



**Armed Forces Communications and Electronics Association  
(AFCEA)**

**Thursday, March 2<sup>nd</sup> 2017  
Quantico-Potomac Chapter Luncheon  
The Clubs at Quantico (TCAQ), Marine Corps Base Quantico, VA**

***Colonel Gregory T. Breazile, USMC  
Director  
Information Warfare Integration Division (IWID)***



# IWID Functions

IWID serves as Capabilities Development Directorate (CDD) integration and execution authority for all Marine Corps **C2, Cyberspace, and Electronic Warfare** capabilities development activities.

IWID coordinates with the operating forces, supporting establishment, and other stakeholders in order to define capabilities, identify gaps, and support fiscally informed solution implementation.



# Evolution of IWID

2010

2011

2014

2016

**Cyber Integration Division (CYID)** was formed to address emerging requirements for Offensive and Defensive Cyber Operations in addition to the tactical/garrison programs already housed under **Command & Control Integration Division (C2ID)**.

**Cyber & Electronic Warfare Integration Division (CEWID)** was formed to better integrate requirements definition for Cyberspace and Spectrum Operations in support of the MAGTF C2 Architecture.

**C2/CEWID** was formed to merge C2ID and CEWID into one division to enable Capabilities Portfolio Management (**CPM**) implementation and better alignment of Joint Capability Area(s) 5 & 6 in the requirements process.

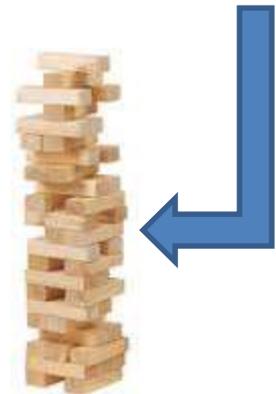
**IWID** was formed from C2/CEWID to add MISO, CA, SigMan, and Space to have a more holistic approach to defining requirements for how the Marine Corps will operate in the future information environment.



# Capability Portfolio Management



Programs  
of Record



Balanced Capability  
Development

MAGTF C2



- The **JCA 5/6 portfolio** is a set of inter-related programs that provide command and control, communications, and network capabilities to meet operational requirements.
- Capability balancing in JCA 5/6 is about finding the sweet spot between a **family of inter-related programs** to ensure capability delivery.
- Previous decisions are being re-visited based upon concept and employment changes placing additional stress on the portfolio
  - *Data to the squad level*
  - *Equipment density (excess AAO?)*
  - *JBC-P to the dismounted squad leader*
  - *Combat Operations Center (COC) AAO*
  - *NOTM AAO/platform integration (JLTV, ITV, Air Platforms)*
  - *Tactical Radio Modernization & Radio Gateways*
  - *Command Fly Away kits*
  - *Non-traditional Naval platforms*
  - *Integrated Fire Control*



# Information Operations



- Top level doctrine emphasizing importance of winning in the information environment (MOC, FF2025)
- IO provides integration of various information related capabilities (IRCs)
- Focused on the MISO program of record and the new Signature Management (SIGMAN) initiative.
- MISO:
  - Fly-away Broadcast System (FABS)
  - Next-Generation Loudspeaker System (NGLS)
  - R&D
- SIGMAN – To be detected is to be targeted, to be targeted is to be destroyed...
  - Understanding our own signature
  - Projecting false signatures
  - Deception

Enabling the MAGTF to compete in the Information Environment will require a paradigm shift. This will include new equipment, doctrine, and way of thinking...



# Iron Triangle



- **C4:**
  - Develops Policies
  - Liaisons with other services on Joint policy issues
  - Proponent



- **CD&I:**
  - Develops Requirements
  - Prioritizes/Defends/Requests Funding
  - Controls AAOs: TEs
  - Manages Urgent Needs process



- **SYSCOM:**
  - Competes and procures based on requirements
  - Fields directly to MEFs



