



e-lighthouse

Value Proposition for Defense Networks

E-lighthouse Network Planner



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1. Who we are

E-lighthouse, founded in 2017 in Cartagena, Spain, by experts from the telecommunications industry and academia, originates from a prestigious R+D group specializing in network planning. With more than 25 years of experience in IP and transport networks, the company has consolidated a model focused on innovation and optimization, standing out in international research projects. Their team combines deep technical knowledge with a customized approach to meet the specific needs of their customers, especially in critical sectors such as the military, where network efficiency and security are essential.

Our flagship product, E-lighthouse Network Planner (ENP) is an advanced transport network planning and analysis tool that enables civil and defence network operators to size, analyse and manage their networks efficiently and securely. Developed from more than 40 years of experience in network optimization, the ENP integrates multi-layer simulation and analysis, resource optimization, and incident prediction capabilities, providing a flexible and robust solution to ensure operational continuity in complex scenarios. With an architecture designed to adapt to customer needs, the ENP offers a comprehensive platform that contributes to the modernization and resilience of network infrastructures.

2. Value proposition

The ENP provides a number of key benefits for defense networks:

a. Failure analysis and event simulation capability

- What-if analysis: simulation of failure and traffic scenarios, including possible disruptions due to planned or unplanned events, such as security breaches, infrastructure attacks or cyberattacks.
- Identification of critical points in the network with recommendations to improve resilience.
- AI-based traffic prediction functionalities, anticipating overloads or failures before they occur.

b. Secure network modernization

- Update planning: simulating updates to assess their impact before deploying them.
- Integration with advanced SDN (Software Defined Networking) and NFV (Network Function Virtualization) technologies to make the operation more flexible and automated.
- Data protection and secure access functions through advanced authentication and support for secure networks.



c. Multilayer architecture

- Integrated visualization and analysis of IP networks and services, and the optical and microwave transport networks that support it, on a single platform.
- Integration of data from heterogeneous networks with equipment from multiple manufacturers, ensuring technological independence.
- Resource optimization and QoS simulation tools to ensure critical communications on demand.

3. Use cases for the Defense sector

- Design of high-criticality networks: use of optimization algorithms and planning of high-criticality networks, considering strict and specific constraints.
- Analysis of safe routes: high-precision simulation to guarantee the availability of safe routes in emergency situations and evaluation of the resilience of the networks, with a multi-layer vision.
- Critical infrastructure assessment: vulnerability assessment and containment measures planning using controlled test scenarios, with solution suggestions and detailed reports.
- Greenfield/brownfield network capacity planning through powerful AI algorithms, updates with BoM reports and budget analysis from several different suppliers.

4. Technical highlights

- Digital twin network using powerful traffic simulation and prediction algorithms with zero risk for traffic in the real network, enabling analysis and sizing with strict requirements for fault tolerance and resiliency.
- Web interface and RESTful API: remote access through open interfaces for integration with existing network management systems.
- Reports and dashboards with network status, availability analysis, bill-of-material, network costs, energy budget and complete data tables for a perfect analysis of network resources.
- Modularity and custom plugins: extension of capabilities through modules tailored for specific functionalities, such as OTN network analysis and traffic demand prediction.

5. Why choose ENP?

- Flexibility and customization: ad-hoc development that allows the specific needs of the military customer to be met.
- Powerful customized reports: allowing the analysis of network failures, analysis of KPIs such as latency, number of hops, optical degradations, etc., CAPEX and OPEX for optimizations and upgrades and energy cost of the proposed solutions.
- Security and resiliency: implementation of advanced controls to avoid single points of failure and maintain operational continuity.
- Multivendor compatibility: The ENP can work with multi-vendor infrastructures, eliminating reliance on proprietary solutions.



6. Conclusion

E-lighthouse Network Planner is presented as a strategic solution for the secure modernization and optimized planning of defense and high-availability and critical networks. Thanks to its advanced analytics capabilities, modular approach, and integration with the most innovative paradigms, it enables superior control of communications and strengthens the resilience of the transportation network against cyber and operational threats.

7. Additional References

- [ENP datasheet.](#)
- [ENP Collections: videos on failure analysis, "what if" simulation and others.](#)
- [E-lighthouse Network Solutions website.](#)
- [LinkedIn of E-lighthouse Network Solutions.](#)



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