

# Joint C2

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**Joint Capabilities Group**

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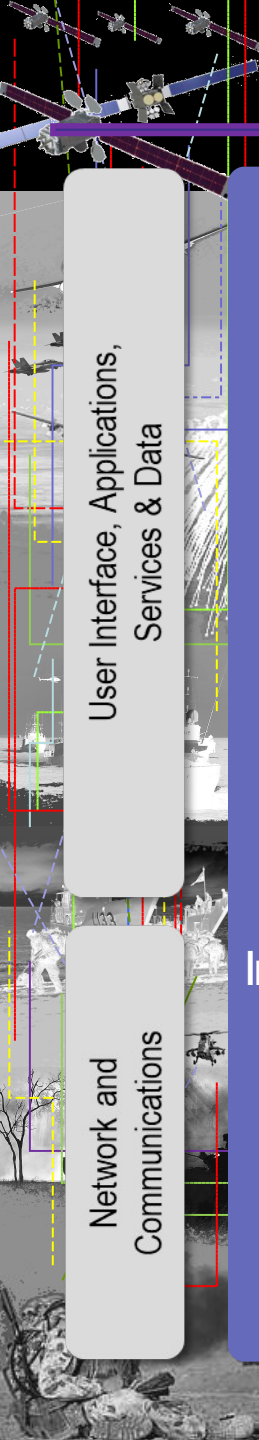
*Information Warfare Division*



# Scope

- Overview of Joint C2
- What keeps me awake at night (regarding JDN)
  - Synchronisation of C2 data in the battlespace
  - Integration
  - Training
  - Education

# Joint C4 Boundary and Context



User Interface, Applications, Services & Data

Network and Communications



Fixed Infrastructure and Services

Integrated C2 Capability

Joint C2

*Applications and services that enable integrated C2 of the Joint Force*

Deployable Networks

*Deployable area networks and infrastructure to enable Joint information exchange and host applications and services*

Joint Data Networks

*Networks and Data Links to enable Joint data exchange*

Joint Communications

*Trunking and Switching to enable Joint data networks and deployed I/C*

EW  
Land  
Maritime  
Air  
Special Ops  
etc . . . .  
Domain-Specific C4

# Joint C2 Boundary and Context



User Interface, Applications,  
Services & Data

Network and  
Communications

Fixed  
Infrastructure  
and  
Services

## Integrated C2 Capability

### Joint C2

*Applications and services that enable integrated C2 of the Joint Force*

### Deployable Networks

*Deployable area networks and infrastructure to enable Joint information exchange and host applications and services*

