



| ICAO



ICAO EMERGING SURVEILLANCE TECHNOLOGIES SYMPOSIUM

Thales' vision on global Surveillance solutions and Performance Base Surveillance

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Agenda

Accurate global
airspace Picture

01

Innovation concepts
to strengthen

- Infrastructure monitoring Rationalization
- performances in surveillance operations

02

Non Cooperative and Cooperative Surveillance

Approach



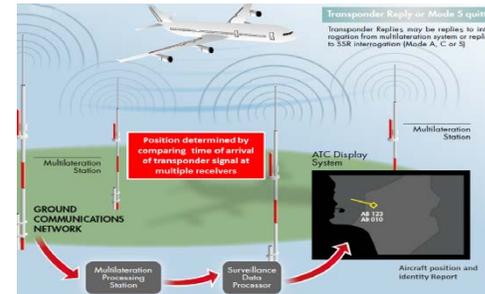
STAR NG

En Route



TRACK NG

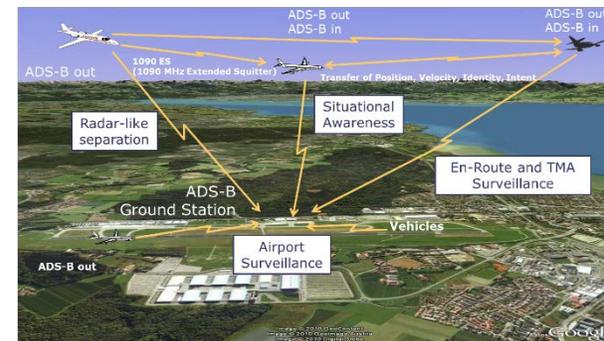
Independant



MSSR

MLAT/WAM

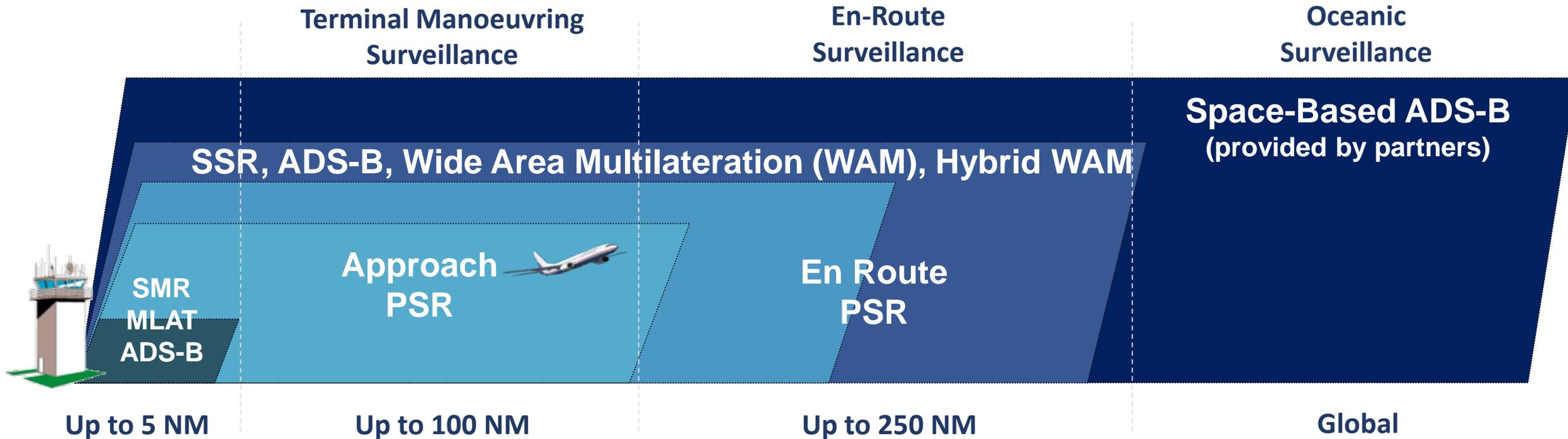
Dependant



ADS-B

Space Based
ADS-B

Support efficient airspace surveillance operations



Thales addresses a global Surveillance

3 Key Challenges for more efficient surveillance operations

Surveillance optimization depending on coverage volumes & traffic mix

- Assess a global Surveillance solution
- Initiate a Performance Based Surveillance
- Resolve Cyber security concerns
- Consider a strong regional collaboration and a commitment to innovation as key drivers of such progress

