X Wrappers for Non-Graphic Interactive Programs

Don Libes
libes@nist.gov

National Institute of Standards and Technology

Overview

- Terms
- Motivation
- Solutions
- Design & Implementation
- Example
- Other Applications
- Future

Terms

- What are non-graphic interactive programs?
  - Non-graphic
  - Interactive

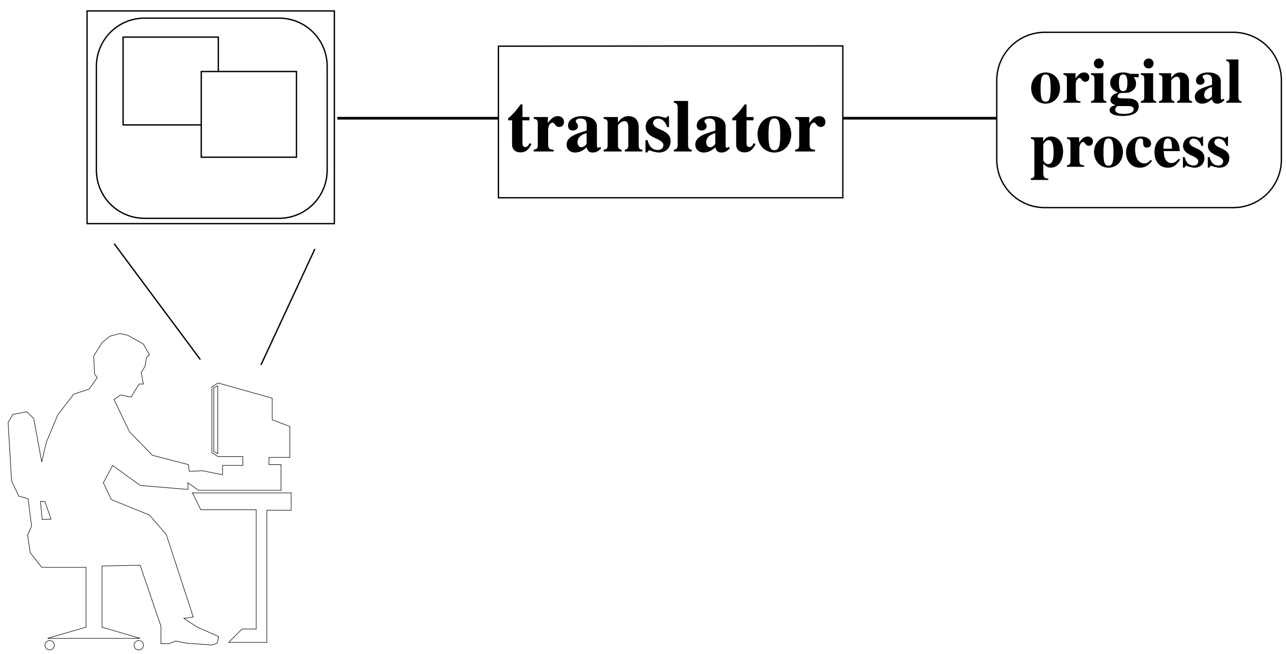
  Examples: passwd, ftp, telnet, gopher

  GUI = Graphic User Interface

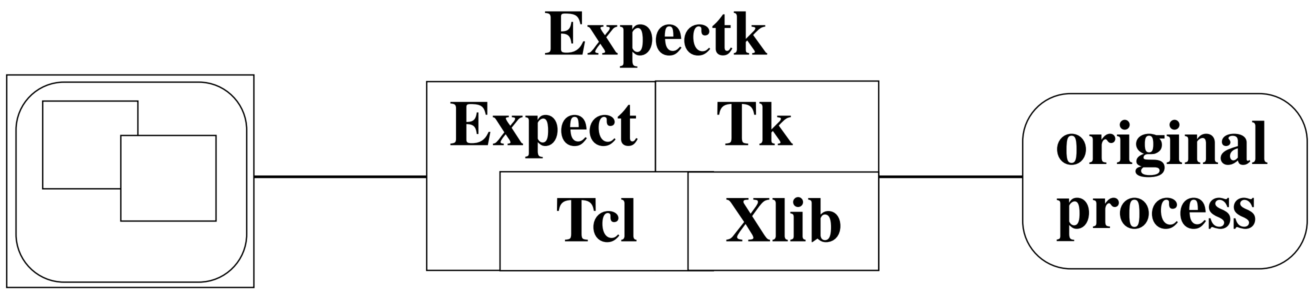
Motivation

- GUIs are easier to use
- Legacy programs
- Drawbacks to the Obvious Solution
  - a lot of effort to rewrite
  - the entire result has to be tested

Idea



Expect + Tk = Expectk!



