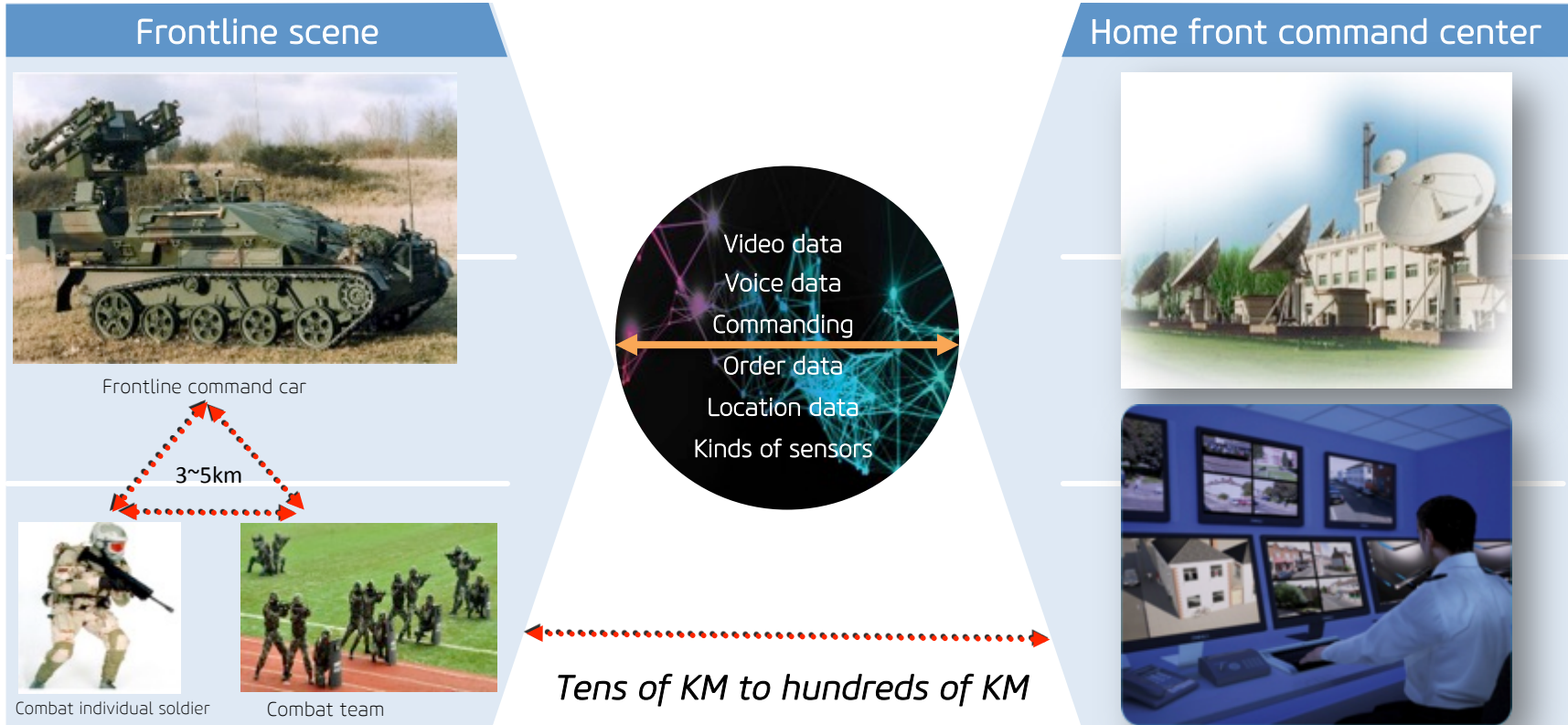


# SATELLITE MILITARY APPLICATION

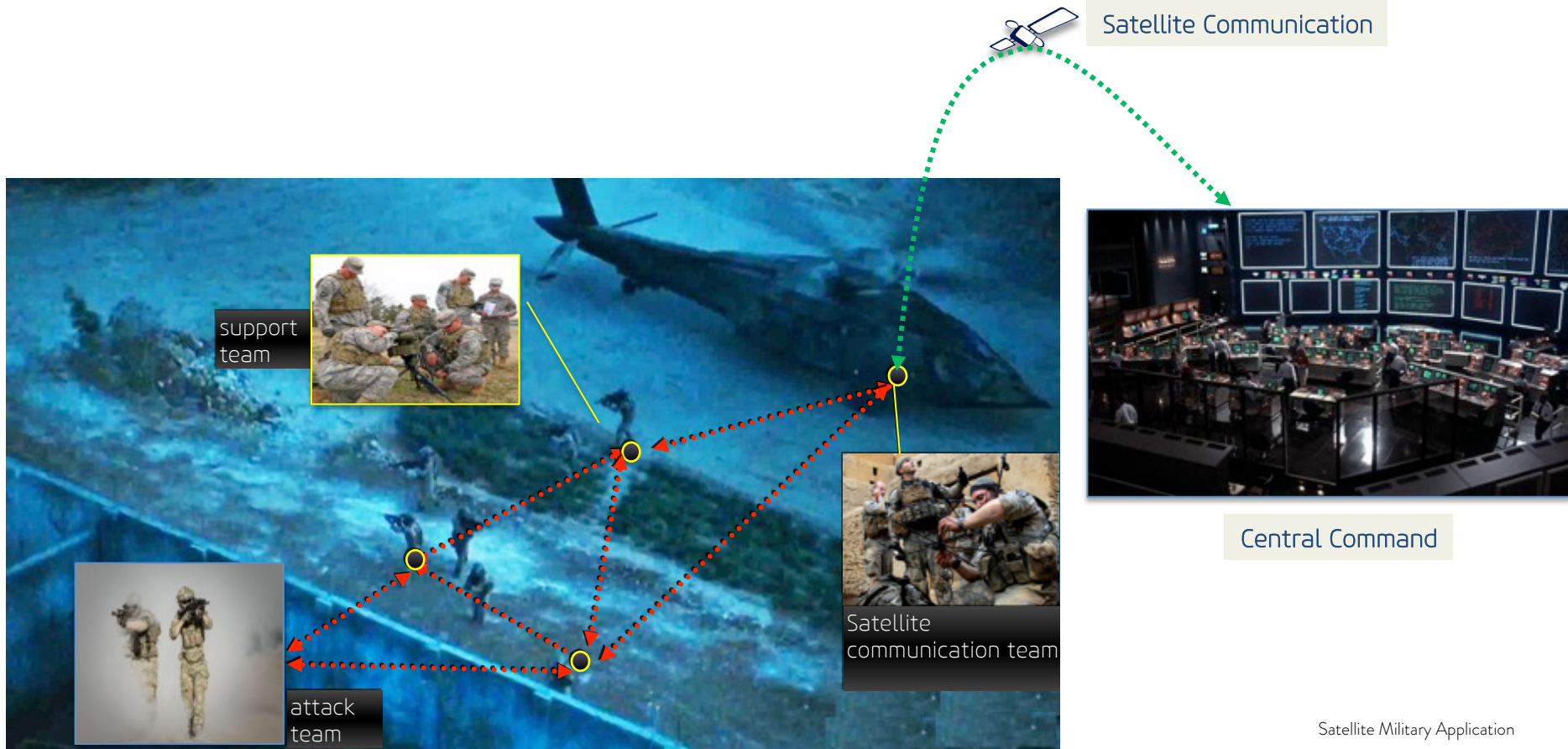


# Mobile Ad Hoc Network



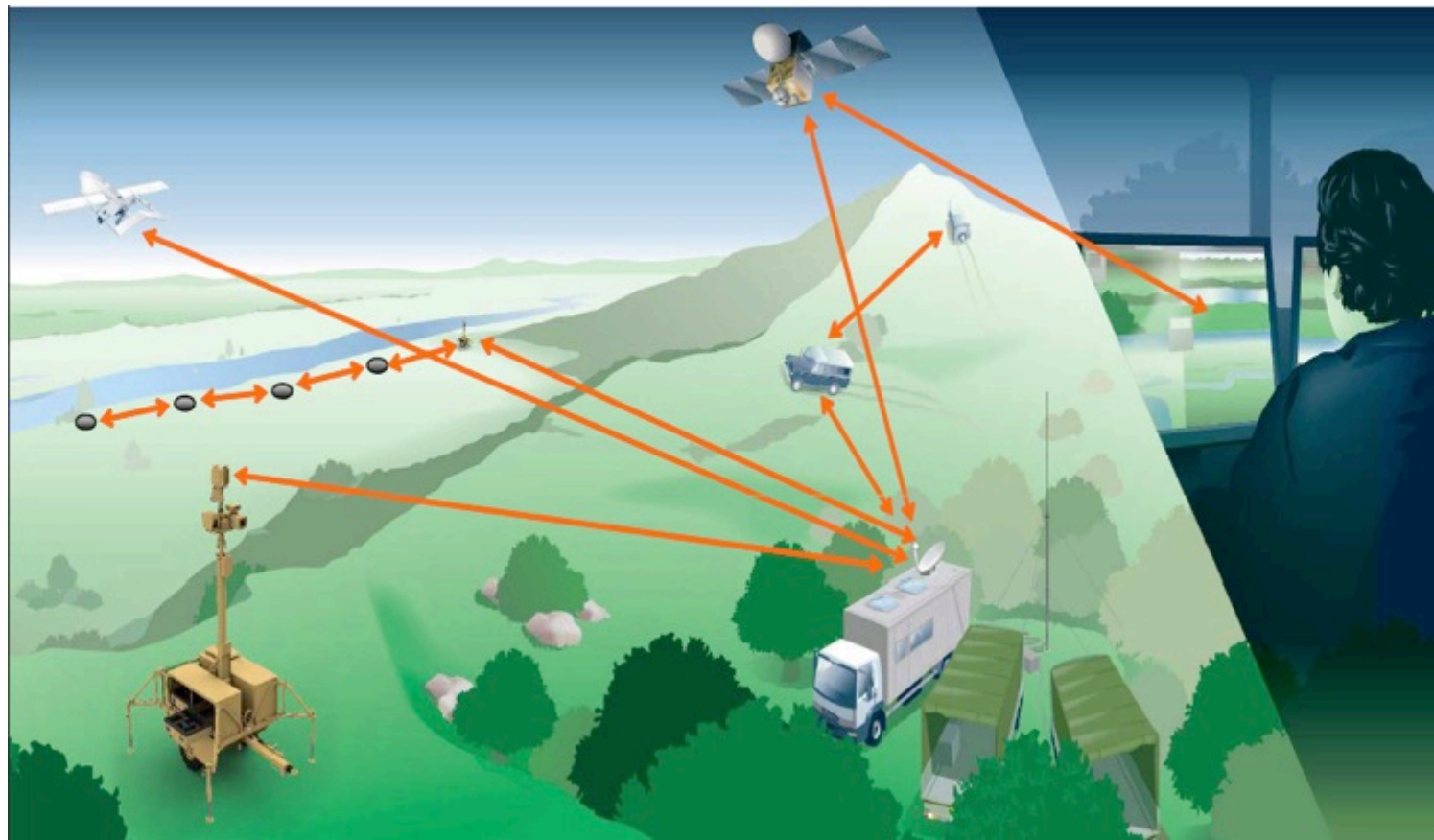


# Application scenarios of army-combat anti-terrorism



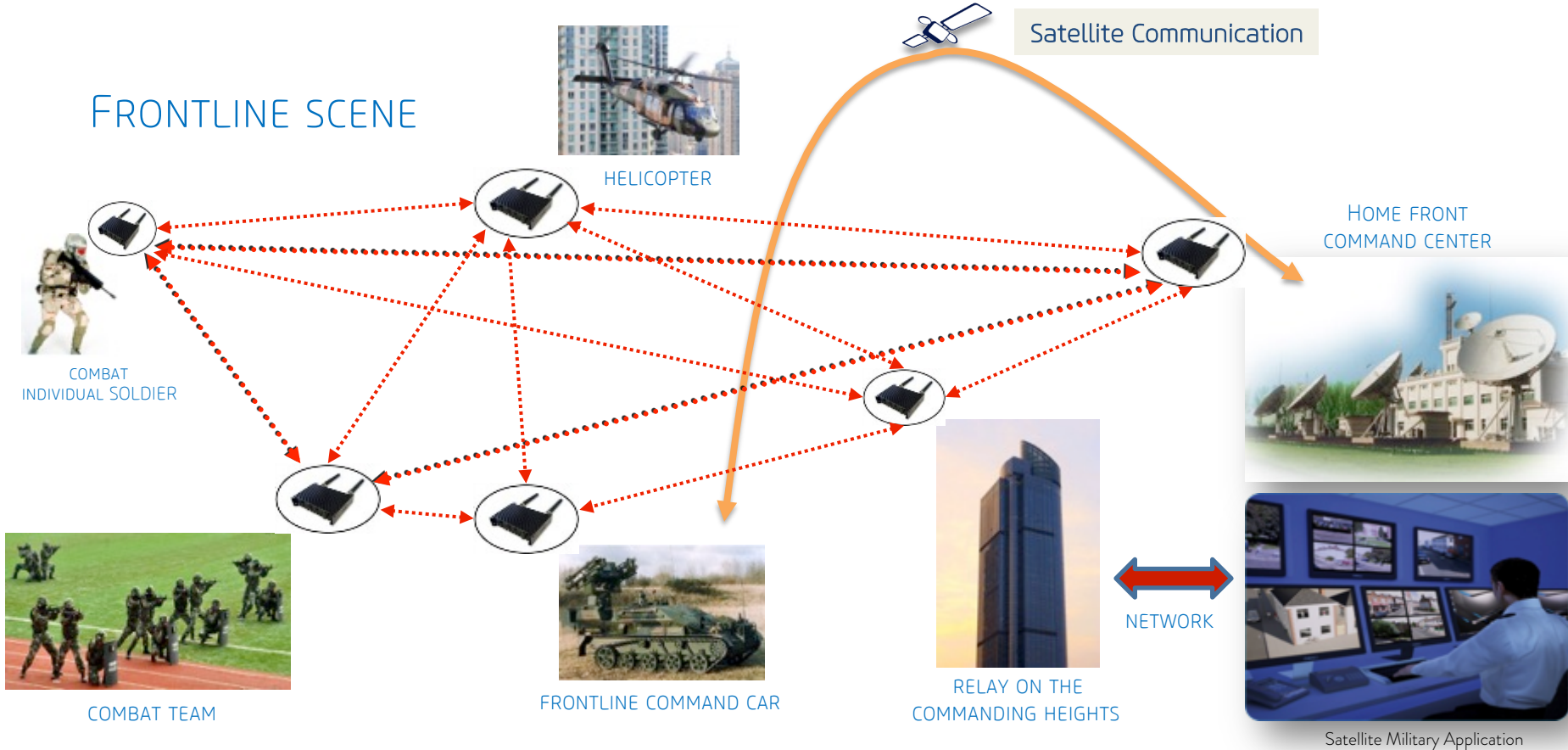


# The demand of border defense

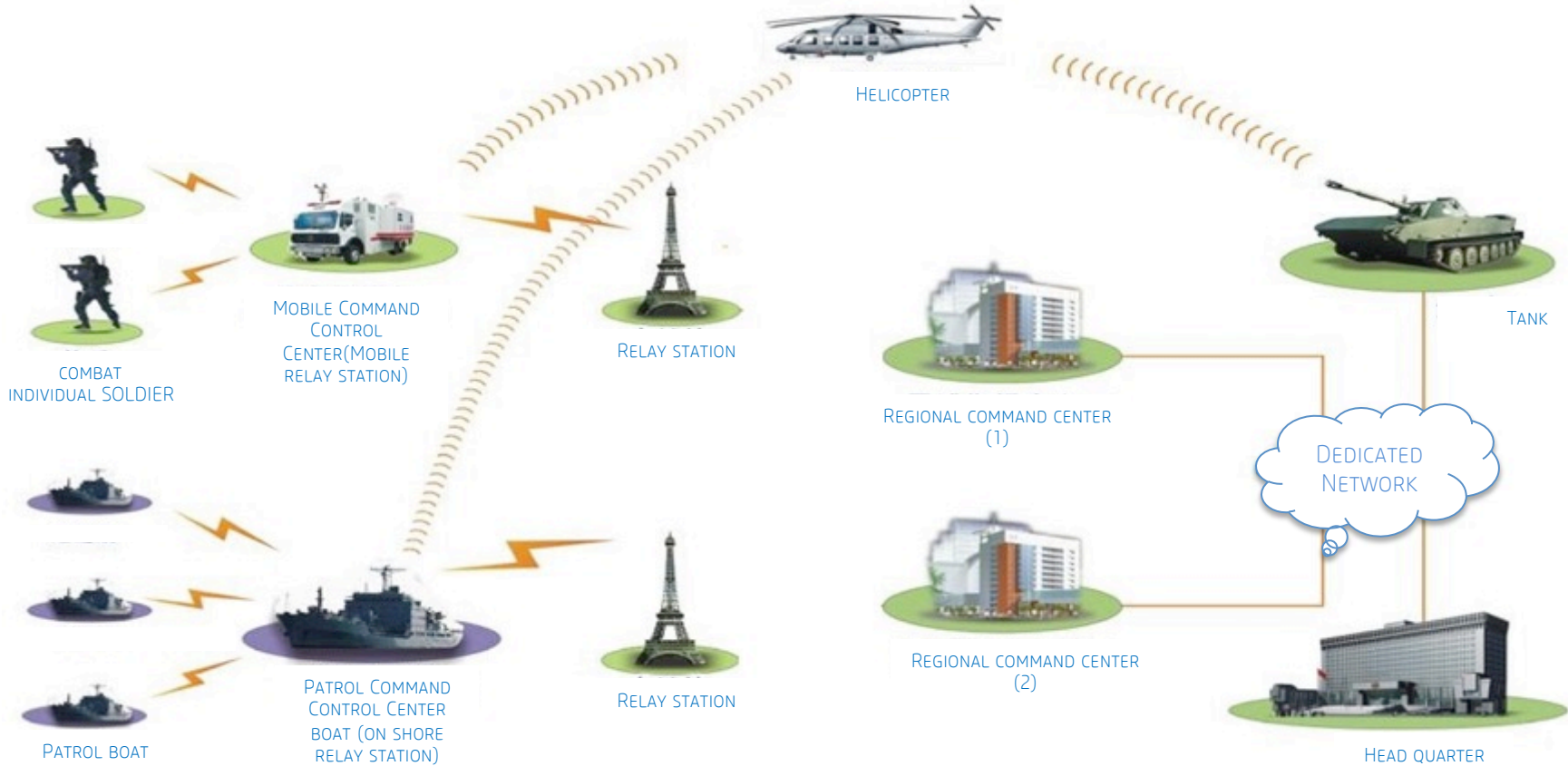


Data link of border defense lead to patrol on different airspace with 3-D