Alternative approaches to achieve a seamless surveillance sky

Latest innovative technologies to support a Performance Based Surveillance

Considerations for a successful implementation

Grow these
collaborative
initiatives and
accelerate the
adoption of
innovative procedures
and technologies

Why introducing Performance Base Surveillance solutions?

- Gain in **Availability and Safety** according to your local constraints
- **Create resilience** with back up sources of Surveillance
- Optimize the use of existing equipment
- Complement existing surveillance infrastructures, **enrich data** and **add value to your systems**
- Fulfil safety case requirements and Security features
- Achieve Safe, Seamless & Sustainable Surveillance of your future skies

Performance Base Surveillance « PBS »

New Concept initially developed by Eurocontrol as GEN SUR SPR, further developed by Eurocae WG102

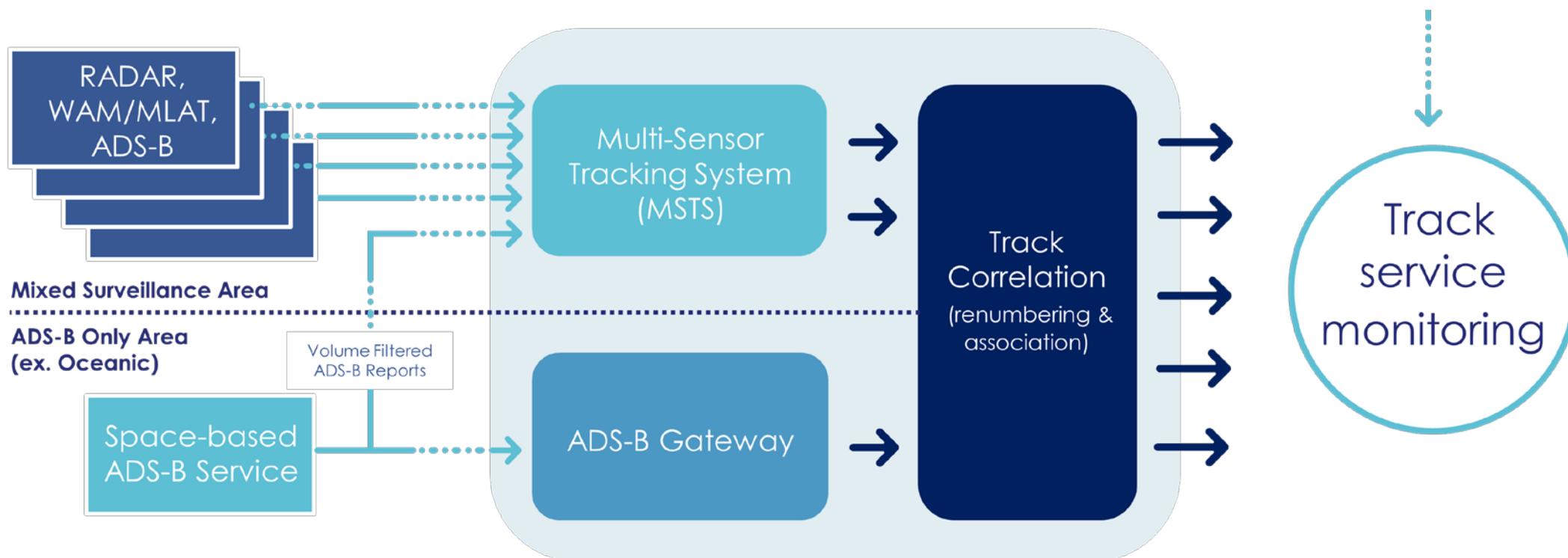
Benefits

- **Reducing the overall cost of ownership**
- **Perfectly fitted for your coverage surveillance needs**, no gap nor unwanted overlap
- **Flexibility** of architecture
- **High scalability** to tailor performances to your needs
- Potential to **outsource surveillance assets** (contract based on performance level) -> CAPEX to OPEX