- Expect
  - Automates or Partially Automates Interactive Programs
  - Dialogues can be “shaped”
- Tk
  - Creates X11 GUIs

Tcl – Tool Control Language

- Tcl is an interpreted language framework

```
set name "Don"
if {$a == sin($x)/2} {
     puts "hello world"
}

set pets {dog cat canary}

cmd arg1 arg2 arg3 ...
```

- Both Expect and Tk are written using Tcl.

Expect Commands Are Simple

- Start an Interactive Process

```
spawn ftp
```

- Send a Command

```
send "dir\r"
send "get $file\r"
```

- Wait for a Response

```
expect {
     timeout        timed_out
     "550*ftp> " cd_failed
     "200*ftp> " cd_succeeded
}
```

Tk Commands Are Simple

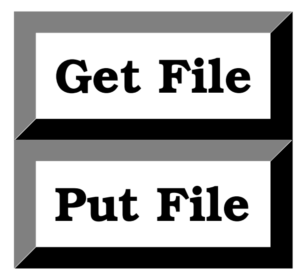
- Buttons

```
button .gbut -text "Get File" -command get
button .pbut -text "Put File" -command put
```

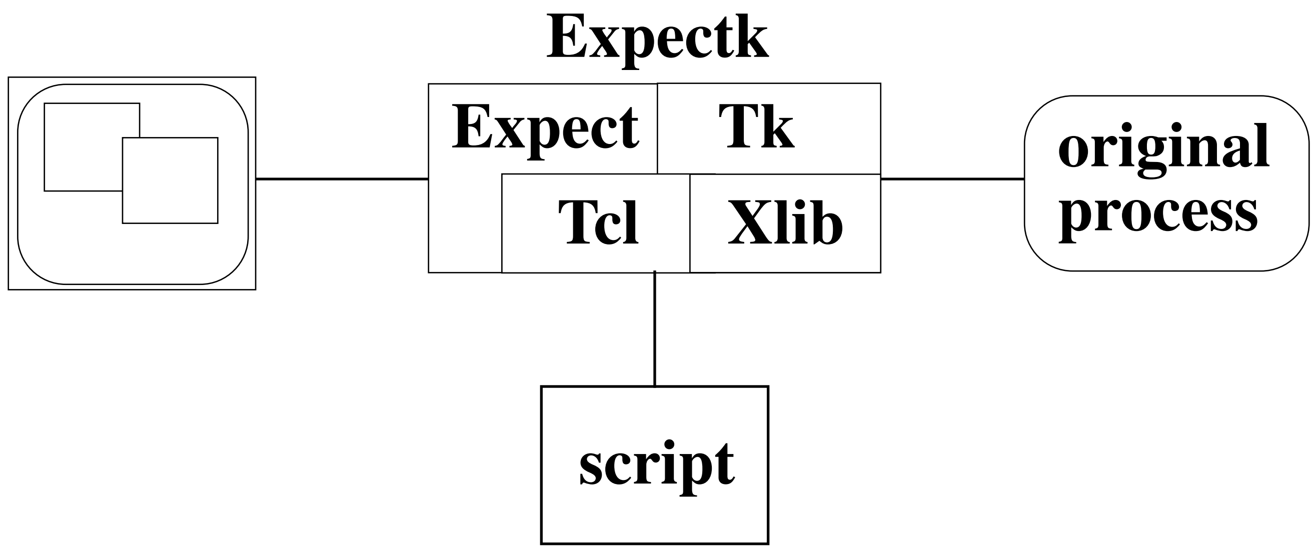
- Bindings

```
bind .dir <Button3> swap-directory
```

