



STITCHES APPLICATION

SOS TECHNOLOGY INTEGRATION TOOL CHAIN FOR HETEROGENEOUS ELECTRONIC SYSTEMS

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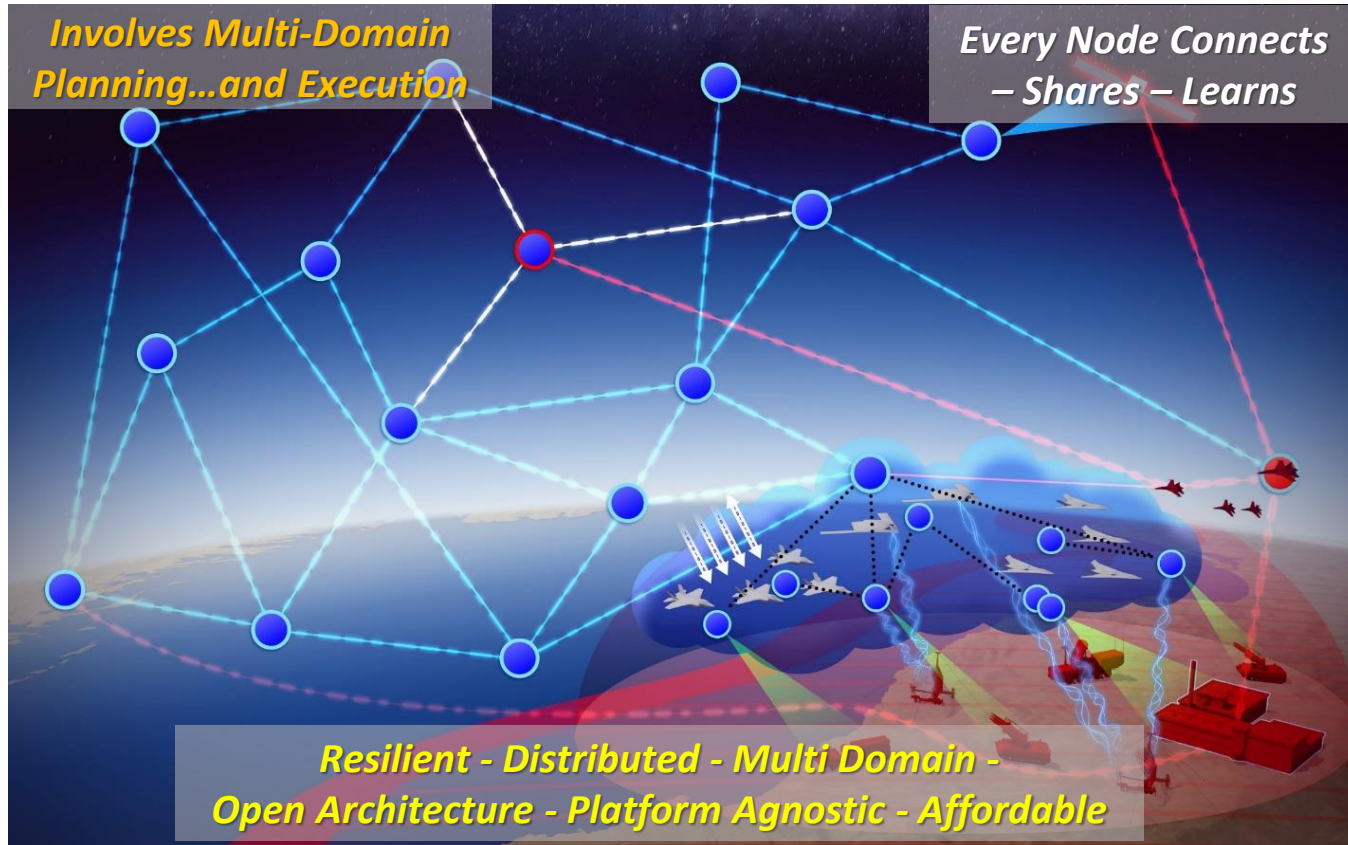
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The views, opinions and/or findings expressed are those of the author and should not be interpreted as representing the official views or policies of the Department of Defense or the U.S. Government.

