Background

Increasing operational spectrum demand

- Voice/data communications
- Electronic Warfare (EW)
- Full Motion Video (FMV)

Regulatory considerations

- Spectrum is used by DoD, civilians, government agencies, other nations

“To protect command and control systems, the joint force must develop systems, technologies, and Warfighting techniques to ensure continued freedom of action and access to space, cyberspace, and the electromagnetic spectrum when and where needed.”

Presidential Memorandum: Unleashing the Wireless Broadband Revolution (June 2010)

GEN Dempsey, JOAC 2012

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July 2012, Slide 2
Approved for public release; distribution is unlimited.
There are important considerations specific to military networks

Expeditionary and mobile operations
- Mobile nodes
- Cannot assume fixed infrastructure
- Connectivity constraints
- Ability to operate in various host Nations

Heterogeneity
- Missions and locations
- Networks
- Incumbent systems
- Electromagnetic environment

Security considerations
All spectrum sharing schemes require prior information and pre-planning.

- Various combinations of these types are possible.
Electromagnetic Battle Manager (EMBM)

Helps manage complexities of spectrum management in the tactical battlespace

Description

• EMBM provides an integrated RF spectrum planning and management capability
• Models and simulates a planned mission’s impact on the Electromagnetic Battlespace

System Elements

• Visualizer
• Spectrum Plan Adviser
• Communication Effects Simulators
• Spectrum Knowledge Repository

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CERDEC DSA Policy Generator (PACS)

Helps user generate and validate Dynamic Spectrum Access (DSA) policies for policy-based DSA radio

Description
- Automate DSA policy management for the Soldier
- Enable deployment and operation of DSA-enabled radios

Approach
- Develop an automated DSA policy generation system
- Integrate spectrum analysis to develop coexistence policy parameters
  - Sensing thresholds, geospatial policies, etc.

July 2012, Slide 6
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Spectrum sharing among Army systems using near real-time resource control

Types of Sharing

- Among military MANET networks
- Between MANET networks and other missions
- Between MANET networks and base station/subscriber networks