TC3 | TACTICAL COMMAND, CONTROL, & COMMUNICATIONS

Battle Management Command, Control and Communications: TC3 Delta

Colonel Pete Mastro

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AGENDA

- **TC3 Overview**

- **TC3 Programs**

- **Upcoming Opportunities**

- **On the Horizon**

- **Q&As**

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TC3 PROGRAMS

- Federal Augmentation Services (FAS)
- Commercial Augmentation Services (CAS)
- AFSCN Scheduling Tool (AST) [ACAT III]
- Enterprise Resource Manager (ERM)
- R2C2 Combined Program Office
- meshONE-Terrestrial (meshONE-T)

MISSION

Drive enterprise integration and modernization of tactical level C3 capabilities to transform satellite operations

VISION

Revolutionize satellite operations with resiliency and enhanced interoperability in our space ground architecture while quickly delivering war-winning capabilities for the Space Force

Federal Augmentation Services (FAS)

FAS is a joint effort between the USSF and the National Oceanic Atmospheric Administration (NOAA)

FAS augments the Satellite Control Network (SCN) with access to *spare capacity* on five NOAA 13-meter L/S-band antennas

- NOAA is providing a Telemetry, Tracking and Commanding (TT&C) service to the USSF
    - Requires modifications to their antennas to support SCN missions
    - Requires communication equipment installed at the sites for communication with the SCN

Commercial Augmentation Services (CAS)

CAS provides increased capacity via USSF, commercial providers, & other US Government agencies

Capacity leased from commercial antenna providers to augment the SCN

Controlled thru Gov't C2 segments to perform scheduling, diversify resourcing, and maintain cybersecurity

AFSCN Scheduling Tool (AST)

AST delivers scheduling solution to address end-of-life concerns while maintaining operations

Provides bridge to an Enterprise-grade scheduler solution

- —Phase 1: Initial AST deployment & training, ESD 2.7 remains primary

- —Phase 2: Add nodes/ users, AST becomes primary

- —Phase 3: Integrate RTSs, sunset ESD 2.7

- —Phase 4: Remote users

DT & OT Complete in CY2024

Enterprise Resource Management (ERM)

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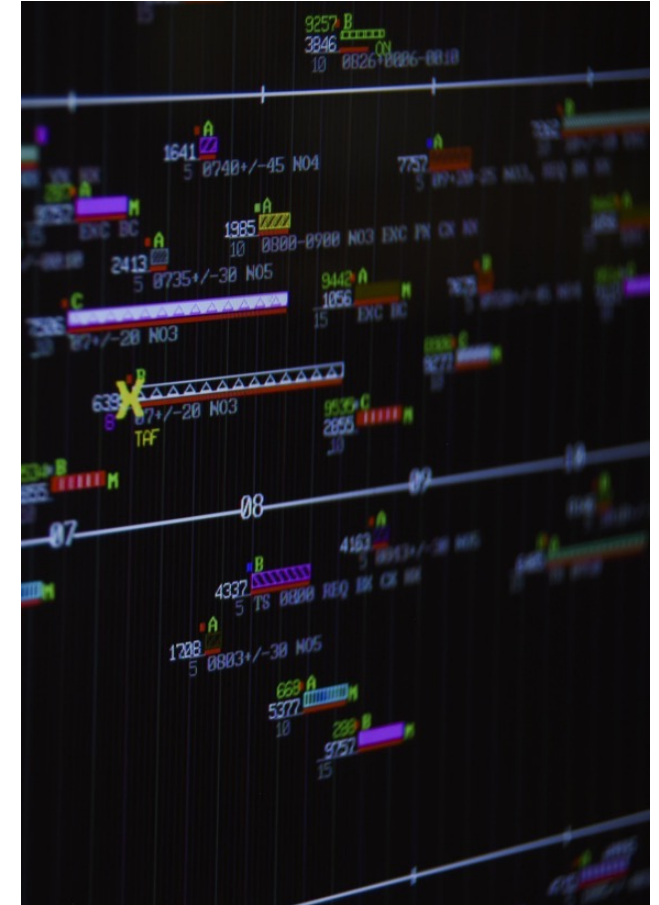
ERM automates scheduling, enables efficient utilization of high-demand assets and boosts SATOPS resiliency

- Automates schedule build by prioritizing, deconflicting and optimizing SOC requests; Dynamically respond

- Integrates and manages SCN, Federal, and CAS resources to provide assured SOC-to-SV connectivity

- Supports Hybrid cloud approach

- Platform TBD

- Project Mercury and Antenna as a Service - scalable Starting Points

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Upcoming Opportunities: Enterprise Resource Management (ERM)

Description of Effort: ERM will facilitate scheduling and management of ground resources within the Data Transmit-Receive Network (DTRN) to enable sending/receiving of telemetry, tracking, and commanding (TT&C) and mission data for Department of Defense (DoD) and other US Government-owned satellites throughout the spectrum of peace to conflict. ERM will support legacy connections to Satellite Operations Centers (SOCs) and antennas; however, it will also provide SOCs a common Internet Protocol interface that will simplify requests while also automating scheduling, orchestration, and execution.

Timeline:
- Request for Prototype Proposal (RPP) Release: Dec 2023 on SpEC
- Estimated Contract Award Date: Mar 2024

Contract Value: ~$38M

Contact Information: Maj Justin Guerrero, SSC/BCTI, justin.guerrero.1@spaceforce.mil

Source: U.S. Space Force/Senior Airman Brooke Wise.

meshONE-T

meshONE-T provides global, enterprise, multi-tenant ground transport for Service, IC and Foreign Mission Partners

- Supports Joint All-Domain Command and Control (JADC2) and Advanced Battle Management System

- Data Transport as a Service (DTaaS) prototype – scalable, resilient, and cyber-secure network architecture

Key Features:

— Dynamic self-healing

— Devices join & leave w/ease

— Network scales to execute warfighting functions

— Low data latency

— Robust against cyber, jamming & other threats

— Rapid upgrade cycles

— Commercial standards

— Multi-level security

There are 17 deployed nodes at different bases around the world and when complete, results in more secure enterprise communications, interoperability, and cloud connectivity for mission partners.

Integrated, Immersive, Intelligent Environment (I3E)

The I3E is a production follow-on to the Immersive Digital Facility (IDF) prototype

Awarded $19.8 million on 1 Dec to mature the digital ecosystem's capabilities

Advances SF digital transformation effort to be more interconnected, innovative, and digitally dominant

Constructed on Azure cloud infrastructure which can host applications in support of acquisitions, training, and operations

Currently accessible at its Los Angeles node, but the environment will also be accessible to Guardians everywhere via Azure Virtual Desktop

Efforts continuing under TC3 Delta

I3E augmented reality space simulation powered by Microsoft's HoloLense headsets

On the Horizon: A greenfield antenna approach?

- Vision: A multi-mission antenna approach that delivers *exclusively* to the needs of mission partner "customers"

- Still in the very early concept formulation phase

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Questions

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