

MMSOC GSA: Standards and Architecture Enabling Multi-Mission Interoperability

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SMC/Space Development & Test Wing/Responsive Space Command & Control 24 March 2009



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MMSOC GSA

Introduction



Mandate: To fly various one-of-a-kind technology demonstrations and other space-based mission for Research, Development, Test and Evaluation and responsive space operational communities.

Challenge: Execute the mandate using limited personnel while lowering development and sustainment costs and reducing schedule without increasing technical risk.

RDT&E: Supports all aspects of the RDT&E mission

COCOM: Facilitates transfer of RDT&E satellites

ORS: Pathfinder; AF's primary ORS satellite C2 capability





Approach → Architecture Development



https://wwwd.my.af.mil/afknprod/ASPs/docman/DOCMain.asp?Tab=0&FolderID=OO-EA-AF-SP-18-2-21-9&Filter=OO-EA-AF-SP



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Approach → Foundational Document Development



Photo courtesy of: www.cv.nrao.edu/photos/First_Floor_Foundation

AEROSPACE

A1

MMSOC GSA

Approach → Upgrade/Improvement Cycle



Approach -> Upgrade/Improvement (

9/0/1

Develop OSMP

Develop Open System Maturity Model Seess MMSOC Increments 1&2 Develop Migration Roadmap Standard Interfaces Wrappers for Legacy Capability

Requirements Close-out Date

2009

Plug-n-Play Environments
DNet-Centric Enterprise Services
Centralized Control and Monitor
DIPv6 Employment
Deliver Increment X
Integrated Autonomous System Health and
Dates Yooor Monoous

Automated De-confliction Tools

Rule-Based Automated Tools
Knowledge-Based Tools
Autonomous Tools
Self-diagnostic Systems
DExpert Systems Data Fusion

Capability Delivery Date

TRD Dev Contracting

7/01

Design

2011

10/01

2010

Development

2013

Test

8/31

2014

9/30

Contracting Cycle (3 mos)

(14 mos)

2012

High Productivity Computing Technologies
Interoperable Protocol
Net Ready
Publish and Subscribe
Common Operating Picture Systems
Remote Administration, Configuration, and Control

/mo)

Built-in Tes/Equipment
Failure Prediction M&S
Capacin/Planning M&S
Risk Abatement M&S
Patterned Magnetic Media
CIG Enterprise Services
Automated Virtual Environme



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6/01

2008

Approach → Upgrade/Improvement Cycle

MI-1 GSA-Common GSE & GS Development



Spacecraft manufacturer and SDTW both use the GSA CMD/TLM system to support the vehicle AI&T and on-orbit operations



Approach → Upgrade/Improvement Cycle







Conclusion







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Questions & Discussion



Authors

- **Ms. Gayla Walden** is the system engineer for the MMSOC GSA and the Mission Unique capabilities for its first mission. An employee of The Aerospace Corporation for over 21 years, she is Systems Director of Flight Operations and Ground System Engineering in Albuquerque.
- Ms. Franchesca Malzahn is the Director for the RS C2 division and Program Manager for the MMSOC GSA development activity. She has 12 years of experience in space and missile operations and acquisition; specifically, spacebased missile warning, ICBMs and Research & Development programs.
- **Mr. Charles Warrender** is the Chief Architect for MMSOC GSA and the RSC2 division. Continuing to serve beyond active duty, he is a civil servant with over 24 years of space operations experience.

