

# C4IAN

## Team Members

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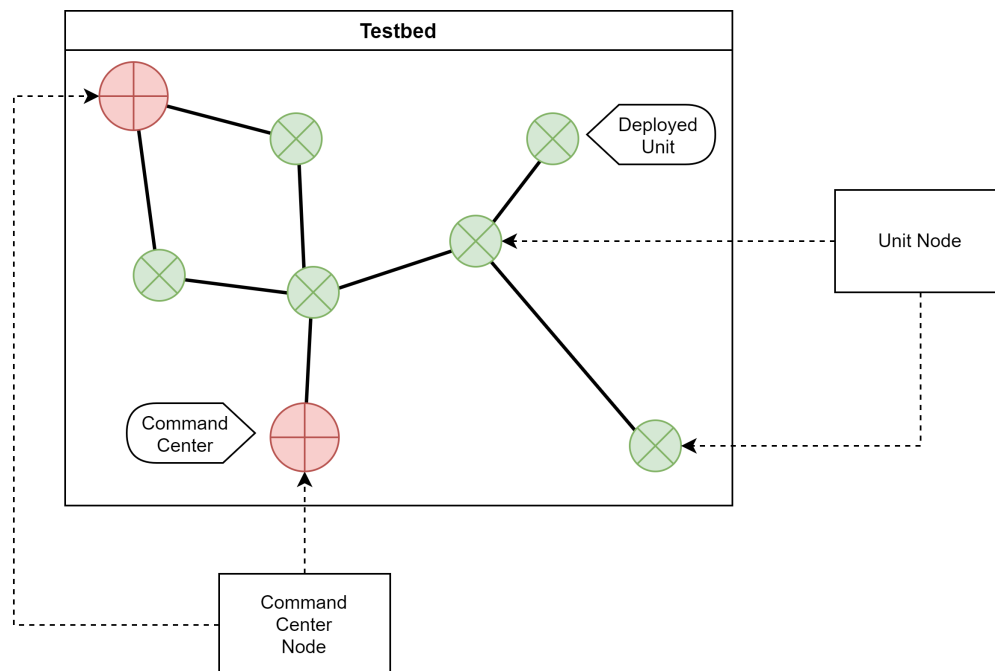
## Problem Statement

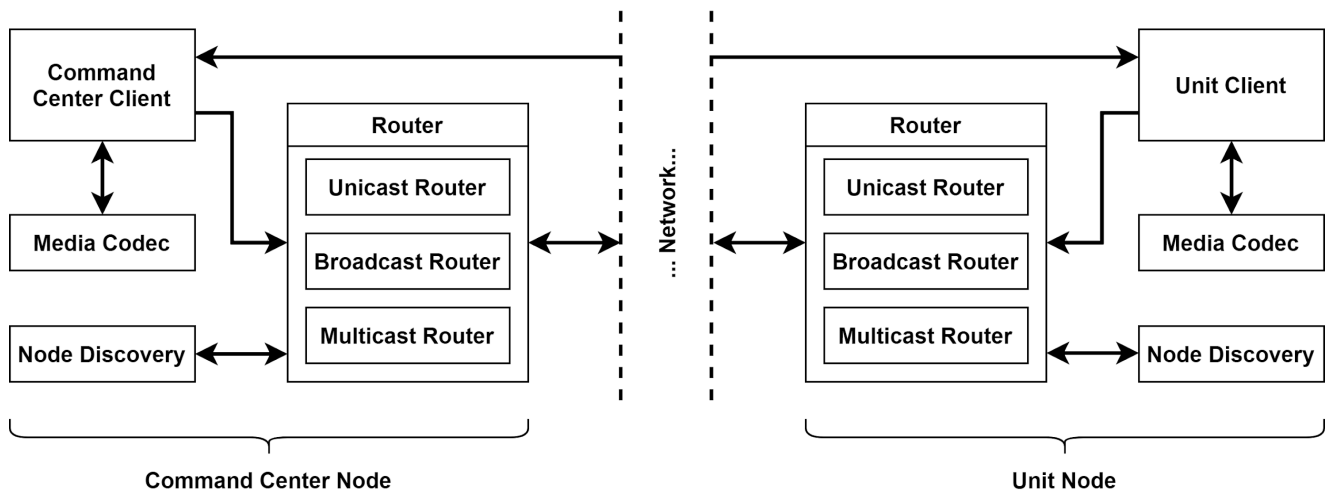
Tactical teams face troubles to achieve scalable and reliable communications in the battlefield or during emergencies due to the lack of a network infrastructure and the high mobility of units. They also need a method to collect real time data and analyze it to have a competitive advantage in the battleground.

## Motivation

Mobile ad-hoc networks can be formed on-the-go, without any infrastructure. They promise more flexibility and reliability than manual radio broadcasting. We are interested in building such complex distributed systems.

## System Overview & Architecture





## List of Deliverables

Module Name	Function	Input	Expected Output	% of used Libraries
Unit Client	Stream and receive streams to/from command centers.	Audio, video, sensors and message codes from the device. Audio & messages from command centers.	Send streams and play audio and messages.	~ 0% (Excluding UI)
Command Center Client	Stream and receive streams to/from deployed units. Shows a map of all units with their statistics.	Audio and message codes from the device. Streams & messages from deployed units.		
Media Codec	Encode/decode audio and video.	Captured video/audio or received (encoded) video/audio.	Encoded/decoded video/audio.	> 90%
Node Discovery	Build a map of nearby nodes for routing protocols.	None.	Necessary mapping of network topology.	~ 0%
Unicast + Broadcast Routing	Determine how to send a given IP packet to one destination or all nodes.	IP packet from linux to send or forward.	Packet accept/reject and updated forwarding/routing tables.	
Multicast Routing	Determine how to send a given IP packet to an IP group by constructing multicast trees.			