# Solution to Anti-terrorism and Maintenance of stability



# Solution to Mobile Ad Hoc Network

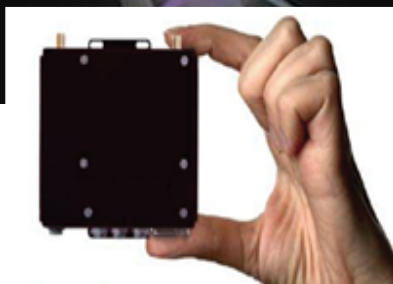


MULTI-NODE AND NON-STATIONARY MOBILE AD HOC NETWORK IS THE BEST SOLUTION TO CONNECT MOVEMENT PLATFORMS AND PERSONNEL IN LOS/NLOS ENVIRONMENT. CONNECTING MULTI-NODE TO COMPOSE A HIGH BANDWIDTH, LONG DISTANCE, NLOS AND SECURITY WIRELESS NETWORK.



## OUTDOOR TYPE

- PROTECT LEVEL: IP66 CASE
- SMALL SIZE 160 \* 180 \* 65MM
- 2W TRANSMITTING POWER
- ONLY 18W POWER DISSIPATION (2W NOMINAL POWER)
- DOUBLE ETHERNET PORTS



## MINI TYPE

- INDIVIDUAL BEARING
- 100MW TRANSMITTING POWER
- SMALLER SIZE
- LIGHT WEIGHT
- DOUBLE ETHERNET PORTS



## HAND-HELD TYPE

- 2W TRANSMITTING POWER
- IP66 PROTECT LEVEL



## No-center rapidly Mobile Ad Hoc network



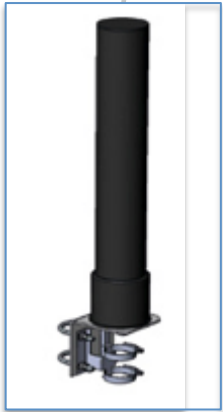
- WITHOUT BUILDING COMPLEX CENTER BASE STATION
- WITHOUT COMPLEX SYSTEM CONFIGURATION
- AUTOMATIC NETWORK BUILDING WHEN POWER IS ON. BUILDING COMMUNICATION IN SECONDS

## Simple structure & Integrated design



- AD HOC NETWORK NODE
