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US Army SIGCoE
Cellular Capability Development
Industry Day 2010



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Purpose



- 1. Provide an update on SIGCoE cellular/wireless efforts***
- 2. Discuss technical requirements needed in an Army cellular system***



Agenda



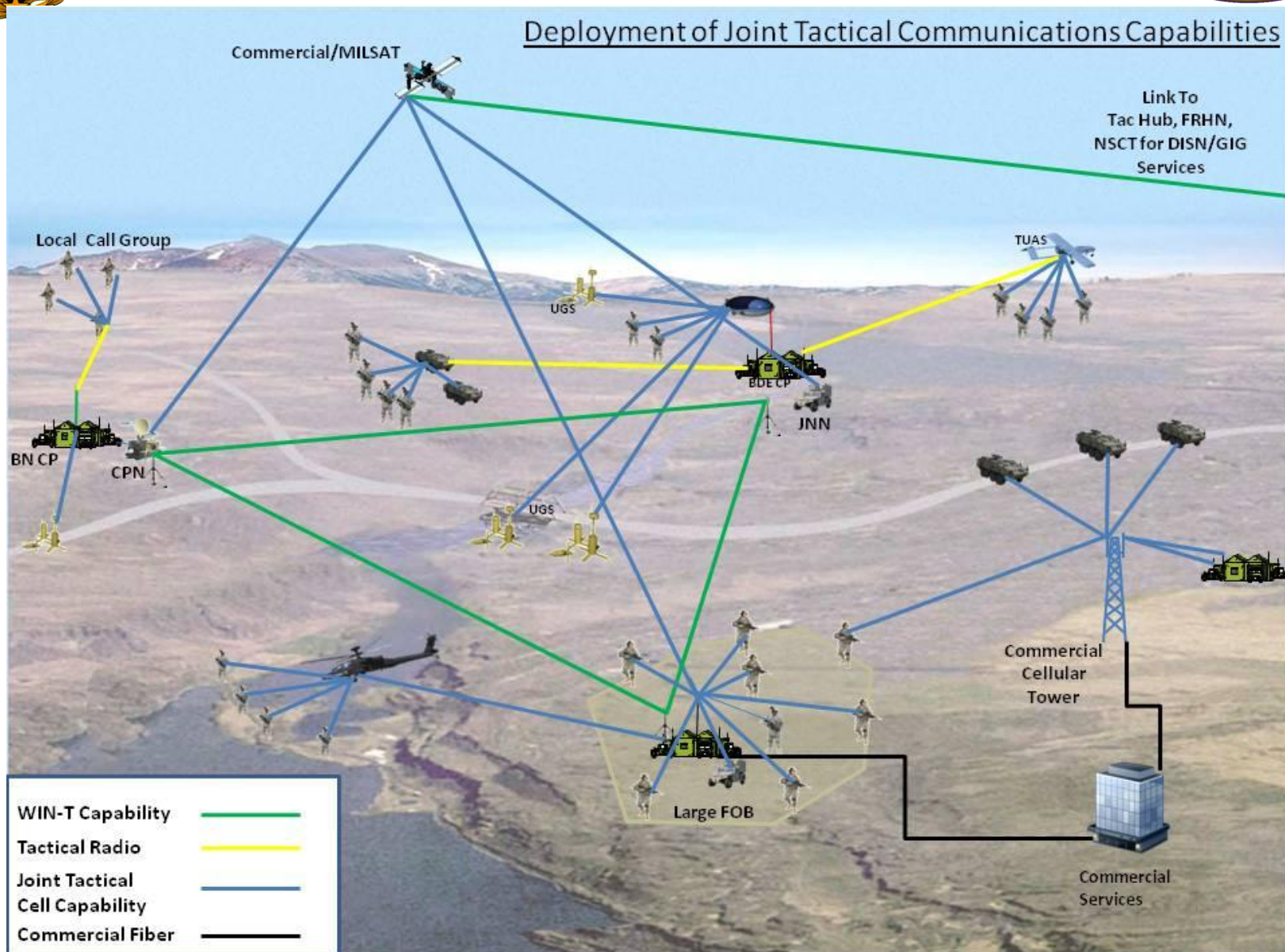
- Army deployable cellular system
- Cellular development tenets
- Army Gaps
- **Concept/way ahead**



