

Dynamic Spectrum Industry Day 5 December 2014



***Vice Admiral Ted "Twig" Branch
Deputy Chief of Naval Operations for Information Dominance
Director of Naval Intelligence
OPNAV N2/N6***



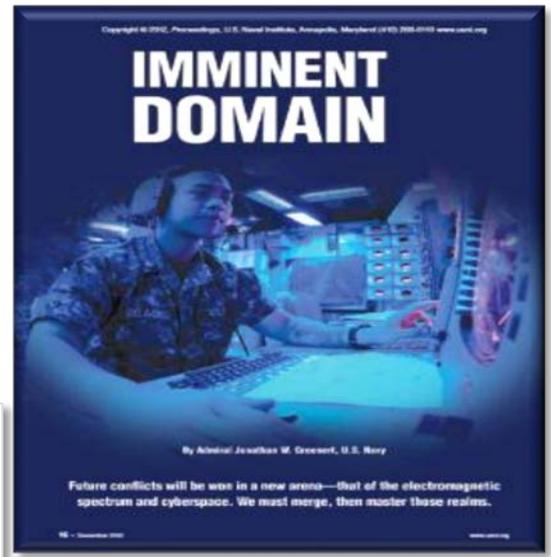
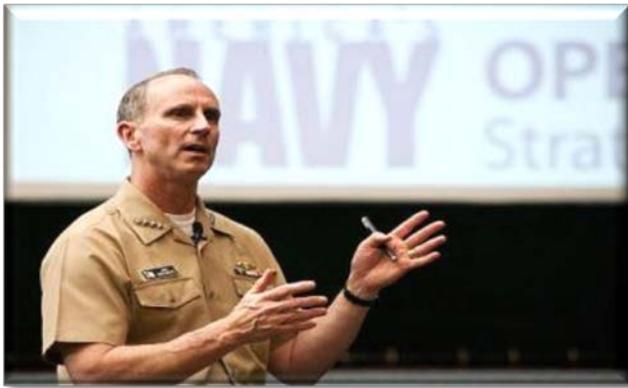
Agenda

- ❑ A CNO Priority
- ❑ Not a new problem
- ❑ Electromagnetic Maneuver Warfare & Cyber
- ❑ Navy Programs
- ❑ Challenges
- ❑ Opportunities



Warfighting First – Operate Forward – Be Ready

A CNO Priority



“Future conflicts will be won in a new arena – that of the electromagnetic spectrum and cyberspace. We must merge, then master those realms.”

~ Admiral Jonathan W. Greenert, USN

EMW...the Next Big Thing...Right Now!

Assured C2 – Battlespace Awareness – Integrated Fires



Warfighting First – Operate Forward – Be Ready

Not a New Problem: WWII – Cold War



Deception-based approach to EMW

Assured C2 – Battlespace Awareness – Integrated Fires



Electromagnetic Maneuver Warfare

- ❑ Understand the spectrum, control our signatures, and command the Electromagnetic Spectrum as a critical maneuver space
- ❑ Seamless integration of communications, C2, SIGINT, EW, spectrum management, and cyber disciplines to deliver combined effects.
- ❑ Infiltrate the enemy's networks, jam, and leverage all sensors and transmitters
- ❑ Fleet experimentation, including doctrine and CONOPs

