ZYBERSAFE

CASE STUDY
ARE FIBER CONNECTIONS
TO OT SYSTEMS
A SECURE CHOICE?

Secure use of third-party fiber connection services in OT production network enabled by Zybersafe's layer 2 ethernet encryption solution.

The challenge

Off-shore and on-shore production plants in the oil & gas industry are hazardous work environments where security is of paramount importance to the safety of staff and the plant. As a result, it's natural for oil & gas operators to replace on-site support with remote support from centrally placed control centres. However, remote access to industrial systems need to protect the integrity of data transmission in order to prevent 'man-in-the-middle' attacks that could compromise the operation of vital systems in the production plants.

In the age of digitalization, OT data integrity has become a cornerstone of secure remote management and a fundamental element in providing secure authentication, control, and feedback data. The challenge is to protect data integrity when transmitted through areas or networks that are not in full control of the operator. Especially when data is transmitted over external fibres or leased lines between the operator's sites.

Normally, an operator relies on third parties to provide data connections between locations which have established leased lines supplied by various fiber suppliers.

Therefore, the requirement is to protect data integrity during the time where data is outside the operator's domain, until it reaches its destination. When data is outside of an operators' control, there is a risk of compromise or an attack, either due to misconfigured or ill-maintained network equipment or due to malicious acts or human error in the hands of third-party staff.

Furthermore, it is essential that remote support can be done with near-zero latency to ensure access to industrial systems can be done in real-time by off-site staff. If a sensor readout requires the remote supporter to react, they must be able to react as swiftly as an on-site supporter would.

> **"Near zero latency and secure key management in Zybersafe encryption solution enabled us to use third party connection services in our production network"**
>
> Quote from Oil and Gas Operator

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The solution

The answer is hardware-based ethernet encryption.

Zybersafe provides a turnkey solution that ensures active data integrity protection for data in transport. The market-leading, maintenance-free, low latency encryption allows remote operators to have the same real-time access to remote systems as someone on site.

Ultimately, the strength of any encryption solution depends on the confidentiality and unpredictability of encryption keys. Generating unpredictable keys and distributing and storing them while maintaining confidentiality is a challenge to any organization. However, with Zybersafe hardware, AES 256 encryption offers hardware-protected key management and key storage with no human access. The dynamic keys are changed at least every 2 minutes, which results in a fully automated and integrated key administration and storage, which ensures keys cannot be shared with outside parties deliberately or by error.

Zybersafe Trafficcloak Key Features:

- AES256-GCM, the strongest possible algorithm with data integrity protection

- 1, 10 or 100Gbps Full-Duplex real-time encryption speed

- Near-zero latency, 3μs @ 100G

- Maximum key duration 2 minutes

- Minimal configuration required

- No software updates after deployment

- Approved in Denmark for protection level "TIL TJENESTEBRUG", "NATO RESTRICTED" and "EU RESTRICTED

Zybersafe is a Danish company that develops and manufactures market leading hardware-based encryption for Ethernet connections. Place of Development and manufacturing is Denmark only. Zybersafe provides three models that encrypt point-to-point Ethernet connections at 1Gbps, 10Gbps and 100Gbps capacity respectively.

Zybersafe has customers in the healthcare sector, in the oil and gas sector, in the industrial sector and in the defense sector. The Danish Centre for Cyber security has approved Zybersafe's 1 Gbps and 10 Gbps encryption models for the protection of information classified for: "TIL TJENESTEBRUG", "NATO RESTRICTED" and "EU RESTRICTED". The company was established in 2014 and is part of the Zibra Group.

Greater security, Greater simplicity, Greater savings