Deployable Cellular



Deployment of Joint Tactical Communications Capabilities





Tenets For Army Cellular Development



Take advantage of commercial R&D and infrastructure when available

Extend the network to the Soldier and his immediate leader

Provide frequency agility/efficiency; cannot be solely dependent on commercial frequency bands

Must be affordable; infrastructure must be cost efficient, scalable, and simple to operate

Map to future secure capability when it becomes available and affordable

Provide transport to Army Apps (to include battle command systems data)

Enhance interoperability in a JIIM/coalition environment

Tailorable access/services

Interoperable with Army networks – Legacy and future networks

Operate within the bandwidth limitations of Army transport systems

Meet SWAP constraints for UAS and vehicle configurations

Integrated with unified NetOps tools





Apple Peel





Gap Mitigation



Enhanced cellular/wireless will mitigate the following gaps:

- BFT of dismounted Soldiers
- Leader mobile wideband access to critical data
- Leaders SA/Common Operational Picture when dismounted
- Ability to send and receive tactical chat, email, and preformatted combat messages when dismounted or on the move
- Ability to operate in ECM environment
- C2 on the move
- Access to FMV when mobile or dismounted
- Ad-Hoc mesh network capable of dynamic reconfiguration to extend LOS connectivity to other devices
- Effective use of spectrum within OEF



Concept



Collaborate with PM RITE, PEO-C3T, CERDEC, and other stake holders to continue exploration of emerging cellular technologies to identify cost effective solutions to meet the needs of current disadvantaged users and wider Army requirements.



Questions



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***Joint Tactical Wireless
Communications Capability
(JTWCC) Project Assessment Plan***



***Capabilities Development Integration Directorate
(CDID)***

Experimentation Division (ED)

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Agenda



- **Describe the Experimentation Division assessment for the Joint Tactical Wireless Communications Capability (JTWCC) project**
 - **Scheduled for October 2010 at Fort Gordon**



Purpose



- The JTWCC TIE held in July provided information to aid in the selection of technologies for evaluation by ED
- This technical assessment is sponsored by ARCIC, to inform the Army program assessing the potential use of COTS tactical handheld devices
- The purpose of the ED assessment is twofold:
 - recommend a materiel solution for current wireless ONS
 - inform requirements for a potential Program of Record (POR)
- Achieved by evaluating 4 systems using 3 different wireless technologies
 - IP based, not assessing circuit switched voice
- Primary focus is integrating with WIN-T



Objectives



- **Determine how selected technology will be integrated with WIN-T INC 1A**
 - Includes Tactical Nodes and a Regional Hub
- **Evaluate systems based on CDMA (EVDO), UMTS (HSPA) and WiMAX (IP)**
- **Evaluate operation of voice (VoIP), select Battle Command systems, security and Army Apps**
- **Determine DOTMLPF issues related to implementation of JTWCC capability**
- **Leverage relationships and previous assessments with other DoD agencies to accelerate acquisition and requirements**



Key Evaluation Criteria



- **Commercial standards based waveform**
 - COTS, not modified COTS
- **IP core**
- **Security architecture is non-CCI encryption (eg. Suite B)**
- **Spectrum agile**
 - Built in commercial bands in handsets
 - Appropriate implementation of fixed base station frequencies
- **Certifications / DoD experimentation activity participation**
- **SWAP-C issues and standards related to integration with WIN-T INC1A**

