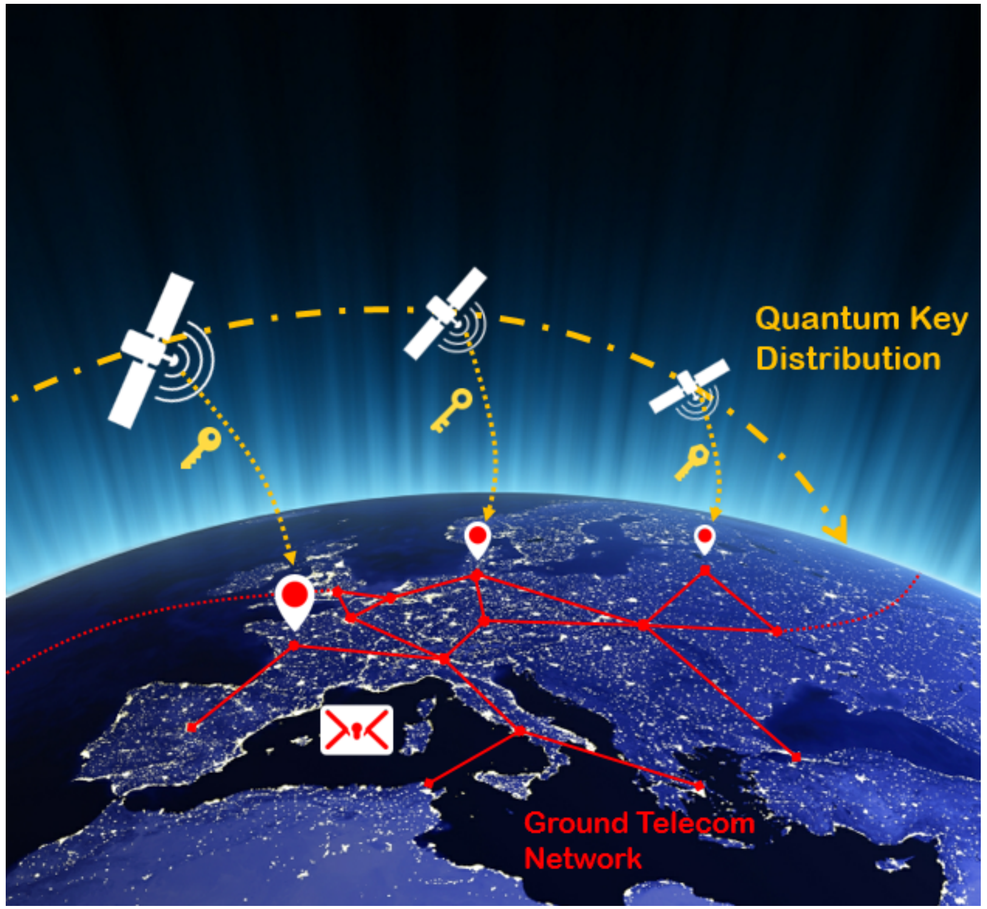
QuSAT: A Swiss QKDS project

A Partnership between:

IDQ & ALTYN

Funded by the Swiss Space Office (SSO)

- Phase 0 completed in 2016
- Phase A kicked-off on 1 May 2017
- Phase A will last 12 months



Phase A: Two Objectives

1 - Technical

To design, develop and deliver a Quantum Key Distribution Service from space via a LEO satellite

