



# Challenges of WF Portability

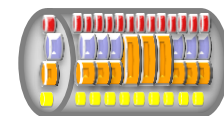
Roma, November 2014  
Tactical Communications Workshop  
Wireless Innovation Forum  
*Eric Nicollet, David Renaudeau*  
*Thales*

**THALES**

# TOWARDS WF PORTABILITY

## ◆ Waveforms pave the way of the future of Tactical Communications

- New Interoperability and Coalition WFs
  - ESSOR, COALWNW, NATO NBWF, NATO WBWF...
- New Wideband Networking waveforms
  - Secured Ad-Hoc High Data Rate generation
- National/Sovereign waveforms
- Previous Waveforms Generation (« CNR ») evolving towards Narrowband Networking capabilities



## ◆ Waveforms to be ported into different Radio Platforms origins

- Different types or different suppliers
- Different generations (HW refresh cycle, take benefit of Law Moore)
- Waveform Life Cycle is higher than Platform Life Cycle

***Towards a Waveform Centric Model  
Multi-Waveforms, Multi-Platforms, Multi-Suppliers***



## ◆ SDR Platforms : evolutions of HW performances

- Increased processing resources
- SWAP features
- RF performances increases

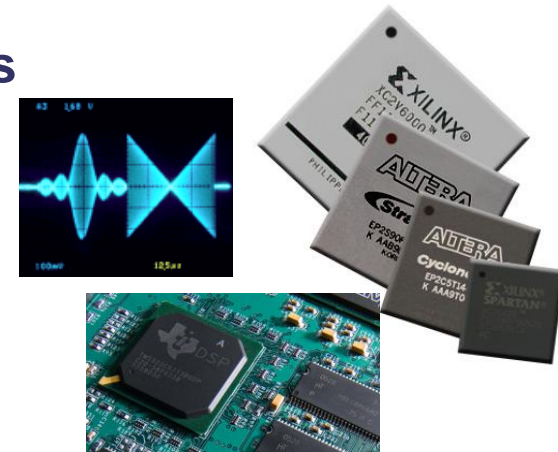
## ◆ SDR PTFs Refresh / Generation

- Increased Performances for end users (SWAP, etc..)
- Waveforms Support across different PTF generations
- Some new gen could drive the introduction of new features in Waveforms

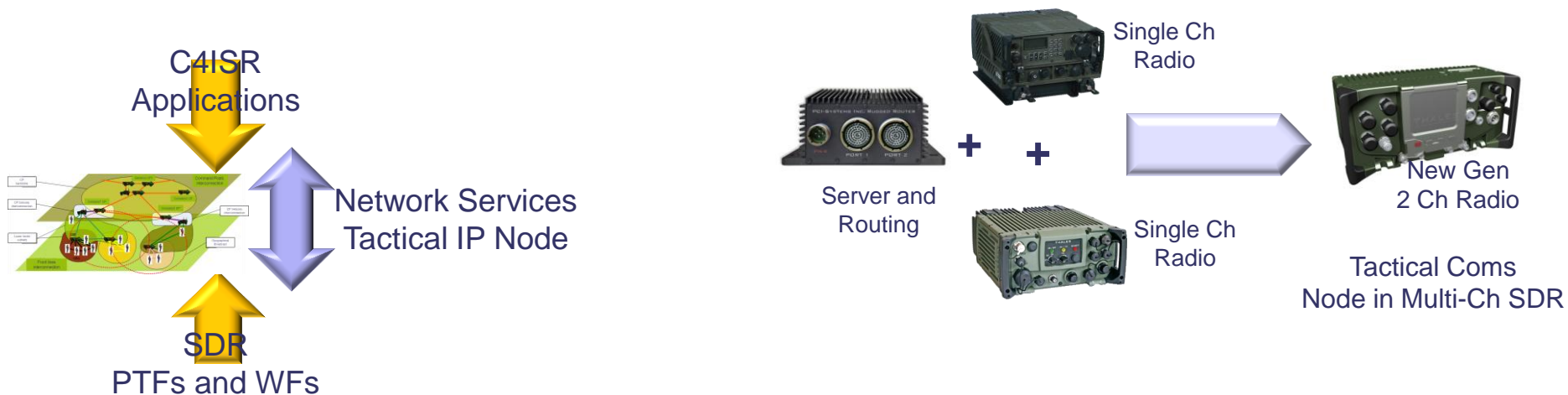
## ◆ Two parallel roadmaps with compatibility matrix, and profiles introduction

