



Enabling Joint Distributed Testing

Joint Mission Environment Test Capability

19 July 2010

TRMC Persistent Infrastructure Enables JCAS Distributed Test Execution and Analysis

The Test Resource Management Center (TRMC), through its investment programs, has been able to demonstrate that its current distributed test infrastructure is highly suitable for testing in a rapidly evolving experimental, developmental, and operational Live, Virtual, and Constructive (LVC) testing environment. One such event, the Joint Close Air Support (JCAS) Distributed Test event was executed the week of June 14-17 during Test Week 2010 using the TRMC Joint Mission Environment Test Capability (JMETC) infrastructure. United States Joint Forces Command (USJFCOM) J89, as the sponsor of the test, intended to gather baseline data and gain distributed test planning knowledge in preparation for Digitally-Aided CAS (DACAS) Block 2 activities. USJFCOM J892 provided the Joint Test Threads (JTT) to add a realistic operational context in order to accomplish this objective. Each JTT had mission Measures of Effectiveness (MoE), task measures, functional measures, and data elements to address the assessment objectives. The JCAS Distributed Test scenario provided an operationally relevant environment via a mix of Joint LVC test resources available through JMETC sites at Eglin Air Force Base 46TS, Redstone Test Center (RTC), Ft. Hood Central Technical Support Facility (CTSF), Camp Pendleton Marine Corps Tactical Systems Support Activity (MCTSSA), and NAVAIR Pt Mugu. Participation at Test Week also included Wright-Patterson Air Force Base Simulation and Analysis Facility (SIMAF) and NAVAIR Patuxent River. The Interoperability Test and Evaluation Capability (InterTEC) funded Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Mobile Instrumentation System (CMIS) van was moved from the Joint Interoperability Test Command (JITC) in Fort Huachuca, AZ to Huntsville, AL and served as the Test Control Center for this distributed test.