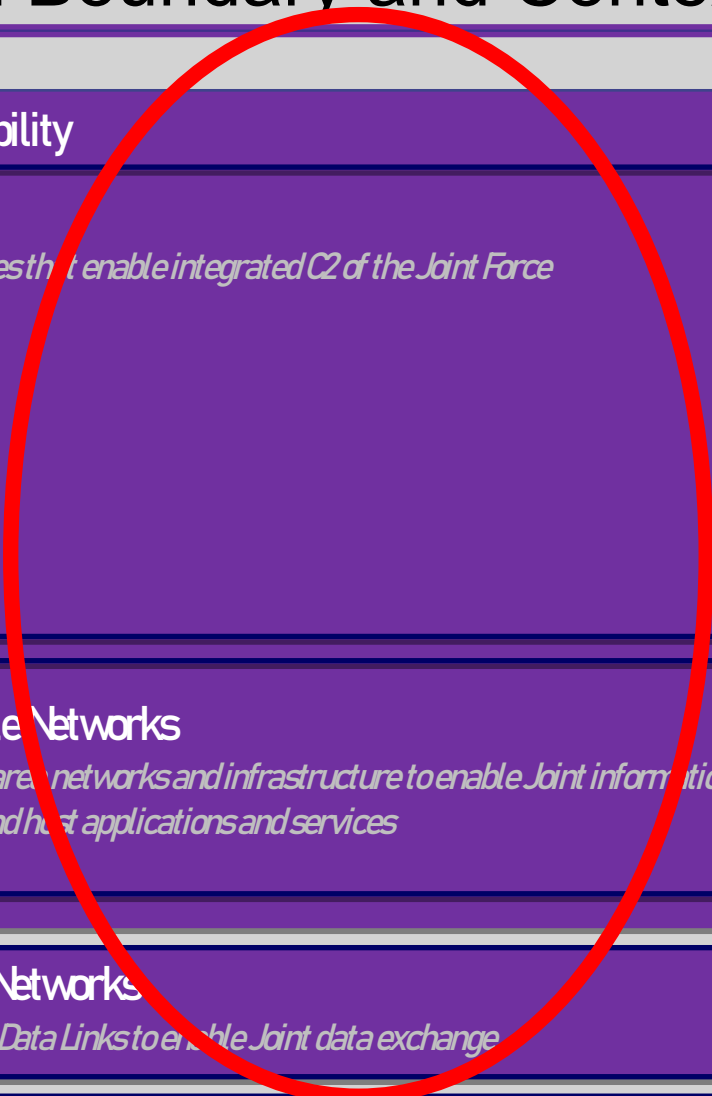
### Joint Data Networks

*Networks and Data Links to enable Joint data exchange*

### Joint Communications

*Trunking and Switching to enable Joint data networks and deployed ICT*

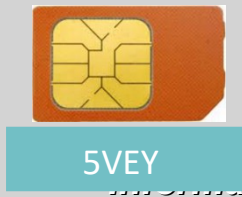
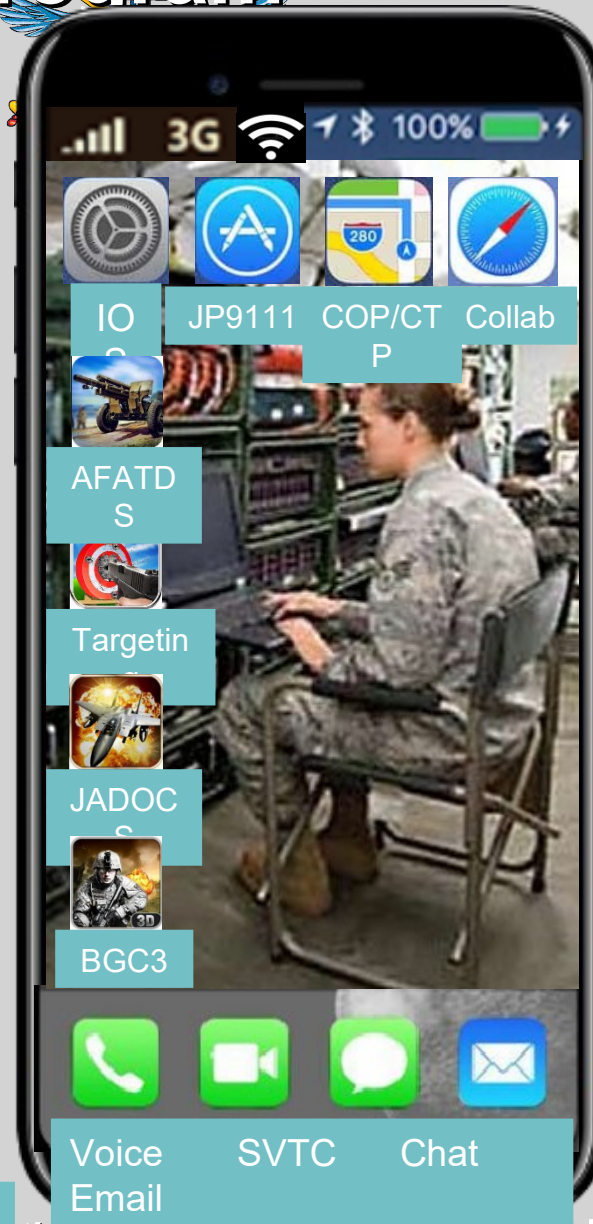
Domain  
-Specific  
C4