- ANTENNA
- BATTERY
- MINI CAMERA & VOICE DEVICE

Antennas



OUTDOOR HIGH GAIN  
OMNIDIRECTION ANTENNA



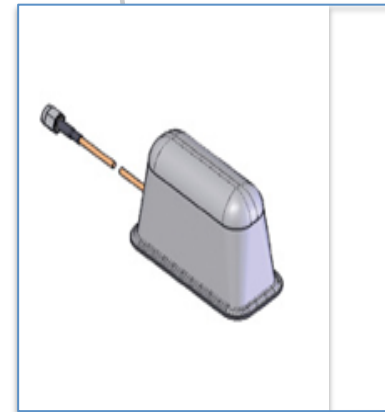
SHIPBORNE ANTENNA



VEHICLE ANTENNA



PORTABLE BENDABLE ANTENNA



HIDDEN ANTENNA

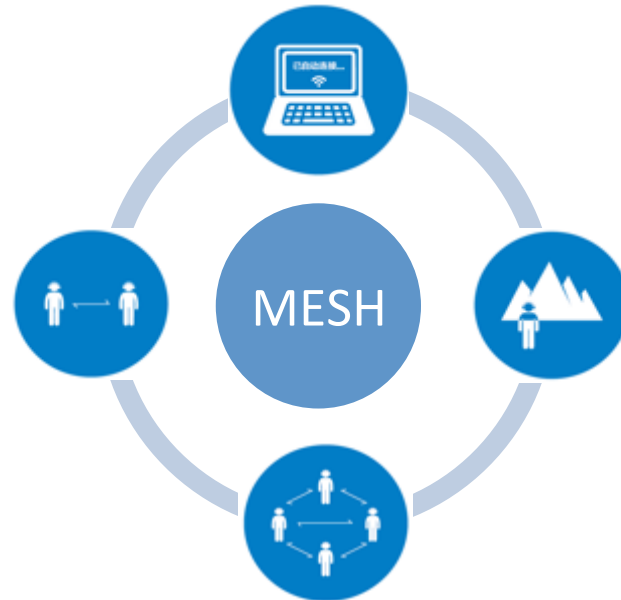
Satellite Military Application

- INDEPENDENT OF NO THIRD PARTY AND MUNICIPAL GRID
- NO-CENTER,SELF-ORGANIZATION,SELF-HEALING
- ADAPT TO QUICKLY MOVEMENT OF EACH NODE,FAST TRANSFORMATION OF NETWORK TOPOLOGY

