



Joint Mission Environment Test Capability (JMETC)



Test Resource Management Center

Briefing for:

The National Defense Industrial Association Systems Engineering Conference 2009

Lowering Technical Risk by
Improving Distributed T&E Capabilities

Mr. Chip Ferguson
JMETC Program Manager
28 October, 2009



NDIA Systems Engineering Conference



“The DoD seeks to improve the acquisition process and overall program execution to provide greater, more effective and reliable warfighting capability, at affordable cost and within schedule”

“Strong emphasis on systems engineering throughout the life cycle of the program...is a key enabler of successful programs”

The Joint Mission Environment Test Capability (JMETC) is the DoD Best Practice for providing the Infrastructure and Support needed for Distributed T&E throughout a program’s life cycle



Bottom Line Up Front



For the Acquisition and T&E Communities, JMETC:

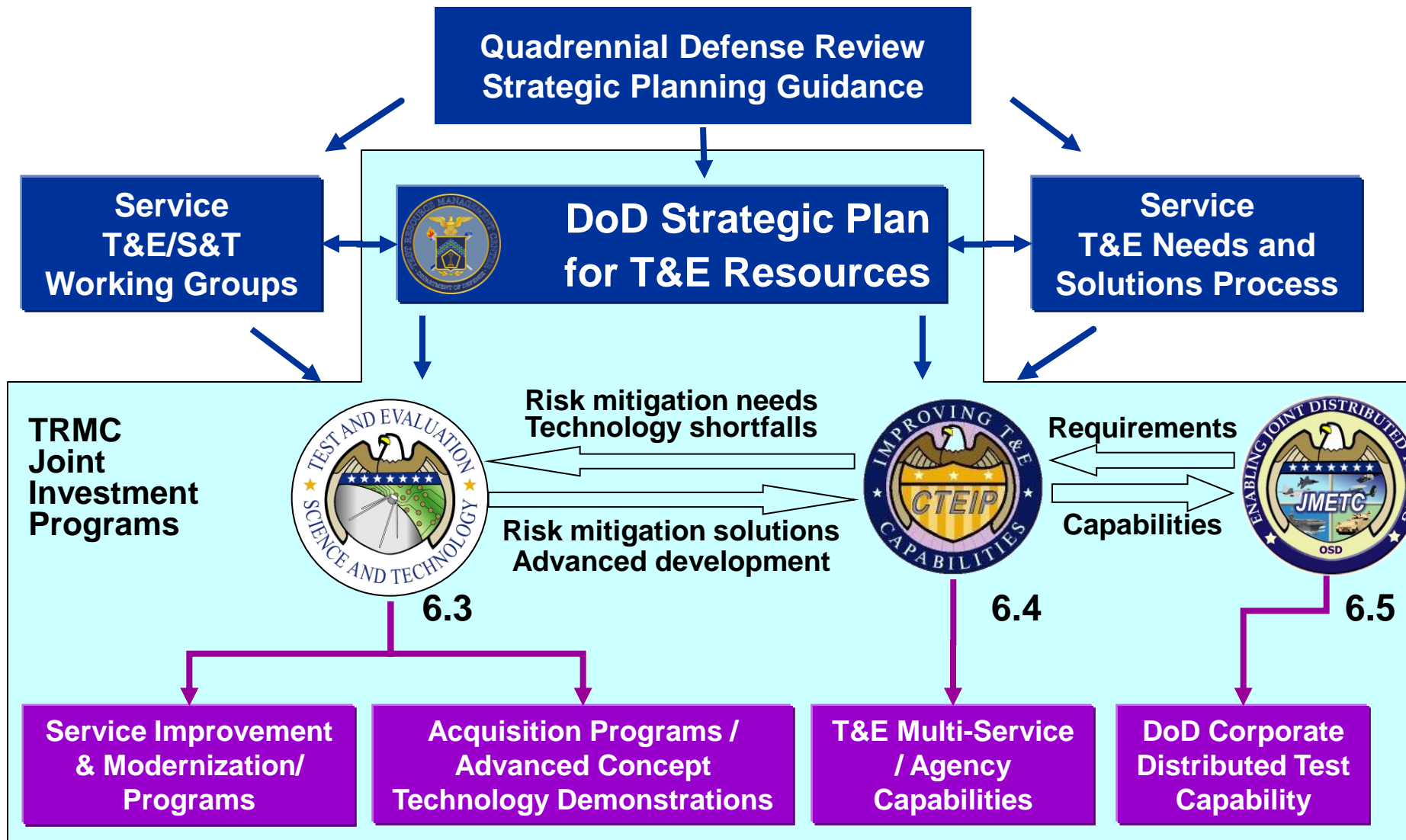
- **Lowers the cost to integrate systems together**
- **Decreases the time to integrate systems together**
- **Lowers the cost to develop new systems**

