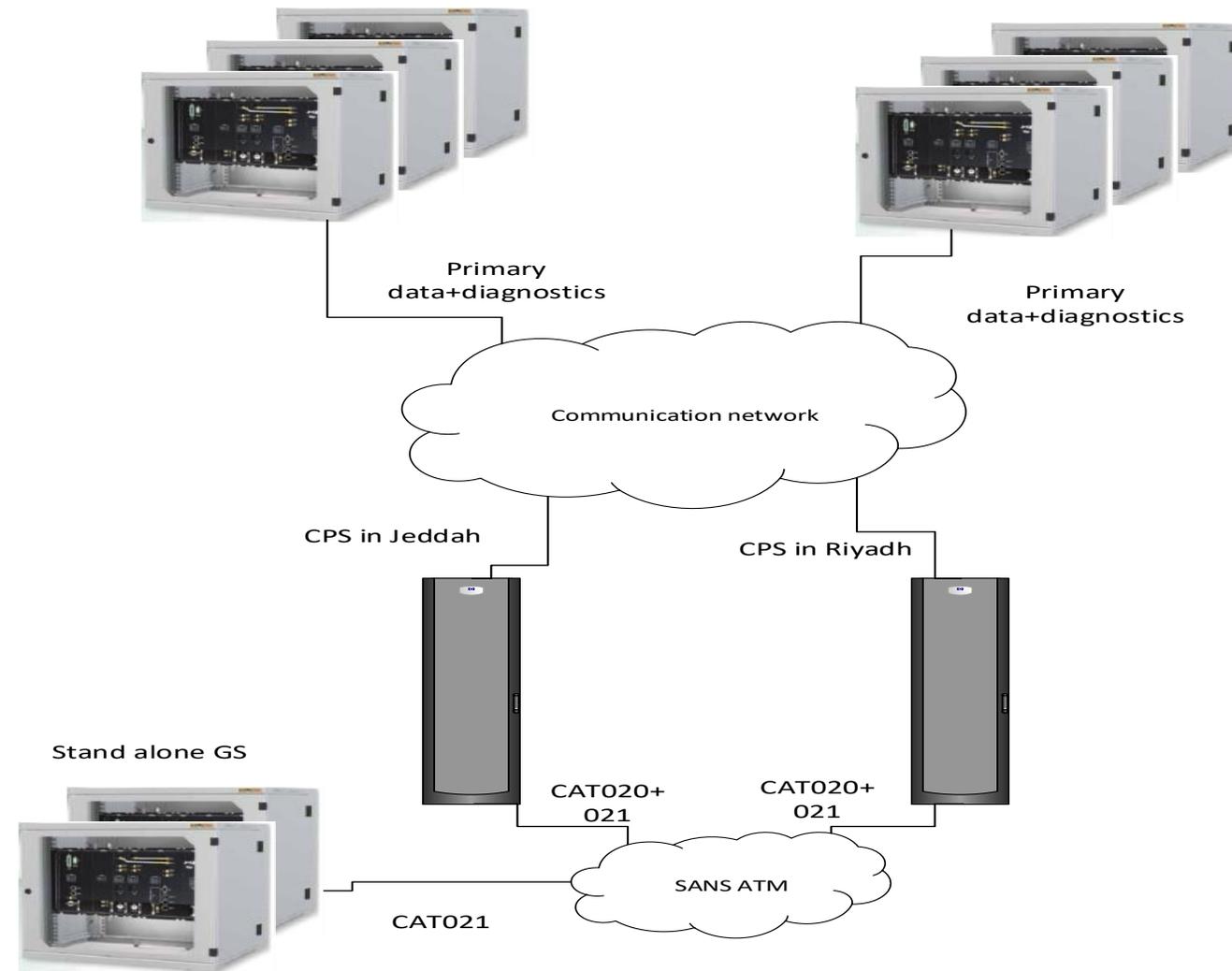
ADS-B GS's

WAM GS's (RX and RXTX)

ADS-B network Architecture

Concept of combined ADS-B + WAM system is implemented with the following Features:

