

CROSSTALK Honors the 2003 Top 5 Quality Software Projects Finalists

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CROSSTALK

It was difficult to narrow the field from the many successful government projects entered in the third annual U.S. Government's Top 5 Quality Software Projects contest. As a result, the following 10 projects are being honored as 2003 Top 5 Finalists.

Center Ops OnLine

Customer: Air Force Materiel Command

The Center Ops OnLine (COOL) v3.0 is an enterprise ops desk automation application <<https://cool.edwards.af.mil>> used at seven Air Force bases across the country. The COOL is Web-based and allows authorized users access via the Internet. It allows users to efficiently manage aircrew testing, flight crew information files, aircrew currency, flight authorization, and aircrew training. The COOL application makes aircrew readiness information available in one place, incorporates the Air Force Materiel Command (AFMC) Operations Group regulatory requirements, works with several other Air Force systems, minimizes data entry, and maximizes data currency. The COOL v3.0 supports all AFMC bases and could expand to cover every Air Force base in the continental United States or overseas. Please e-mail questions to <COOL.info@edwards.af.mil>.

Deliberate and Crisis Action Planning and Execution Segments

Customer: United States Air Force

The design, development, fielding, and operational use of the Deliberate and Crisis Action Planning and Execution Segments (DCAPES) to execute Operation Enduring Freedom and Operation Iraqi Freedom, culminates the most sweeping changes for how the Air Force projects air power in over 20 years. The DCAPES provides near real-time integrated command and control, planning, and execution monitoring information to Air Force functional users in operations, logistics, manpower, and personnel, providing a single integrated planning environment. With DCAPES, Air Force planners can rapidly and accurately identify and source personnel, equipment, and sustainment capabilities to meet the combatant commander's operations plan requirements. Addition-

ally, the DCAPES enables senior Air Force decision-makers to rapidly adjust operations plans to accommodate ever-changing scenarios. The evolution of DCAPES is swiftly replacing old stove-piped, domain-centric systems by producing a single, fully integrated, replicated database. The DCAPES has been assessed at a Capability Maturity Mode® (CMM®) for Software Level 2 and the program is pursuing a CMM IntegrationSM Level 3 rating.

F-15 Bench Top Reconfigurable Automatic Tester - Test Program Sets Rehost

Customer: Ogden ALC Electronics Division

The test program sets (TPSs) delivered are used to test and repair the shop replaceable units (SRUs) in the F-15 generator control unit on the Benchtop Reconfigurable Automatic Tester. These TPSs will functionally test the SRU and specify the faulty components; the user then replaces those components and retests the SRU. After it proves to be a good SRU, it is returned to supply. The TPSs consist of test program software; interface test adapter, including associated hardware; engineering drawings for the developed hardware; technical manuals, which include test procedures manual (TPM); operation and maintenance (O&M) manual; and software design documentation. The TPM contains instructions for performing functional and diagnostic testing of the SRU. The O&M manual contains operation and maintenance instructions with an Illustrated Parts Breakdown for the interface test adapter and associated hardware. Software design documents contain additional detailed engineering test information helpful in operating the TPSs. The success of this development is based upon technical expertise being systematically applied to solve technical, logistical, and managerial problems according to a well-defined TPS development process.

FireFinder Q37

Customer: U.S. Army, Project Manager FireFinder

The AN/TPQ-37, or FireFinder Q37 (FF Q37), is a phased array, pulsed Doppler, S-Band radar developed for counter-battery artillery detection and location. The system identifies the exact location of enemy units that fire upon friendly forces, before the bullets or rockets ever land, and provides for the coordination of returned fire in a matter of seconds. There are approximately 200 FF Q37 systems fielded to the U.S. Army and Marine Corps worldwide. A *digitalization* software upgrade lets a modern Intel-based workstation be integrated into the FF Q37. This allows modern digital communications, standard National Imagery and Mapping Agency products for height correction, and the incorporation of a graphical user interface. The most recent version of FF Q37 has been deployed during 2003 to support Operation Iraqi Freedom. The FF Q37 was one of four representative systems appraised that led to the Communications Electronics Command, Software Engineering Center, Fire Support Software Engineering at Ft. Sill being one of the first Department of Defense affiliates to achieve Capability Maturity Model® Integration Level 5.

Forward Observer System

Customer: U.S. Army, Project Manager Intel Effects

The Forward Observer Systems (FOS) is fielded to provide field artillery forward observers with the capability to direct and coordinate field artillery, mortar, close air support, and helicopter munitions onto targets; to provide commanders, fire support officers, fire support teams, and forward observer and survey teams with the capability to plan collective actions through maneuver and artillery graphic map displays; to provide for storage of survey calculations and control points by field artillery commanders; and to provide a message set for use by survey and fire support teams. The FOS is a combat-critical

system for the U.S. Army and the Department of Defense (DoD) that provides an interface for first contact with the enemy. Before the enemy knows where U.S. troops are, the FOS is used to coordinate enemy location with U.S. firing units. The FOS has been upgraded and deployed to support Operation Iraqi Freedom during 2003. The FOS was one of four representative systems appraised that led to the Communications Electronics Command, Software Engineering Center, Fire Support Software Engineering at Ft. Sill being one of the first DoD affiliates to achieve Capability Maturity Model Integration Level 5.