JMETC's unique total package capability allows the T&E customer to minimize the technical risk associated with planning for and providing the distributed test infrastructure so that they can truly focus on test requirements



Relationship within TRMC

Synergy through Aligned Investment





TRMC Investment Programs Overview



T&E/S&T



- Established in FY2002
- Develops technologies required to test future warfighting capabilities
- 6.3 RDT&E funds
- ~\$95M / year
- 7 current focus areas
 - Directed Energy
 - Hypersonics
 - **Netcentric Systems**
 - Unmanned Systems
 - Multi-Spectral Sensors
 - Non-intrusive Instruments
 - Spectrum Efficiencies

CTEIP



- Established in FY1991
- Develops or improves test capabilities that have multi-Service utility
- 6.4 RDT&E funds
- ~\$140M / year
- 47 current projects
 - 25 projects developing core Joint capabilities
 - 2 projects improving interoperability test cap.
 - 8 projects improving threat representations used in testing
 - 14 projects addressing near-term OT shortfalls

JMETC



- Established in FY2007
- Provides corporate infrastructure for distributed Joint testing
- 6.5 RDT&E funds
- ~\$10M / year
- 32 current sites
 - Expanding to 44 sites
- Maintains
 - Network connections
 - Security agreements
 - Integration software
 - Interface definitions
 - Distributed test tools
 - Reuse repository



The JMETC Mission



JMETC provides the DoD T&E Community the resident distributed test *expertise* and the persistent modern *network infrastructure* needed for the connection and use of distributed live, virtual, and constructive resources to conduct the DT&E and augment the OT&E of joint systems and systems-of-system.

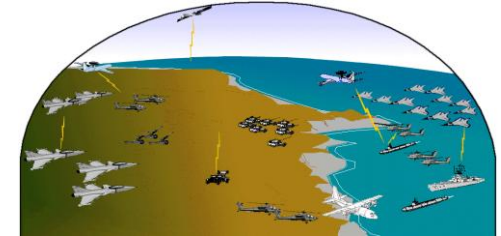


JMETC Enables Distributed Testing



Systems Under Test

Joint Operational Scenarios



Integrated Test Resources

Virtual Prototype

TENA Standard Interface Definitions

TENA Common Middleware

Hardware in the Loop

TENA Standard Interface Definitions

TENA Common Middleware

Installed Systems Test Facility

TENA Standard Interface Definitions

TENA Common Middleware

Range

TENA Standard Interface Definitions

TENA Common Middleware

Environment Generator

TENA Standard Interface Definitions

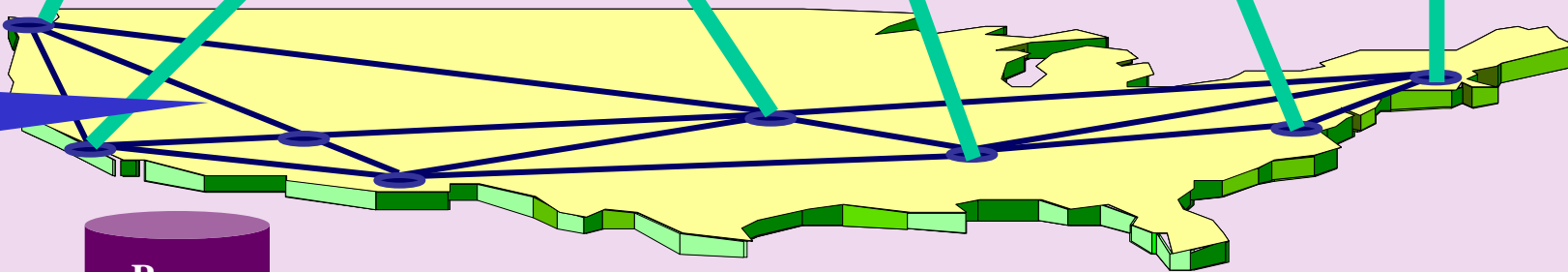
TENA Common Middleware

Threat Systems

TENA Standard Interface Definitions

TENA Common Middleware

JMETC VPN on SDREN



Reuse Repository

Distributed Test Support Tools

Data Management Solutions

JMETC Infrastructure

Customer Support

* TENA: Test and Training Enabling Architecture



JMETC Leadership & Governance



JMETC Chain of Command

Honorable Dr. Ashton B. Carter
USD (AT&L)



