Library Capability Demonstration
Central Archive for Reusable Defense Software (CARDS)

Informal Technical Data

Central Archive for Reusable Defense Software

STARS-VC-B018/002/00
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For The
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Prepared By:
AETECH Inc.
under contract to
Unisys Corporation
12010 Sunrise Valley Drive
Reston VA 22091

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INFORMAL TECHNICAL DOCUMENT
Library Capability Demonstration
Central Archive for Reusable Defense Software (CARDS)

Principal author of update:

Gene Humphrey

Brian Massey

Approvals:

System Architect Kurt Wallnau

Program Manager Lorraine Martin

(signatures on File)
ABSTRACT

This demonstration was developed under the Central Archive for Reusable Defense Software (CARDS) Program to demonstrate CARDS ability to support heterogeneous computing environments of the DoD. This demonstration illustrates the capability for a remote user to view, via the library, a demonstration of a component running on a non-Unix platform, such as a 386/486 class PC.
This demonstration was developed under the Central Archive for Reusable Defense Software (CARDS) Program to demonstrate CARDS ability to support heterogeneous computing environments of the DoD. This demonstration illustrates the capability for a remote user to view, via the library, a demonstration of a component running on a non-Unix platform, such as a 386/486 class PC.
Central Archive for Reusable Defense Software (CARDS)

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Carlos Martinez, Brian Massey, Gene Humphrey
AE TECH Federal Systems Division
SOW

“As a step towards demonstrating CARDS ability to support heterogeneous computing environments of the DoD, the contractor shall provide the capability for a remote user to view, via the library, a demonstration of a component running on a non-Unix platform, such as a 386/486 class PC.”
Task Approach

- Contact commercial vendors that dealt with PC-to-UNIX connectivity products
- Develop a product data checklist for product comparison
- Evaluate applicable COTS products
- Develop the Product Availability Survey Report
- Choose product via a hands-on testing
- Develop automated means to download and execute applications
- Integrate DOS application into the Command Center Library (CCL)
- Demonstrate heterogeneous functionality
- Convert Product Availability Survey Report into SGML
The CCL, in its current state, is limited to components that are only executable on a UNIX platform. Ultimately, to provide support for the heterogeneous computing platforms throughout the DoD, this limitation must be overcome. The command center needs to be able to store and execute applications that run on these platforms. The initial non-UNIX platform is a 386/486 DOS PC.
Product Availability Survey Report

- Executive Summary
- Background
  - What - Why - What's included - What is not included
- Statement of Problem
  - Problem Defined - Why Solve
- State-of-the-Art in UNIX-to-PC Connectivity
- Possible Options
  - DESQview/X - OmniWare - PC2X - Network PC Access
- Recommendation
  - Which product and why
- Appendix A -- Vendor List
- Appendix B -- References
- Appendix C -- Condensed Product Data Forms
Significant Factors

- Security
  - DOS Security
  - UNIX security
- Performance
  - Sharing applications
  - Sharing data
- Cost
  - Cost of DOS PC
  - Cost of networking hardware/software
  - Cost of connectivity product hardware/software
  - Cost of UNIX station
- Error Handling
  - Error detection
  - Error recovery
**Data Sharing Challenges in the CCL**

- **File Transferring**
  - Copying files from one machine to another, e.g. FTP, uploading and downloading via modem connections

- **File Sharing**
  - Allows users to view and access files located on a remote machine as if they were local files

  **Application Sharing Challenges in the CCL**

- **Definition**
  - The sharing of applications on computer systems across a network

- **DOS PC to UNIX**
  - COTS products mirror the DOS PC’s display within an X Window on the UNIX system
  - COTS software supports an X based client/server environment along with multitasking (DESQview/X)
DESQview/X

- **Features**
  - Allows windowed multitasking on a PC
  - Provides a graphic desktop and allows remote computing to and from other X based machines

- **Strengths**
  - Allows a user to execute DOS text-based applications and MS Windows applications on a remote UNIX system
  - Provides bi-directional connectivity
  - Everything maintained by the DOS PC
  - Provides security measures

- **Weaknesses**
  - DESQview/X does not adequately support many graphics cards for the PC
  - DOS graphics-based applications are not supported
  - Script automation problems
  - Ties up large amount of CPU cycles and RAM on DOS PC
PC2X

- **Features**
  - Software that allows a user to control DOS PC applications from a UNIX workstation

- **Strengths**
  - Utilizes very little CPU cycles and RAM
  - Client/Server software with a PC server being a TSR
  - Easy to install
  - Anything that will run on the PC will run within the DOS window

- **Weaknesses**
  - Slow (Windows)
  - Script automation problems
  - Does not support SVGA mode display
  - PC is not usable while a connection is resident
  - Security
Omni-Ware

- Features
  - Omni-Ware is a network server that brings high performance PC capabilities to UNIX users

- Strengths
  - Very quick
  - Machine comes preconfigured
  - PC files can be stored on a host, utilizing logical disk, or on a local hard disk
  - File transfer is easy from UNIX to logical disk
  - Dedicated machine

- Weaknesses
  - Will not be able to be used in bi-directional connectivity
  - Supports only VGA graphics
  - Security
Recommendation

We recommend Omni-Ware from Logicraft as the best overall UNIX-to-PC connectivity product for use in the CARDS Command Center Library (CCL) for the following reasons:

