

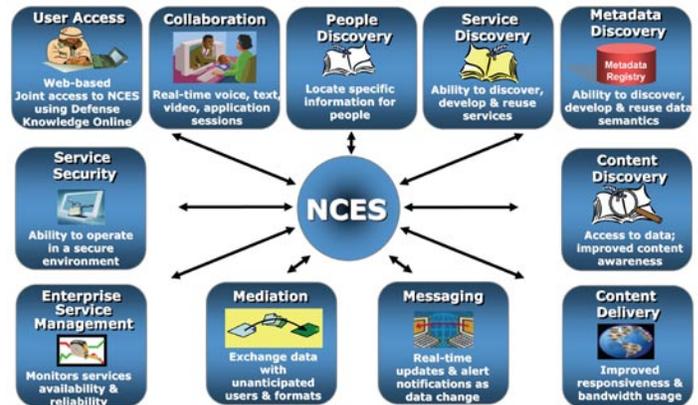
## Network Centric Enterprise Services (NCES)

### Executive Summary

- The Operational Test Team conducted a series of IOT&E events on a subset of Network Centric Enterprise Services (NCES) Increment 1 services from January 2008 through January 2009. The IOT&E events were conducted in accordance with the DOT&E-approved test plan. Testing was adequate to assess the operational effectiveness and suitability of the subset of NCES. However, the limited user base that exists at this point in time precludes an assessment of scalability to the levels expected in the future by the Capability Production Document (CPD).
- The Milestone Decision Authority granted Full Deployment Decisions on May 15, 2009, for the following services: collaboration (Defense Connect Online (DCO) and E-collab), content delivery (Enterprise File Delivery and Global Information Grid Content Delivery Service (GCDS)), Metadata Registry, and the Defense Knowledge Online (DKO) user access portal.
- The test team conducted an FOT&E from March through April 2009 on Service Discovery, which included the use of the Net-Centric Publisher service from the Metadata Registry, part of the Service Oriented Architecture Foundation product line.
- DOT&E found the test of Service Discovery was not adequate to make a determination of operational effectiveness and suitability in the areas of reuse of services and software, improved interoperability, or reduced costs to the DoD through service reuse. In order to make this determination, Service Discovery requires an expanded repository of services and a larger user base. A concerted effort to mature governance policies, promote benefits, and encourage use across the DoD enterprise is needed to realize the envisioned benefits of Service Discovery.

### System

- NCES is a suite of individual capabilities that support automated information exchange across the DoD on both classified and unclassified networks. These capabilities include collaboration, discovery, and subscriber tools.
- NCES collaboration tools enable users to hold meetings and exchange information by text, audio, and video.
- The discovery capabilities (content, people, services, metadata, publish/subscribe) allow data producers to post information, alert others to the presence of new information, and evaluate the relevance of the data to their current roles and activities.
- NCES includes security and management capabilities that integrate with, and rely upon:



- Enterprise Service Management capabilities providing performance, operational status, and usage of web services that enhance network situational awareness to the Global Infrastructure Services Management Center
- Information assurance/computer network defense
- The software is comprised of commercial off-the-shelf and government off-the-shelf products. The concept is to provide commercially available products managed under a series of Service-level agreements.
- The warfighting, intelligence, and business communities will access NCES capabilities either directly or through a portal that controls access by the use of Public Key Infrastructure profiles.
- NCES services are available to all operational and tactical users who connect to a Defense Information System Network point-of-presence.
- NCES is a collection of services from which a user can select those that best fit their needs. Users can be system or software developers, system or network administrators, communities of interest, programs of record, or warfighter, business, and intelligence personnel.
- Each service is unique and has its own IOT&E and acquisition fielding decision.

### Mission

Joint Force Commanders will use selected NCES services to either: enable shared understanding, interface with other decision-makers, orient forces, assess the situation, or synchronize operations.

### Prime Contractor

- Government Integrator (Defense Information Systems Agency (DISA))

## Activity

- The Joint Interoperability Test Command (JITC) led a multi-Service operational test team that conducted a series of IOT&E events on a subset of NCES Increment 1 services from January 2008 through January 2009. The IOT&E's were conducted in accordance with the DOT&E-approved Test and Evaluation Master Plan and operational test plans. The test team continuously monitored product use by the using communities to support data collection and testing. Services tested include:
  - DCO and E-Collab collaboration tools
  - DKO portal
  - Enterprise File Delivery
  - GCDS
  - Metadata Registry
  - People Discovery
  - Enterprise Search (a combined set of services - Centralized Search, Federated Search, and Enterprise Catalog)
- The Milestone Decision Authority granted a Full Deployment Decision on May 15, 2009, for the following services: collaboration (DCO and E-collab), content delivery (Enterprise File Delivery and GCDS), Metadata Registry, and the DKO user access portal.
- The test team did a Verification of Corrections for NCES services evaluated as not-survivable as it relates to information assurance during the IOT&E. The test and evaluation activity included documentation reviews and interviews with program office and hosting site personnel for the following products: unclassified Centralized Search, Federated Search, and Enterprise Catalog; People Discovery; Metadata Registry; E-collab; and GCDS.
- The test team conducted an FOT&E from March through April 2009 on Service Discovery, which included the use of the Net-Centric Publisher service from the Metadata Registry, a part of the Service Oriented Architecture Foundation product line. Data collection included surveys, interviews, and observations of users representing DoD Programs of Record and Communities of Interest engaged in development and exposure of web-based services.
- The test team is currently planning a second FOT&E for January 2010 to assess the People Discovery, Service Security, Enterprise Service Management, and Messaging services.

