THE EVALUATION AND EXTENSION OF TAE IN THE DEVELOPMENT OF A USER INTERFACE MANAGEMENT SYSTEM

Brenda Burkhart
Jet Propulsion Laboratory

Ross Sugar
Century Computing, Inc.
INTRODUCTION

• LARGE INFORMATION PROCESSING PROGRAM
• JPL
• GRAPHICS AND DISPLAY ENGINEERING GROUP
• USER INTERFACE MANAGEMENT SYSTEM (UIMS)
• TAE

TOPICS

• THE PROJECT
• PROJECT REQUIREMENTS
• UIMS
• REQUIREMENTS SUPPORTED BY TAE
• MODIFICATIONS TO TAE
• LESSONS LEARNED
• EVALUATION OF TAE AS A UIMS
THE PROJECT

- INFORMATION GATHERING AND DISPLAY SYSTEM
- DISTRIBUTED PROCESSING NETWORK
- HOST PROCESSORS (VAX 11/750)
- WORK STATIONS (VAXSTATION II)
  - VAXSTATION DISPLAY + SPECIAL GRAPHICS DISPLAY DEVICE

THE USER

- TRIGGERS VARIOUS USER FUNCTIONS (APPLICATIONS SOFTWARE)
- PERFORMS SOPHISTICATED I/O
  - QUESTION/ANSWER
  - FORM FILLING
  - WORD PROCESSING
  - GRAPHICAL ENTITY MANIPULATION AND DISPLAY
PROJECT REQUIREMENTS

- PROVIDE A CONSISTENT USER INTERFACE TO USER FUNCTIONS
- PROVIDE A CONSISTENT APPLICATIONS INTERFACE TO USER FUNCTIONS
- SUPPORT BOTH COMMAND AND MENU TRIGGERING OF USER FUNCTIONS
- SUPPORT MULTIPLE USER INTERACTION TECHNIQUES
- PROVIDE CONSISTENT HELP AND MESSAGE FACILITIES
- SUPPORT A MULTI-WINDOWED ENVIRONMENT
- SUPPORT A DISTRIBUTED APPLICATIONS ENVIRONMENT

UIMS

"A UIMS IS A SOFTWARE PACKAGE THAT ACTS AS A BUFFER, OR MEDIATOR, BETWEEN APPLICATIONS SOFTWARE AND THE USERS OF A SYSTEM".

H. J. STRUBBE
UIMS CHARACTERISTICS

• CONTROLS USER DIALOGUE

• PROVIDES A CONSISTENT USER INTERFACE

• SUPPORTS A STANDARD APPLICATIONS INTERFACE TO USER FUNCTIONS

• SUPPORTS ONE OR MORE USER FUNCTION TRIGGERS
  - COMMAND
  - MENU
  - ICON

UIMS CHARACTERISTICS (CONTINUED...)

• SUPPORTS SEVERAL USER INTERACTION TECHNIQUES
  - QUESTIONS/ANSWERS
  - FORM FILLING
  - WORD PROCESSING
  - GRAPHICS
  - MENUS
  - MULTIPLE WINDOWS

• SUPPORTS A SET OF INTEGRATED TOOLS TO DEFINE USER FUNCTIONS AND DEVELOP USER DIALOGUE
ADVANTAGES OF UIMS

• USER
  - EASE OF LEARNING SYSTEM
  - PREDICTABILITY
  - GENERAL EASE OF USE

• APPLICATIONS DEVELOPER
  - NO USER INTERFACE SOFTWARE DEVELOPMENT REQUIRED
  - MORE PORTABLE
  - EASIER ON PROGRAMMER
  - USER INTERFACE CAN BE DEVELOPED BY NON-PROGRAMMERS
  - USER INTERFACE CAN CHANGE WITHOUT CHANGE TO APPLICATIONS SOFTWARE

REQUIREMENTS SUPPORTED BY TAE

• SUPPORTED REQUIREMENTS
  - CONSISTENT APPLICATIONS INTERFACE TO USER FUNCTIONS
  - SUPPORT OF BOTH COMMAND AND MENU MODE
  - TOOL PROVIDED FOR DIALOGUE CONTROL (TCL)

• UNSUPPORTED REQUIREMENTS
  - NO SUPPORT FOR PROJECT DISTRIBUTED ENVIRONMENT
  - NO SUPPORT FOR SOPHISTICATED USER INTERFACE
MODIFICATIONS TO TAE

- DISTRIBUTED ENVIRONMENT
  - USED PROJECT COMMUNICATIONS PROTOCOL

- SOPHISTICATED USER INTERFACE
  - INTRODUCTION OF OBJECT DATA TYPE
  - SUPPORT OF SOPHISTICATED TOOLS (FORMS MANAGER, WORD PROCESSOR, GKS, PROJECT SPECIFIC GRAPHICAL OPERATIONS)
  - SUPPORT OF MULTI-WINDOWED ENVIRONMENT