Impact of PBS deployment on performance assessment

Conformity assessment recording point is now moved to ATC Center entry point



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PBS modeling and monitoring tools

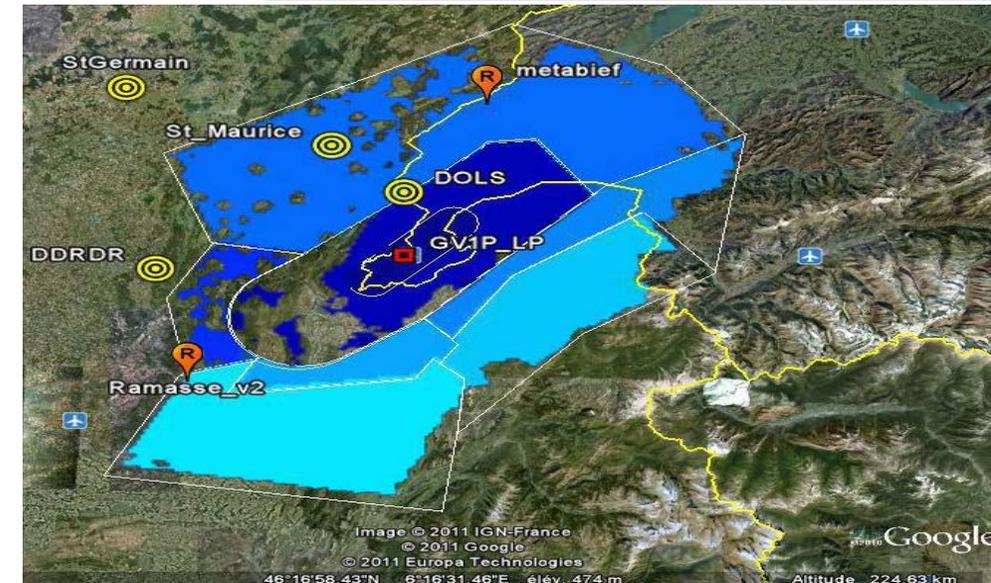
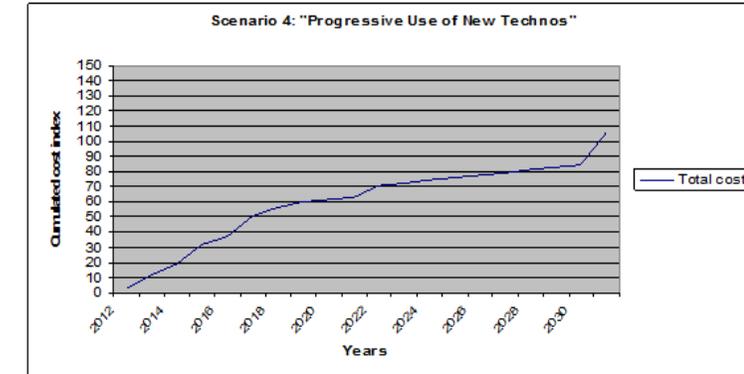
Modelling tools

- Performance modelling
- Life Cycle Cost estimation
- **Overall Reliability**

Performance Monitoring

- Sensors and Tracker Performance
- Real Time Performance Monitoring
- Enabler for **Managed services**

