## First Quantum Encryption Satellite

D/TIA partners develop first Quantum Encryption Satellite

On 31st August 2018, the European Space Agency via its Directorate of Telecommunication and Integrated Applications signed a contract to develop the first European Quantum Key Distribution Satellite (**QKDSat**).

QKDSat is a highly innovative project, the first of its kind, which will validate Quantum Key Distribution via satellite technologies.

The contract covers the development of service delivery through a pre-operational deployment, prior to an full global commercial service via multiple satellites in the near future.
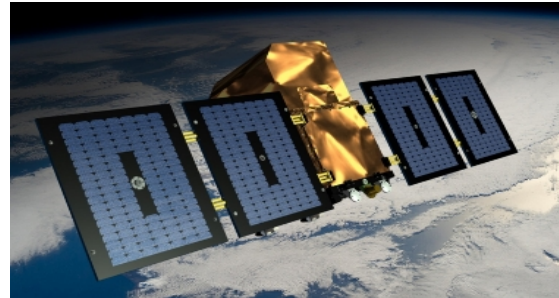
The installation of Ground Optical Communications Terminals to support the projected market needs

The contract will enable the industry of ESA Member States to take the lead in an important, new and growing field of secure communications.


Quantum Key Distribution - Next Generation QKD-secured Cloud

Features
- Creating CI/CD pipelines, application catalogs for containerized applications to Kubernetes environments and managing different cloud platforms;
- Integration with vCloud Director and vSphere (possibility to deploy all components mentioned above to these environments);
- Integration with Software-Defined Storage, utilization of its features such as triplication of data, erasure coding;
- Integration of QKD security ecosystem (starting with true random key generator, secured communication and processes);
- Deployment and testing of a cloud tool, hardware scalability, software-defined storage.

Deployment
- individual virtual machines,
- entire virtualized infrastructure,
- Kubernetes clusters,
- complete IT solutions:
  - whole development stacks,
  - CSM tools,
  - BIG DATA solution.
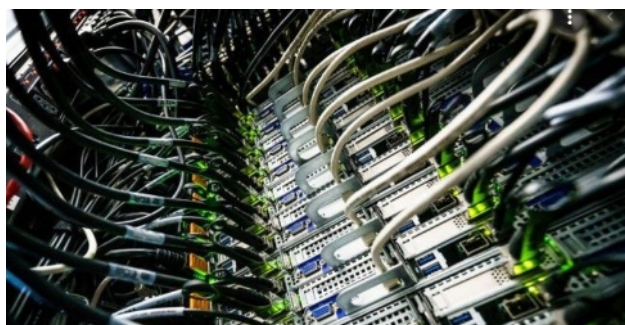
esc QCloud VM 21
- 21x VMware ready virtual machine with maintenance support
- administrator has no data access to the user data
- world-wide technical support: USA, EUROPE
- VM category list
  - 802.1X Radius Server
  - Quantum Key Housekeeping
  - Confidential Document Storage
  - VPN Server
  - iSCSI Storage
  - Encrypted Data Storage
  - BigFile Transfer
  - Office Attendance Record System

Quantum Key Distribution - Hardware Items

Common Features
- Managed by esc Software Criticality C (ECSS-Q-ST-80C)
- MACsec IEEE 802.1AE, GCM-AES-256
- IEEE 802.1X
- Standard ports: 100BASE-TX, 1000BASE-T
- Optional fiber ports: 100BASE-FX, 1000BASE-X
- Dual Power Supply
- 19" Rack Solution

esc QKey Storage 1400, 1430, 1455
- secure erase - content always erased with random data
- optional GNSS time and position protection
- environment housekeeping including optional x-ray detection

esc QSwitch Distribution 2140
- 2x 1000BASE-T ports
- 2x 1000BASE-X SFP-based ports
- 1-4095 VLANs
- Only encryption connections

esc QData Storage
- confidential data storage
- encrypted with quantum key
- decryption possible only with quantum distributed key
- world-wide technical support: USA, EUROPE

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PRICE
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