***Waveform Roadmap***

***Platform Roadmap***



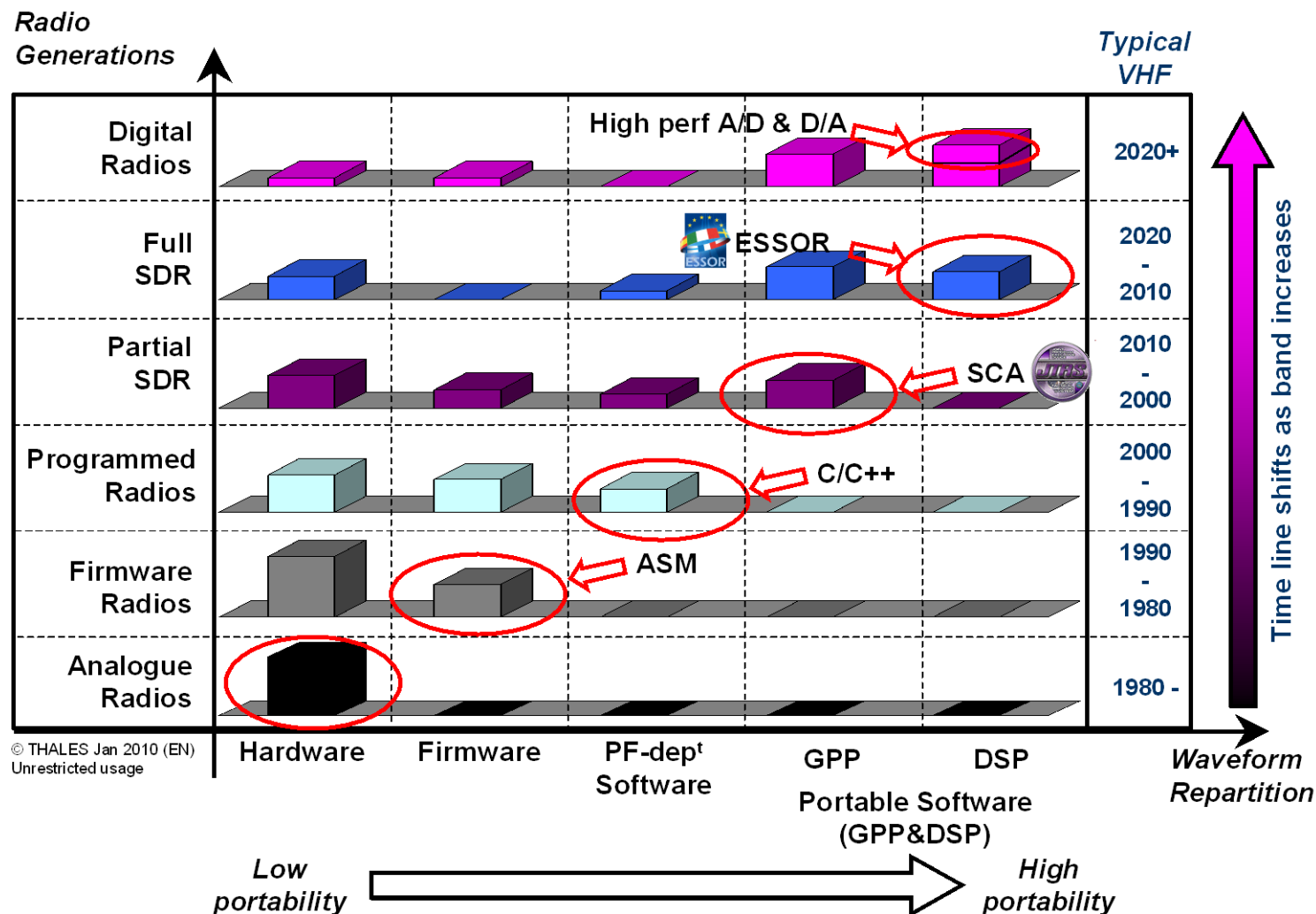
- ◆ **More added value embedded inside the radios platforms**
  - Multi-channels radios generation
  - Cross banding and networking features
- ◆ **SDR Radios are no more seen as a collection of radios channels**
  - End to End network through multiple waveforms