Dr. John B. Foulkes
Director, Test Resource Management Center (TRMC)

Derrick Hinton
Principle Deputy, TRMC
Deputy Director, JIPP



Chip Ferguson
JMETC Program Manager



George Rumford
Senior Technical Advisor

JMETC Governance

Testing in a Joint Environment Roadmap Senior Steering Group

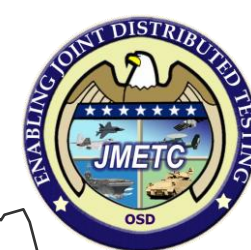
- Senior DoD Leaders
- Charter signed 26 Oct 07

JMETC Advisory Group

- Service/Agency reps
- Regularly held meetings to discuss/review plans, common issues, needed studies, etc.

JMETC Users Group

- Technical representatives of customers and test resource owners
- Nine meetings held to date
- ~185 participants/meeting



JMETC Connectivity

○ Functional Sites: 38

△ New Sites Planned: 17

- Dedicated, trusted VPN on SDREN (part of the GIG)
- Encrypted for Secret – System High
- DISA-registered IP address space
- Active monitoring of network performance
- Capable of supporting multiple simultaneous test events

Ft Lewis: EPG

Hanscom AFB: CEIF

Bethpage: NG BAMS

Ft. Monmouth: JOIN

Sites in SoCal

- Edwards: Ridley
- China Lake (2): AV-8B, F/A-18
- ▲ IBAR
- Point Mugu (2): ITEC, AEA
- △ El Segundo: NG
- Camp Pendleton: MCTSSA
- ▲ Corona: NSWC
- Point Loma: ICSTD
- ▲ RLBS

Sites in Hawaii

- ▲ PMRF: Bldg 105
- ▲ MHPCC

Nellis AFB: CAOC-N

Whiteman: B-2

Boeing-St. Louis: CIDS

WPAFB: SIMAF

Sites in MD, DC, VA

- Aberdeen: ACCN
- Pax River (3): ACETEF, E2, SAIL, ACETEF-MCL
- ▲ ATR
- JMETC SYSCON
- ▲ Pentagon: WARCAP
- ▲ DISA: Sky 7
- Dahlgren (2): CEDL, IWSL
- JFCOM: JSIC
- Langley: GCIC
- Dam Neck: CDSA
- ▲ Wallops Island: SCSC
- △ Newport News: VASCIC

