

MANET

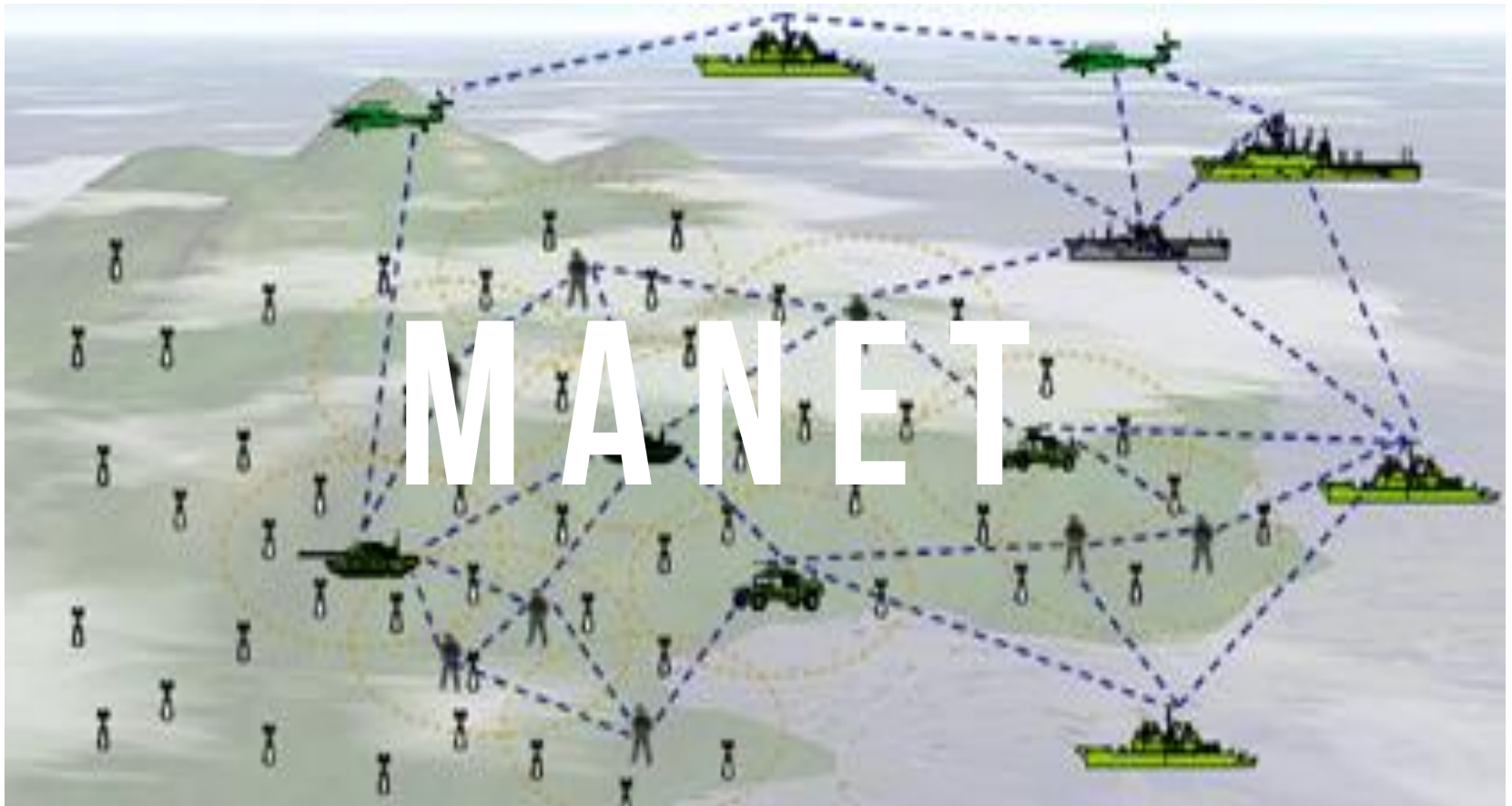
[MOBILE AD HOC NETWORK]

