

# CrossTalk Honors the 2002 Top 5 Quality Software Projects Finalists

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*It was difficult to narrow the field from the many successful government projects entered in the second annual U.S. Government's Top 5 Quality Software Projects contest. As a result, the following nine projects are being honored as 2002 Top 5 Finalists. Look for a more detailed article on many of these projects in upcoming CrossTalk issues.*

## AutoREAD

**Customer:** V-2 Division Onboard the USS Harry Truman CVN-75  
The AutoREAD Pilot System addresses the operation of aircraft safety-critical Aircraft Launch and Recovery Equipment (ALRE) onboard U.S. Naval aircraft carriers. It provides a streamlined process for data collection, analysis, and reporting of measurement data not currently available. Flight-critical preventative maintenance tasks are scheduled and downloaded to Pocket PCs. Sailors collect readings using Pocket PCs that automatically perform calculations, tolerance, and range checking against the MRC values identifying marginal and out-of-tolerance readings. Technicians and quality assurance personnel electronically sign off on maintenance actions. The PDA is then re-cradled at the supervisor's branch office where data is automatically uploaded, assembled, and formatted by the workstation application and uploaded to the AutoREAD Server Database for query, reports, and approvals processing. It also facilitates automated trend analysis of ALRE component wear through the up-line reporting of the data from the ship to the in-service engineering support activity at shore sites.

## Center Operations On-Line

**Customer:** 412th Test Wing/ Information Technology Branch, 412th Operations Group  
Center Ops Online (COOL) is a web-based enterprise application <<https://cool.edwards.af.mil>> that provides a secure means to perform mission-critical flight operations tasks. COOL is developed and maintained at Edwards Air Force Base (AFB) and is used by aircrew at Edwards, Eglin, Holloman, and Kirtland AFBs. Users can access COOL from any authorized domain computer, worldwide. Currently, COOL supports more than 600 users and leads the way toward achieving a paperless operations desk. COOL is programmed to comply with Air Force Material Command (AFMC) regulations.

Menus, functional buttons, and data entry options are all designed for easy, intuitive navigation, and are filtered based on user authorization. COOL is one of the core applications for Common Operations Enterprise, a common flight management tool set under development to maximize test effectiveness and efficiency for AFMC.

## Common User Application Software/Data Management Device

**Customer:** Electronic Systems Center  
The National Security Agency developed the Electronic Key Management System (EKMS) to support loading of key and non-key data to mission support equipment, e.g., encryption devices and radios with embedded communications security (COMSEC) modules. Its intent was to provide a stronger national security posture. The Common User Application Software/Data Management Device (CUAS/DMD) software system is an Air Force developed EKMS component designed to support operations for COMSEC accounts and their users located at any EKMS installation. CUAS/DMD was developed to make the warfighter more efficient by simplifying highly complex EKMS workstations at the user level. The project contributed immensely to lowering the man hours and training required. CUAS provides a highly comfortable user interface to perform extremely critical tasks. DMD allows users to easily navigate information security and COMSEC planning and implementation tool sets, reducing exposure to hostile environments.

## Information Access Services

**Customer:** National Imagery and Mapping Agency  
The Information Access Services (IAS) program is a part of the National Imagery and Mapping Agency's National System for Geospatial Intelligence, which provides warfighters and the intelligence community with accurate and current imagery and

other geospatial intelligence information. The IAS provides three integrated elements: The Discovery and Retrieval Client 2001, Protocol Adapter, and Profile Services. The Discovery and Retrieval Client 2001 is a powerful data access and retrieval tool that operates much as a Web-based search engine for libraries holding imagery and intelligence data. The Protocol Adapter provides access to libraries not compliant with the most recent specification. Profile Services provides a single point of authentication for user access and a single point of storage for user-specific information, enabling data sharing by multiple clients. IAS is deployed at 12 sites and provides information access to thousands of users worldwide.

## Integrated Broadcast Service

**Customer:** Combatant Commands  
The Integrated Broadcast Service (IBS) is a seven-year, \$53 million project to develop an intelligence information management system to support a global broadcast communications infrastructure. IBS generates increased combat power by networking sensors, decision-makers, and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a higher degree of precision intelligence. The Titan IBS Team delivered the Spiral One product, the IBS Initial Capability (IC), in May 2002 and conducted training and demonstrations for five user commands. The IC System was delivered on schedule and under budget. The IBS will bolster the warfighters' ability to execute threat avoidance, targeting, mission execution, and target negation or destruction.

## Logistics Module

**Customer:** U.S. Air Force  
The Logistics Module (LOGMOD) is an unclassified, responsive, user-friendly, on-line system providing the Air Force, major commands, base-level logistics planners,

and base-level unit deployment managers with the capability to plan and execute deployment, reception, and re-deployment operations worldwide. LOGMOD is crucial to planning for worldwide deployment of personnel, supplies, and equipment to meet various exercises, contingencies, and wartime taskings. On-average performance gains of 70 percent realized with version 4.1 afforded global planners extra time to effectively manage every aspect of time-critical deployment operations during force projection, including Operations Enduring Freedom and Noble Eagle. The LOGMOD epitomizes the teamwork concept of extreme programming. The LOGMOD uses a client-server architectural environment consisting of 40 servers located throughout the world.

