



VMOC

Virtual Mission Operations Center Initiative



Summary

- Delivers actionable intelligence as knowledge to the warfighter
- Facilitates net centric command and control of space and near space platforms
- Eases distribution/expansion of capabilities through common interfaces
- Reduces lifecycle costs
- VMOC prevents internal and external undesirable actions
- Capture of end item will not compromise system

The Virtual Mission Operations Center (VMOC) is an Office of the Secretary of Defense Rapid Acquisition Incentive Net Centricity Initiative executed as a collaborative experiment between the Air Force Space Battlelab, Army Space and Missile Defense Battle Lab and NASA's Glenn Research Center.

The Virtual Mission Operations Center (VMOC) is a proof-of-concept initiative that will provide the utilization of Internet Protocols (IP) to acquire satellite data, dynamically task satellite payload, and perform Telemetry, Tracking, and Control (TT&C) of space and near-space assets. Concurrent to the VMOC experiment is the team's on-going collaboration with the Naval Research Lab (NRL) TACSAT-1 experimentation. NRL will use the VMOC software for sensor data retrieval as part of the TACSAT-1 initiative. By executing a Memorandum of Agreement to pool experimentation and demonstration actions and requirements, all partners realize research and development cost effectiveness, greater interoperability in transformational communications, and concise joint operational understanding. The VMOC is based on a demonstration proposed by General Dynamics.

Current VMOC Experiment

This new architecture will utilize Internet Protocols to standardize Telemetry, Tracking, and Control (TT&C) elements and ensure interoperability between terrestrial (land, sea, and air) and satellite-based systems. The team is conducting research that concentrates on the development of secure, mobile network hardware, software, protocols, and operations applications for use in space and near-space platforms. The distributed architecture provides for survivability and rapid re-configuration needed in the battlefield environment. We believe this will lead to a new and exciting capability to advance military and NASA air and space core missions. This technology will lay the groundwork for the use of IP and Internet tools for command and control of spacecraft, sensors, unmanned/manned and high altitude aerial vehicles.

Future

VMOC will give the SSE the following capabilities utilizing Internet Protocols (IP): acquire satellite data, dynamically task satellite payload, and perform TT&C of on-orbit assets. This will allow the warfighter to request and receive the timeliest information needed to accomplish the mission. When the dual-use ground station is fielded and deployed with the Space Support Element Toolset operators will be able to perform all of the required space functions on a stand-alone basis.

Benefit to the Warfighter

Responsiveness to changing requirements

- Supports rapid control/dissemination configuration changes
- Interoperability across a wide variety of sources/platforms
- Reduces design and integration time of new capabilities

Survivability and Sustainability

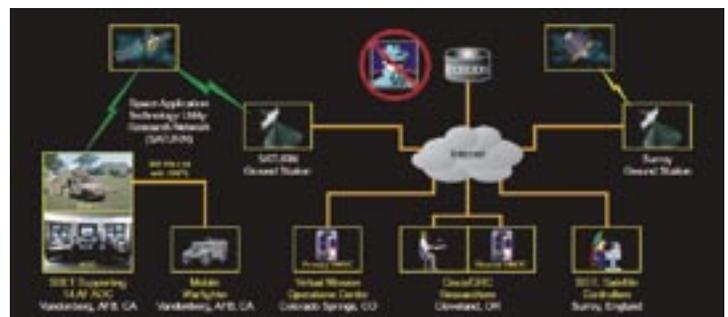
- Allows quick recovery from a battlefield loss
- Enables switchover to backup VMOC

Delivers required information to forward deployed user

- User need not understand platforms, status, and capabilities
- System figures out best sources for the data

Interoperability

- Reduces requirements for mission unique equipment in the field
- System responds with meta data
- Quick turnaround of command and control package for mission unique configuration



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