C-Deck Enterprise Engineering: Mission Thread Analysis Process Overview

KOBAYASHI MARU

Space C2 Program
KM Software Factory
GSAW 2021

Introductions

Maj Carl Rossini

Chief Engineer

United States Space Force

El Segundo, CA

Carl.rossini@spaceforce.mil

310-416-1591

Maj Carl Rossini is an Acquisition Officer for the USSF. Carl is currently the Chief Engineer of the Enterprise Engineering Team, spearheading agile software transformation for the USSF Space C2 Kobayashi Maru Program Office. Previously, Carl served as the Program Manager leading a major spacecraft technology insertion program under the National Reconnaissance Office (NRO). Before that, Carl worked as an Electronic Warfare (EW) Systems Engineer leading technology refresh for the F-35 Joint Program Office. Carl received his Master's in Industrial Engineering from Virginia Tech, and his B.S. in Electrical & Computer Engineering from the University of Texas.

John Silvas

Distinguished Engineer

Booz Allen Hamilton

El Segundo, CA

Silvas_john@bah.com

310-433-4308

John Silvas joined Booz Allen in June 1998 and is now a Distinguished Engineer in the Aerospace Account that currently supports the USSF Space C2 Kobayashi Maru Program Office and the Enterprise Engineering Team in El Segundo, CA. John is also the Booz Allen Director for Digital Engineering leading a distributed team of highly talented Digital Engineers that are implementing cutting edge methods, techniques, and tools in support of numerous clients across the DoD and other Federal agencies. John also served in the U.S. Air Force on active duty for three years during the first Gulf War where he worked in satellite communications in support of various national objectives. Later while in the Air Force Reserves, he attended Virginia Tech in Blacksburg, Va. and received a B.S. in Industrial Design in May of 1998. Mr. Silvas is also a certified INCOSE Expert Systems Engineering Professional (ESEP) as of 22 Feb 18 and served as the INCOSE Los Angeles Chapter President in 2012.

Connor Wynveen

Lead Systems Engineer

Booz Allen Hamilton

El Segundo, CA

Wynveen_connor@bah.com

619-820-0501

Connor Wynveen is a Lead Engineer at Booz Allen Hamilton, located at the El Segundo office. Connor has 6 years of professional experience as a systems engineer, specifically working as a model-based systems engineer for the last 5 years helping drive the digital engineering initiative at Booz Allen. Connor is currently working on the USSF Space C2 Kobayashi Maru Program Office and the Enterprise Engineering Team. Previous projects supported at Booz Allen include the Launch and Test Range System (LTRS), Evolved Strategic Satcom (ESS), a cyber-resilient Positioning Navigation and Timing (PNT) system, and the DoD PNT Architecture (PNTA) standard. He has a B.S. in Electrical Engineering from the University of California, Santa Barbara (UCSB).

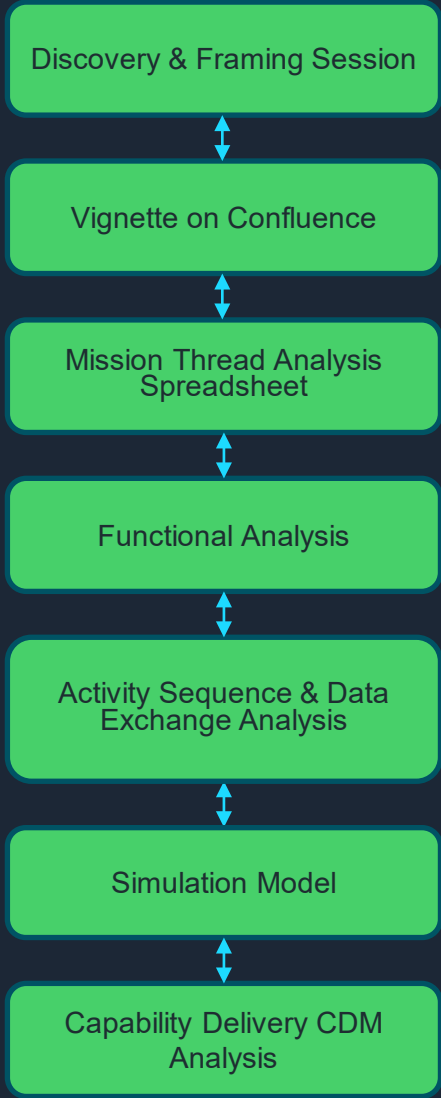# Mission Thread Analysis to Address Some Key Challenges

- Siloed mission applications challenge Operators when performing the mission

- Operators from different Ops Centers needing to collaborate and share data

- Hard for Systems Engineering analysis to keep up with rapid agile software development

- Supports multiple software development Teams that are going fast, working independently, etc.