# A simple representation of the Joint C4 Program

We are not delivering an iPhone

We know this analogy breaks down under scrutiny – it is an analogy



# A simple representation of the Joint C4 Program



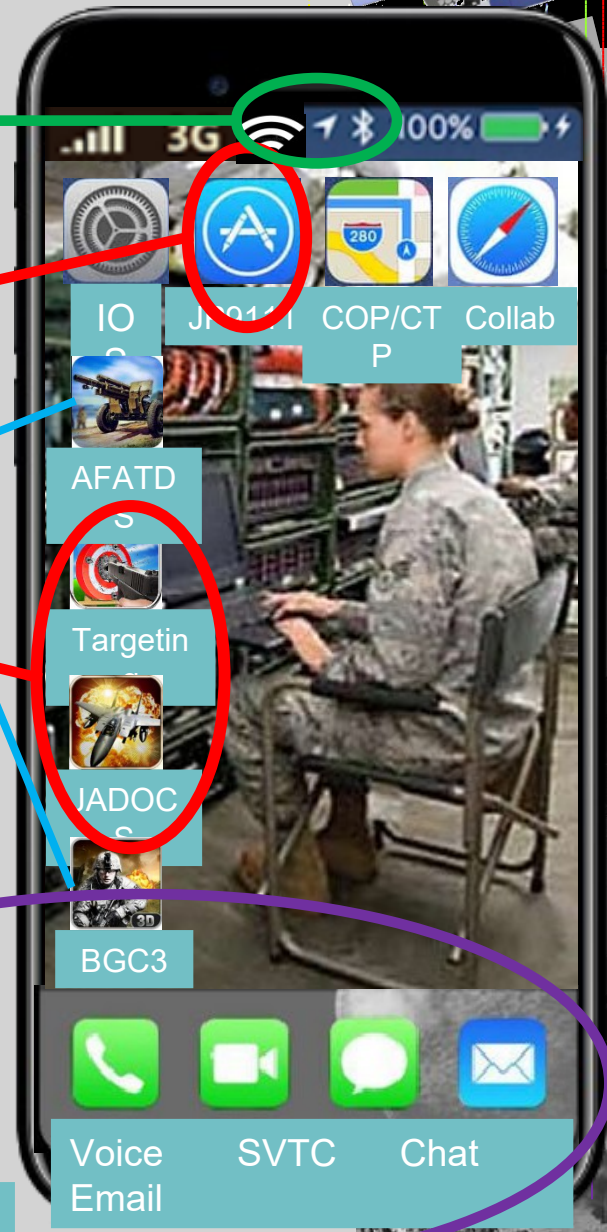
WiFi  
Bluetooth  
JP9347 - MTN

App Store  
Some Applications  
JP9111 - JC2

Hardware  
Information Exchange  
Sim Card  
JP2221 - MNIS

4G network  
Joint Comms

Domain and Task  
Specific apps



# Joint C2 Boundary and Context



**Fixed ICT Infrastructure & Services**

**ICT 2284**  
*EIM*

**ICT 2283**  
*ERP*

**ICT 2230**  
*Applications Remediation*

## **Joint Command and Control**

*Applications and services that enable coordination & synchronisation of the Joint Force*

**JP 9111**  
*Joint Command and Control*

## **Deployable Networks**

*Deployable area networks and infrastructure (including gateways) to enable Joint information exchange and host applications and services*