- Cost effective
- Reliable
- Secure

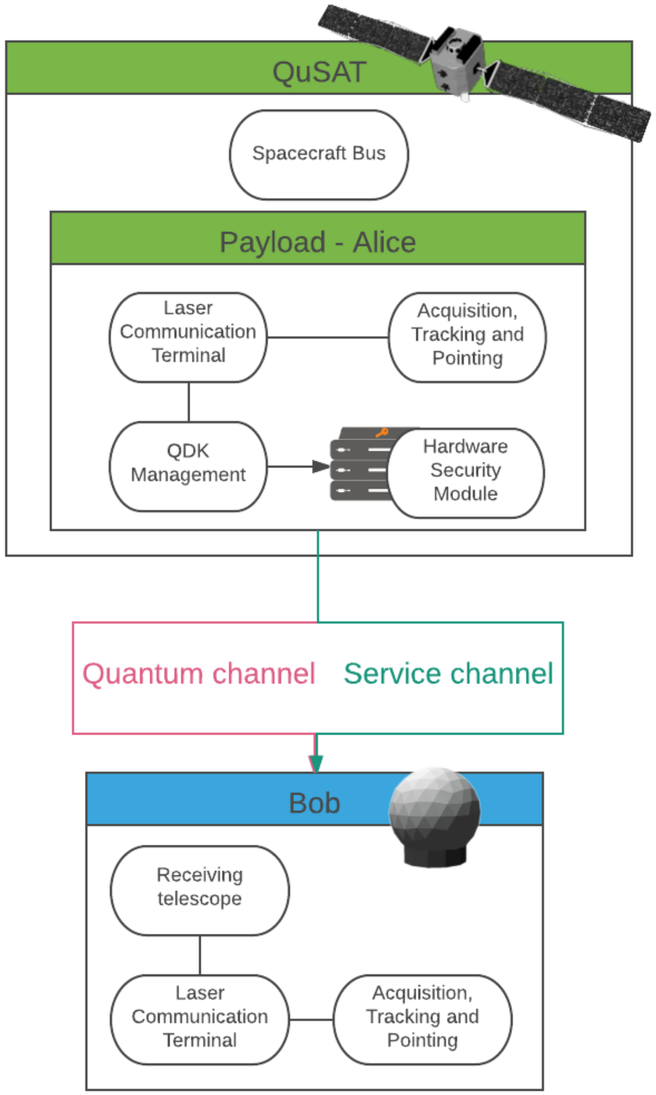
2 - Commercial

To develop a commercial business around QKDS, offering the next generation data encryption capabilities

