VICTUS NETWORKS

Fiber Optic Network Deployment

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Agenda

1. Deployment Process |Best practice
2. Submarine Project | Case Study
3. Fiber Optic Operations

Fiber Optic Deployment | Best practice

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Design Validation

- Initial FO design According to Business needs
- FO design Validation According to licensing & Construction restrictions
- Site survey and design handshake with licensing authorities
- Design finalization and approval across the company

Licensing

- Licensing process analysis to define involved authorities
- Completion of Licensing appplication forms including all supporting documentation
- Close follow up of licensing process with resubmissions / updates according to requests
- Collaboration with Public Authorities & EETT for permit approval

Construction

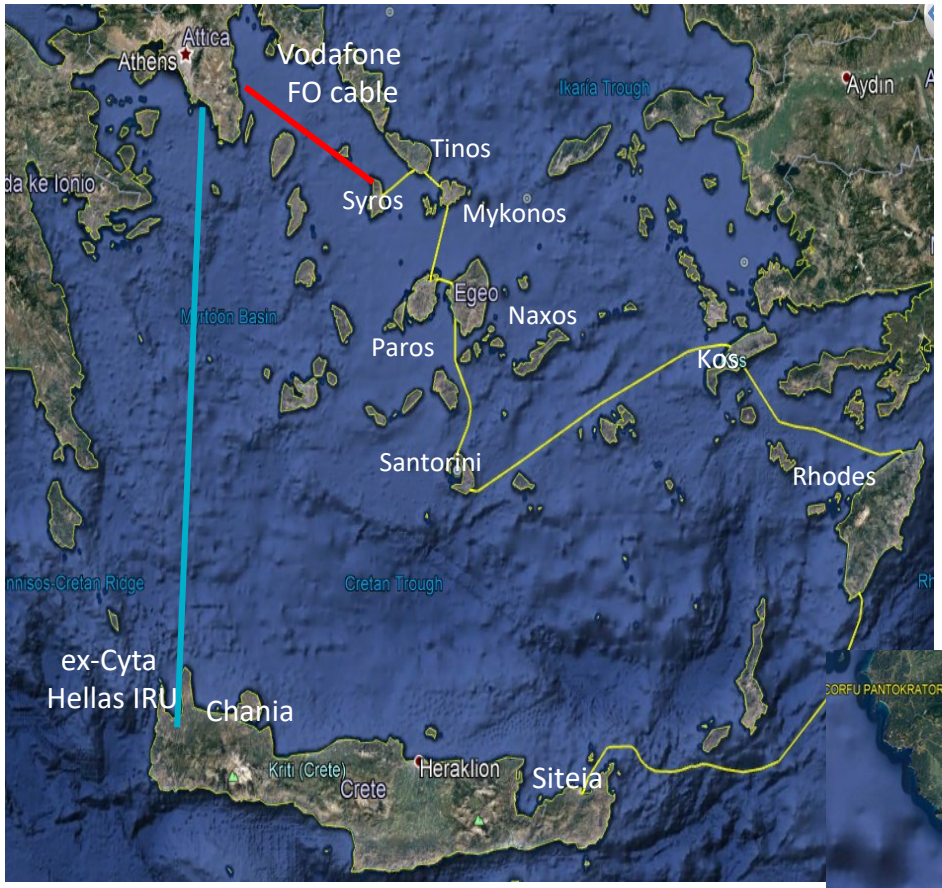
- Assignment to Contractor
- Material Management
- Work schedule for Excavation / Cabling Task (following licensing guidelines)
- On site work supervision, technical approval
- Health & Safety Audits

Activation

- Service analysis for new FON activation
- Work Planning for service activation
- Site folder/As built review, approval
- On Site work acceptance (FON Acceptance form issue)

Deployment Process

Vodafone Submarine Project | Scope



Scope of Vodafone Submarine project

Completion of the optical FO ring in order to connect Aegean & Ionian islands with the mainland:

- Additional capacity of MW links on FTTP
- Fiberization and Backhauling for Cyclades and Ionio
- Advanced telecom services for Retail and Corporate customers

Underwater and terrestrial hybrid FO cables are deployed in order to route Mobile and Fixed traffic from 9 Aegean and 1 Ionian islands to central hubs in Athens

- Submarine fiber length (~670 km)
- Terrestrial fiber length (~820 km)
- DWDM PoPs (26 locations)

Vodafone Submarine Project | Step by Step

Contract preparation

- Define Technical standards of the project
- Technical annexes and special terms and conditions for the RFQ
- Evaluate contractors' offers & contractor award

Submarine Deployment

- Cable Route Study
- Route Marine Survey
- Submarine Licensing
- Marine installation

Terrestrial Deployment

- Site Surveys
- FO Licensing
- FO Deployment

DWDM network activation /Service migration

- DWDM Network design
- Site Surveys at Mobile POP sites
- DWDM Installation/Activation
- Traffic migration

Fiber Optic Operations | Restoration Process

Fault Identification

- Fault events tracking via Fiber Optic Networks monitoring systems
- Bidirectional measurements, with the use of (OTDR)
- Fault distance identification
- Repair crews mobilization to the exact fault's location

Restoration Works

Two Methods of fiber restoration:

- Restoration using the excess optical cable (existing cable)
- Restoration of fiber using a new cable

Fiber Optic Operations | Restoration Process

Post Restoration Actions

- Bidirectional performance measurements, for the in-service fibers
- Reconditioning of cable tags
- Road restoration works according to authorities guidelines
- Update the as built documentation per section
- Complete fault's resolution report
- Formal documentation of the work processed including technical information