21ST CENTURY COMMUNICATION EXPECTATION

ANYWHERE 24/7



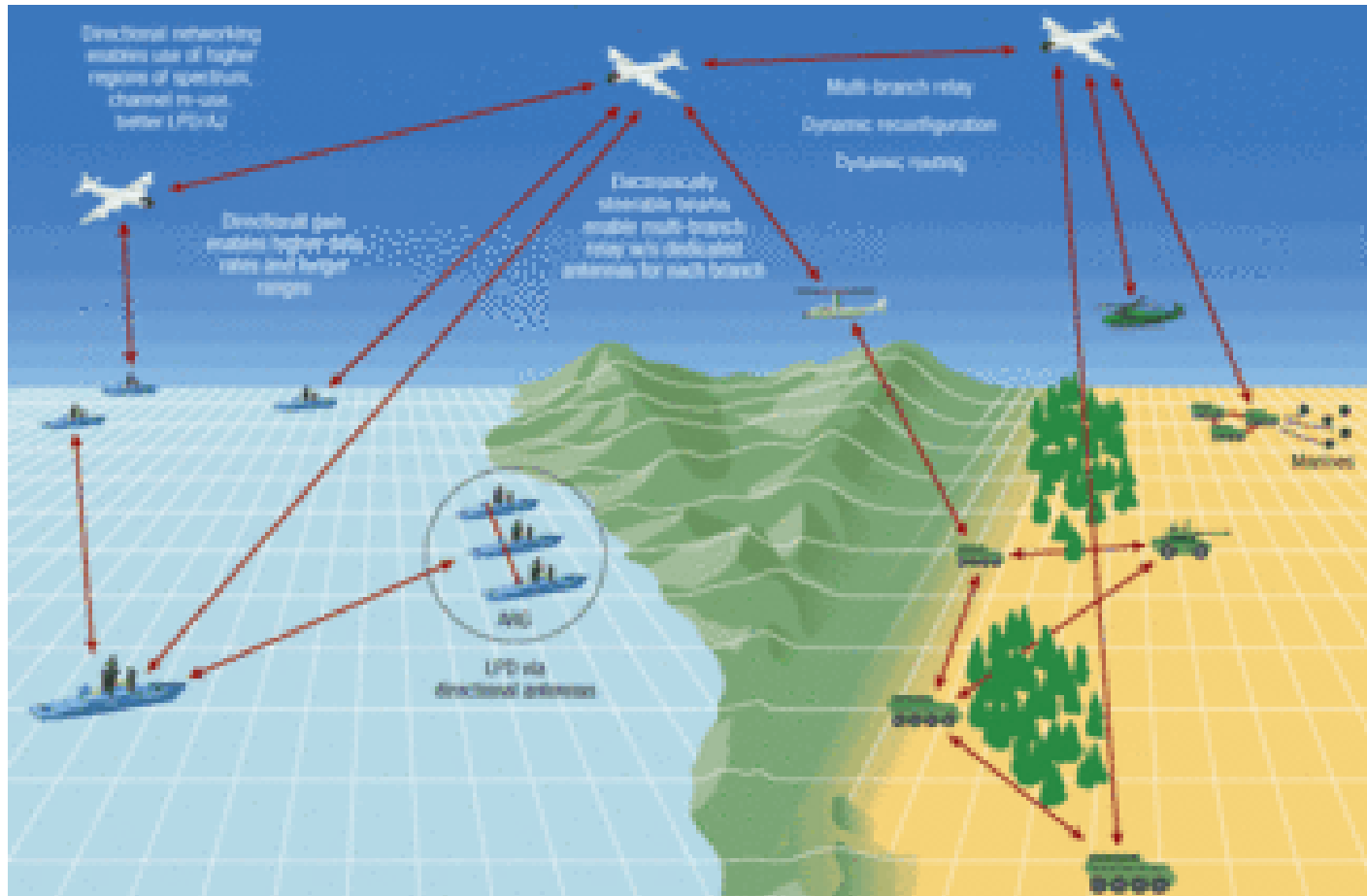
NO COMMUNICATION INFRASTRUCTURE? NO PROBLEM