- The price of a single-user hardware node (approximately $5000) is reasonably consistent with the price of a high performance PC with attendant network hardware and software
- The product performance far exceeded that of other products we tested
- The limitation of only one PC session at a time should not materially affect its intended use in the CCL since it will only be used to test operate DOS applications rather than being used for production work
- In addition to text-based applications, it can also run any graphics-based DOS application, not just MS Windows applications
- It can be configured to provide bi-directional connectivity which is not a current requirement but is expected to be in the future
- It allows for automated execution through scripting
Preparing DOS Applications

- Install application on Omni-Ware node
- Develop specialized batch files
- Create self extracting archive
- Place archive into CCL database
About the Demonstration

- The DOS product Electro-Optical Climatology will be demonstrated
- Omni-Ware client software installed only on the machine *golf*
- Demonstration will be done on the machine *cruel* in order to demonstrate the ability to support execution from a remote system
- The heterogeneous demonstration is not on the operational systems
- The heterogeneous capability is not planned for release
Details of the Demonstration

- Initiate CCL session
- Search for Electro-Optical Climatology node
- Select Electro-Optical Climatology node and choose menu option run.demo
- Once Omni-Ware session starts, the application is automatically executing
- Quitting the application terminates the Omni-Ware session
Demonstration

1 — Remote user is executing the CARDS CCL from the reuse library and prompts the CCL to execute a DOS application

2 — A call is sent across Internet to the reuse library

3 — Golf is where the Omni-Ware product is installed. It prompts Omni-Ware to start a session

4 — The command is sent across the LAN to Omni-Ware

5 — Omni-Ware responds to the operation by starting a new session

6 — The DOS PC monitor is sent back across the LAN to golf so that a DOS window appears on the UNIX terminal with the application executing

7 — The display is received by golf but golf is told to send the display back to cruel. Cruel receives and displays the execution of the product
APPENDIX A

Demonstration Script for the Heterogeneous Capability

The demonstration instructions provided below describe a sample execution of the Electro-Optical Climatology (EOC) program. This document assumes the Reuse Library Framework (RLF) Graphical Browser is currently running. Procedures to be performed are preceded by an equals sign and a right arrow (=>). Steps to complete each procedure are indented and listed below their corresponding procedure. If you are prompted to enter information from the keyboard, the correct response will be preceded by a hyphen and a right arrow (->). Keys to be pressed are enclosed in arrows (<>). This paper is divided into two sections: 'Executing the EOC' and 'Using the EOC'.

** Executing the Electro-Optical Climatology program **

=> Perform search for EOC node:
   Click on SEARCH

=> Enter search string:
   -> Electro
   Click on OK or <RETURN>

=> Select node:
   Click on ELECTRO_OPTICAL_CLIMATOLOGY
   Click on APPLY

=> Browser brings the EOC node into view.

=> Pull down node menu:
   Move mouse above node name until a tiny black box appears
   Click and hold on black box
   Continue holding mouse button

=> Browser will display node menu.

=> View sub-menu:
Continue holding mouse button
Move mouse to right of PERFORM ACTION

=> Browser will display perform action sub-menu.

=> Execute EOC program:
Continue holding mouse button
Release mouse button on RUN_DEMO

=> Omni-Ware will be booted.

=> The EOC will run within the Omni-Ware DOS window.

** Using the Electro-Optical Climatology program **

The EOC is a USAF application for determining climatological transmittance information used in planning, training and contingency support for employment of Precision Guided Munitions and Target Acquisition Systems. The following procedures will guide you through the main features of the EOC program.

=> Switch from UNIX to DOS mouse cursor:
Move mouse cursor within DOS window
Click middle mouse button

=> Exit Introduction window:
<ESC>

=> Choose station sub-directory:
Click on STATION
Click on EMIRITES
Click on OK

=> Close station window:
<ESC>

=> Select a quadrant:
Click on VIDEO
Click on UPPER_RIGHT_QUADRANT

=> Select a station:
Click on STATION
Click on RASALKHAIMAH
<RETURN>
=> View map of all stations. Selected station is highlighted:
   Click on VIDEO
   Click on MAP

=> Return to quadrant view:
   <ESC>

=> Choose month:
   Click on MONTH
   Click on MARCH

=> Choose time of day:
   Click on TIME
   Click on 0600_GMT (Time will be irrelevant
   on some graph types)

=> Choose type of information to be displayed on graph:
   Click on OUTPUT
   Click on PRECIPITION

=> Update quadrant map with your newly selected options:
   Click on DISPLAY

=> Reactive menu:
   <ALT> or Click right mouse button

=> Enlarge quadrant map to whole screen:
   Click on VIDEO
   Click on ENLARGE

=> Return to quadrant view:
   <ESC>

=> Read station narrative:
   Click on OUTPUT
   Click on STATION_NARRATIVE

=> Exit narrative view:
   <ESC>

=> View weather category table:
   Click on OUTPUT
   Click on WEATHERCATEGORY

=> Exit weather category table:
   <ESC>
=> View transmittance versus ceiling table:
   Click on OUTPUT
   Click on TRANSMITTANCE_VS_CEILING

=> Exit ceiling versus transmittance table:
   <ESC>

=> Exit EOC program:
   Click on QUIT
   <RETURN>