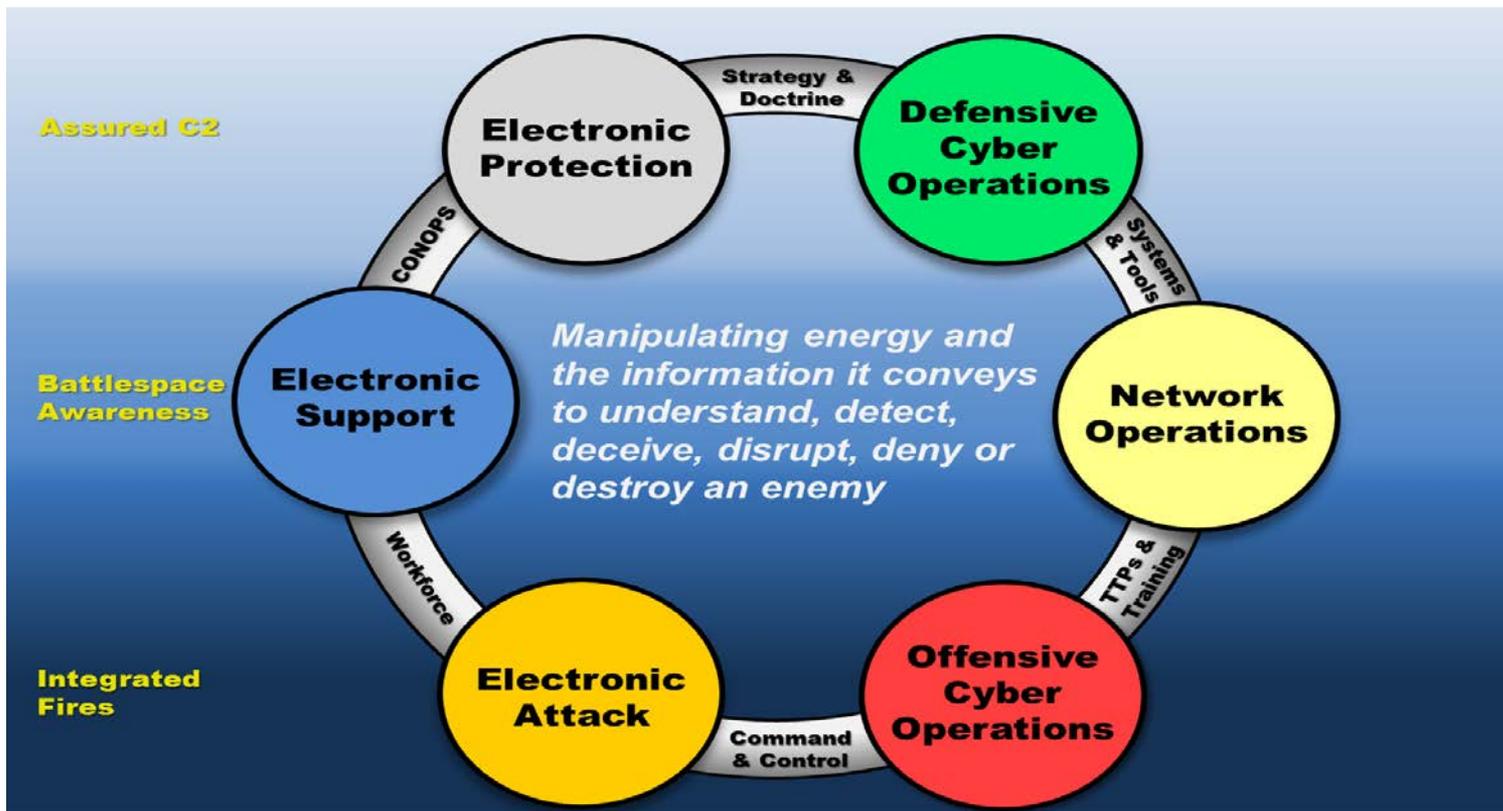
“WARFIGHTING FIRST - Fully exploit cyberspace and the electromagnetic spectrum as a warfighting Domain...”