Global Combat Support System **Customer: Special Program Office**

The Global Combat Support System – Air Force (GCSS-AF) delivers network-centric enterprise services through a suite of commercial off-the-shelf (COTS) products integrated under a common COTS security layer. These core enterprise services provide a common software and hardware infrastructure for the Air Force to integrate, in some cases eliminate, and then operate its more than 640 combat support systems. During 2002-2003, there were more than 90,000 system users or 350,000 Web pages served per day. Availability has been approximately 99.5 percent, or about an hour of both scheduled and unscheduled downtime every 10 days. The GCSS-AF supports the warfighter at 30 locations in southwest Asia. On day one of Operation Iraqi Freedom, 14 key supply chain capabilities were secured and put back into production within six hours and made available to users worldwide. Those capabilities are now the second most heavily used applications on the Air Force Portal. Work on the GCSS-AF was done at Warner Robins Air Logistics Center's Software Engineering Division, Section E, Avionics Test Program Branch, Maintenance Directorate.

Marine Corps Total Force System **Customer: U.S. Marine Corps and the Defense Finance and Accounting Service**

The Marine Corps Total Force System (MCTFS) is an integrated pay and personnel system for all active, reserve, and retired Marines. The U.S. Marine Corps and the Defense Finance and Accounting Service jointly own the system. The MCTFS is one of the largest automated information systems and the only integrated pay and personnel system that is fully operational capable within the Department of Defense. System revisions originate from congressional legislation, new policy, cost savings initiatives, and modifications to existing

functionality, and are formally prioritized by a joint Configuration Control Board. These system changes are then bundled into semi-annual software releases and scheduled into overlapping 10-month development cycles. The system is used to manage more than 498,000 Marine records for active, reserve, and retired members. The MCTFS processes in excess of 17 million transactions yearly, and computes an average gross payroll of \$238 million per semimonthly pay period totaling \$5.712 billion in payments annually. Transactions processed by the MCTFS can be generated in stand-alone, client/server, and Web-based environments, including users not connected to a network in a remotely deployed location. The MCTFS was formally assessed at Capability Maturity Model® for Software Level 3 in 2000, and currently employs processes consistent with Level 4.

Navy Standard Integrated Personnel System

Customer: Program Executive Office for Information Technology

The Navy Standard Integrated Personnel System (NSIPS) is an automated information system that delivers field-level pay and personnel data to update corporate databases in peacetime as well as during recalls, and during both a partial and full mobilization. Most importantly, the NSIPS collects, passes, and reports timely, accurate data on active and reserve members in the continental United States, overseas, and aboard ships. The NSIPS also provides the ability to send and receive work items, updates, and records to and from ships that do not have the ability to maintain direct connection to the main server via a secure Internet connection at all times. The Web-enabled NSIPS is a centrally hosted implementation with primary access from Web-browser client terminals. It eliminates four legacy field input systems. The system supports approximately 500,000 records serviced by 8,000 Navy personnel and pay specialists at nearly 572 Personnel Service Activities, Personnel Service Detachments, and Navy Reserve Activity sites. The NSIPS is now deployed to 80,583 reservists and 400,956 active duty personnel.

Tactical Tomahawk Weapons Control System

Customer: PMA 282 (U.S. Navy)

The Tactical Tomahawk Weapons Control System (TTWCS) provides surface ship on-board software and attendant hardware and submarine on-board software to plan and control the launch of Tomahawk cruise missiles. The TTWCS development is part of the Tactical Tomahawk Weapons System

Upgrade to improve the flexibility and responsiveness of Tomahawk cruise missiles, to add new capabilities, and to provide an upgrade for existing fleet systems. The TTWCS includes the capability to receive electronic tasking via legacy communications interfaces, to reduce engagement planning time due to increased automation, and to perform launch platform mission planning, which allows surface ships and submarines to plan global-positioning-system-only missions onboard, thereby improving tactical responsiveness. The software is executed by operators at four tactical display consoles on surface ships and from one to four consoles on submarines remotely. The TTWCS interfaces with several shipboard systems, including the ship's navigation system, weapon vertical launch system, Global Command and Control System–Maritime, and communications networks. The TTWCS employs processes for Capability Maturity Model® Integration Level 5 for Systems Engineering/Software Engineering.

Wide Area Augmentation System

Customer: Department of Transportation – Federal Aviation Administration

The space-based Wide Area Augmentation System (WAAS) provides an augmentation of the global positioning system (GPS) to supply the accuracy and integrity for the civil signal required to support safety-of-flight applications. The WAAS provides pilots with the data to navigate without additional navigation aids, for both en-route and Lateral Precision with Vertical Guidance. The WAAS is also used by land- and sea-based enterprises needing accurate positional information such as surveyors, farmers, and maritime users. The WAAS software consists of four computer software configuration items (CSCIs). The Data Collection Processing (DCP) CSCI operates at 25 U.S. sites. The DCP receives data from the GPS and geostationary earth-orbiting satellites, selects data of interest, and forwards that data to the Correction and Verification CSCI, which is the algorithmic center of WAAS. It computes correction and integrity data to be sent to the GEO Uplink Subsystem Processing CSCI for forwarding on to the WAAS receivers in aircraft or on the ground. The WAAS is the first system of its kind certified for use by the Federal Aviation Administration. The WAAS program was a major component in the Capability Maturity Model® Integration Level 5 rating received by Raytheon in Fullerton, Calif. ♦