**JP 2221**  
*Multi-National Information Sharing*

**SEA 2273**  
*Fleet Information Environment Modernisation*

**LAND 4130**  
*Deployed Local Area Network Replacement*

## **Joint Data Networks**

*Networks and data links to enable Joint data exchange*

## **Joint Communications**

*Trunking and switching to enable Joint data networks and deployed ICT*

**Domain-specific and specialist C4 Systems & Sensors**

**LAND 200**  
*BMS*

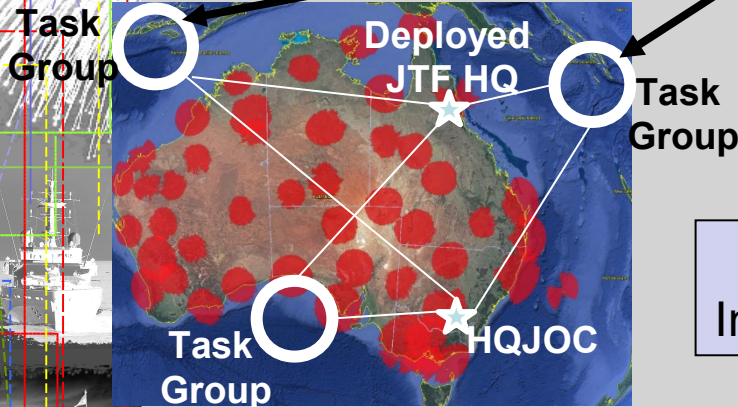
**AIR 6500**  
*IAMD*

**JP 9131**  
*Defensive Cyber Ops*

# Future MTN Investment

**Network Coverage**  
Fixed and mobile towers

**Modernised platforms**  
Upgrade from Bluetooth  
1 to 5)



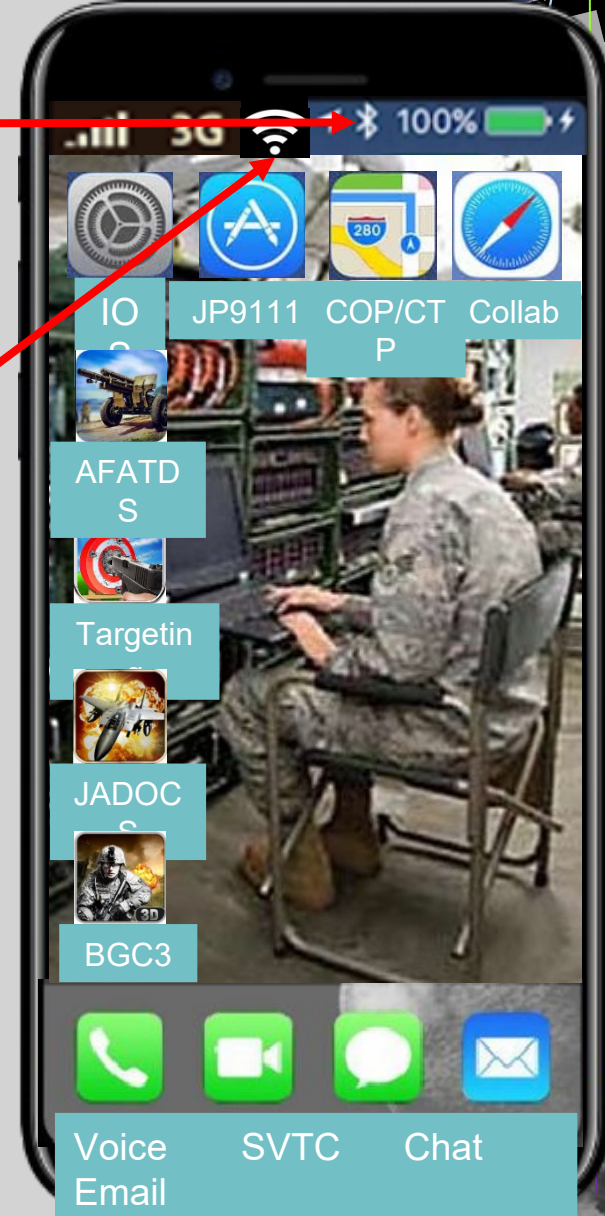
**IBS**  
Install / upgrade Wifi

**Network Management**  
TelCo NOC

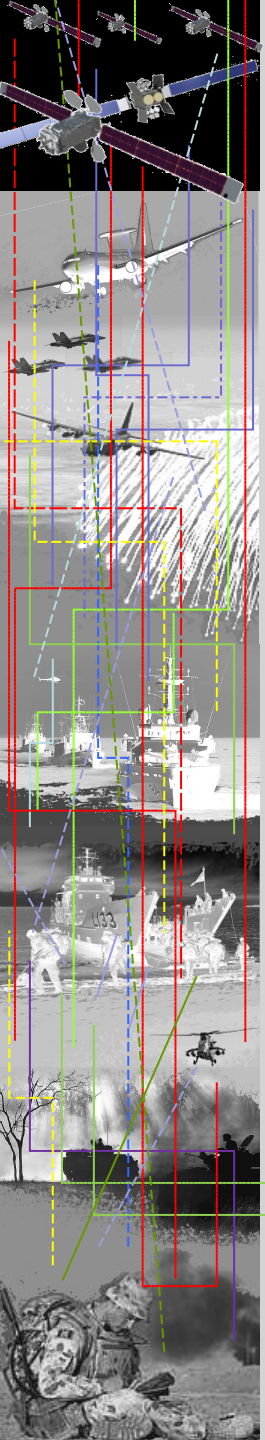
**Joint Network Integration Centre**

**Future Technology**  
Investigate 5G / IoT

**Governance**  
Telecommunications Act







# What keeps me awake at night (regarding JDN)

- Synchronisation of C2 data in the battlespace
- Integration
- Training
- Education



# Synchronisation of C2 data in the battlespace

- TTNT / MADL / VMF / IP / Combat Cloud / CEC / (T)CDL / CMF / JCIDS 4.1x . . . .
- Choose right thing for the job vs minimal set of links
- Need redundancy: how much and at what cost
- Time to develop, integrate and deploy
- Life of type



# Integration

- Rate of change of Mission Systems
- Changing software environment
- Changing RF environment



# Training

- TDL vs COP
- What is common across Domains and various DLs
- Certification vs national needs



# Education

- Do our decision makers understand TDLs
  - Do they need to?
- Do our Commanders understand TDLs
  - How much detail do they need?



# So what . . .

- These four issues encompass majority of the 22 “Top IDLS Community Data Link Issues”
- What can IDLS do?
  - advocate and educate
- How can Industry help
  - Common standards / architecture
  - Open discussion and engagement



# Questions?

