

1 Distributed logistics

Modern military operations require to decrease the risk related to the execution of logistic operations. For this purpose, it is recommendable to avoid large warehouses keeping large inventories, supplied via optimal routes. Rather, one wants an almost continuous flow of small amounts, through a highly diversified set of routes. This makes more difficult to intercept the transportation means and reduces the risk for the personnel.

The desing of distributed logistics systems originates several interesting optimization problems. For instance:

- Selection of the optimal path, when a single operator has to reach a single destination at minimum risk.
- Diversification of a set of optimal paths, when the same as above occurs periodically and the path must be not only optimal but also difficult to predict.
- Design of distributed logistics networks, optimally locating the facilities and optimally sizing the amounts to be transported between them and the transportation frequency. Multi-period variants are of interest as well as multi-objective formulations.

Adatto a tesi di laurea.