Kirtland AFB: SDOCC

Tinker AFB: AWACS

Redstone (3): DTCC, GMAN, SED

Charleston (2): IPC, MEF-MEU

WSMR: IRCC

Greenville: Rivet Joint

Ft. Worth: AFEWES

Ft Huachuca: JITC

Ft Hood (2): CTSF, TTEC

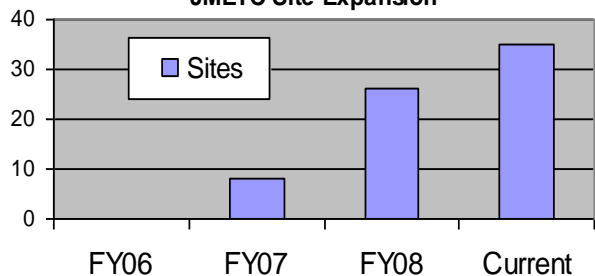
Melbourne: JSTARS

Sites in Gulf Range

- Hurlburt Field: C2DAC
- Eglin AFB (3): AOC, DTF, GWEF
- ▲ KHILS

- Army
- Air Force
- Navy
- Marines
- Joint
- Industry

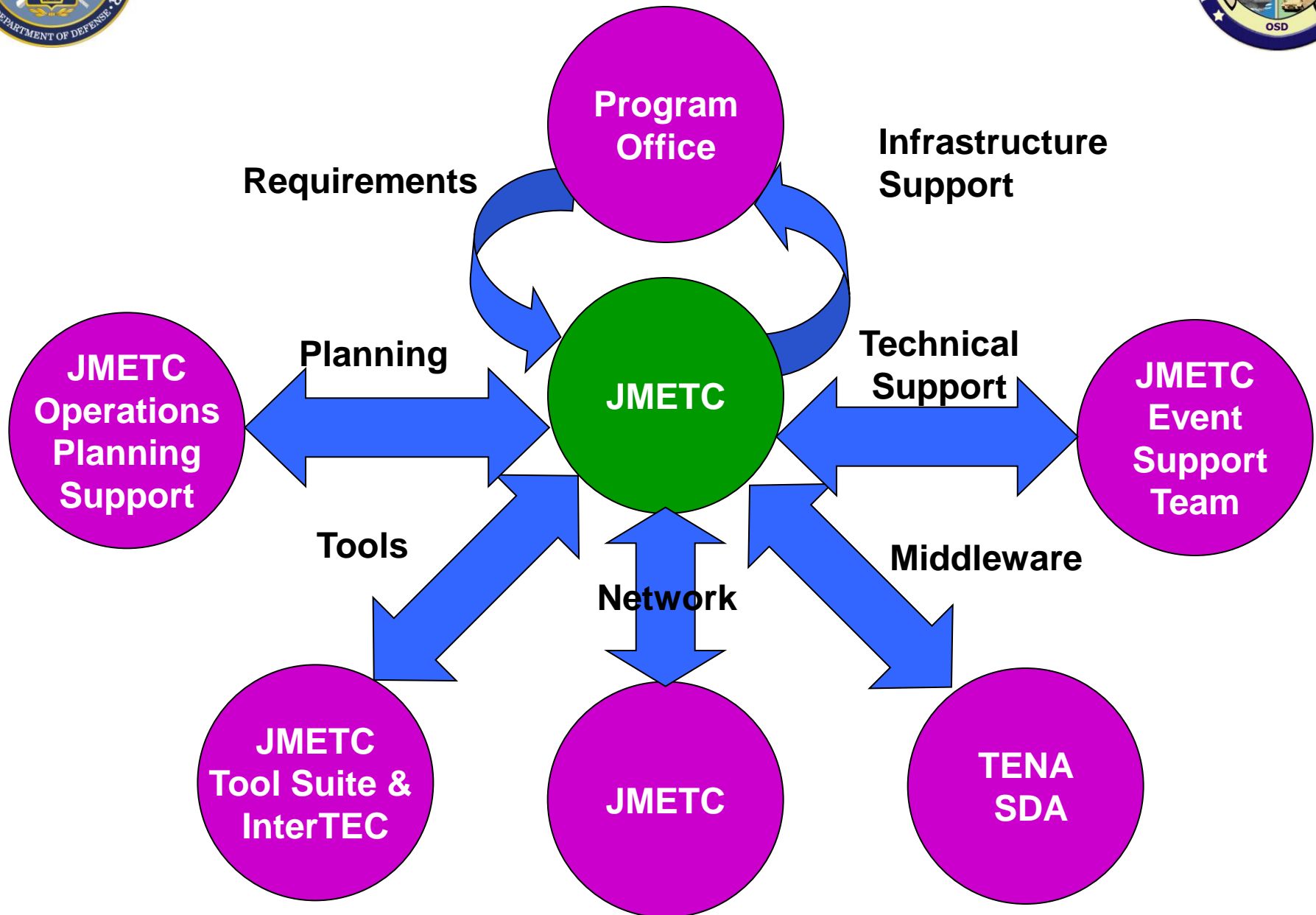
JMETC Site Expansion



As of 15 Sept 2009

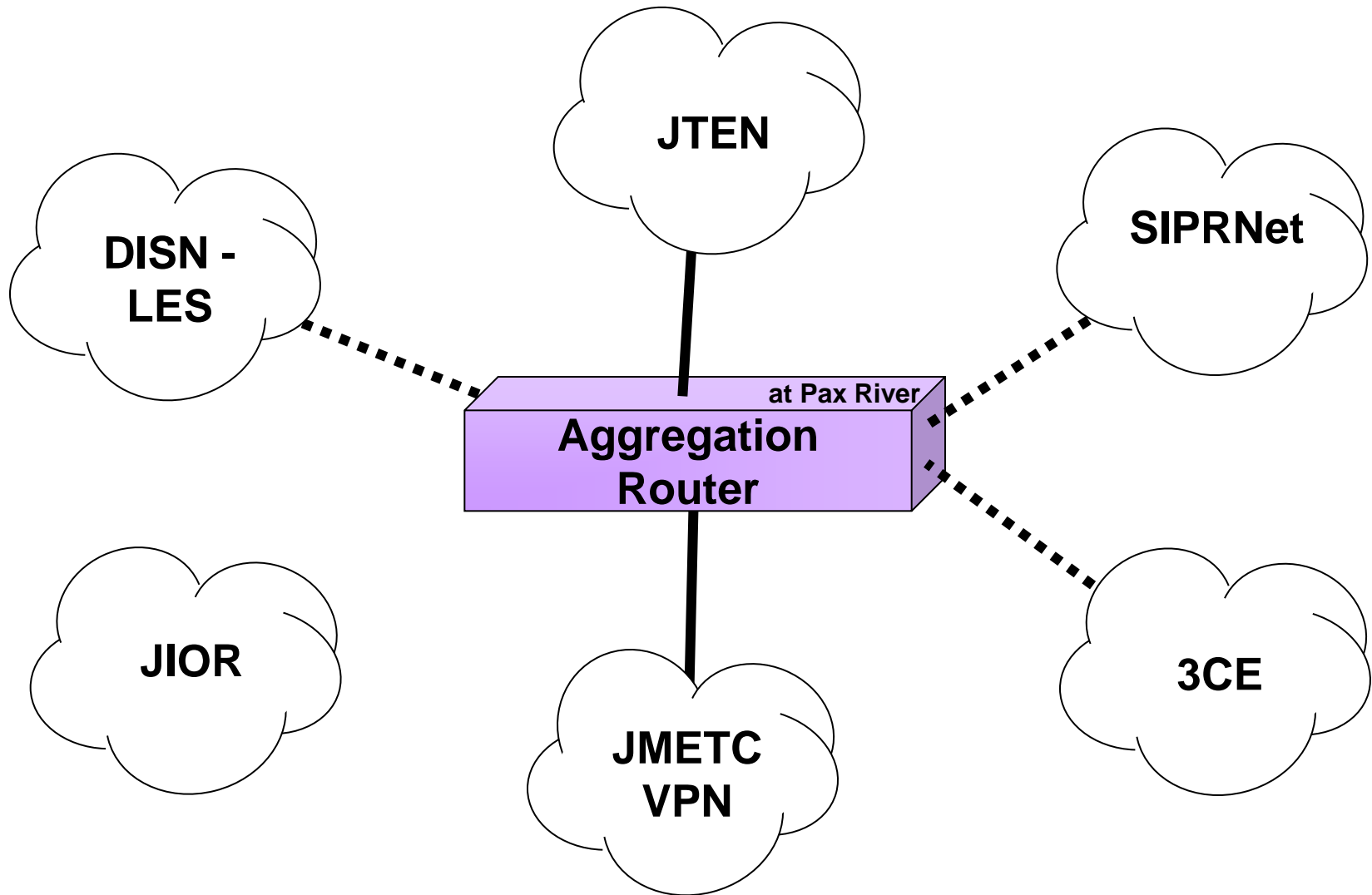


JMETC Support: Major Programs





Network Aggregation Bridging Networks





Joint Mission Environment Test Capability (JMETC) FY 09 Accomplishments



FY 09 JMETC Customers

- Broad Area Maritime Surveillance System (BAMS)
- Joint Surface Warfare (JSuW) JCTD
- Multi-Service System-of-Systems Test Bed (MSSTB)
- Joint Expeditionary Force Experiments (JEFX)
- Air Force Integrated Collaborative Environment (AF-ICE)

JMETC Accomplishments

- Expanded network from 32 to 38 sites with additional 19 planned
- Transitioned AF-ICE network operations to JMETC VPN
- Improved customer utilization of persistent distributed test environment
- Enhanced and optimized JMETC site local infrastructure
- Added JITC certified tools for Joint Planning Network certification testing
- Collected issues and best practices for implementing DIACAP
- Reuse Repository Data Expansion

