C4
From the Past, Into the Future

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Data Distribution

DDS-M

M = Modular
Modular, mission scalable design
Adds IAM network defense and
higher capacity

TRC-170

Enhanced modem quadrupled data
throughput to 16 Mbps, automatic
power adjustment capability.
Angled Diversity Antenna provides
smaller footprint.

Terrestrial

AN/MRC-142C

Enhanced radio/modular design
Improved throughput to 16 Mbps (8
times improvement over old version)
Radios/baseband multiplexer can be
separated from vehicle

Satellite

SWAN

Increased throughput to 4 Mbps
Upgrading to Ka band capability
Improved flexibility by providing
access to MILSATCOM and dual-
banding
IP modem – allows routing i.e.
meshed rather than bent-pipe
More effective use of scarce satcom
bandwidth

LMST

Currently going through an upgrade
to add capability for the Ka band.
IP modem upgrade an initiative for
2012.

2

2010 – 2012

**EPLRS
(own unique waveform)**

Static routed data network for Fires, Chat, etc.

**AN/PRC-117G
(ANW2)**

Provides mobile ad hoc data transport. Limited fielding user test and evaluation. Surrogate before JTRS fielding. Facilitates refinement of TTPs. Planned to integrate with SRW waveform in future.

Initial Steps for Mobile Networks
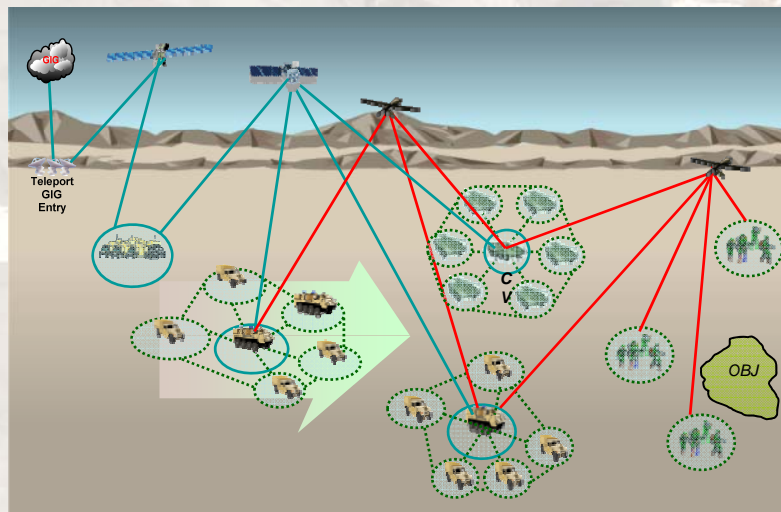
2012 – 2014   2014 - 2016

Introduce Joint Networking Waveforms

**JTRS Manpack (2Ch):
MUOS, SRW, Legacy Waveforms**

Provides manpackable as well as vehicle mounted data networking. Joint waveforms for interoperability. Is the foundation for networking at the lower tactical levels

2016 - 2018

Mobilize the Network

**JTRS GMR (4 Ch)
(WNW, SRW, & Legacy Waveforms)**

Provides wideband backbone that will connect smaller tactical networking to higher tier networks
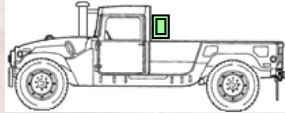
**NOTM
(NCW, HNW)**

3

Co HQ (x3/Bn)

Mounted in M1123A2

T/O 6 Officer/176 Enlisted

- VHF-V (VRC-88):   1
- VHF-M (PRC-119):   7
- V/UHF-M (PRC-113):   1

RFL Plt (x3/Cox9/Bn)

Corpsman

Radio Weights
Marine – N/A
Plt – 15 lbs
Co – 192 lbs

WPNS Plt (x3/Bn)

4

Co HQ (x3/Bn)
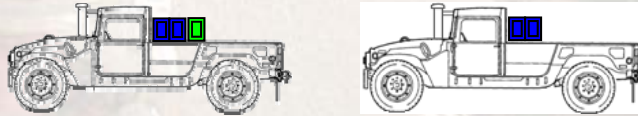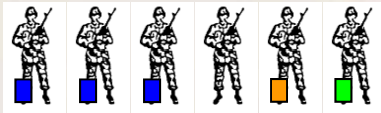
Mounted in M1123A2s or M1152A1s

RFL Plt (x3/Cox9/Bn)

Corpsman

WPNS Plt (x3/Bn)