- EXCELLENT PERFORMANCE OF NLOS
- SATISFY THE COMMUNICATION REQUIREMENT

IN THE COMPLEX ENVIRONMENTS

- RAPIDLY SPREAD AND DEPLOYMENT
- BETTER PORTABLE FEATURES
- NO FOLLOW-UP BROADBAND COST

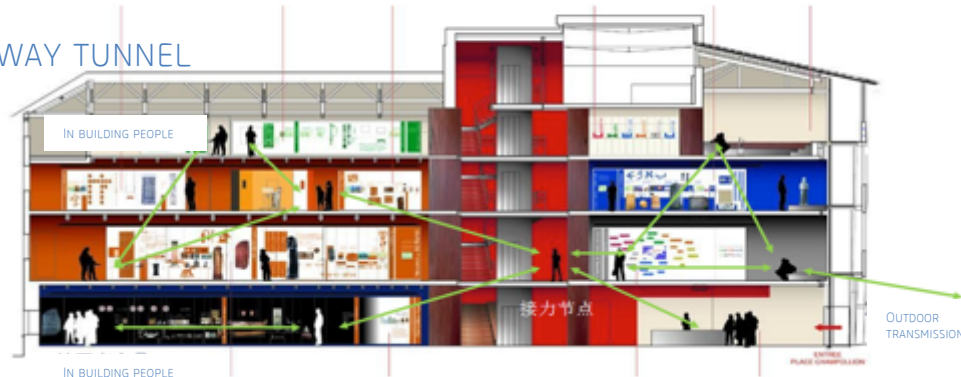


## Excellent LOS transmission capability

- BOTH-WAY COMMUNICATION BETWEEN PERSONAL INSIDE AND OUTSIDE THE BUILDINGS
- TAKING FULL ADVANTAGE OF DIFFRACTION AND REFLECTION IN MULTIPLE TRANSMISSIONS
- COMMUNICATION BETWEEN INSIDE AND OUTSIDE OF BASEMENT AND SUBWAY TUNNEL

## Automatic relay transmission

- EXTENDING THE DISTANCE OF COMMUNICATION
- RAPIDLY ARRANGE UNATTENDED NODE IN DEAD SPACE OF COMMUNICATION





## CODED OFDM

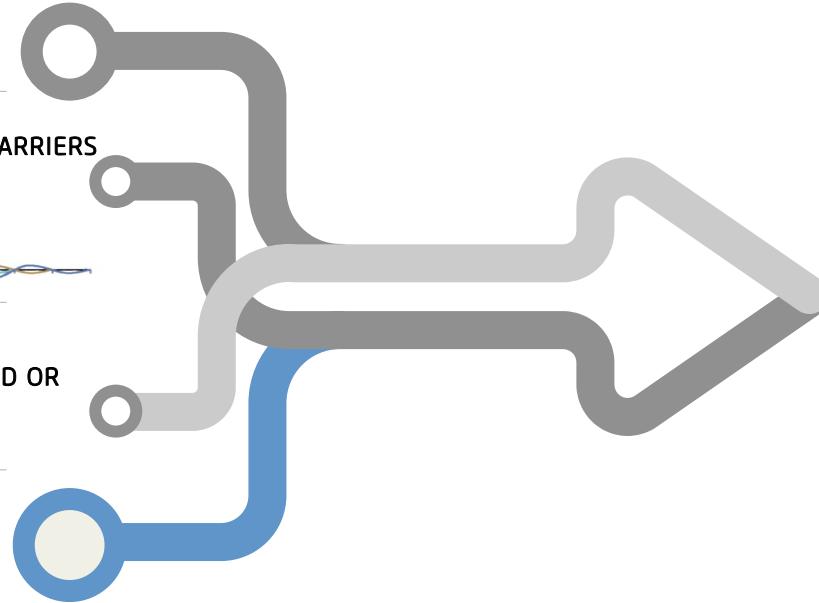
$$\nu(t) = \sum_{k=0}^{N-1} X_k e^{j2\pi kt/T}, \quad 0 \leq t < T,$$

MODULATE DATA TO MULTIPLE SUBCARRIERS



EVERY SUBCARRIER CAN BE MODULATED OR ENLARGED SEPARATELY WITHOUT THE EFFECT OF OTHER SUBCARRIERS

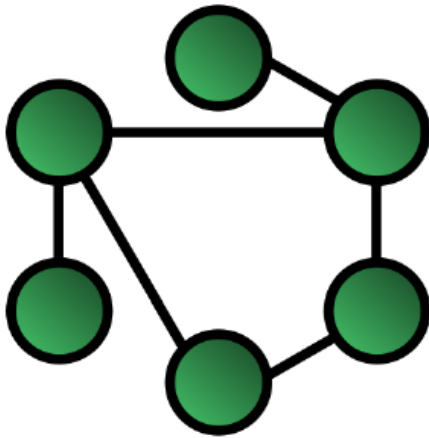
IMPROVE THE CARRIER'S ABILITY OF REDUCTION AFTER NLOS MULTI-ACCEPTANCE



*COFDM  
Modulation  
technology*

### Rapidly organization of network topology

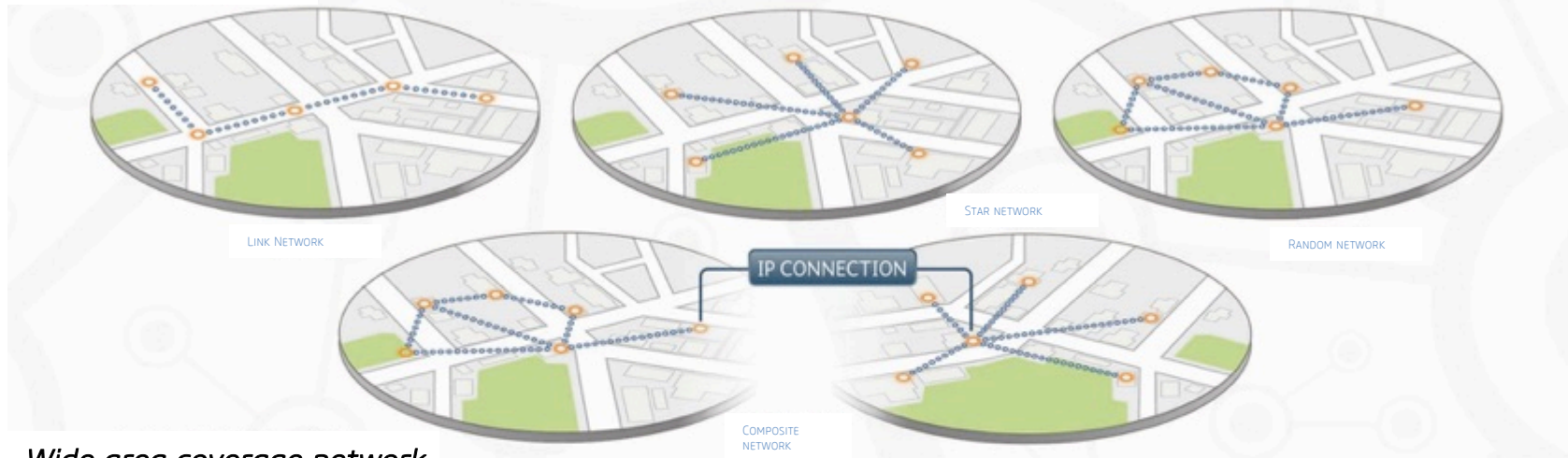
- DISTRIBUTED MAC PROTOCOL
- ALL NODES ARE ON EQUAL FOOTING
- DISTRIBUTED CONTROL SYSTEM,
- NO CENTER NODE



