

SAFRAN 5G TEST BED OVERVIEW

—
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SaT5G Project at a Glance

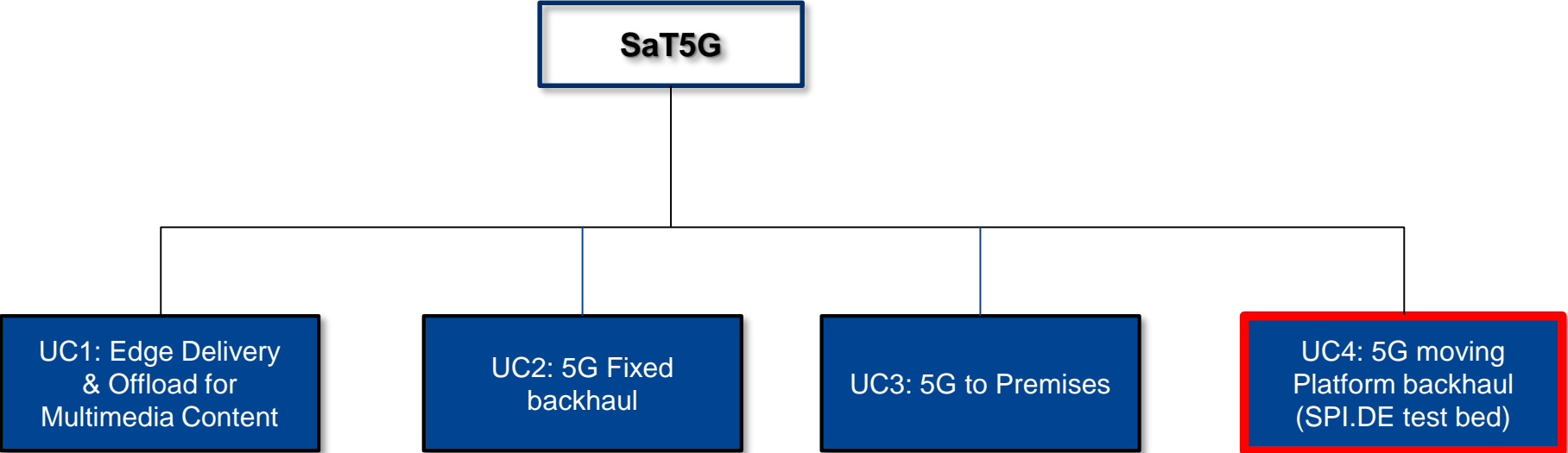
- SaT5G is a H2020 5G Phase 2 Project
- Project duration 30 Months
- Project Budget ~8M€
- 16 partners across 9 different EU countries
- Project start date: 01/06/2017
- The project was granted an extension until the end of February 2020



Satellite and Terrestrial
Network for 5G



SaT5G Use Cases



Safran Test Bed Partners



Safran Passenger Innovations

SES[^]

