Defense Travel System (DTS)

Executive Summary

• The Army Test and Evaluation Command (ATEC) conducted a combined developmental and operational test on a Technical Refresh release from January 15 through February 21, 2008, in a test environment with much smaller capacity than the production environment. The Technical Refresh release converted some of the Defense Travel System (DTS) proprietary software code to the Java programming language as well as incorporating minor functional enhancements and a number of deficiency fixes.

• ATEC completed its evaluation on March 21, 2008, and concluded that DTS should remain operationally effective, suitable, and survivable with the new release. DOT&E concurred with the recommendation to place the new release into the production environment, with follow-on operational assessments to be conducted at selected operational sites as soon as practicable.

• The program manager placed the Technical Refresh release into the production environment on April 19, 2008; however, the system exhibited serious performance problems when a large number of users attempted concurrent use. To limit disruption of service, the program manager rolled the production release back to the prior DTS release on April 23, 2008. Subsequent investigation identified the root cause as computing bottlenecks within Java, which did not appear until after deployment.

• The program manager hired an outside contractor, the Hewlett Packard Company, to perform load testing of the corrected deficiencies and to assist the program management office to establish better practices for future load testing. The program manager plans to deploy the corrected Technical Refresh release in May 2009.

System

• DTS is a Major Automated Information System designed to automate and streamline the DoD travel process, support DoD travel requirements, and reduce the associated cost for the DoD. With DTS, travelers perform many of the administrative tasks themselves.

• DTS integrates commercial travel reservation systems and DoD accounting and disbursing systems using secure networks and procedures.

• There are two major functional blocks. Block 1 focuses on Temporary Duty (TDY) travel. Block 2, which is under development, focuses on Military Permanent Duty Travel (PDT).

• The program manager is developing DTS in releases of increasing functionality. Each major TDY release was named after a U.S. president. The Monroe release (the final TDY presidential release) was deployed in 2006. DTS will continue to use a spiral development strategy during FY09 and FY10 to develop the PDT functionality and the remaining TDY functionality that was not included in the presidential releases.

Mission

DoD travelers use DTS as a single interface to process their end-to-end travel requirements via an Internet connection or a Non-classified Internet Protocol Router Network connection using a Common Access Card with Public Key Infrastructure certificates. Travelers use an automated mechanism to prepare travel authorizations and vouchers, to get the documentation approved, and to get reimbursed once their travel is completed.

Prime Contractor

• Northrop Grumman

Activity

ATEC conducted a combined developmental and operational test on a Technical Refresh release from January 15 through February 21, 2008, in a test environment with much smaller capacity than the production environment. The Technical Refresh release converted some of the Defense Travel System (DTS) proprietary software code to the Java programming language as well as incorporating minor functional enhancements and a number of deficiency fixes.
Refresh release converted some of the DTS proprietary software code to the Java programming language, as well as incorporating a few functional enhancements and a number of deficiency fixes.

Assessment
- For a Major Automated Information System, operational testers typically conduct an OT&E at selected operational sites with a production system prior to a full-deployment decision. Since DTS is a web-based system, the traditional OT&E methodology is not practical. Any new DTS release placed on the enterprise web server for operational testing is in fact already fully deployed.
- To mitigate risk, ATEC typically conducts an operational test in a test environment with production-representative hardware and software. If the test results are satisfactory, the new release is placed on the production server for all users. ATEC then conducts a follow-on operational assessment at selected operational sites to confirm the performance of the new release and to identify opportunities for improvement.
- ATEC completed its evaluation of the Technical Refresh release and concluded on March 21, 2008, that DTS should continue to be operationally effective, suitable, and survivable with the new release. DOT&E concurred with the ATEC findings and the recommendation to place the release into the production environment, with follow-on operational assessments to be conducted at selected operational sites as soon as practicable.
- The program manager placed the Technical Refresh release into the production environment on April 19, 2008, but the system exhibited serious performance problems when a large number of users attempted to use the system simultaneously. To limit disruption of service, the program manager rolled the production release back to the prior DTS release on April 23, 2008. Subsequent investigation identified the root cause as computing bottlenecks within Java that did not appear in the test environment due to its capacity limitations and deficient load testing conducted by the contractor.
- Government and vendor engineering investigation teams performed independent reviews of the production problems and determined the root cause. The program manager hired an outside contractor, the Hewlett Packard Company, to perform load testing of the corrected deficiencies and to assist the Program Management Office in establishing better practices for future load testing. The program manager plans to deploy the corrected Technical Refresh release in May 2009.

Recommendations
- Status of Previous Recommendations. The Program Management Office has taken effective action on the FY07 recommendation.
- FY08 Recommendations.
  1. ATEC should validate the corrections to the Technical Refresh release deficiencies when available.
  2. ATEC should continue to conduct risk assessments on upcoming releases to determine the appropriate level of OT&E, recognizing the demonstrated limitations of the existing test environments.
  3. Once the Technical Refresh release (or any other substantial upgrade) has been deployed, ATEC should conduct follow-on operational assessments at selected operational sites to determine DTS operational effectiveness, suitability, and survivability.