***Importance of Waveforms & Application Software***  
***Efficient WF Portability Solutions required for SDR Business Models***

- ◆ **The extent to which a SDR Waveform available from one party can be efficiently implemented on the SDR Platform from another party**
- ◆ **Expected benefits of high Waveform Portability**
  - Cost of ownership reduction
  - Easier to achieve interoperability
  - New Business Models
- ◆ **Main challenges of Waveform Portability**
  - **Technical** challenges: making portable Waveforms (the core of this talk)
  - **Business** challenges: IPR ownership and licensing options, ...
  - **Security** challenges: security evaluation issues, coalition agreements, ...
- ◆ **Known cases of limited Waveform Portability**
  - Efficient porting of few layers, while most needs full redevelopment
  - The WF of a same vendor on several of its own SCA platforms

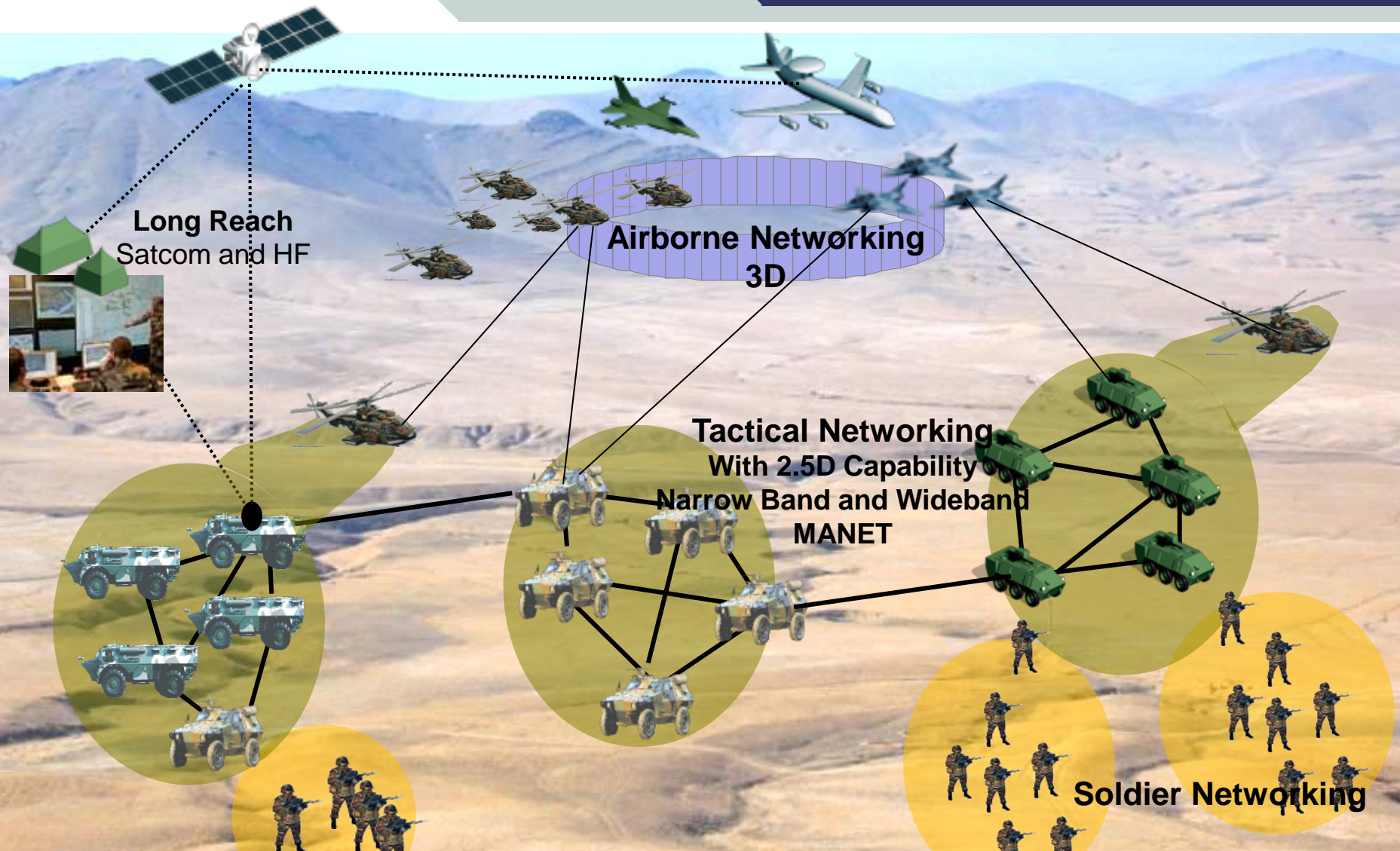
***Trusted Waveform Portability is difficult to achieve,  
and tricky to evaluate***