- Strategic partnerships
- Customer base
- Private Equity

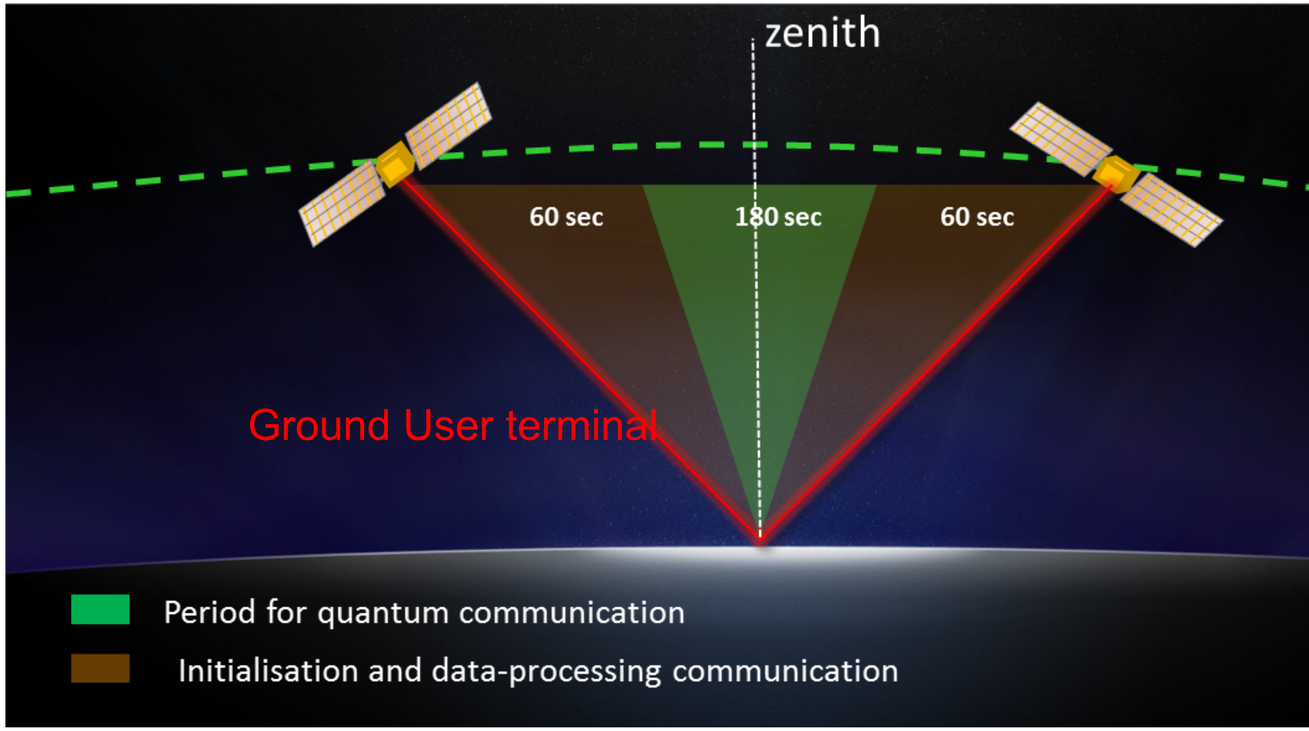
QuSAT Payload Description

- Onboard Laser Communication Terminal (LCT) + Acquisition, Pointing & Tracking System (APT) + qubits generation
  - Data rate: 1 Gbit/s
  - Diameter of the telescope: 70-150 mm
  - Pointing accuracy: 10 μrad
- Ground Receiving Terminals (LCT+APT) + qubits detection
  - Diameter of the telescope: 400-800 cm
  - Adaptive optics (?)
- Key Management & Hardware Security Module (HSM)
- Service Channel (radio or optical)



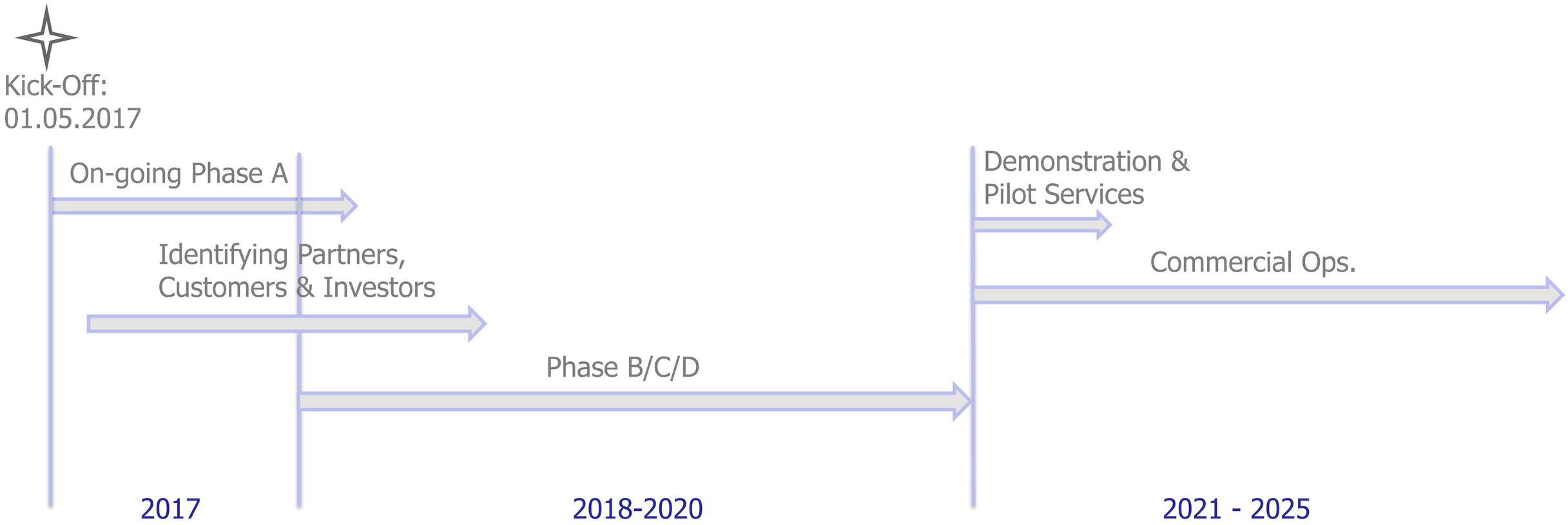
Quantum Keys Exchange Process

- T1: Lock-in & clock synchro (<60 s)
- T2: Quantum Channel: qubits transmission (>180 s)
- T3: Key processing & security verification (…)



A "NewSpace"/ESA-compatible(?) roadmap

QuSAT | Quantum Key Distribution from Space



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