LOCKHEED MARTIN



BATTLESPACE VISION



Produce High-velocity, operationally agile operations that present multiple dilemmas for an adversary at an operational tempo they cannot match



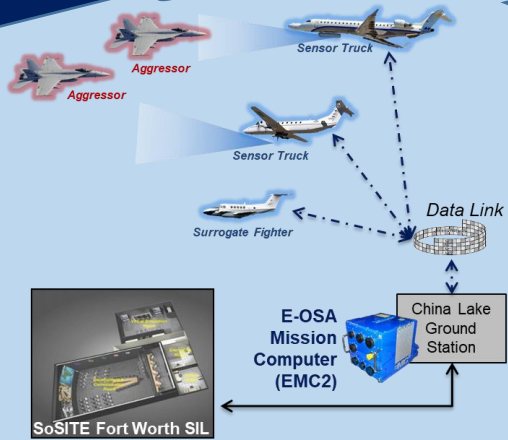
RUNNING THE GAUNTLET

- **Rapid Experimentation Objectives:**
 - Mature STITCHES
 - Grow the graph
 - Technology exposure for industry and government
- **Results:**
 - 3 near-term fielding candidates
 - >17K nodes and >24K edges in the graph
 - >73 unique subsystems
 - >25 industry and government organizations with hands-on experience



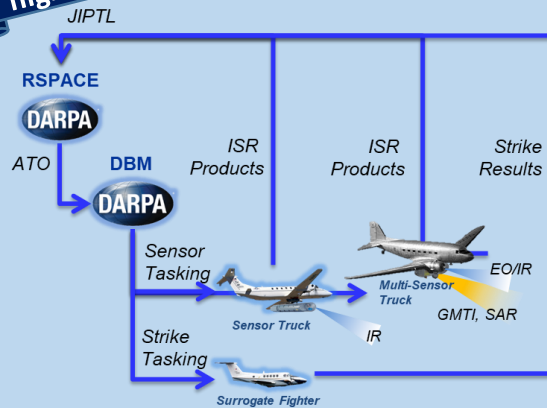
SOSITE RAPID INTEGRATION EXPERIMENT SUCCESS STORIES

STITCHES first flight



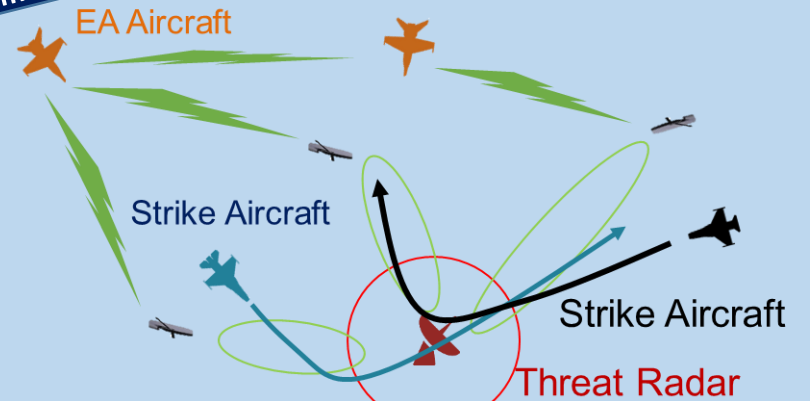
[Jan 2018] FE-2: MUMT Flight Experiment

First integ. to first flight in 8 days



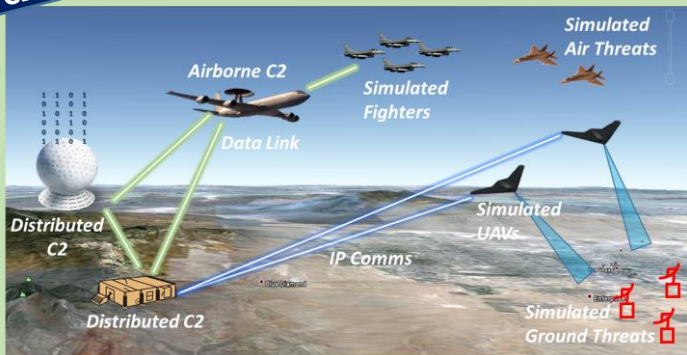
[June 2018] Gauntlet-4: Real-Time ATO & Automated Kill Chain Flight Test