**Thales is leading migration towards the next step  
Full SDR with large portability coverage**

# THALES AND WF PORTABILITY

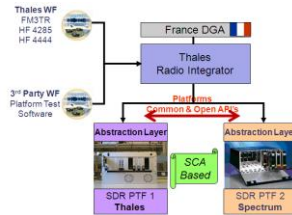




**Multi-WF SDR Platforms capability is a key requirements for NCO transition**  
**Efficiency gains required in R&D and programs to meet end users expectations**

## R&T Experiences

- \* *Fostering the WF Portability vision and roadmap*
- \* *France advanced projects*
- \* *European Projects*
- \* *Supporting International Standards*



## ESSOR Programme

*\*Thales as a major participant*



## Thales Product Lines

**WF :** PR4G-Fastnet, FlexNet, ESSOR HDR, Airborne

**Platforms :** VH, Dismounted, Airborne

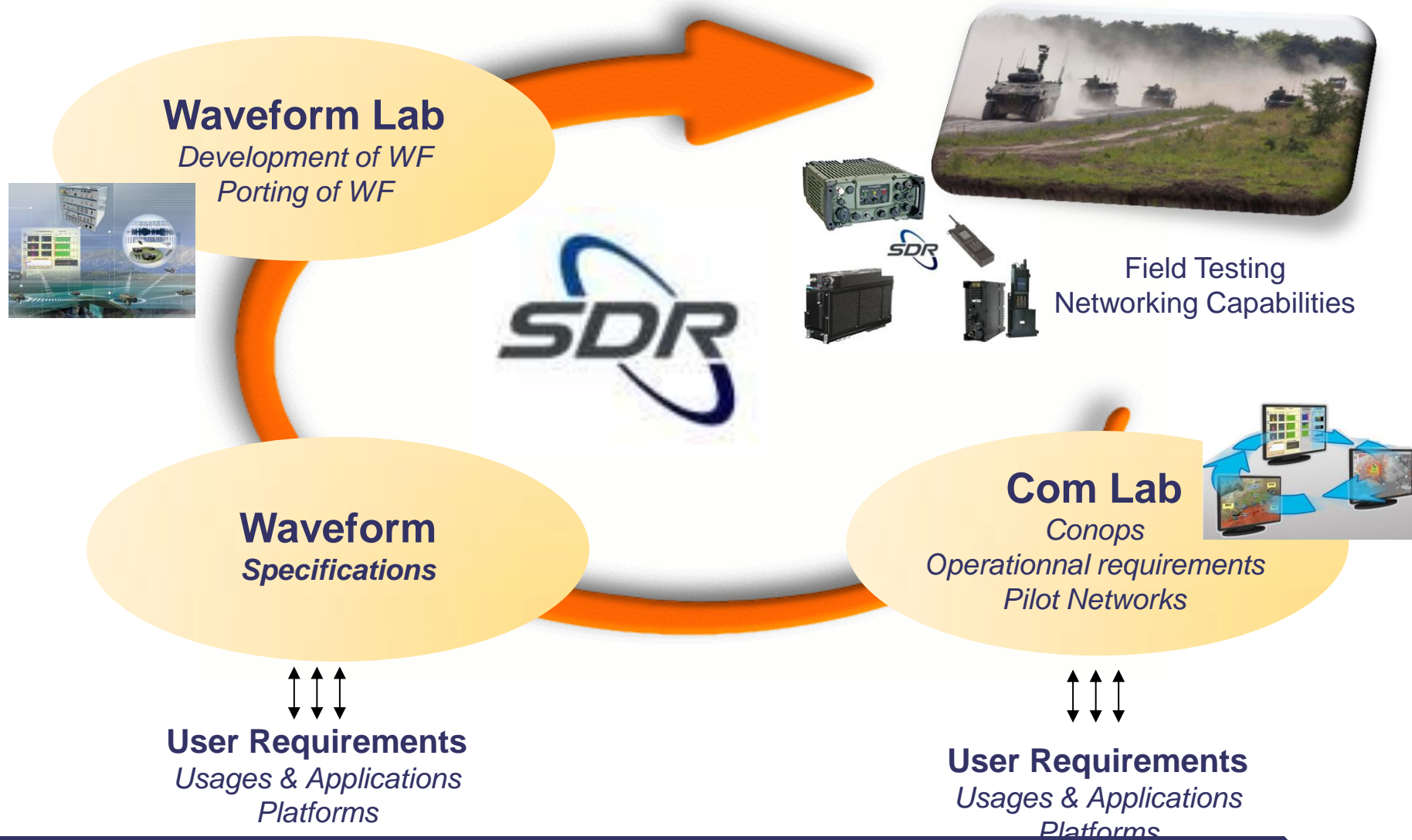
**SDR Waveforms Labs**



## France SDR Programme 3BE Programme

- \* *Multi-services*
- \* *Multi-waveforms*
- \* *Multi-platforms*

**Thales has a unique experience on the International Market**  
**Multi-Waveforms and Multi-Platforms**  
**Multiple SDR porting experiences, with different suppliers origin**



# PERSPECTIVES

## **Thales is highly interested by SCA 4.1, and has actively contributed to its development**

- ◆ Serving in leadership position of the WINNF projects “AEP Improvements for SCA 4.1” and “IDL Profiles Improvements for SCA 4.1”
- ◆ Serving in leadership position of the CC SCA Steering Group and others WG, with proactive action in support of a Standard-driven SDR ecosystem

## **Thales has started to adopt WINNF SDR Standards**

- ◆ The new WINNF policy for SDR Standards is enabling to consider WINNF work products as trustable, openly elaborated and available SDR Standards
- ◆ DSP OEs are already conformant with the WINNF ULwAEP SDR Standard
- ◆ Development Environments will leverage WINNF PIM IDL Profiles SDR Standard

***SCA 4.1 provides some enhancements benefiting to WF Portability***