Insight Gained by the DoD

- Identification of Air Force Initiatives ready for warfighter transition
- Tactical UAS deployment in the National Airspace
- Employment of Net-Enabled Weapons
- Timeliness of C2 processes
 - Joint Fires
 - Time Sensitive Targeting Cycle
 - Joint Close Air Support
 - Combat ID
- Ability to encrypt airborne and ground IP networks
- Improvements in Joint Airborne Network Integration:
 - Network Management
 - Network Interoperability
- Ability to simulate Link-16 networks for optimization and re-planning of assets with limited to no connectivity
- Successful Bridging of Win-T and DDS networks
- Assessment of technical risks for FY10 Joint Track Manager Demo



FY10 JMETC Support Schedule



Customer	Event	Dates
Air Force	Persistent Fire 01	October 08 – December 09
Air Force	JEFX 10-1/Spirit Ice	October 09 – April 2010
Air Force	JEFX 10-2	8-13 February 2010
Air Force	JEFX 10-3	10-23 April 2010
Navy	Correlation/Decorrelation Interoperability Test (C/DIT) Integration Events (Continuous)	September 2010
Air Force	Battlefield Airborne Comm. Node (BACN) JUON (DT/OT)	March - October 2010
Air Force	Agile Fire 10-2	25-29 January 2010
Air Force	Agile Fire 10-3	June 2010
JFCOM	United Endeavor 10-1	February – April 2010
Navy	BAMS LVC DE	October 09 – December 09
CTEIP Activity	Event	Dates
InterTEC	Tool Development & Test	FY07 – Present (Periodic)
TENA SDA	Release 6 Testing	October 08 – Present (Periodic)
Discussions for Future Teaming		
Gerald R. Ford Class (CVN-21)	Joint Strike Fighter (JSF)	JIAMDO/Joint Track Manager
Brigade Combat Team (BCT) Modernization	Multi-Function Adv Data Link (MADL)	Multi-Mission Maritime Aircraft (MMA)



JMETC Update



- Program is growing
 - More events...VPN being used every day
 - More sites...38 functional sites with 17 more planned
 - Relevant to the T&E community...Users Group Attendance
 - JMETC Infrastructure is Valued by T&E Community
 - ❖ Air Force/AF-ICE to JMETC VPN
 - ❖ Planning to move ATIN to JMETC VPN
 - ❖ In discussion to move Navy DEP to JMETC VPN
 - ❖ 12 sites have paid their own way onto JMETC VPN
- Working with Acquisition Programs
 - Navy, Pax River, ACETEF: CVN-21, MMA, BAMS...
 - Air Force SAF/XCDM and 46th TW, Eglin AFB: MADL, MALD, SDB...
 - Army: BCT Modernization Program
 - Joint: JFCOM J8-led JC2 Partnership



JMETC Users Group



The JMETC Users Group is designed to establish a structured dialog across the User Community to foster better Testing of Joint Requirements

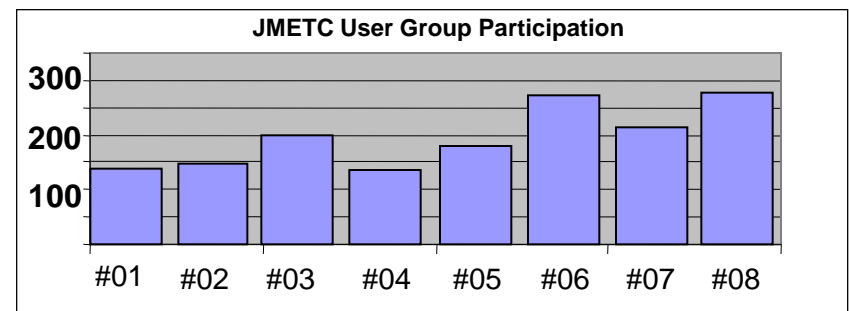
- **Identify core infrastructure requirements and use cases**
- **Discuss available solutions, tools, and techniques**
- **Identify opportunities to partner and collaborate**

Current Initiatives include:

- **Streamlining the Network Accreditation process**
- **Cross-Domain Solutions**
- **West Coast Aggregation Router**
- **Mobile Node Capability (Transportable Node)**

The Users Group continues to grow

Next Users Group meeting: Feb 2010, Orlando, FL.