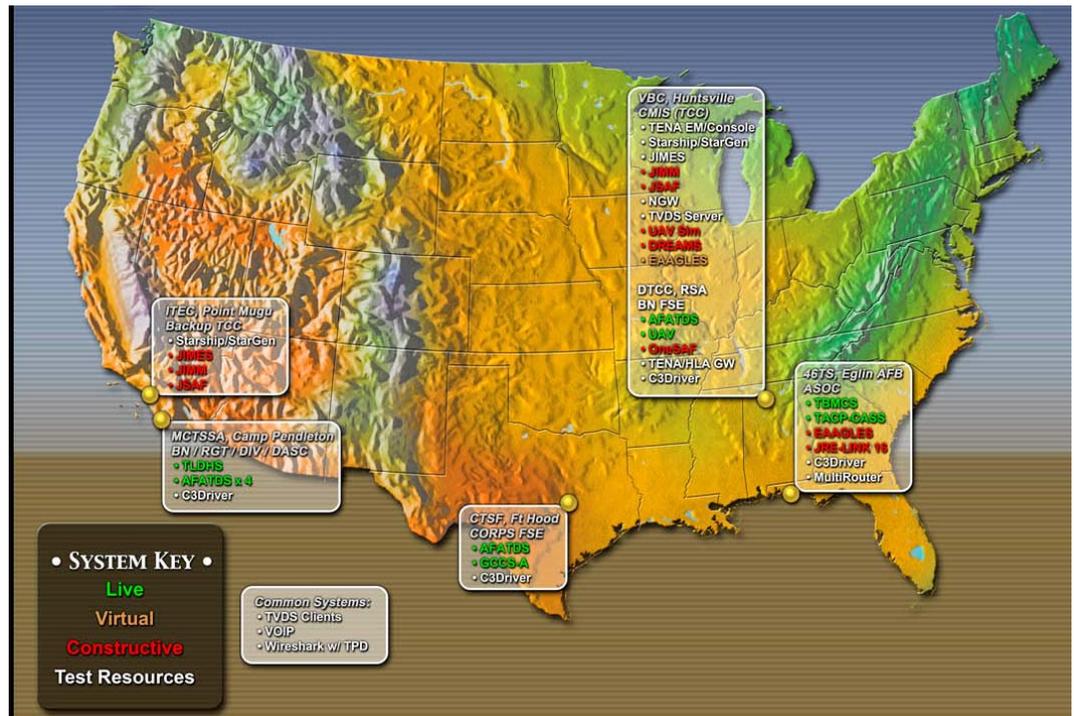


Figure 1. JCAS Distributed Test System View (SV)-1

The Infrastructure and Supporting Tools

Among its responsibilities, the TRMC administers the Test & Evaluation (T&E) / Science & Technology (S&T) program, Central Test & Evaluation

(T&E) Investment Program (CTEIP), and JMETC investment programs. Using the JMETC program to bring together its Joint investment programs, the TRMC is able to provide a persistent, Department of Defense (DoD)-wide capability for the test and evaluation of warfighter capabilities in a

Joint Context for Interoperability, as well as Key Performance Parameter (KPP) compliance testing, and Joint Mission Capability Portfolio testing environments.

Capabilities developed from TRMC investments and employed by JMETC assist in all facets of testing: planning, execution, and analysis. JMETC reduces the cost and time to plan and prepare for Joint and distributed testing by providing readily-available, persistent connectivity with network security accreditation support, common integration software for linking sites, and test tools for distributed testing. Additionally, JMETC provides the expertise necessary to meet Joint and distributed test requirements, while its product lines enable sustainment of the key components necessary to enable a persistent test infrastructure. JMETC employs a “Best of Breed” process in order to find the best tools that address common requirements across the DoD.

Utilizing disparate tools during a distributed test can lead to conflicting and misleading information that ultimately compromises the integrity of the test. CTEIP’s InterTEC project creates tools that stand among the best capabilities JMETC has identified to-date. InterTEC provides the core test tools necessary to execute Net-Centric and C4ISR interoperability testing capabilities for the DoD Services and Agencies. InterTEC tools, certified to be used during Joint interoperability certification and Net-Centric testing, significantly enhance Service and Agency testing of new and legacy systems, resulting in the identification of battlespace interoperability problems before a new system or network-of-systems is introduced to the Joint Battlespace.

The Test and Training Enabling Architecture (TENA) Middleware is the key software component promoting interoperability between LVC capabilities operating at functionally diverse and geographically dispersed test and training ranges. The TENA Middleware provides a common programming interface and enables systems to express formal contracts, defined through TENA Object Models, regarding the information published by these systems, as well as the distributed services provided by these systems. Through the middleware and common object model definitions, range systems can exchange information and services in an effective and interoperable manner with minimal end-system collaboration and integration testing. TRMC relies heavily on TENA to ensure interoperability of its developed capabilities across its entire investment portfolio.

Conclusion

TRMC, through its investment programs, has been able to demonstrate that its current distributed test infrastructure is highly suitable for testing in a rapidly evolving experimental, developmental, and operational LVC testing environment. Utilizing the World Class Network Services readily available through JMETC’s persistent connectivity, USJFCOM was not only able to save time and expense, but was ultimately afforded the luxury of turning its focus primarily to its test assessment objectives. Follow-on testing will occur as-needed to assess improvements and changes to the processes and systems that are a part of Close Air Support missions.

For More Information

For more information about JMETC and TENA, contact George Rumford, JMETC Senior Technical Advisor / TENA Software Development Activity (SDA) Director, or Ryan Norman, JMETC Systems Engineer, E-mail: feedback@jmetc.org or feedback@tena-sda.org or go to the JMETC Web Site: <https://www.jmetc.org> or TENA Web Site: <https://www.tena-sda.org>. For more information about InterTEC, contact Jim Ledin, Project Director, Test & Evaluation Directorate, Naval Air Systems Command, E-mail: james.ledin@navy.mil.

