



NAVAL
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Integrating Cellular Handset Capabilities with Military Wireless Communications

Naval Postgraduate School

Cebrowski Institute

Military Wireless Communication (MWC) Research Group

Capt. Joshua Dixon

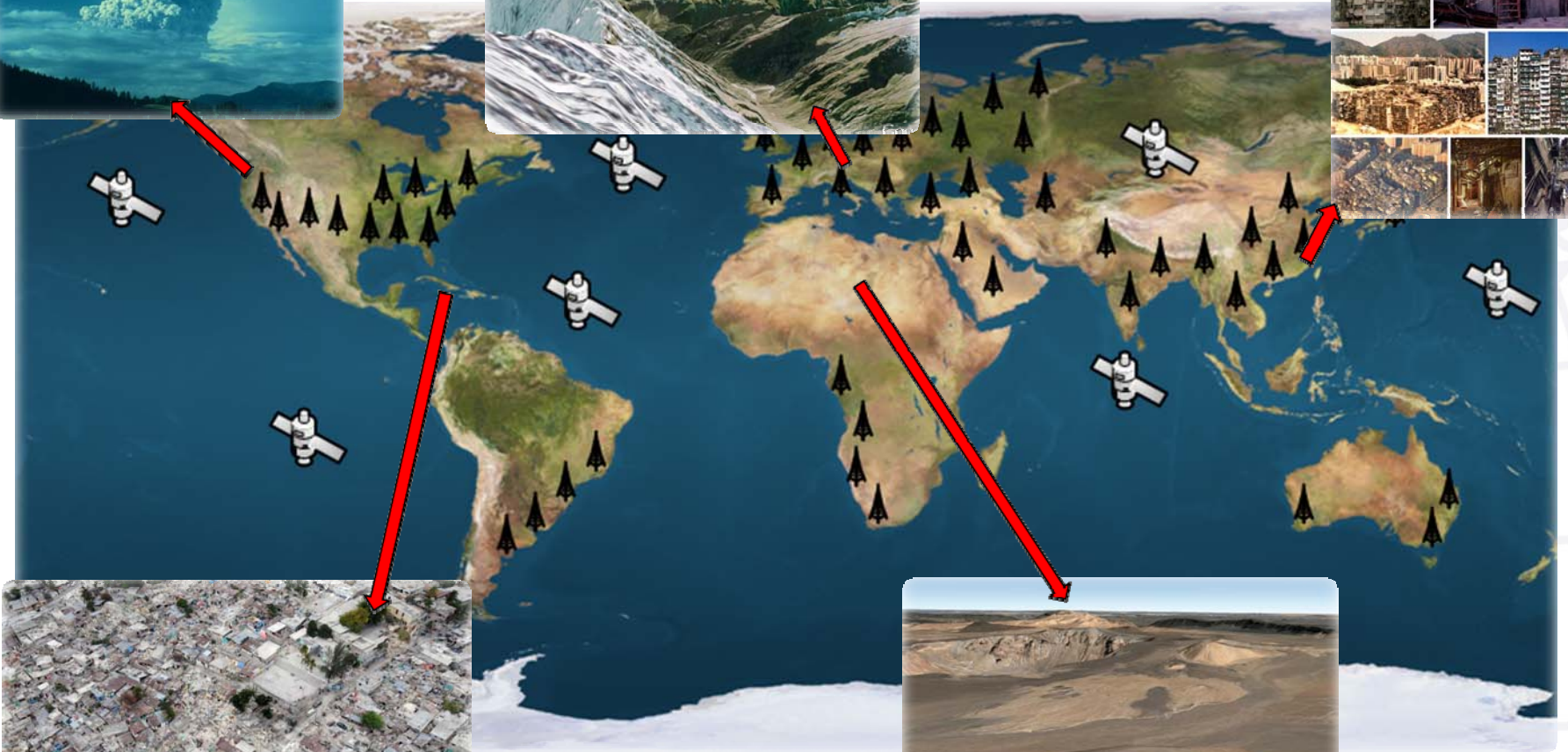
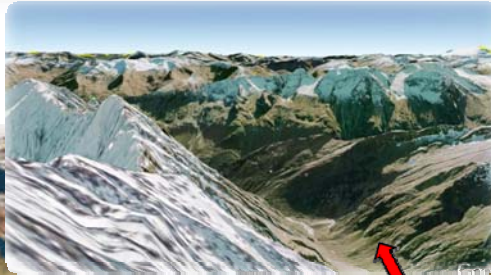
Prof. Geoffrey Xie