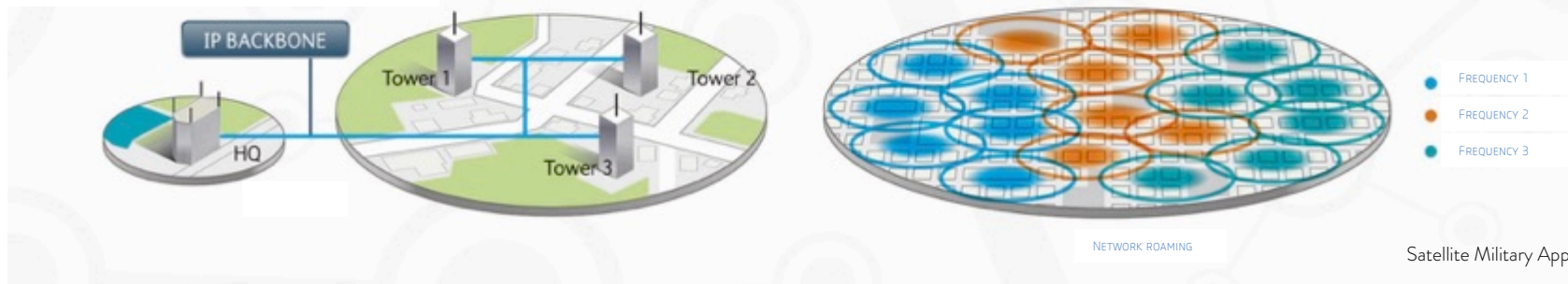
### Automatic relay transmission

- EACH NODE CAN GET THE DETAIL INFORMATION OF EACH LINK IN THE NETWORK

## Network topology



