

OLYMPUS

All-domain live, virtual, constructive environment (LVCE) for collaborative mission simulation

Today's modeling and simulation (M&S) platforms are not optimized for rapid concept development and limit user ability to run large-scale scenarios. Olympus' faster-than-real-time, multidomain M&S capability fills these critical gaps to enhance joint domain operations and improve mission planning.

JOINT ALL-DOMAIN COMMAND AND CONTROL

Olympus' 3D rendered "game environment" provides theater-wide mission-level planning, exercise support, training, concept of operations development and decision making from tactical through strategic level operations. The realistic and intuitive interface is designed to immerse users in a virtual command center. It depicts cross-domain interactions addressing engagements, missions and large-scale campaigns involving blue, red, gray and noncombatant white entities.

The configurable common operating picture feature allows authorized users to view external systems such as mirrored workstations, sensor feeds and live video, thereby keeping the team in the loop at all times.

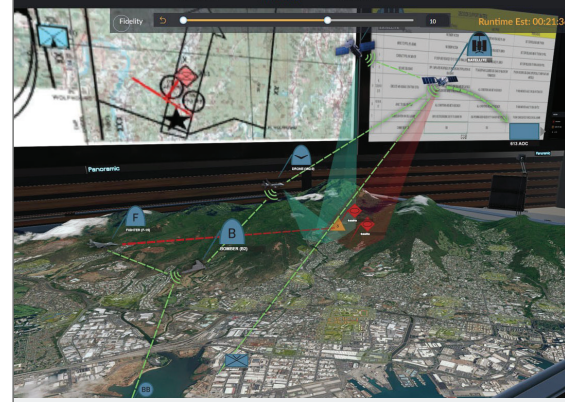
MAXIMUM PERFORMANCE

Olympus provides warfighters with the necessary tools to increase readiness and defeat adversaries in complex and uncertain environments. Teams within the constructive environment can engage in force structure analysis, acquisition strategy and future concept development – all of which lead to better analytics to support decision makers.

The program utilizes a distributed architecture enabling collaboration across multiple nodes, thereby allowing users to train and exercise as they fight. The LVCE supports development of space warfighting strategy concepts. The ability to train like you fight with integration into a live signal environment will prepare warfighters for real world scenarios, and in turn increase confidence.



Olympus offers a faster-than-real-time M&S capability that enables theater-wide mission-level planning from the seafloor to space in a MLS environment.



BENEFITS

- > Increases readiness and supports tactical to strategic planning
- > Allows operation in all classifications levels with multilevel security (MLS) and can be shared with coalition partners
- > Delivers a cost effective approach that exercises battle staffs without physically deploying the force
- > Provides a constructive environment that leads to better analytics to support decision makers

Olympus provides the ability to plan and train for more effective joint domain operations. The Olympus backend M&S architecture integrates the following into an integrated and open data model:

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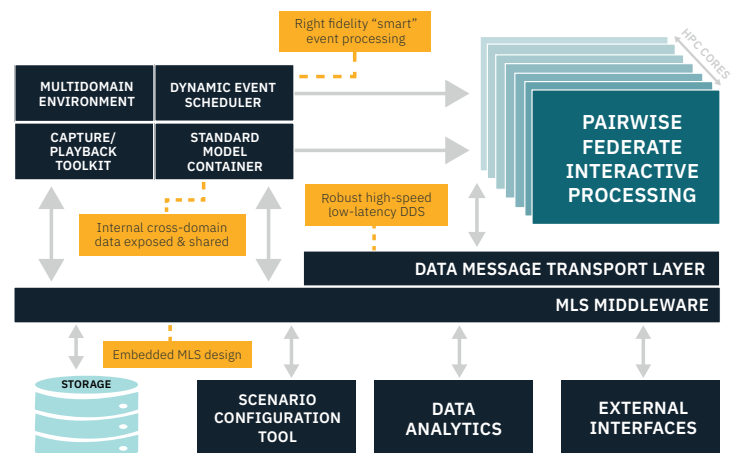
graph TD
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 COMMS
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 direction TB
 AFSIM
 NGTS
 ITASE
 OTHER
 end
 PM[PLUGINS MANAGER]
 PMM[PLUGINS MODEL]
 MT[MODELS TRANSLATOR]
 MI[MODELS INTERFACE]

 Internal_Links <--> PM
 PM <--> PMM
 PMM <--> MT
 MT <--> MI
 MI <--> AFSIM
 MI <--> NGTS
 MI <--> ITASE
 MI <--> OTHER
 Internal_Links <--> External_Links

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The diagram illustrates the concept of Multiple Independent Levels of Security (MILS) in data classification. It shows a hierarchy where data is classified as 'HIGHEST CLASSIFICATION' (Realistic Modeling Can Occur Here (All Data)) and is associated with 'MLS' (Multiple Levels of Security). This highest classification is further divided into three categories: 'TRUSTED GUARD' (dark blue), 'TRUSTED GUARD' (red), and 'TRUSTED GUARD' (light blue). Each 'TRUSTED GUARD' category is associated with a 'LOWER CLASSIFICATION' (dark blue, red, and light blue respectively). The 'LOWER CLASSIFICATION' categories are further divided into multiple independent levels of security, represented by multiple vertical bars of different colors (light blue, orange, yellow, and grey) for each 'LOWER CLASSIFICATION' category. A bracket on the right side of the diagram indicates that these multiple levels of security are 'MULTIPLE INDEPENDENT LEVELS OF SECURITY'.

The Olympus architecture supports multiple scaling methods to provide maximum performance. Our solution will achieve 25 times real-time performance processing of 100,000 entities across a large geospatial area on the current M&S integrated environment baseline, using heuristics-based pruning of pairwise interactions. In order to evaluate alternative comparative outcomes in meaningful timeframes, Olympus combines a highly parallelizable pairwise federate interaction architecture, smart pairwise interaction pruning, dynamic interaction compute scheduling and efficient high-performance computing core allocation.



L3Harris Technologies is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains.



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