

12th ICCRTS

“Adapting C2 to the 21st Century”

**Wireless Commercial-off-the-Shelf (COTS) Technologies –
Interim Solution to Network Centric Warfare (NCW)**

Topics:

Army’s Secure WLAN / WWAN Requirements

Benefits and Risks of Adopting Wireless 802.11 / 802.16 COTS Technologies

COTS Interoperability With and Migration to WIN-T and JTRS

Integrating Civilian and Military Wireless Capabilities into Evolving Standards

Major Bryon K. Hartzog

Experimentation Division, Capability Development and Integration Directorate

Bldg 71600, 16th Street

Fort Gordon, GA 30905

(706) 791-2970

bryon.hartzog@us.army.mil

ABSTRACT

With the rapid advancement of wireless technologies and growing trend towards broadband networks, the military is evaluating COTS technologies to augment existing communications architecture, to serve as an interim solution and migration toward a network-centric force, enabled by WIN-T and JTRS. Today's warfighter requires a robust and rapidly deployable C2 network providing voice, data and video while on the move. Wireless technologies such as 802.11 and 802.16 are capable of meeting some of these requirements; however, with these benefits come technical and operational risks. This paper highlights the Army's wireless requirements identified in current operations and discusses the benefits, shortcomings and security risks of incorporating 802.11 and 802.16 COTS technologies. Presently, there exist various working groups, research and development, and experimentation efforts addressing these shortcomings. This paper highlights the purpose and objectives of a few of these efforts. Furthermore, the paper discusses the issue of interoperability and migration of COTS technologies to the WIN-T and JTRS NCW programs of record. In conclusion, this paper talks about the challenge of integrating common commercial and military capabilities into evolving standards, allowing for a true COTS solution that is cost-effective and does not require engineering modifications prior to fielding.

PROPOSED OUTLINE

- I. Introduction
 - a. Pace of emerging wireless technologies
 - b. Broadband to the network edge
 - c. Advantages of procuring COTS equipment
 - d. Overview of emerging 802.11 and 802.16 technologies
- II. Army's Wireless Requirements
 - a. Objective wireless requirements specified in the FCS and WIN-T ORD
 - b. Near-term wireless requirements identified in current operations
- III. Potential 802.11 and 802.16 Architectural Solutions
 - a. Point-to-Point and Point-to-Multipoint topologies
 - b. Benefits over existing equipment and architecture
 - c. Operational and security risks
- IV. Current Wireless Working Groups, R&D and Experimentation Efforts
 - a. JFCOM Wireless Working Group
 - b. JSIC Wireless for the Warrior (W4W)
 - c. NPS - Tactical Network Topology Field Experiment (TNT FE)
 - d. PEO-C3T Wireless IPT
- V. Interoperability and Migration Path of COTS Equipment
 - a. Interoperability issues with pre-WIN-T equipment
 - b. Integration of common commercial and military capabilities into evolving standards
- VI. Conclusion
 - a. Key shortcomings of current COTS technologies
 - b. Military influence on standards process
 - c. Way Ahead