Prof. Frank Kragh



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Potential Employment Environments



Joshua Dixon - Military Wireless Communication (MWC)
(jsdixon@nps.edu)

WWW.NPS.EDU

Integrating Cellular Handset Capabilities with Military Wireless Communications



Current Capabilities



Harris
AN/PRC-152



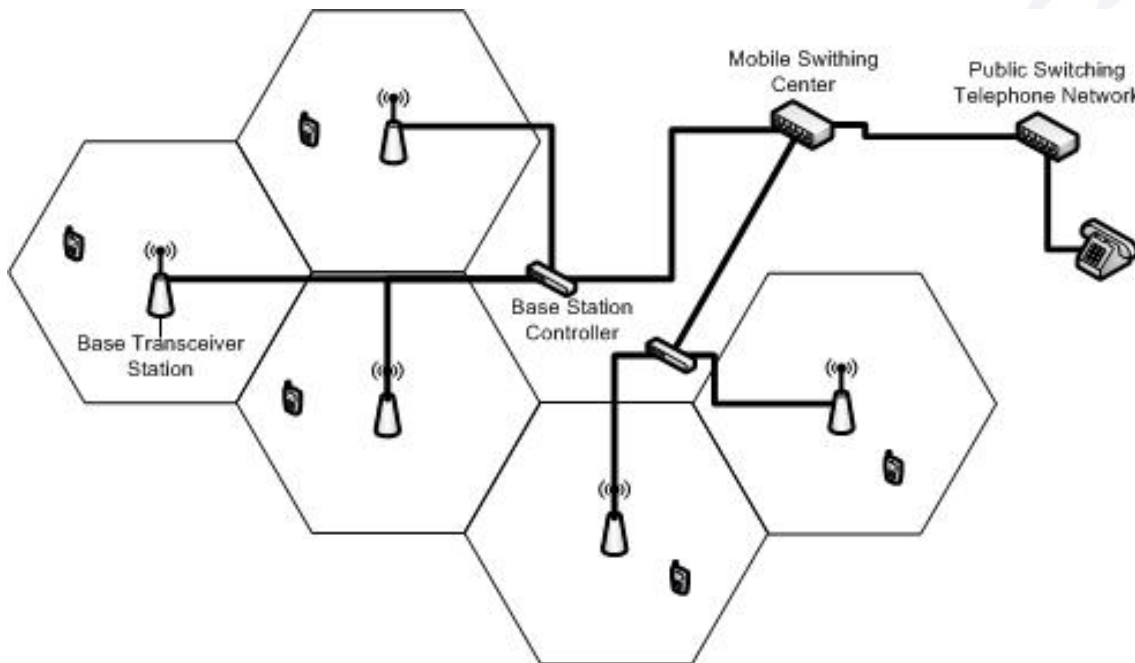
General Dynamics
D-DACT
(SINCGARS)



Thales
AN/PRC-148 V2(C)



A Cell Phone based Solution?



Pro's:

- Cost Efficient
- Innovative Applications
- Handheld Form Factor
- Familiar Platform

Con's:

- Centralized Infrastructure
- Security Vulnerabilities
LPD, LPI, and LPE



Related COTS Solutions



Qualcomm's Tacticell



LGS Innovations TacBSR



Ericsson's QuicLINK



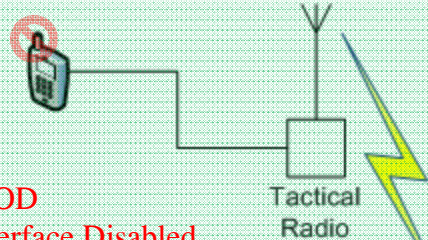
Feasibility Assessment

FEASIBLE FY11/12 SOLUTION

(Outside Wire)

Tethered

- Software MOD
- Wireless Interface Disabled

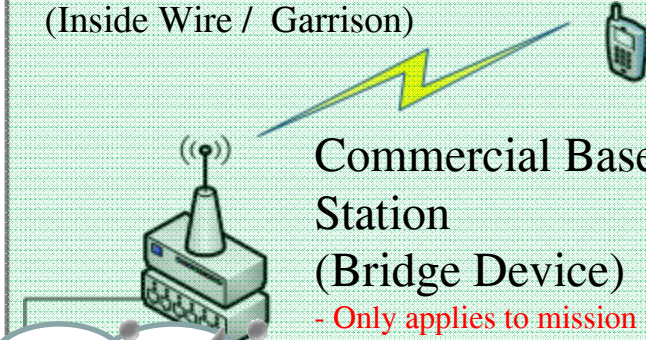


FEASIBLE FY11/12 SOLUTION

(Inside Wire / Garrison)