# “The Plan”



## Strategic Guidance

*DOD + USN + USMC*



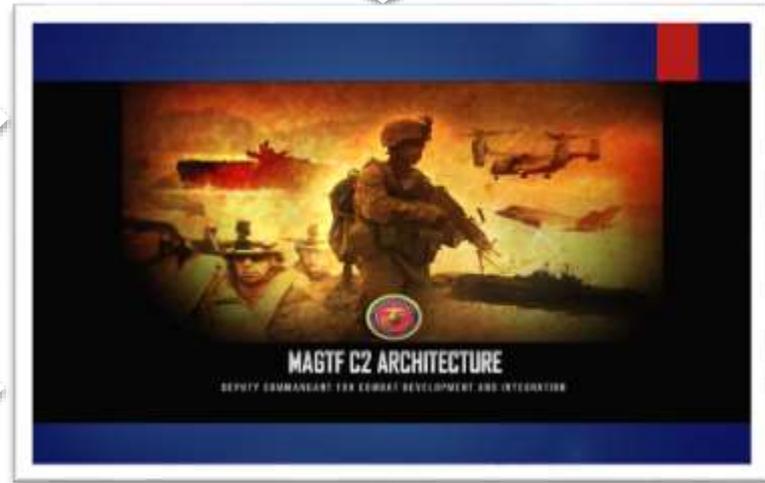
## Established Processes

*JCIDS Process*



## Portfolio Management

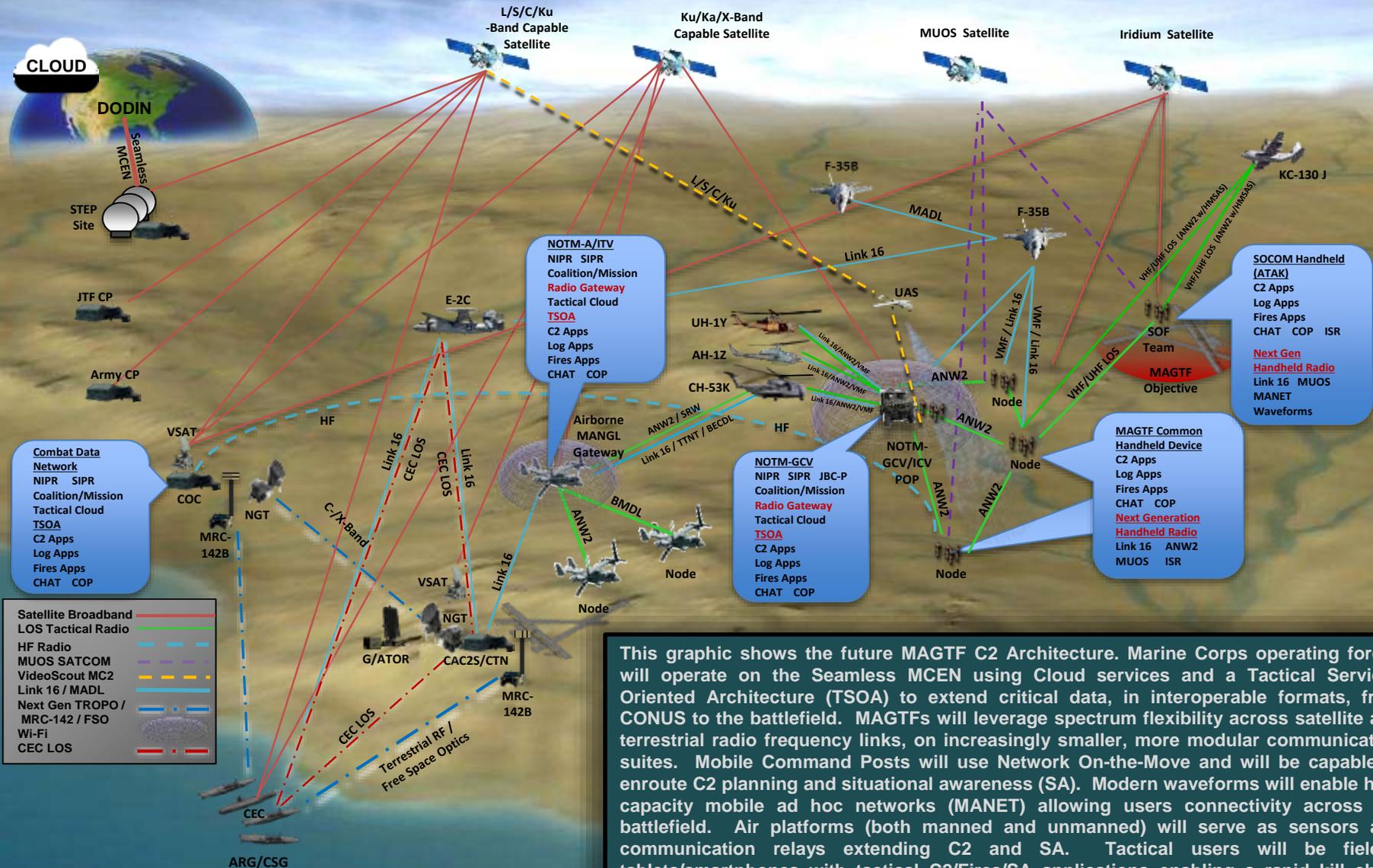
*IWID (JCA 5/6)*



## Science and Technology/R&D

*Commercial + Academic + Military Labs*

# Future MAGTF C2 Concept of Employment (OV-1)



This graphic shows the future MAGTF C2 Architecture. Marine Corps operating forces will operate on the Seamless MCEN using Cloud services and a Tactical Services Oriented Architecture (TSOA) to extend critical data, in interoperable formats, from CONUS to the battlefield. MAGTFs will leverage spectrum flexibility across satellite and terrestrial radio frequency links, on increasingly smaller, more modular communication suites. Mobile Command Posts will use Network On-the-Move and will be capable of enroute C2 planning and situational awareness (SA). Modern waveforms will enable high capacity mobile ad hoc networks (MANET) allowing users connectivity across the battlefield. Air platforms (both manned and unmanned) will serve as sensors and communication relays extending C2 and SA. Tactical users will be fielded tablets/smartphones with tactical C2/Fires/SA applications enabling a rapid kill chain while minimizing fratricide.



# Digital Interoperability



- “Digital Interoperability”
  - Umbrella term that encompasses a number of C2-related issues in the MAGTF
    - **Enroute C2** - Long-range C2 for en-route mission planning (Example: SPMAGTF-CR TRAP missions)
    - **Digitally-Aided CAS (DACAS)** and shortening the “kill chain” (Example: TALON REACH)
    - **Networking Gateway.** Integration of mesh networking waveforms and messaging sets (Example: integration of Link-16/J-series messages with ANW2 and K-series messages)
    - A general effort to make all tactical networks interoperable, enabling the free-flow of information across heterogeneous data networks all the way down to the infantry squad level



# Tactical Communications Modernization (TCM)



## Future Capabilities:

- MRC-145B: FY17
  - VRC-114v2 (ANW2/SRW retransmission)
  - Eventual retransmission of voice and data (2 nets) simultaneously
- MUOS: FY18
  - Firmware update to the RT-1949 family of systems
- Wideband HF: Starting FY18-19
  - Aggregation of up to eight 3kHz channels together
- Multi-channel Radios (TBD)
  - Two transceivers, one smaller form-factor (examples: Harris PRC-158, Thales MBITR2)
- COMSEC Modernization