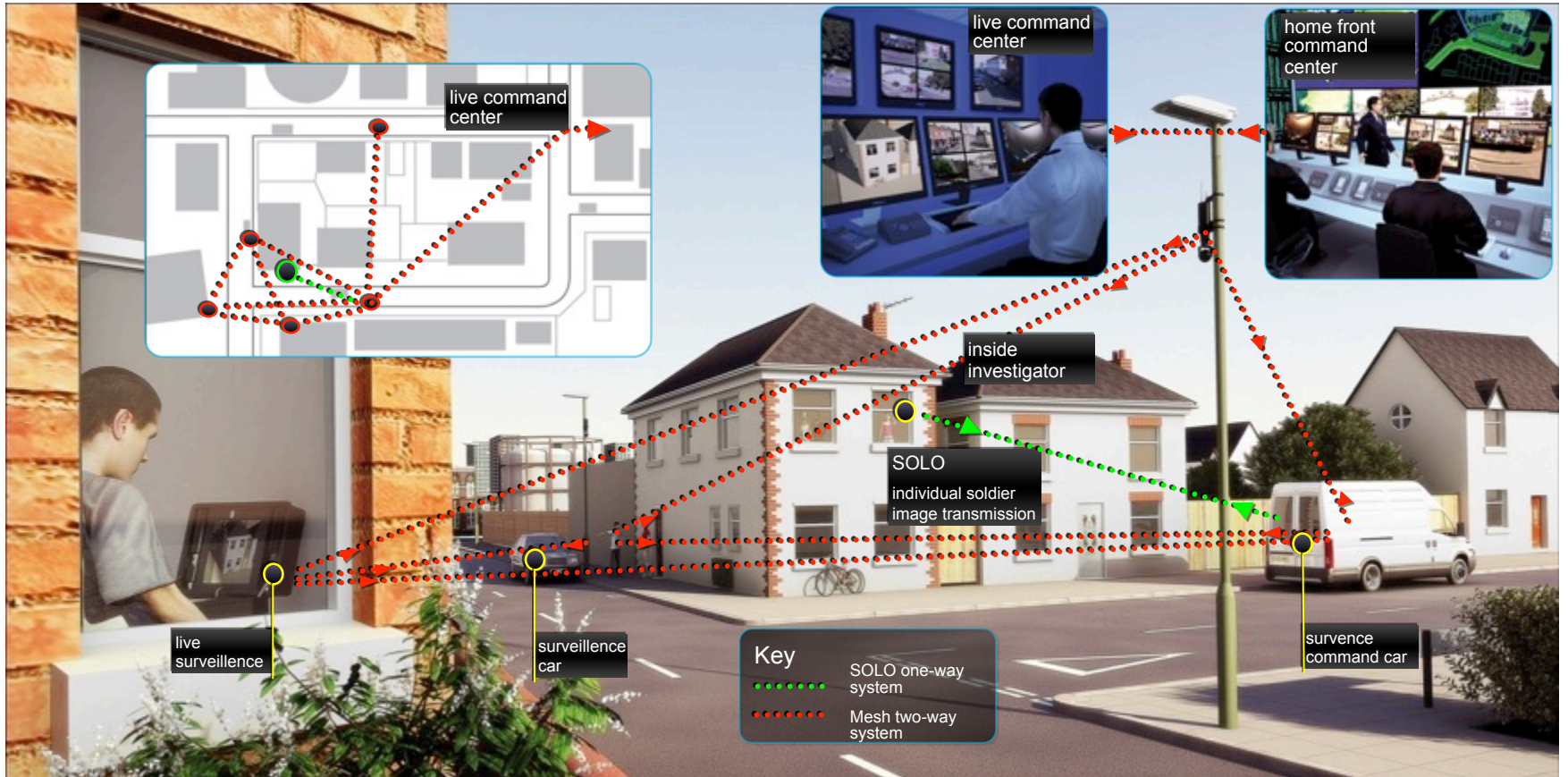
## Wide area coverage network



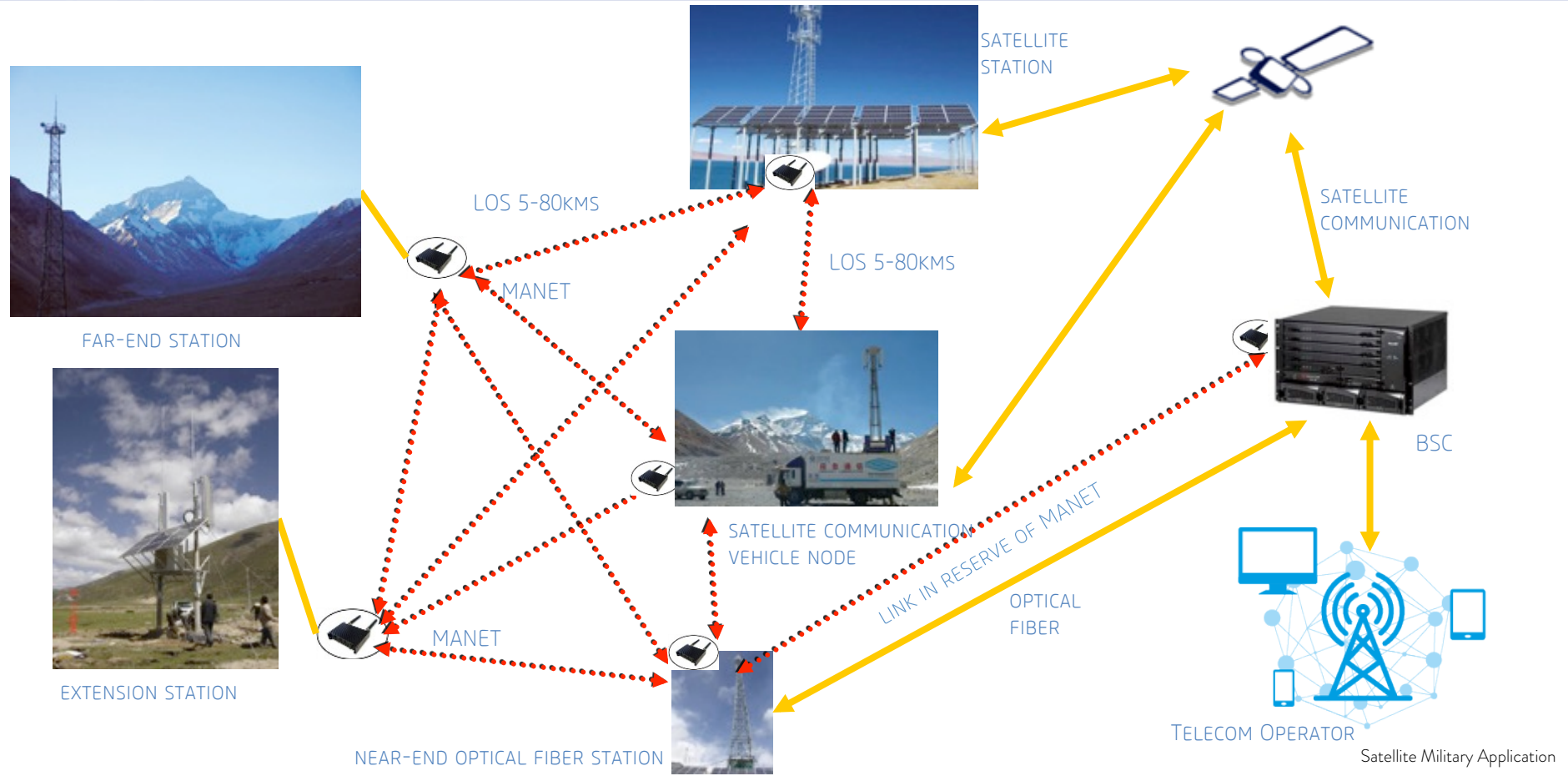
# Application scenarios of the protection for large-scale events