## Assessment

- The IOT&E events were adequate to assess the operational effectiveness and suitability of a subset of NCES services. During the IOT&E events, testers encountered significant limitations: there are extremely limited user bases for many services at this point in time which precluded an assessment of scalability to the levels envisioned in the CPD for the DoD enterprise and an inconsistent quality of suitability data provided by the various Managed Service Providers. The following is a synopsis of the results for each service evaluated during the IOT&E events.
- DOT&E concurs with the JITC assessment that both collaboration services are operationally effective and suitable with limitations. Issues with latency and audio performance still persist, especially for large meetings.
  - Usage levels have not reached those identified in the Key Performance Parameters, making additional scalability analyses necessary to identify needs for infrastructure growth. Based upon low adoption rates, DISA subsequently terminated the unclassified E-collab service in June 2009.
  - To improve suitability, users need improved tools and practices for managing sessions and governing growing content. To evaluate suitability improvements, test agencies will need access to the data that Managed Service Providers use in determining service availability and reliability.
  - JITC plans to assess a continuity of operations plan during the second FOT&E.
- The DKO portal is operationally effective and suitable with limitations. DOT&E recommended improvements include a better search capability and overall user interface. Users report they prefer their existing Service, command, or agency portals to access needed information.
- The Content Delivery services, Enterprise File Delivery, and GCDS are operationally effective and suitable with limitations. The Enterprise File Delivery service requires procedures to govern subscriptions and customer use to minimize duplication of files and demand on the network. GCDS requires clear guidance and procedures so content providers can manage, select, and prioritize content exposure to the appropriate server.
- The Content Discovery and People Discovery services are not operationally effective or suitable and will be upgraded and reassessed during the second FOT&E.
- The Metadata Registry service is operationally effective and suitable with limitations. In order to realize the benefits of a centralized DoD metadata repository better methods for reporting errors, sorting search results, and ensuring consistency. In addition, an authoritative body is needed to exercise oversight and enable reuse of content.
- The survivability assessments conducted during the IOT&E events for each service identified several significant deficiencies in information assurance practices at the sites that host NCES capabilities. Problems existed across the information assurance elements of detection, reaction, and restoration of service.
- As a result of the IOT&E survivability assessment, Managed Service Providers made adjustments to security practices. JITC conducted a Verification of Corrections assessment and published an updated survivability evaluation in April 2009. Based upon documentation reviews and interviews, JITC now assesses Unclassified Centralized Search, Federated Search, and Enterprise Catalog as operationally survivable; and Metadata Registry, GCDS, and the classified E-collab tool as operationally survivable with limitations. DOT&E anticipates confirmation of JITC's assessment during FOT&E 2 survivability testing. The recently upgraded People Discovery tool will be re-assessed at a later date.

# DOD PROGRAMS

- DOT&E found the FOT&E 1 for Service Discovery was not adequate to make a determination of operational effectiveness and suitability in the areas of reuse of services and software, improved interoperability, or reduced costs to the Department through service reuse. In order to make this determination, Service Discovery requires an expanded repository of services and a larger user base. A concerted effort to mature governance policies, promote benefits, and encourage use across the DoD enterprise is needed to realize the envisioned benefits of Service Discovery.
  - The Service Discovery product successfully demonstrated the functionality needed to register or search for a service. There are deficiencies with workflow and navigation that result in delays in service publishing and require substantial help desk support to correct.
  - The ability to reuse existing services registered in the Service Discovery data base, its primary intent, was not assessed due to a lack of experienced users and registered services.
- Testing continues to be hampered by:
  - The slow adoption rate of NCES services by existing programs of record and communities of interest
  - The level of effort needed for programs to expose their data or services using NCES

- The lack of established governance standards for exposing information on the Global Information Grid

## Recommendations

- Status of Previous Recommendations. The Milestone Decision Authority and JITC took effective action on previous recommendations.
- FY09 Recommendations.
  1. DISA should conduct a thorough review of the Defense Enterprise Computing Center facilities to ensure they provide the levels of survivability and information assurance commensurate with the operational importance of the hosted systems.
  2. The Assistant Secretary of Defense (Networks and Information Integration)/DoD Chief Information Officer, DISA, and the U.S. Strategic Command, as appropriate, should publish guidance/procedures/policies and designate responsible agents to affect the necessary governance and development of incentives to encourage developers to register and re-use services in the NCES Service Discovery and Metadata Registry tools.
  3. JITC should conduct periodic independent assessments to evaluate scalability of services to DoD Enterprise levels.

# DOD PROGRAMS