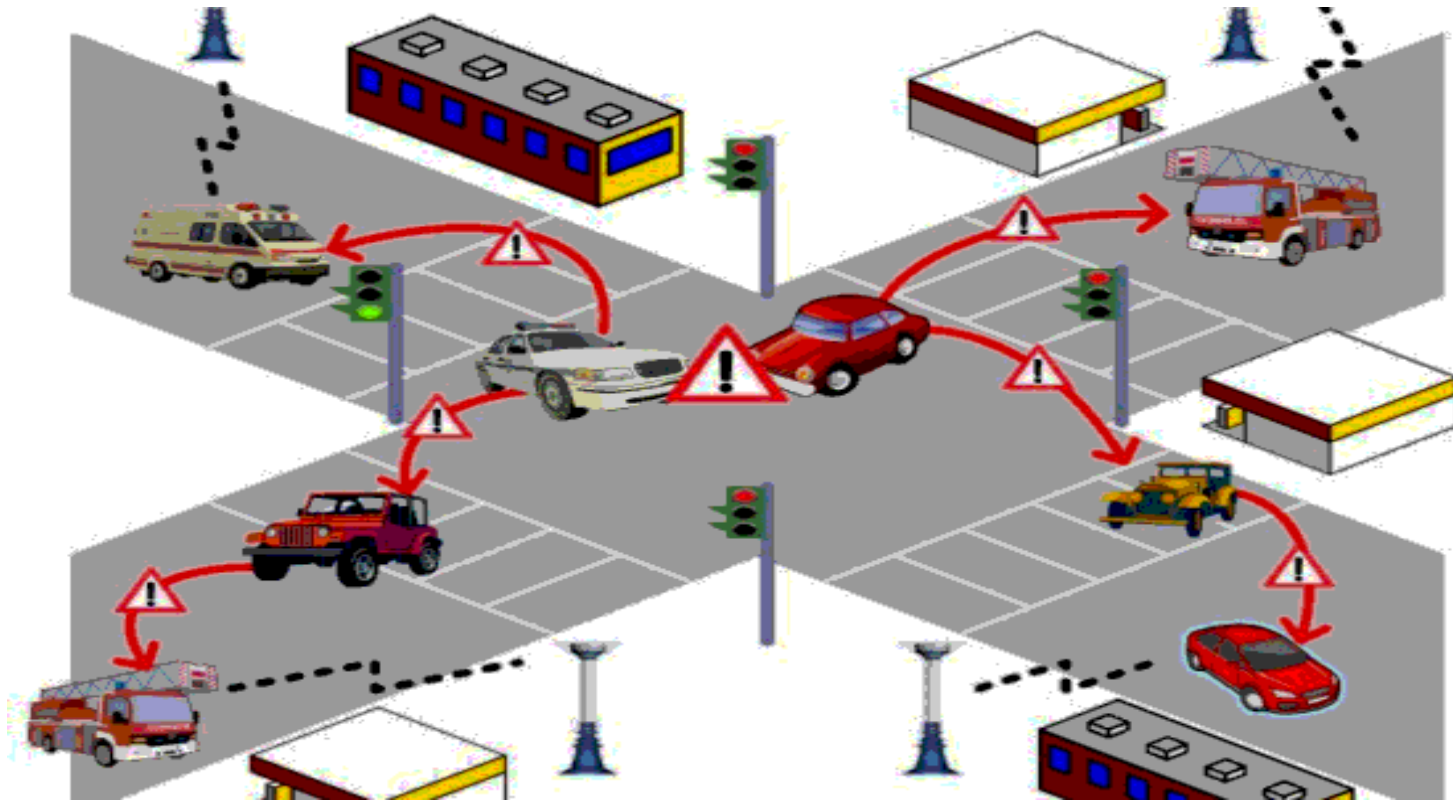
MOBILE AD HOC NETWORK (MANET)

- A type of network consisting of mobile nodes that communicate with each other using wireless links to fulfill the need for IP packet routing
- The operation of MANET can interwork with, but does not rely on, any existing communication infrastructure, e.g., base stations in cellular network, satellites.