GEO/MEO
Satellite
Operator

Quortus 

Mobile Core Network
Provider



Satellite Network
Provider



Content Delivery
Networks Provider



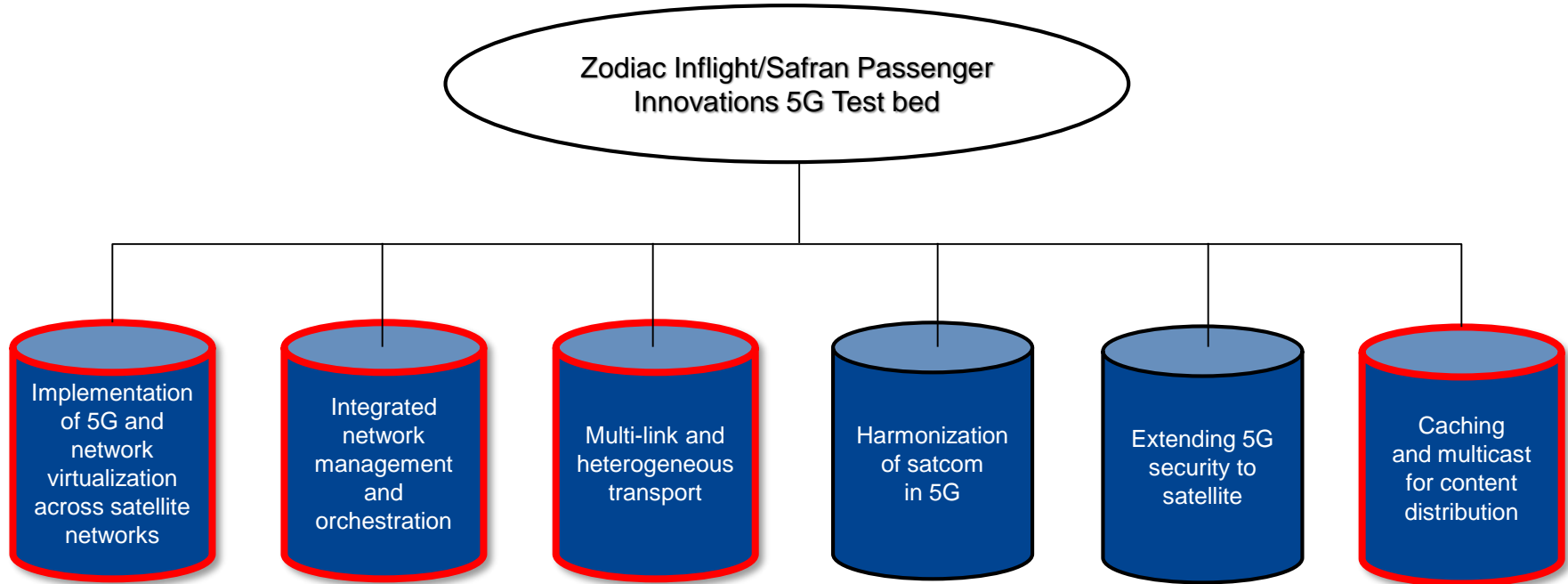
Terrestrial Satellite
Resource Coordination

Use Case 4: 5G Moving Platform Backhaul

- **Updating content for on-board systems and grouped media request by the moving platform company**
- **Broadband access for passengers and individual media requests**
- **Business and technical data transfer for the moving platform company**

High level KPI 5GPPP (from DoW)	Satellite segment	Performance	Caching	Traffic
Service creation in minutes		Service creation time, service modification time, capabilities provided (QoS), solution success rate, functional network entities deployed		
1000x capacity			Caching algorithm efficiency, re-direction algorithm efficiency, origin streaming capacity.	Multicast gain
Increased coverage		Satellite backhaul performance = satellite virtualisation performance		
10x to 100x user data rate	Peak data rate, handover			Multilink performance

Safran 5G Test bed Research Pillars



Safran 5G Test bed Key Features

■ Unified 5G management system

- > Integration of satellite and mobile technologies
- > Multi-layer management of satellite functionalities
- > Multi-layer orchestration of mobile network functionalities

■ 5G satellite-terrestrial system virtualization

- > Satellite system virtualization
- > Mobile network virtualization
- > High degree of integrated system reconfigurability and programmability