Commercial Base Station (Bridge Device)

- Only applies to mission without TR to SEC requirements (inside wire or garrison environments, ship-to-shore)



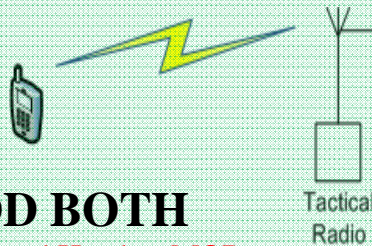
Reinforce existing infrastructure

FEASIBLE FY13/14 SOLUTION

(Outside Wire)

MOD BOTH

- Minimal Handset MODs
- Create Interchangeable Chipsets (Decouple Wireless Interfaces)
- NSA Suite B
- Peer to Peer

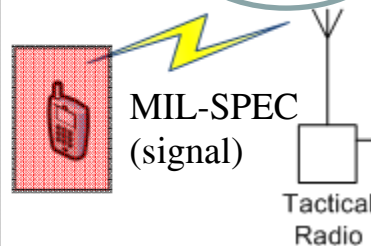


IP Network
(Forward Operating Base)
(Ship)
(Garrison)

MIL-SPEC (signal)

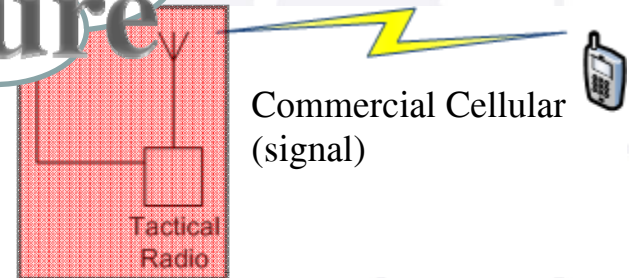
HANDSET MOD

- HIGH COST (<1,000,000 handsets)
- Add Hardware (MIL-SPEC chipset, lower Freq)
- Software MOD



Tactical Radio MOD

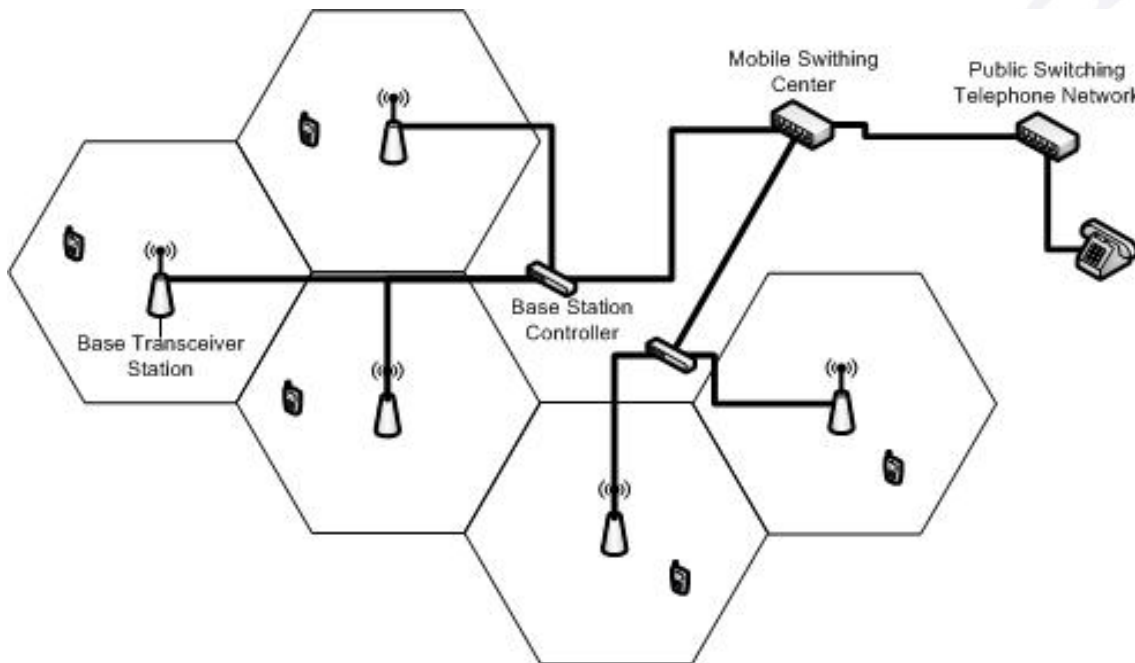
- NO Emission Security
- Add additional Transceiver
- New Radio Version