MANET IS MOSTLY USED IN TACTICAL APPLICATIONS



MANET CAN BE USED FOR CIVIL APPLICATIONS



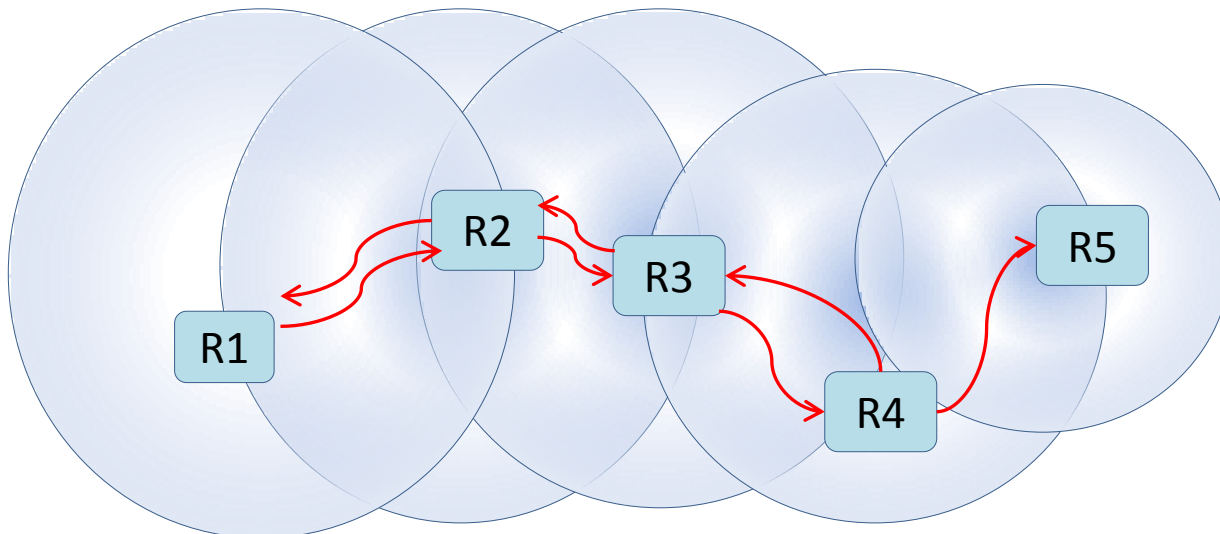
RAILWAY COMMUNICATION



- >1700** nodes in operation
all over the Netherlands
- 24h service implemented
- uptime of 99.97%

MANET: CHARACTERISTICS

- A node in MANET is not about a host. It is about a router!
- Depending on radio range, not all links are symmetric
- The node mobility => radio links between nodes can be up and down.
- Unicast/Multicast is different from that in a wired network
- Effect of radio interference => shared bandwidth



MANET: CHALLENGES

- The characteristics of MANET poses a unique challenge to IP routing protocol design
- New protocols need to be designed for MANET, specifically
 - IPv4 Unicast Routing
 - IPv6 Unicast Routing
 - IPv4 Multicast Routing
 - IPv6 Multicast Routing
- Interoperation between MANET protocols and existing routing protocols
- Protocol Testing
 - Link Up/Down caused by Mobility
 - Radio interference

MANET: OPPORTUNITY

- The value of MANET in prospective applications has drawn great interest from research institutions affiliated with the US military over the last 10 years. In recent years a wider international research community has become interested
- IETF's involvement in MANET related protocol spec development opens the door for MANET to be used in civil applications
- MANET protocol specs have reached the maturity level that allows them to be implemented and experimented with in the field.
- A number of companies have start product development of MANET protocols