## Systems



PRC-117G



PRC-150



PRC-117F



PRC-148  
MBITR/JEM



PRC-119F



PRC-152C

*CM Compliant*

*Non-CM Compliant  
(replaced by 2024)*

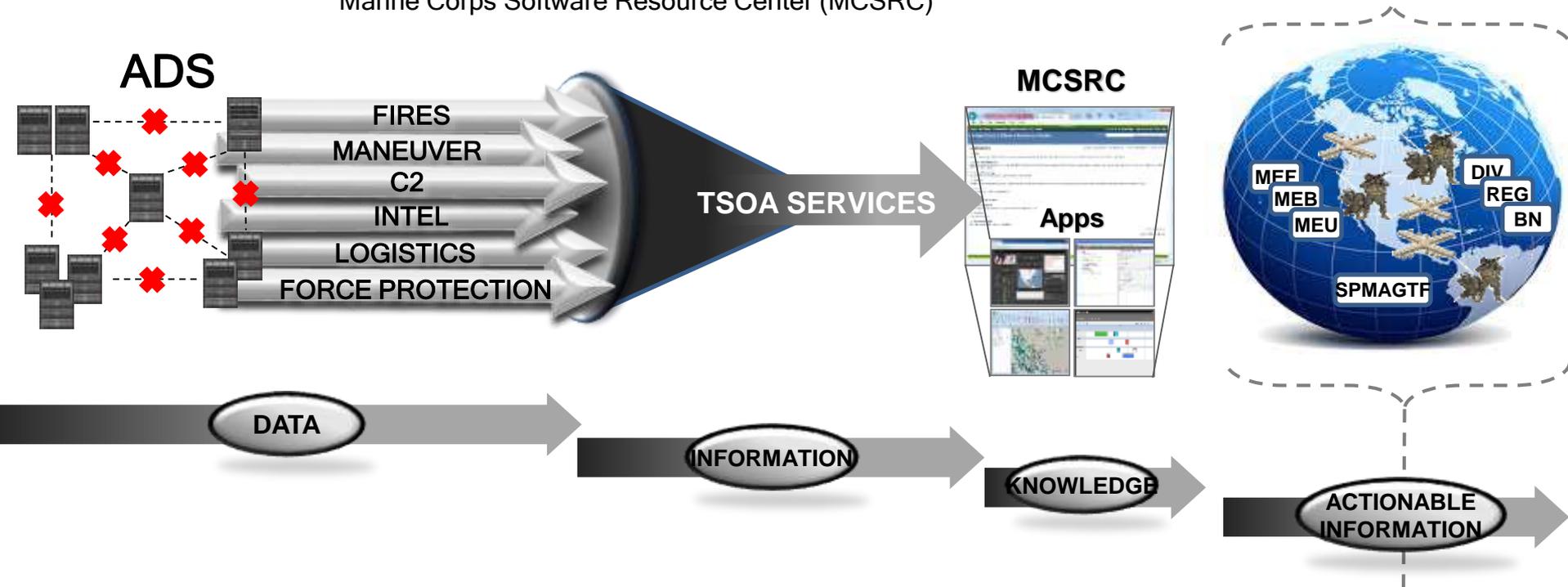


# TSOA

## Tactical Services Oriented Architecture

The ability for Marines to discover, subscribe, shape, filter, modify, and visualize data (Net-centric Operations) in a way that aids their assessment of a situation for timely and accurate decisions. Decisions “in-context.”

**TSOA Framework:** Infrastructure and Services (ADS connectors), Agile Application Development (A2D)  
Marine Corps Software Resource Center (MCSRC)



Current delivery/platform is COC (virtualized software, C2S2-SAE server).  
TSOA is hardware agnostic, end-state is to deploy on NOTM, CAC2S, JBC-P.



# Terrestrial Wideband Transmission Systems (TWTS)



## Current Capabilities:

- Terrestrial BLOS
  - TRC-170A
- High-capacity LOS
  - MRC-142B/C
  - WPPL-D
- Antenna elevation
  - TEAMS

## Future Capabilities:

- Next-Generation Troposcatter (FY18-22)
  - Improved SWaP (smaller variants completely transportable via transit cases in MV-22)
  - Multi-band (via hardware swap)
  - Software-based control system for improved signal acquisition
- Next-Generation LOS
  - Replaces MRC-142B/C and WPPL-D
  - Simultaneous Multi-band (including 4G LTE)
  - Optical LOS component as augment (SRF).

## Systems



TRC-170A



MRC-142C



WPPL-D



TEAMS



# Airborne NOTM Systems (NOTM-A)



Aircraft Mounted SATCOM Antenna

Critical Enabling Components



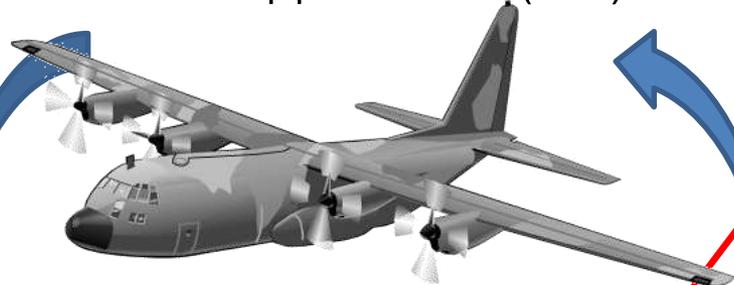
VSAT-L



NOTM Tactical Entry Point (TEP) Modem Kit (TMK)



NOTM-A LAN Equipment - Embarked (MV-22)



NOTM-A LAN Equipment - Embarked (KC-130J)

Ancillary Equipment



NOTM-A LAN Equipment - Disembarked

AIRBORNE NOTM SYSTEM



Unit Provided User Interface Devices



Unit Provided TDRs

Two Simultaneously Supported Network Enclaves:

- 1. NIPR (and/or)
- 2. SIPR (and/or)
- 3. Mission Specific (and/or)



Questions?