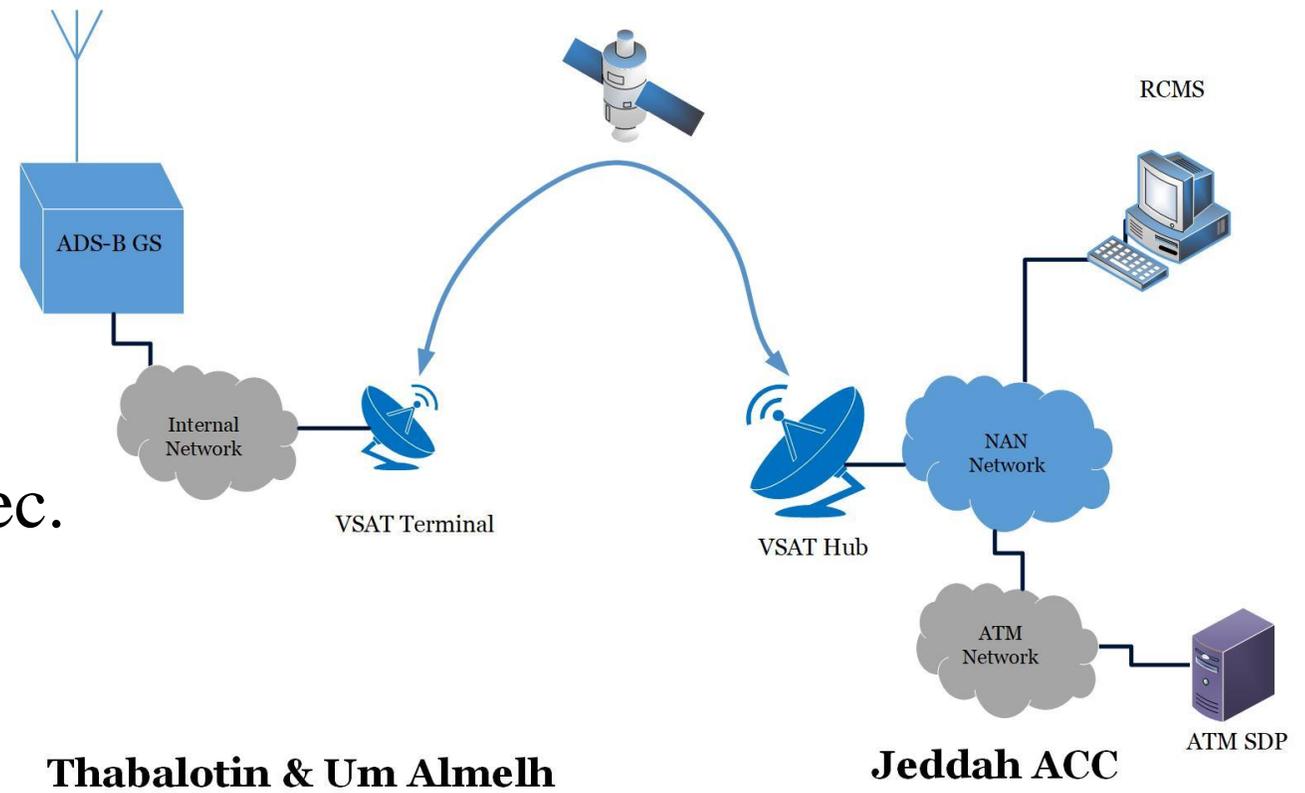
- ADS-B(Kingdom Wide) data are processed including WAM(at Hail & Qassim Airports).
- Redundant CPS (Central Processor System) in each ACC(Jeddah and Riyadh).
- Both CPS's Backup each other.



VSAT Data Communication

Remote Sites are linked via VSAT network.

Data Link Latency is about 500 m.sec. uplink , and 500 m.sec downlink.