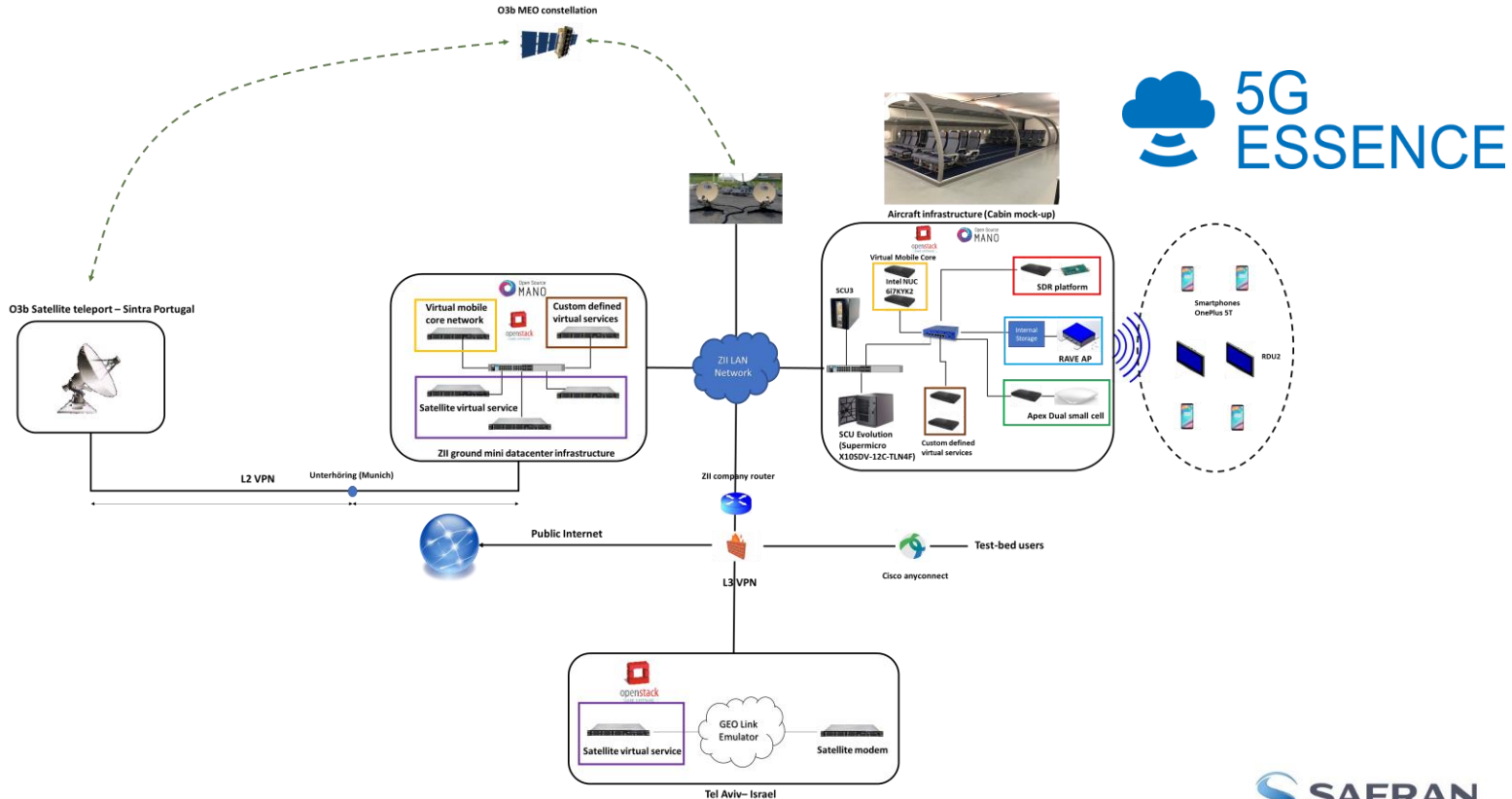
■ Mobile core network and Radio Access

- > Experiment virtualized 4G mobile core
- > Experiment virtualized 5G mobile core network
- > Experiment connectivity of passengers' personal devices

Safran 5G Test Bed for Aircraft Connectivity



Satellite and Terrestrial
Network for 5G



Conclusions



- The SaT5G project use cases and technical pillars were reviewed
- The Safran test bed worked on the integration in 5G and virtualization of a satellite hub system
- The Safran test bed achieved full virtualization of both 4G+ and 5G mobile core networks
- Over-the-air demonstration of Aero use cases over MEO connectivity
- The Safran test bed targets to continue the 5G R&T activities and expand further to other communication technologies



THANKS FOR THE ATTENTION