

NOKIA

orange™

Orange Tunisia expands subsea capacity with coherent pluggable optics and thin transponders



Strengthening the Africa-Europe optical corridor

Orange Tunisia is expanding its role in the Africa-Europe connectivity ecosystem with a new direct subsea route between Bizerte, Tunisia, and Marseille, France, as part of the Medusa cable system. The new route strengthens Tunisia's position as a digital gateway between Europe, Africa and the Middle East. It adds international bandwidth, improves network resilience through additional route diversity and provides faster, more direct links to major European

digital hubs. These capabilities support cloud services, data centers, internet service providers and the broader digital economy across the region.

To bring the route into service, Orange Tunisia partnered with Nokia to deploy an innovative optical transport architecture combining coherent pluggable optics with a thin transponder architecture, one of the first subsea deployments of this type.



Objective

Deliver cost-effective subsea capacity while preserving path to future scale

Orange Tunisia needed to expand subsea capacity between Tunisia and France in a way that matched current service demand while preserving the ability to scale. Rather than maximize fiber capacity on day one, the priority for Orange Tunisia was to deliver high speed services with lower total cost of ownership, lower power consumption and reduced rack space.

A conventional embedded transponder approach would have supported the 1,370 km subsea link, but it would have exceeded Orange Tunisia's initial requirements. The selected architecture needed to provide the required performance today while keeping open a clear evolution path to higher-capacity embedded transponders in the future.

Key requirements

- Support a 1,370 km subsea route between Bizerte and Marseille.
- Deliver high speed services using commercially available technology.
- Minimize total cost of ownership through a compact, low power, low rack space SLTE design.
- Maintain the ability to scale to higher spectral efficiency.
- Enable subsea-terrestrial integration using a common hardware platform, coherent technology and management system.



Solution

Deliver subsea capacity on a compact, scalable platform

Thin transponder architecture for subsea capacity growth

Orange Tunisia selected a thin transponder architecture built on a compact, expandable modular chassis. This approach provided the most cost-effective fit for the immediate requirements while preserving a path to higher-capacity embedded transponders in the future.

The solution uses Nokia ICE-X coherent pluggables to close the full 1,370 km subsea distance and support the wavelengths required for the Orange Tunisia deployment.

A better fit than embedded transponders for the initial requirement

Conventional embedded transponders provide maximum optical performance, but with higher cost, footprint and

power consumption. For Orange Tunisia's initial capacity needs and the length of the subsea route, this level of performance would have exceeded requirements.

Thin transponders with Nokia ICE-X pluggable optics provide a smaller, lower-cost and lower-power alternative while still delivering the required performance for the 1,370 km subsea route. Figure 1 highlights the differences between embedded and thin transponder architectures.

1830 GX enables current needs and future growth

Nokia ICE-X coherent pluggables operate in the Nokia 1830 GX platform. The same platform can also host Nokia ICE-based embedded transponders, giving Orange Tunisia a clear evolution path to much higher capacity.

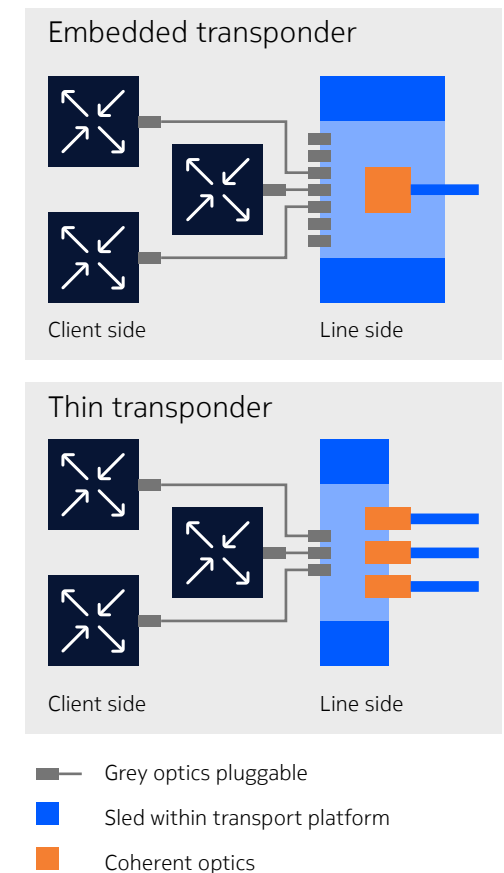
Pluggable and embedded wavelengths can coexist on the same spectrum, enabling a smooth, non-disruptive migration as capacity requirements grow.

Subsea and terrestrial integration

The 1830 GX platform is also used for terrestrial transport. This provides the foundation for an integrated, end-to-end subsea and national optical network under a unified Nokia management environment.

The same 1830 GX equipment supports Orange Tunisia's terrestrial optical upgrades, delivering consistent operations and end-to-end scalability.

Figure 1: Comparing embedded and thin-transponder architectures.



Benefits

Cut cost, power and footprint without limiting growth

Commercially available solution

Although this is an innovative use of pluggable coherent optics in a subsea application, all solution components are commercial and field-proven.

Effective for today's requirements

Given the initial capacity needs and the length of the subsea route, an embedded transponder solution would exceed requirements. The thin transponder architecture delivers the required performance with the following advantages:

~70% lower initial CapEx

~50% lower power consumption

~50% lower footprint

Future-ready platform

The 1830 GX can host Nokia ICE7 and future-generation transponders, allowing maximum fiber capacity levels to be achieved when requirements demand.

Smooth migration path

ICE-X pluggables and ICE embedded optics can operate simultaneously on the same fiber, enabling capacity upgrades without service disruption.

Integrated subsea-terrestrial platform

The same 1830 GX equipment supports Orange Tunisia's terrestrial optical upgrades, delivering consistent operations and end-to-end scalability across subsea and terrestrial network domains.



Why Orange Tunisia chose Nokia

Orange Tunisia selected Nokia because the solution delivers immediate cost, power and space advantages while providing a clear path to multiterabit embedded optical capacity.

Key reasons for choosing Nokia include:

- Global vendor with strong Orange Group alignment
- Low first-in costs using thin transponders and pluggables
- Compact, modular 1830 GX platform
- Significant power savings with ICE-X pluggable optics
- Future scalability to ICE7 embedded transponders
- Coexistence of pluggable and embedded wavelengths for non-disruptive migration
- Subsea and terrestrial integration on a common hardware and management platform

“Nokia gave us a way to launch ViaTunisia with the lowest possible cost, power and footprint, without limiting our ability to scale. The 1830 GX platform lets us grow capacity on our own timeline, and unify subsea and terrestrial operations under one management environment.”

Adel Akrouit, CTO, Orange Tunisie

Nokia OYJ
Karakaari 7
02610 Espoo
Finland

Tel. +358 (0) 10 44 88 000

CID:215593

nokia.com

NOKIA

About Nokia

Nokia is a global leader in connectivity for the AI era. With expertise across fixed, mobile, and transport networks, we're advancing connectivity to secure a brighter world.

Nokia is a registered trademark of Nokia Corporation. Other product and company names mentioned herein may be trademarks or trade names of their respective owners.

© 2026 Nokia