Sandia ordering system delivers supplies to the lab just in time

By Karen D. Schwartz
GCN Staff

Sandia National Laboratories has cut the time for delivery of supplies to as little as an hour or two with its Just-In-Time ordering system.

Sandia built the contract administration, order placement and accounting system with Texas Instruments' Information Engineering Facility, or IEF. The computer-aided software engineering tool automates design, code generation and maintenance of applications, creating an encyclopedia that covers the life cycle.

The Just-In-Time system identifies contracts between Sandia vendors and their suppliers as well as the contract items available.

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Low-value items typically ordered from it include everything from toilet paper to computers to pencils.

Residing on an IBM Corp. 9021-500 mainframe running MVA/ESA and CICS, Just-In-Time lets anyone at Sandia place orders if authorized to spend money. Users order from Apple Macintoshes, IBM 3270 terminals or microcomputers emulating 3270 terminals.

These stations communicate with the mainframe over an asynchronous network that combines hard wiring with twisted-pair and fiber-optic cabling. Vendors access the mainframe via modems. The customers place orders against a list of available items and the off-site suppliers ship the items immediately, often for arrival the same day.

Just-In-Time provides historical and future price data for each item; automated adjustment, exchange and credit; and on-line access for customers to view the status of their requisitions.

The system has cut down significantly on personnel frustration, said Joseph R. Schofield, a computer systems specialist with Sandia's Information Systems Development Division. Employees no longer have to play phone tag with suppliers, he said.

Sandia brass thought the CASE environment "has matured to the point where we could use it the way we thought it ought to be used," Schofield said. They decided to start with a pilot project to make sure CASE was the way to go. After a competitive procurement and evaluation of several CASE tools, they chose IEF and Just-In-Time as the pilot project.

"We wanted a product that was fully integrated, with an encyclopedia that looks like the same tool throughout, and no shifting of encyclopedia repositories between tools. We heard these were problems with other products," Schofield said.

"We wanted something that did the whole life cycle as opposed to just part. There is no sense in doing CASE if you aren't going to use a structure. You're just chasing after another technology without improving your process."

Another reason for the CASE strategy was to make sure the ordering system could interface with other major systems at Sandia, he said. Just-In-Time works with Sandia's human resources system to provide real-time edits and retrieval of current employee and contractor data. It also interfaces with the lab's financial system for project management, Schofield said.

But there were bugs to be worked out.

"We had problems with the generated code because the modules were bigger than anything our systems engineers had ever seen," Schofield said. "They increased the size of the CICS region. We haven't had a problem since then with the actual executing code."

DB2, IBM's mainframe database management system, functions as the database for IEF's encyclopedia. Just-In-Time also relies on contractor-written batch reports in Cobol when suppliers dial in and download orders. IEF currently does not provide batch reports, something that Schofield said would be helpful. ■