MISSION ENGINEERING FOCUS FOR DEVELOPING INTEGRATED C2 MISSION APPLICATIONS IN SUPPORT OF OUR SPACE GUARDIANS

Mission Thread Analysis Video Intro

7 KEY ACTIVITIES/ARTIFACTS

- Discovery & Framing Session
- Vignette on Confluence
- Mission Thread Analysis Spreadsheet
- Functional Analysis
- Activity Sequence & Data Exchange Analysis
- Simulation Model
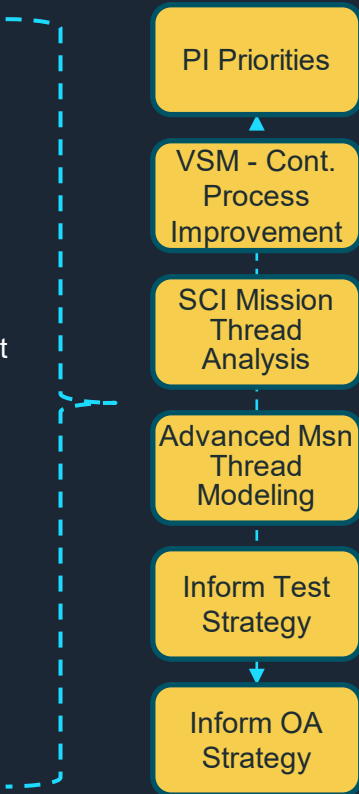- Capability Delivery CDM Analysis

OUTPUT INFORMATION

1. Current CONOPS Insights
2. Pain Points
3. Desires/Enhancements

4. Scenario Scope/Description
5. Top-level Events

6. Ops Activities Baselined
7. Mappings: Ops Activities/Centers/Units/Apps
8. Initial Msn App Gaps & Duplication
9. Initial Joint CONOPS Questions