### Milstar Air Force Command Post Terminal Block 6 Software

**Customer:** SMC DET 11/MCL

Milstar Air Force Command Post Terminal (AFCPT) Block 6 Software is a joint-service satellite communications system. It provides secure, survivable, and endurable communications for the president, secretary of defense, chairman of the Joint Chiefs of Staff, and the Unified Combatant Commanders for their strategic and tactical forces, including command and control elements, aircraft, ships, and submarines, and to command and control the Milstar satellite constellation. This crit-

ical AFCPT software is used in fixed, mobile, and contingency terminals, and aboard the Air Force E-4B Airborne Command Post and the Navy E-6B Take Charge and Move Out aircraft. It provides the warfighters interoperable communications with other Milstar terminals on shared networks and enables communications over the Milstar constellation and other existing resources. The upgrade was completed in a dual engineering environment, combining the efforts of two teams separated by 2,000 miles working as an integrated unit.

### TaskView 3.2

**Customer:** Ogden Air Logistics

Center/LHM

TaskView allows the user to quickly view an Air Tasking Order (ATO) or Air Combat Order (ACO) at various levels from low-level detail to high-level overview. TaskView displays what was a 100-page plus text document in a variety of textual and graphical formats, including tree structures, tabular layouts, formatted fields, and raw text. In literally minutes, an aircrew can parse/sort the ATO/ACO by mission tasking, display the stick route and associated airspace control measures in FalconView, and then convert the stick route into a combat flight planning software route – a task that once took hours. All routing, refueling points, low-level entry corridors, search and rescue areas,

protected airspaces, targets, and all air-related support requirements are fully supported and displayed by TaskView.

### Virginia Class Ship Control System Project

**Customer:** Naval Sea System

Command PMS 450

The Virginia Class Ship Control System (SCS) is a revolutionary technological improvement over the Navy nuclear ship control systems of previous submarine classes. A fly-by-wire system now controls the previous hydraulic mechanical-based system, which controls the ship's steering and diving performance. It provides significantly increased capabilities, exceptional reliability via software fault tolerance, and reduced manning via automation. The SCS utilizes commercial off-the-shelf electronic components. It also replaces the conventional hard-wired switches and indicators with four large and four small flat panel displays with touch-screen operator interface. These software-driven displays simplify the operator interface, reduce acquisition costs and installation labor, and provide flexibility and cost savings in life-cycle support. The SCS components communicate with each other via three redundant ship control fiber optic data buses, significantly reducing the cabling required. ♦

## Top 5 Software Projects Scoring Criteria

Reviewers from the Software Technology Support Center (STSC), Hill Air Force Base, Utah, used the following criteria and point system to score all nominations as part of the process to select the 2002 U. S. Government's Top 5 Quality Software Project's finalists. Each nomination was awarded points (up to a maximum value) based on how well the project performed within each category: customer value, performance, technical value, and reviewer's discretion. At least three STSC consultants or engineers scored each nomination with the top one-third of the nominations closely scrutinized by the internal board to select the finalists.

### Customer Value – Maximum 40 Points

#### Problem Reports

- Were responses to the problem reports and questions timely?

#### Value

- What was the measured value to the customer's mission (return on investment)?

#### Benefits and Satisfaction

- Is the end product useable?
- Is the customer satisfied with the end result?
- What other benefits were provided to the customer?
- Was the developer collaborative?
- Did the developer listen to the customer?
- Was the developer knowledgeable? Informative? Helpful?
- Was the developer professional in letting the customer know requirements trade-offs?

### Performance – Maximum 25 Points

- Did the developer meet the contracted schedule?
- Did the developer meet the contracted budget?
- How many problem reports have been written against the product since system test?
- Is the customer satisfied with the performance?

### Technical Value – Maximum 20 Points

- Was the problem challenging? How hard was this project to implement?
- Was the solution innovative? What approach was used to solve the problem? What technical value did they provide to the world?
- Is the project reusable? Can someone else use the end product, portions of the end product, code, process, or the product's technology to solve a future government problem?
- Is the project repeatable? Given a similar problem, could the group repeat this success or were they just lucky this time? (Did they use defined processes, trained people, etc.?)

### Reviewer's Discretion – Maximum 15 Points

Use or don't use these points as discretion dictates. Suggested considerations include the following:

- Previous awards. (CMM, ISO 9000, Malcolm Baldrige, etc.)
- Customers. (Will one small organization use this or will it be dispersed worldwide?)
- Do they have measures that can be used for oversight and additional improvements?
- What is the atmosphere/morale of the developing organization?