

# Auto configuration and management mechanism for the robotics self extensible WiFi network

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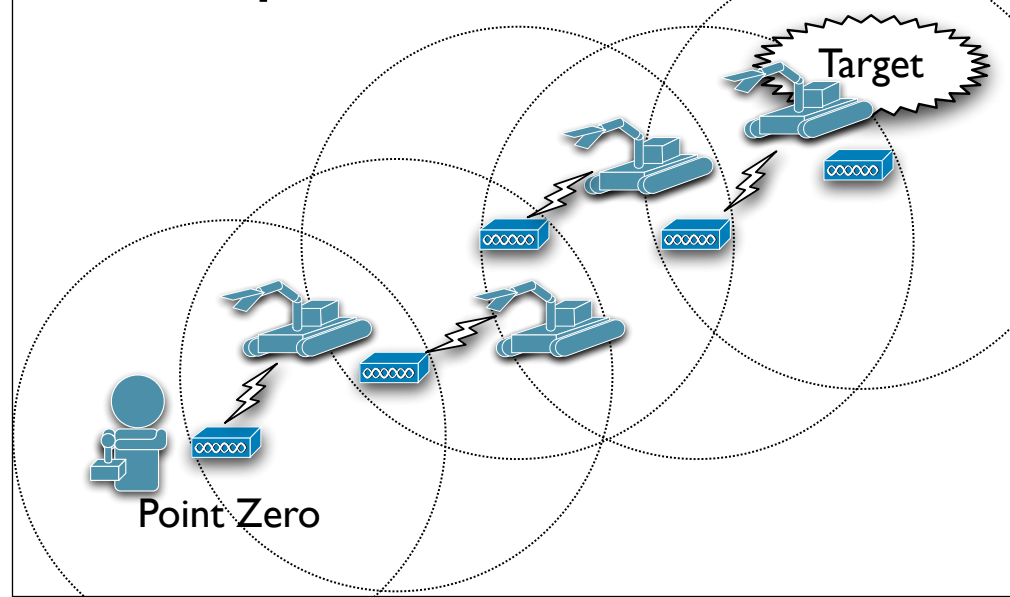
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# Problems

- Most of the rescue robots are designed to be controlled by a simple remote control method (e.g. with a wired remote)
- The range that the robot can move around is limited by the range of the remote
- An operator must get into the disaster area with the robot to control it, that may cause a secondary disaster



# Operation Scenario



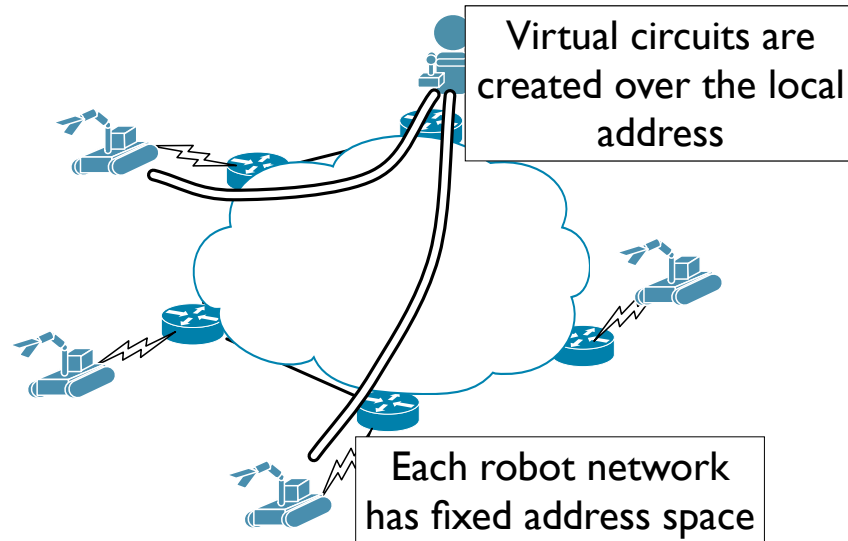
# Goals

- *Robohoc* Network
  - The ad-hoc wireless mesh network for rescue robots operation
  - Providing extended reachability of robots, without imposing any risks on robot operators

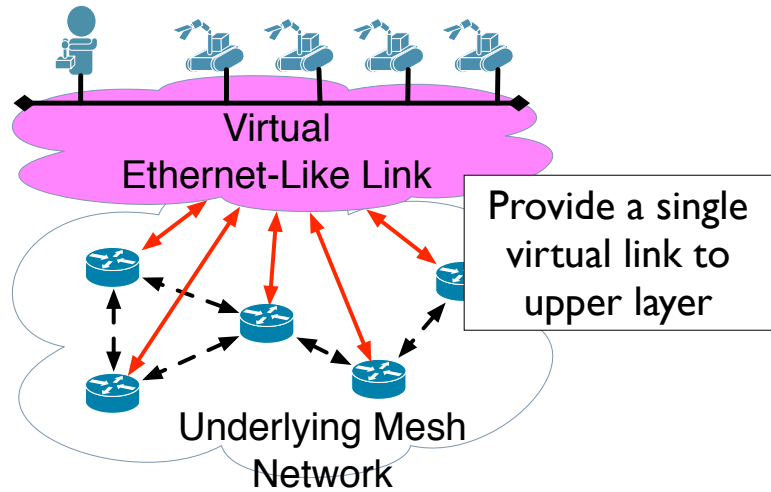
# Difficulties in Wireless

- The only solution is to create a multihop wireless network
  - How to allocate wireless channel
  - How to ensure bandwidth between robots and operator
  - How to determine the location of next Access point
  - How to establish IP connection

# Tunnel based Addressing



# Ad-hoc Network based Addressing



# Conclusion and Future Works

- Defined the problem space
- Proposed an operation model of rescue robots using self-extensible wireless network
- Proposed solutions to solve the addressing problem (Watch the Live demo)
- Future works: automatic channel allocation, bandwidth estimation, link quality estimation for AP placement strategy