Need of consistent tools suite to support performance based surveillance

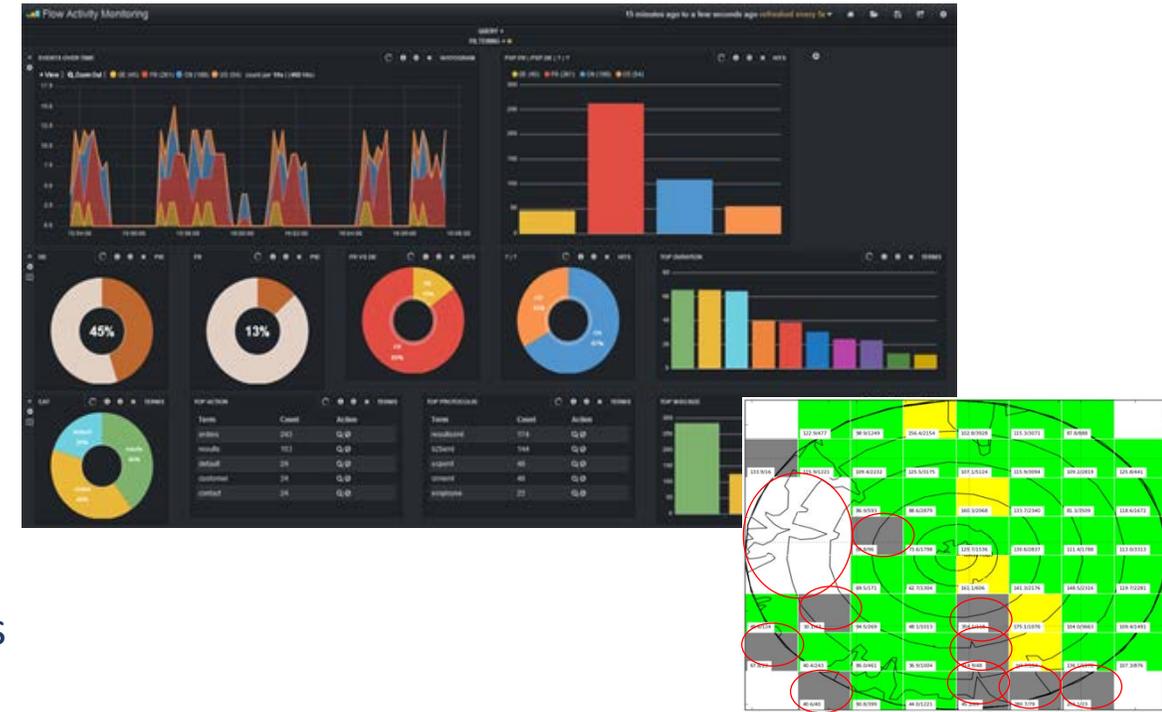


Impact of Performance Based Surveillance

It will shape the scope of future procurements from “Individual Sensors” towards “Surveillance Solutions”

It will allow to offer optimized performance and cost over a given volume whatever the sensors / technologies

- Before deployment thanks to a modelling tool suite allowing the choice of the **optimized solution** based on both performance and economical criteria
- During deployment, allow **reduction of flight test hours** within the overall coverage airspace combining flight checks for critical areas and simulation tool output in the other areas
- After deployment, using a complete **online and off line monitoring tool suite** to assess the performances and generate the required KPIs



Based upon technologies, tools and methods designed to support any ANSP to optimize its surveillance infrastructure

Key benefits of Non-radar Surveillance solution

- **Easy and flexible installation** to adapt to the most demanding requirements facilitating and enabling PBN implementation
- **Combining and integrating different kind of sources** (ADS-B, Mode S, Mode A/C, Space Based ADS-B) **facilitating transition to ADS-B mandate** and being capable to deliver **required Safety levels and reliable data according to defined quality of service parameters** in accordance with the Eurocontrol KPIs
- **Providing robust backup in case of GNSS or equipment outages**

Key benefits of Non-radar Surveillance solution

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- Providing to **single or multiple regions** an **independent or shared system** hardware and processing through **virtualization, cross border configurations and edge computing**
- Providing **Cyber Security** and **Radio Frequency Security** protection features
- Data processing on Centralized Processing and Monitoring System (CPMS) in full redundant configuration, other than Remote support
- Multiple Remote Control and Monitoring Systems (RCMS)

THANK YOU