Unlocking inherent system capability



[Sept 2018] Gauntlet-5: Distributed EW Command & Control

5 days to enable integration across three C2 systems



[Dec 2018] Gauntlet-6: Integrated Airborne and Distributed C2 Lab Test

Heterogenous Sensors and Data Links Kill Chain



[Feb 2019] Gauntlet-7: Navy Integrated Fires Lab Test

Flight Lab

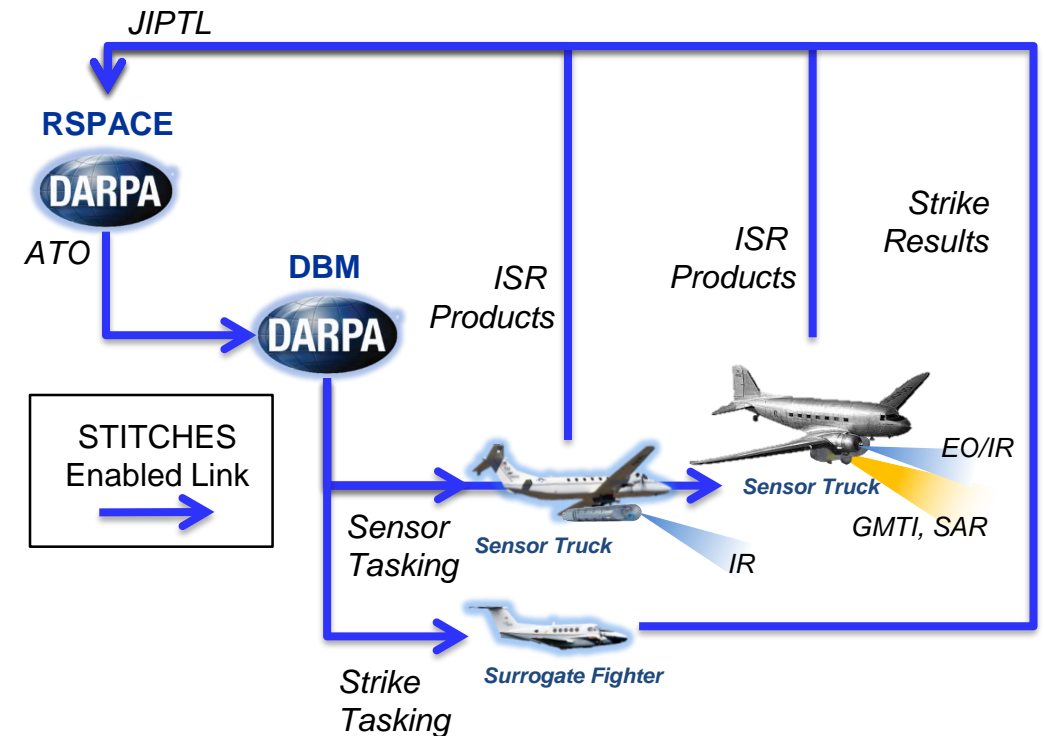
SOSITE HAS PERFORMED 9 FLIGHT AND LAB EXPERIMENTS INTEGRATING 73 UNIQUE SYSTEMS



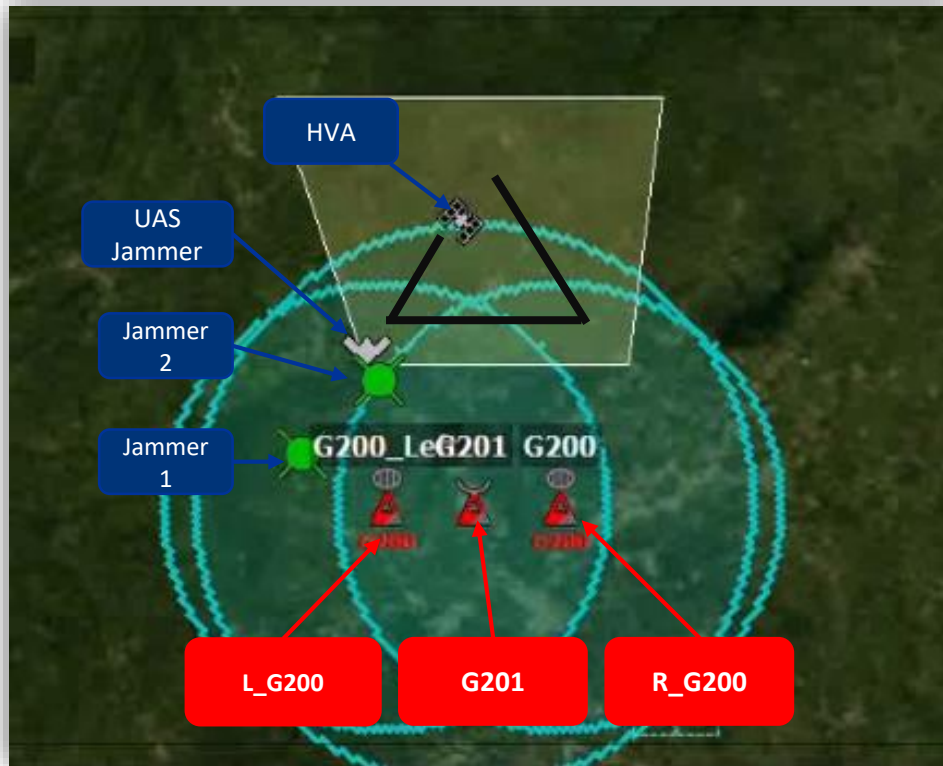
GAUNTLET 4 HIGHLIGHTS

- Integrated 24 subsystems from over 20 organizations
- Demonstrated the ability to compose a real-time dynamic ATO
- Demonstrated *build-fly-repeat* rapid flight experimentation

First Integration to First Flight in 8 Days





SOSITE GAUNTLET 5 OVERVIEW




- HVA

High Value Asset (HVA) – Simulation flying “Black Line” and does not have the ability to jam.
- APC1

UAS Jammer – Simulated UAS running Electronic Attack Resource Manager System (EARMS). Has the ability to Jam.
- Jammer 1

Jammer 1 – Simulated distributed EA Jammer
- Jammer 2

Jammer 2 – Simulated distributed EA Jammer
- L_G200

L_G200 – Simulated threat
- G201

G201 – Simulated threat
- R_G200

R_G200 – Simulated threat

PROTECT THE HVAA USING NETWORK CENTRIC DISTRIBUTED EA

Distribution Statement “A” (Approved for Public Release, Distribution Unlimited)