Assured C2 – Battlespace Awareness – Integrated Fires



Warfighting First – Operate Forward – Be Ready

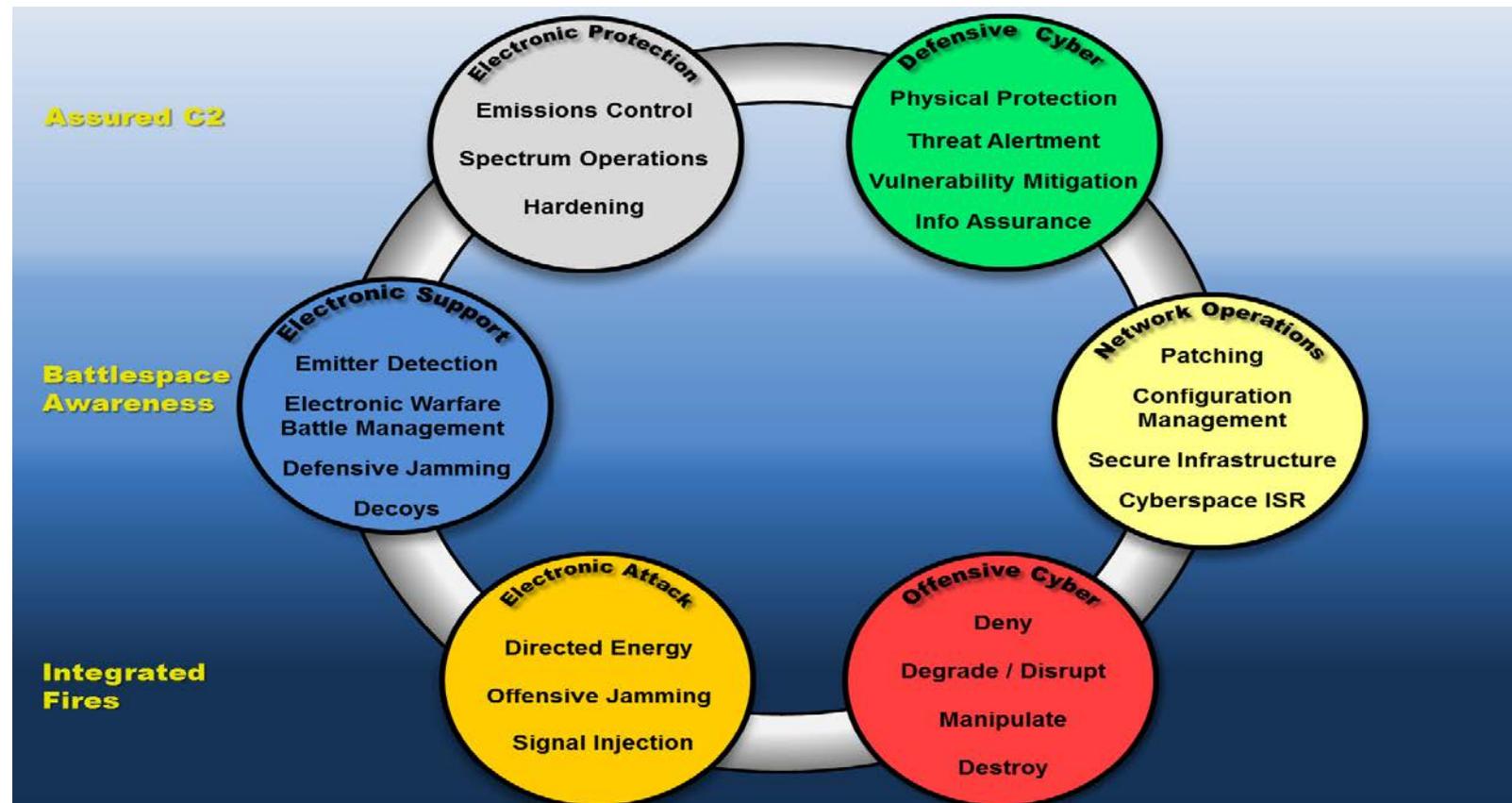
Electromagnetic Maneuver Warfare & Cyber Warfare



Assured C2 – Battlespace Awareness – Integrated Fires



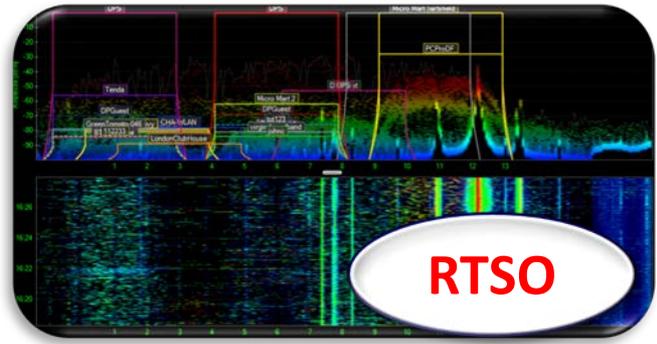
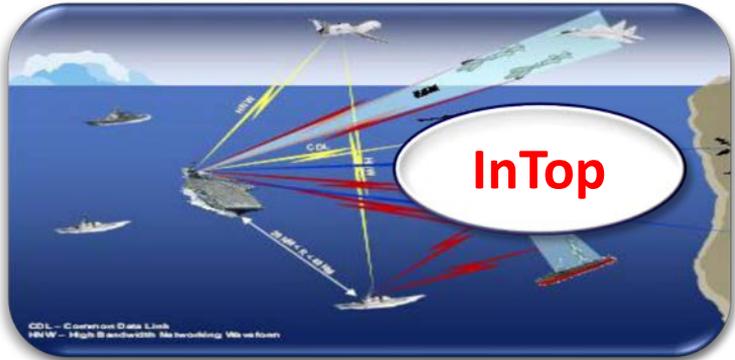
EM/Cyber Functions