MG Sect   Mortar Sect   Assault Sect

T/O 6 Officer/176 Enlisted

- MBR-V (VRC-103):   1
- MBR-M (PRC-117):   5
- HFMR (PRC-150):   5
- DVA (VRC-110):   2
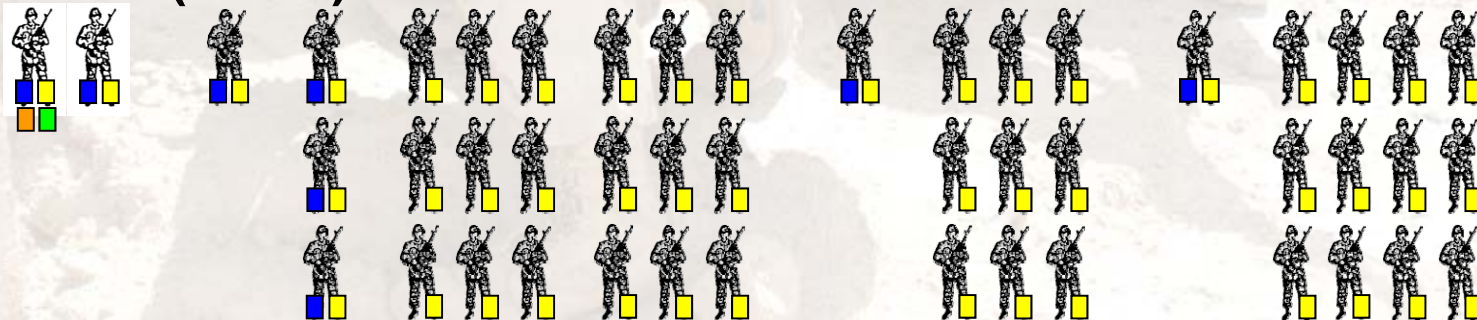- THHR (PRC-148/152): 35
- IISR (PRC-153):   176

Radio Weights
Marine – 1-4 lbs
Plt – 78 lbs
Co – 534 lbs

- NMCI becoming enterprise wide
- Slowly emerging practice for CIO governance, roles, and responsibilities
  - *Newly formed* IT Steering Group
  - Low visibility of IT alignment to operational capabilities or ROI
  - Lack of enterprise software licenses
  - *Growing* Enterprise Architecture *practice and capability*
- Insufficient integration between warfighting and supporting establishment capability development, functions, or systems
- No USMC Data Strategy

C4/CIO 2010

- Published Marine Corps Order establishing CIO roles and responsibilities

- Published Marine Corps net centric Data Strategy

- Published Integrated Communications Strategy – currently developing update

- NMCI-COSC-NGEN moving toward GO/GO

- Improved NetOps provides detailed insight into network performance and enables synchronized and responsive operations as part of a defense-in-depth C2 posture

- Improved Governance :
  – Capital Planning & Improvement (CPIC)
  – D-ITIL
  – IT Steering Group (ITSG)
  – IT Portfolio Management through Functional Area Management structure and processes
  – ITPRAS
- Enterprise Architecture

DoD Enterprise Architecture

Joint Capability Areas (JCAs)

DON Enterprise Architecture

USMC Enterprise Architecture
(Capstone Layer)

USMC Business Architecture — **Supports** → MAGTF Architecture

Segment Architectures

METOC (OPNAV) | Civilian Personnel | Financial Mgt (SECNAV) | Legal (SECNAV) | Medical (SECNAV) | Acquisition (SECNAV) | Information Operations | Manpower & Personnel | Resources, Reqmts, Assessments | Scientific & Technical | Test & Evaluation | Training & Education | Logistics | Modeling & Simulation | Intelligence & Cryptology | Weapons Planning & Control | Readiness | Command & Control

USMC Enterprise Services

USMC Solution Architectures

Activities | Value Streams | Services | Data | Apps & Appliances | Networks | Transmission Systems | Base/Post Installations

- Development and maturity of Enterprise Architecture
  - Alignment of solution sets to capabilities, strategy, and doctrine
  - IM/IT investment gaps identified
- Development of IT Regionalization Plan to support every *Networked Marine from Flagpole to Fighting Hole*
- Added a full-time Chief Technology Advisor
  - CTA actively engaged in building a culture of innovation across the Marine Corps by assessing areas for technology insertion and evaluating best practices from across DoD, the Service Branches, and industry to more effectively carry out the Marine Corps mission
- Development of the CIO Community of Interest for C4/CIO stakeholders

How Industry Can Help

- **Mobile Ad-Hoc Networking**
  - Standardized, non-proprietary approach to insert evolving technology into existing service architecture
  - Celestial, Terrestrial & Airborne network devices should dynamically discover each other and adapt to the scheme of maneuver

- **Distributing Services**
  - Social networking, Recruiting, Collaboration tool sets
  - Push/pull data closer to the tactical edge
  - Hand held terminal devices that can tie into the mobile ad-hoc networks
  - Need to consolidate assets via thin clients and virtualization
    - Reduce the foot print within our tactical environment (lighter, leaner, more efficient)
  - Compression techniques that facilitate the movement of data over constrained networks

- **Improve Reach-Back Support and Interoperability**
  - Developing the correct set of net centric capabilities ensuring interoperability with the DoD GIG and other information environments

- Infusing Leap Ahead Technologies
  - Process is too long to procure IT to meet warfighter's emerging needs
  - Need help leveraging current programs to meet future capability gaps
  - Partner with Federal government to modernize IT procurement system
  - Warfighter does not have to worry about transitioning between networks
- Identity and Information Assurance
  - Safe and trusted built in IA controls in the hardware and software suites
  - Enable a seamless, robust, and secure network that can communicate within a mobile ad-hoc network
  - Rigorous testing and validation processes and procedures
  - Security capabilities that are up front and useful
- Expeditionary Green Power
  - Lighter, leaner, smaller, fuel efficient, and easily implemented
  - Examples:
    - Smart surge protectors
    - Solar and motion powered chargers

- Information is a strategic asset

- Marine Corps is better positioned now to support the warfighter in gaining strategic, operational, and tactical advantage through information superiority

- The vision, mission, goals and priorities of C4/CIO organization reflect the realities of today's information environment

- C4 *continues to evaluate methods for* reducing cost, reducing risk, and preparing for future capabilities