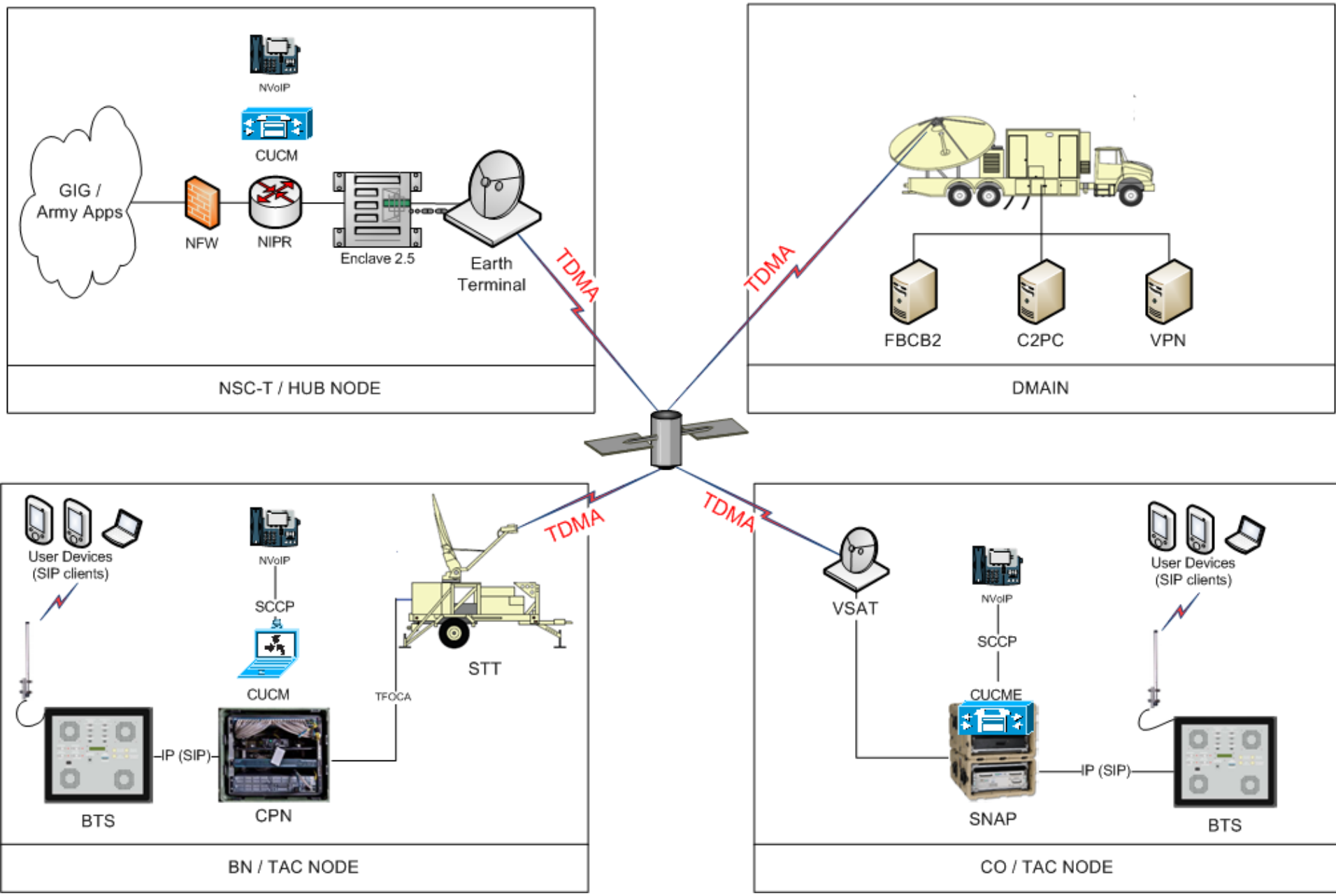


Exclusions



- **In order to scope the assessment within the available resources, the following is excluded:**
 - **Closed standard based systems**
 - **2G cellular (circuit switched) systems**
 - **Aerial layer**
 - **Narrowband satellite backhaul**
 - **Tactical radio extension**
 - **WiFi mesh networks**
 - **App management architecture**
 - **Roaming agreements**

JTWCC Assessment with WIN-T INC 1
SV-1
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Assessment Methodology



- **Ph 1: Trade Study / TIE (conducted Jul 10)**
- **Ph 2: Demonstration / Validation of selected vendor systems, broken into sub-phases**
 - **2A: UE – BTS**
 - **2B: UE – BTS – WIN-T Node**
 - **2C: UE – BTS – WIN-T Node – C2ABC**
 - **2D: UE – BTS – WIN-T Node – VPN**
 - **2E: UE – BTS – WIN-T Node – NIPR (App Store)**

UE: User Equipment

BTS: Base Station

WIN-T: Warfighter Information Network-Tactical

VPN: Virtual Private Network

C2ABC: Command and Control Army Battle Command systems



Key Assessment Measures



- **Throughput**
- **Latency**
- **Jitter**
- **Security**
- **Call quality**
- **Application operation**
- **System operation and reliability**
- **Note – coverage / range and capacity are not key measures for this assessment**



Summary



- The focus is on integrating the selected technologies with WIN-T INC1A to determine impact on C2 networks, core routing issues and enable backhaul
- The deliverable of the assessment will inform a concurrent ONS response and requirements based documentation for the acquisition process
- Represents a coordinated Army contribution to a Joint effort, in order to accelerate a unified response
- Potential for additional evaluation

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