10. Msn App Fx Mapping to Ops Activities
11. Confirmed Msn App Gaps & Duplication

12. OV-5b (Phases of Battle/Orgs)
13. Detailed Data Exchanges

14. Visualization/Physics-Based Model

15. Tailored CDM Capability Roadmap View
16. Synchronization & Dependency Eval

Space C2 GRFA (MBSE Model)
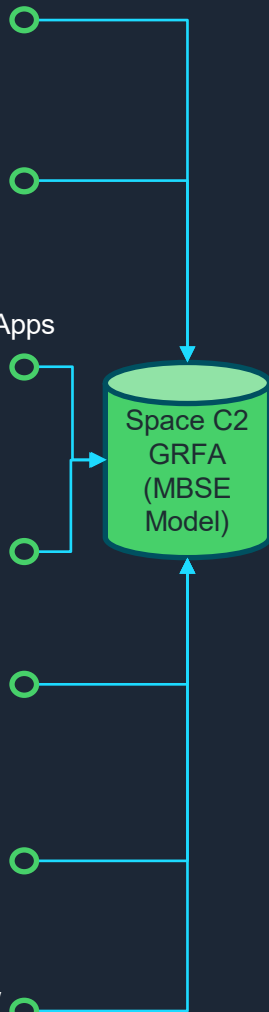
DESIRED OUTCOMES
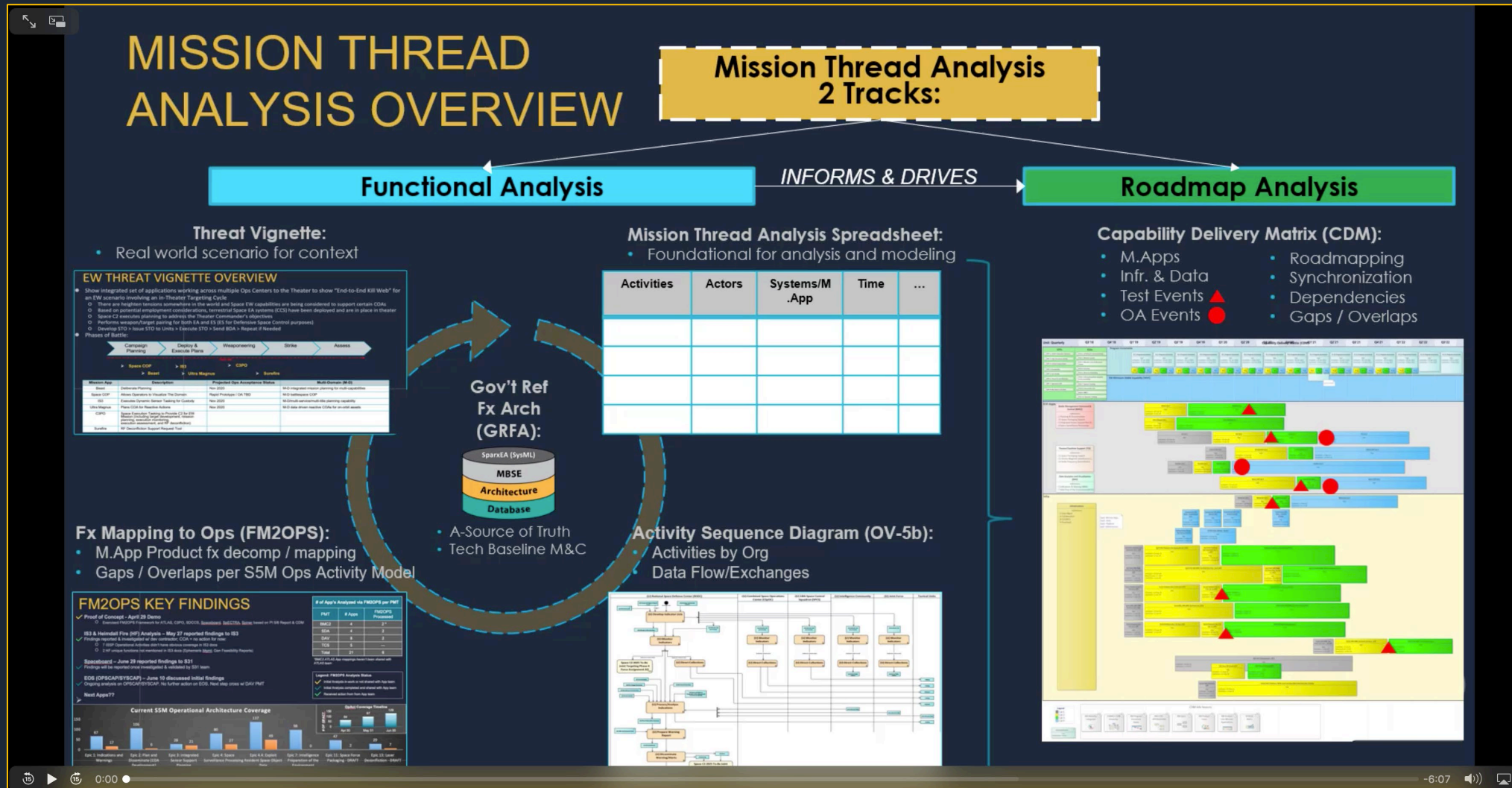
1. Capability Gaps
2. Dev Duplication
3. PMT Feature Inputs
4. Improved Integrated Msn App Products
5. Joint CONOPS considerations
6. MVC Coverage Assessment Report (Msn App to Msn Fx Criteria)
7. Data Exchange Requirements
8. CDS Requirements
9. Capability Delivery Roadmap
10. Refined Space C2 GRFA Model
11. Msn Thread Analysis Findings Report (ppt)
12. Integrated Capability Exercise & Training Plan

FEED / DRIVE

- PI Priorities
- VSM - Cont. Process Improvement
- SCI Mission Thread Analysis
- Advanced Msn Thread Modeling
- Inform Test Strategy
- Inform OA Strategy

6:07 VIDEO – ROLL TAPE

Key Take-Aways

- Adding value to software product development teams for improved integrated capability

- Mission thread analysis value examples
    - Electronic warfare thread: identified overlapping functionality/development efforts between two development teams creating the same assessment report

    - Sensor management thread: tracked pain points of Operators to identify where improved software and infrastructure can address key challenges in mission execution – centralized and improved sharing of sensor status data between Ops Centers

- Rapid functional assessments to support decision making
    - Reference Architecture used to identify next highest priority for software capability delivery
    - Manage capability delivery progress

KM Users

United States Space Force operators at the Joint Task Force – Space Defense, Combined Force Space Component Command and 18th Space Control Squadron

See Us on 15 Mar 21 for More Information or Questions

- Email wynveen_connor@bah.com for the Webex Mtg Invite on 15 March 1100-1200 PT if you are interested in joining this Sidebar

- Webex link here

When it's time, join your Webex meeting here.

Join meeting

Meeting number (access code): 185 120 6852
Meeting password: 2sWkr5p8xNP

Tap to join from a mobile device (attendees only)
+17034391214,,1851206852## North America VA
+16193781249,,1851206852## North America West

Join by phone
+17034391214 North America VA
+16193781249 North America West
Global call-in numbers | Toll-free calling restrictions

Join from a video system or application
Dial 1851206852@bahmeet.webex.com
You can also dial 173.243.2.68 and enter your meeting number.