ADS-B Kingdom Wide

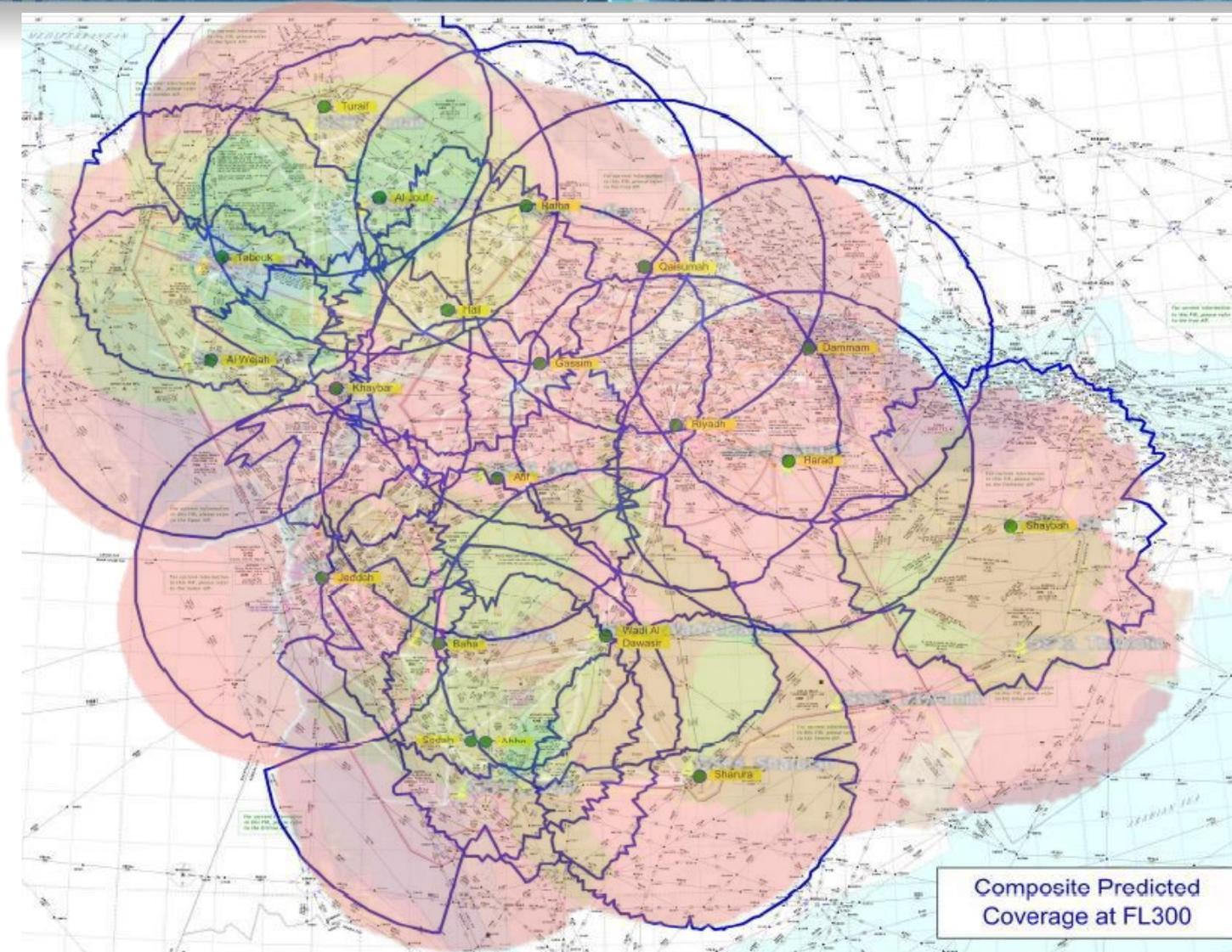
- All Saudi En-route Air Space shall be covered with ADS-B in a Radar Environment ensuring:
 - High Surveillance data integrity.
 - Support ATM essential functions and Safety Nets.
- Comply with Do260,Do260A &Do260B
- V-SAT link is used at Remote Areas(Empty Quarter).

To meet the above objectives ,21 sites will be equipped with ADS-B Ground stations

KSA ADS-B Coverage at FL250



Combined ADS-B and Mode-S Radar Coverage



Conclusion

ADS-B technology will enable SANS to:

- Optimize Capacity and Flexibility (efficiency) for the traffic.
- Meeting the KPA of ASBU ”Capacity, Safety”
- Assess the current surveillance systems from coverage perspective and performance.
- To optimize the number of Mode-S Radars .
- Estimated optimization target may reduce 25% of current Radars systems.

Accordingly, a Workshop will take place with Stakeholders to assess the current En-Route Radars Coverage

THANK YOU