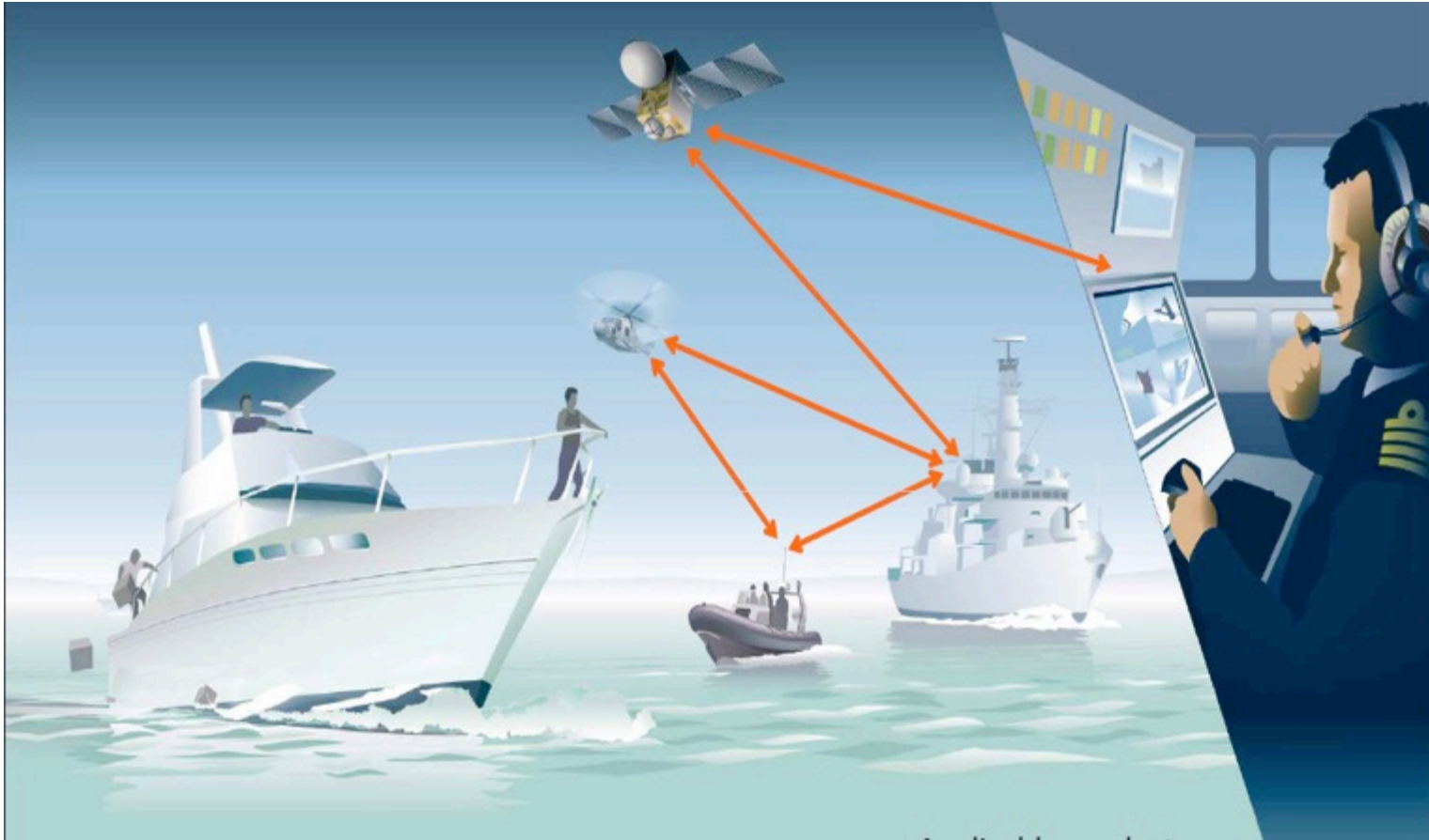




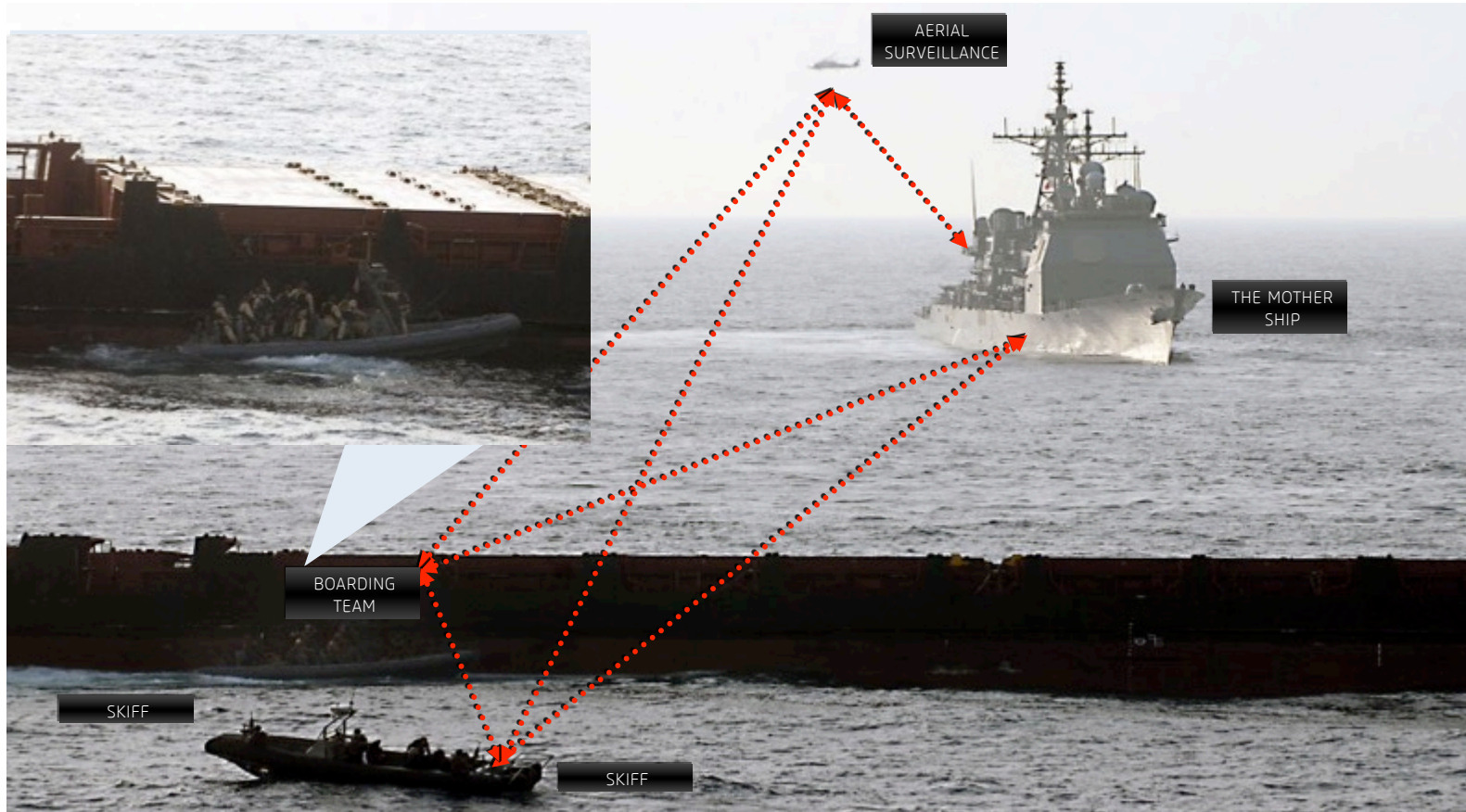


# Application scenarios of Operator













**Please contact Hermesys for  
more technical details**



Thank you

[www.hermesys.it](http://www.hermesys.it)