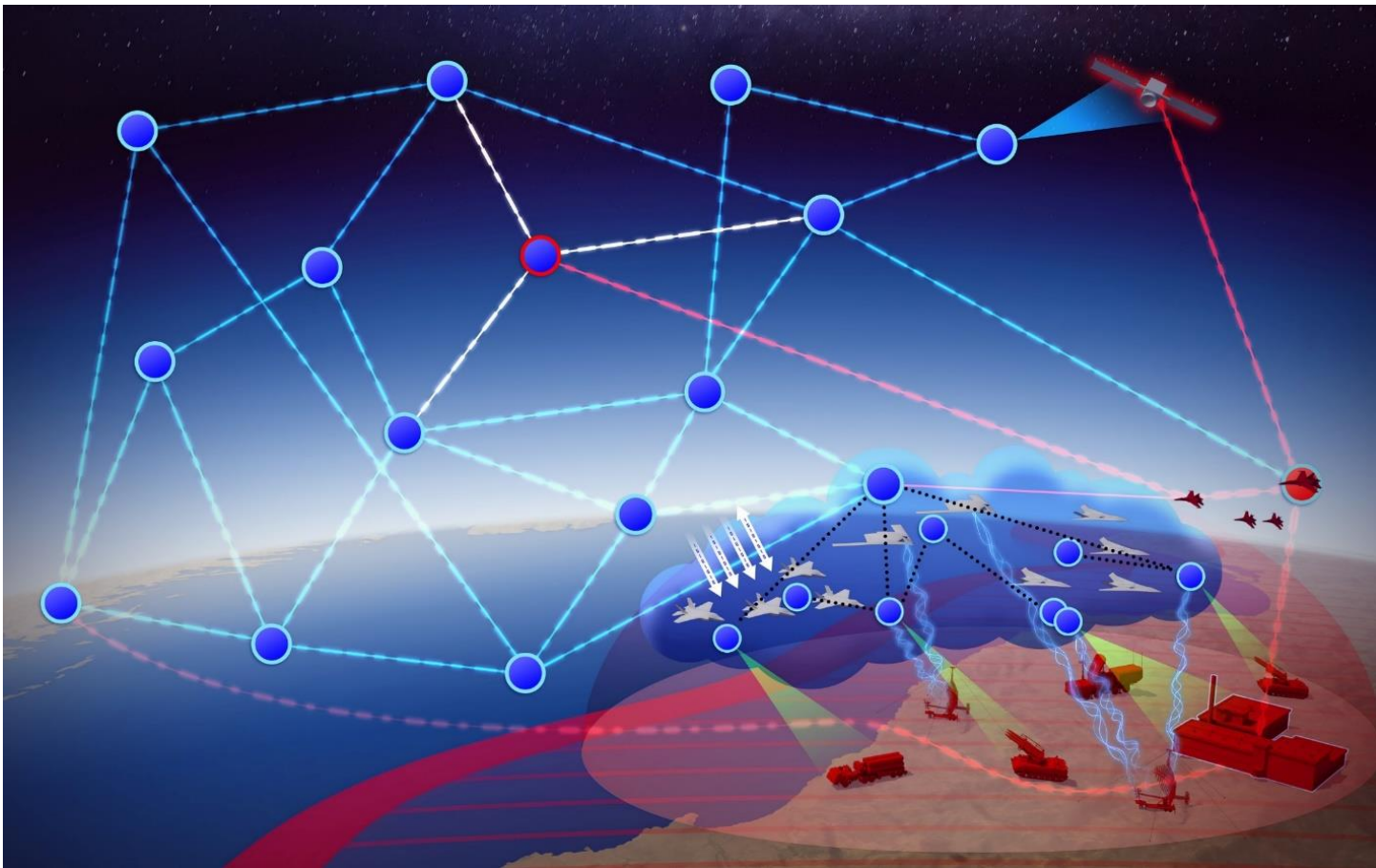
SOSITE GAUNTLET & OVERVIEW

The screenshot displays a mission planning software interface. The main window shows a satellite map of the Middle East region. A mission path is plotted, starting from the sea and moving inland. A large red circle highlights a specific area of interest, with a yellow box labeled 'EO_12' overlaid on it. The path is marked with yellow arrows and a red 'X' symbol. The interface includes a top menu bar with options like 'File', 'Entity', 'External Tasks', 'Mission Planning', 'Reset', 'Scripts', 'Send', 'View', 'Tools', and 'Help'. Below the menu is a toolbar with various icons. On the left side, there are panels for 'Progress' and 'Task Allocation & Miss', each with a 'Comple' button. The 'Progress' panel shows three entries, all with green dots and 'Comple' buttons. The 'Task Allocation & Miss' panel shows a 'GAI+' label. At the bottom, there is a 'Mission Planning' section with a 'Mission: Mission 1' dropdown, a 'Tasks' list (HK-75, MG-30, VE-79, VP-06, XY-33), and a 'Route' field containing '1485958468_XY-33_'. The 'Path' field shows '20170201T1414 PI'. The 'Duration' is '40:16' and the 'Status' is 'Activated'. There are also 'GoTo' buttons for 'GEO1' and 'GEO2'. The bottom right corner shows the time '15:17:45 Z'.

ENABLE AIRSPACE CONTROL COORDINATION ACROSS THREE C2 SYSTEMS

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“Success no longer goes to the country that develops a new technology first, but rather to the one that **better integrates** it and **adapts** its way of fighting”



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