C4IA

1 Team Members

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2 Problem Statement

A `mobile ad-hoc network` communication system for military, for operations in areas with no internet infrastructure. Deployed units can stream audio, video and sensors readings to command Centers. Command Centers can stream audio and message codes to some/all unit(s).

3 Motivation

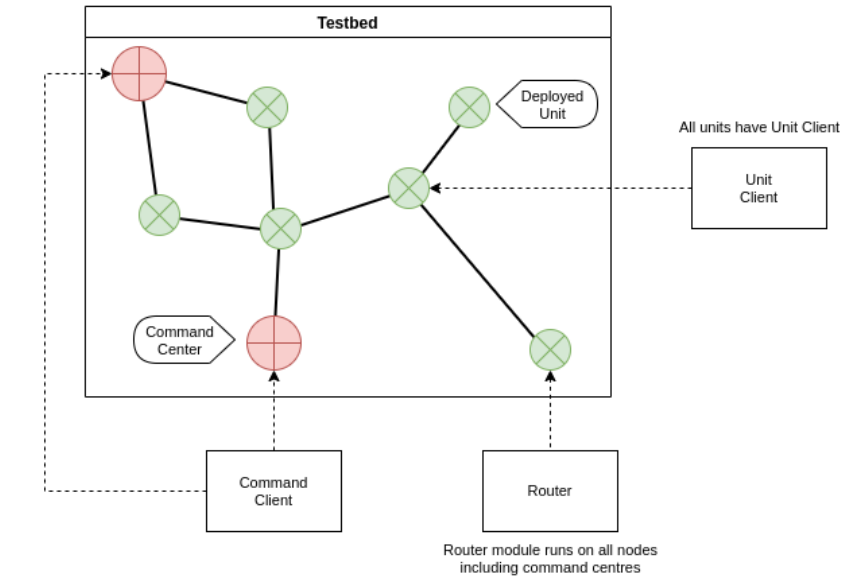
The military needs to perform live data-analysis, communicate effectively over large distances. Ad-hoc networks promise more flexibilty than manual radio broadcasting.

We are also interested in building distributed systems.

4 System Architecture

Figure 1 shows the modules diagram.

5 List of Deliverables



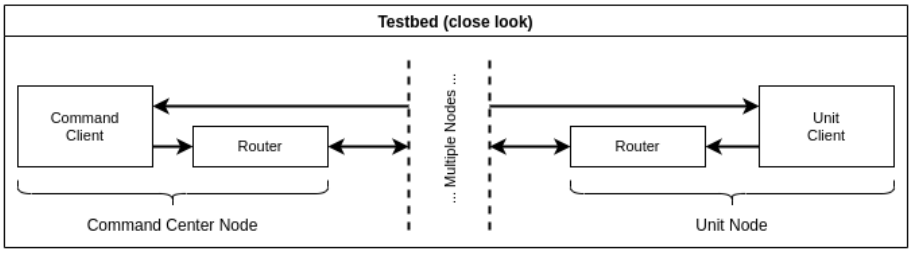


Figure 1: Modules Diagram

Module Name	Function	Input	Expected Output	% of used Libraries
Unit Client	Stream and receive streams to/from command centers	Device audio, video, sensors and message codes. Streams and messages from command centers	Send streams and show play audio/messages	~0% (not including `UI`)
Cmd. Center Client	Stream and receive streams to/from deployed units. Shows a map of all units with their statistics	Audio and message codes. Streams and messages from deplyed units	Send streams and show play audio/messages	~0% (not including `UI`)
Media Codec	Capture video+audio, encode it, receive it and decode it	Captured video/audio or 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	~0%
Multicast Routing	Determine how to send a given `IP` packet to an `IP` group	`IP` packet from linux to send or forward	Packet accept/reject and updated forwarding/routing tables	~0%