JMETC Initiatives



- **Streamlining the Network Accreditation process**
 - DoD Information Assurance Certification and Accreditation Process (DIACAP) Implementation Tiger Team
- **Cross-Domain Solutions**
 - Unified Cross Domain Management Office (UCDMO)
 - Information Operations Range (IO Range)
- **West Coast Aggregation Router**
- **Mobile Node Capability (Transportable Node)**



Summary



- **JMETC supports the full spectrum of Joint testing, supporting many customers in many different Joint mission threads**
 - **JMETC is being built based on customer requirements**
 - **JMETC event support can be tailored to customer needs**
 - **JMETC is partnering with Service activities and leveraging existing capabilities**
- **JMETC is coordinating with JFCOM to bridge test and training capabilities**
- **JMETC Users Group provides an open forum to present emerging requirements as well as new technologies & capabilities**
- **Leading Track at 2010 LVC Conference, El Paso TX, 11-14 Jan, *“Future Trends and Needs for Distributed T&E Infrastructure”***



JMETC Program Points of Contact



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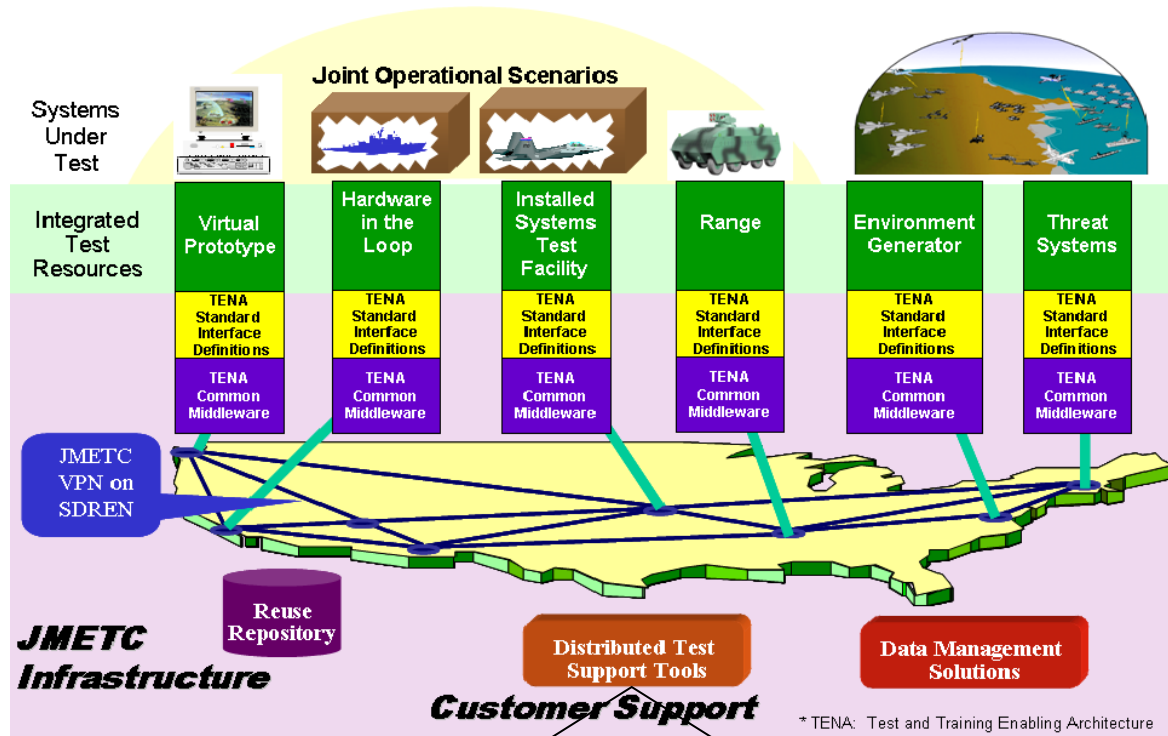


BACK UP SLIDES



JMETC - JTEM - InterTEC

Differences from a JMETC Perspective



Joint Test & Evaluation Methodology (JTEM)

- 2005-09 JT&E (DOT&E): Transitioning
- Developed recommended Joint LVC test methods

JMETC

- Persistent infrastructure and technical support
- AT&L-TRMC: 2007-POM

InterTEC

- JMETC Distributed Test Tools include TENA, InterTEC and Service tools
- InterTEC produces tools necessary to test Net-Ready KPP's. Certified by JITC for interoperability testing
- CTEIP project (AT&L-TRMC)

JMETC, InterTEC and JTEM have unique roles