Commercial Cellular (signal)



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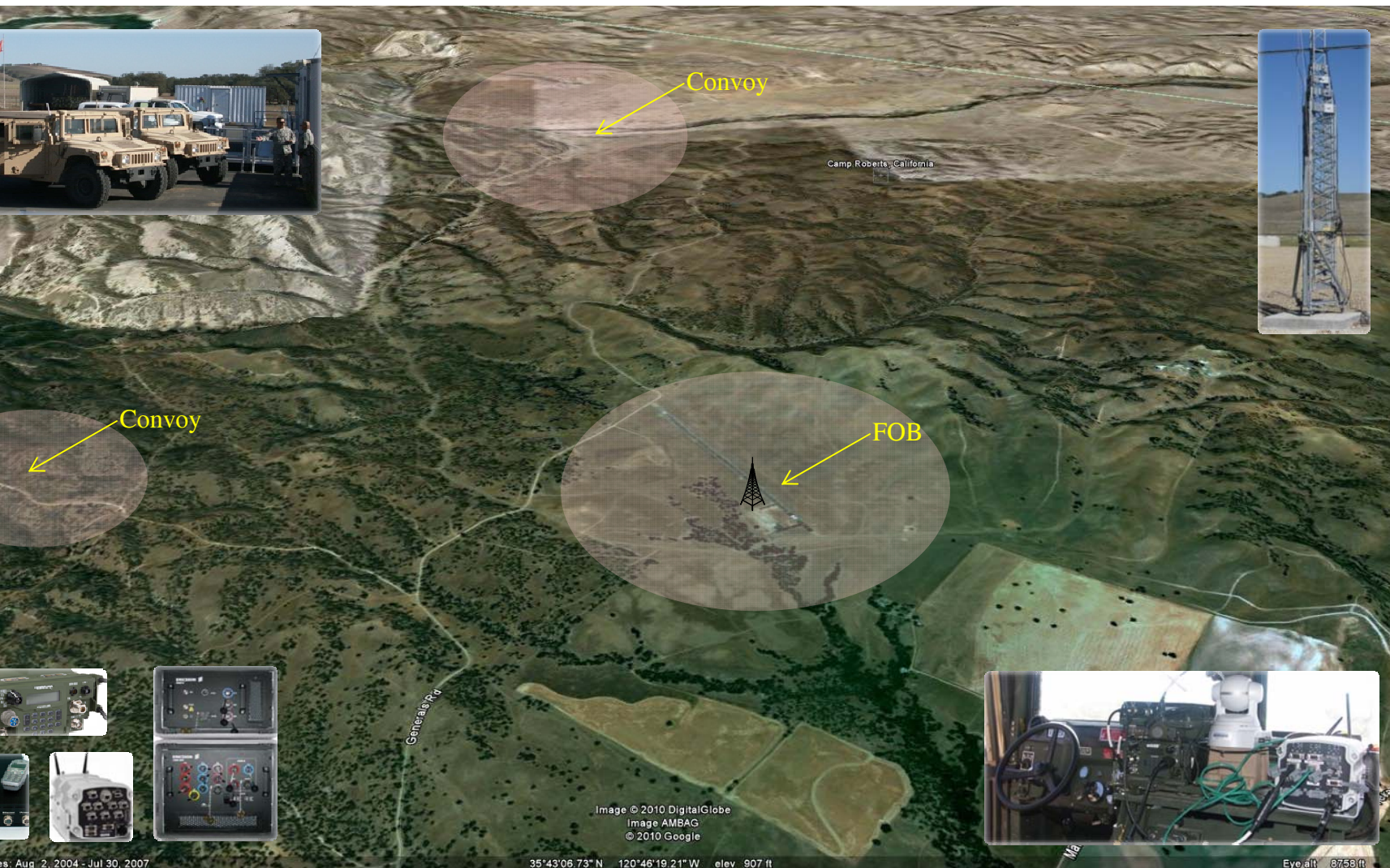
Con's:

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Camp Roberts Experimentation



Throughput

Emission comparison

- Power control

Network Management

- flow level traffic prioritization and policing





Image Sources

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