Assured C2 – Battlespace Awareness – Integrated Fires



Navy Programs



Increasing Fleet capabilities today

Assured C2 – Battlespace Awareness – Integrated Fires



Warfighting First – Operate Forward – Be Ready

Challenges



Spectrum Coverage

Predictable presence in the spectrum
Increasingly diverse adversary targeting capability

EM Awareness

Own-force monitoring capability with real-time feedback

C/C4ISR

Ability to counter adversary ability to detect, track, and target
Coordination among kinetic and non-kinetic weapons

Mutual Defense

Vice self-defense – strike group, coalition defense

Electronic & Cyber Protection

For combat systems, sensors, timing, data links, weapons...

Combat ID

Integration of national and tactical sensors for I&W, CID, and weapon/target pair recommendations

Training

Live, virtual, and constructive – basic to integrated
How to grow the “EMS Commander”

Affordability

Uncertain fiscal and security environments

Pacing

Hardware upgrades take time; stovepipes prevent interoperability
Speed of warfare stressing decision timeline

Assured C2 – Battlespace Awareness – Integrated Fires



Opportunities

Innovate Here:

- ❑ Agile / Adaptive
- ❑ Open architecture
- ❑ Cyber-capable
- ❑ Multi-Spectral
- ❑ Networked / Integrated
- ❑ Affordable
- ❑ Cybersafe
- ❑ Battle management
- ❑ Sophisticated, not complicated

To Have Effects Here:

- ❑ Rapid response to new threats
- ❑ Range of options to deter/deny/defeat
- ❑ Mission assurance
- ❑ Speed of command
- ❑ Coordinated fires





Warfighting First – Operate Forward – Be Ready



Questions?



Challenges = Opportunities

Assured C2 – Battlespace Awareness – Integrated Fires

Warfighting First – Operate Forward – Be Ready

Unclassified

Back up

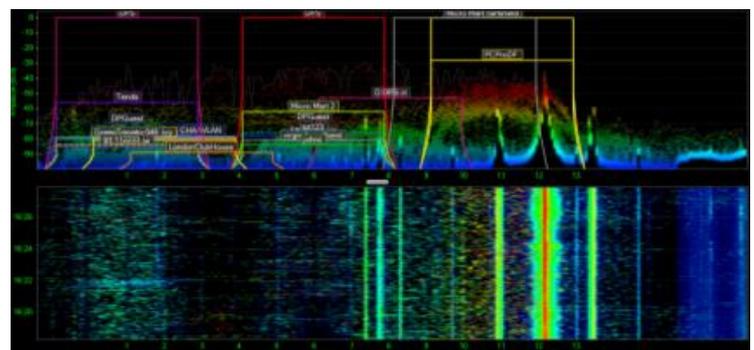


Assured C2 – Battlespace Awareness – Integrated Fires

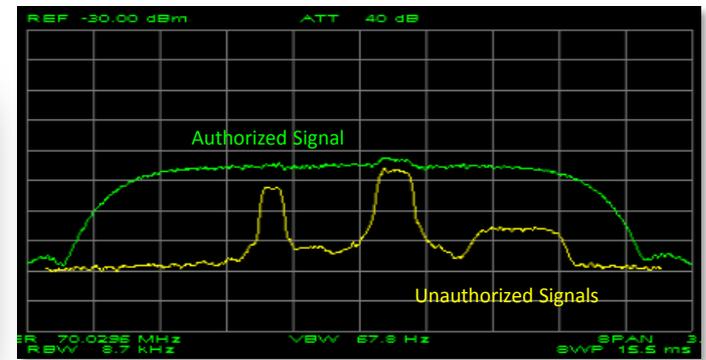


The EMS Environment

- ❑ The EMS is a primary means of communicating, moving data, and controlling systems... and it is congested and contested.
- ❑ Full understanding of EMS essential for success.
- ❑ Operate in the EMS as “maneuver space” --man, train and equip to seize and hold the initiative in the EMS:
 - Know and display the EMS
 - Purposefully manage & control
 - Ensure EMS access
 - Employ EM energy



Acoustic Display



Must Display and Assess EMS Environment

It's about warfighting in and through the EMS!