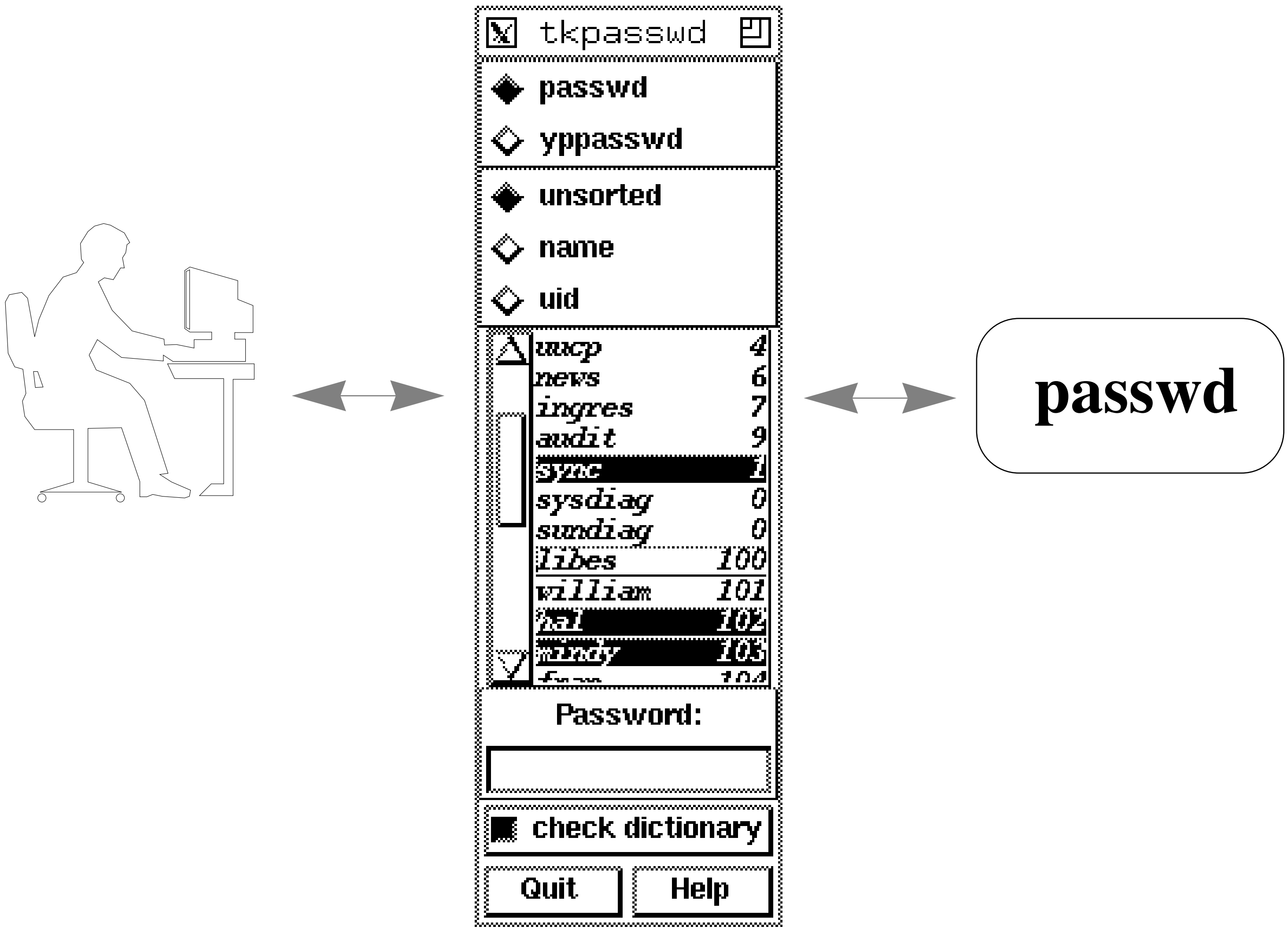
- Lots of Other Widgets, Motif-style
  - Window
  - Scrollbar
  - Radio button
  - Check button
  - Canvas
  - Etc



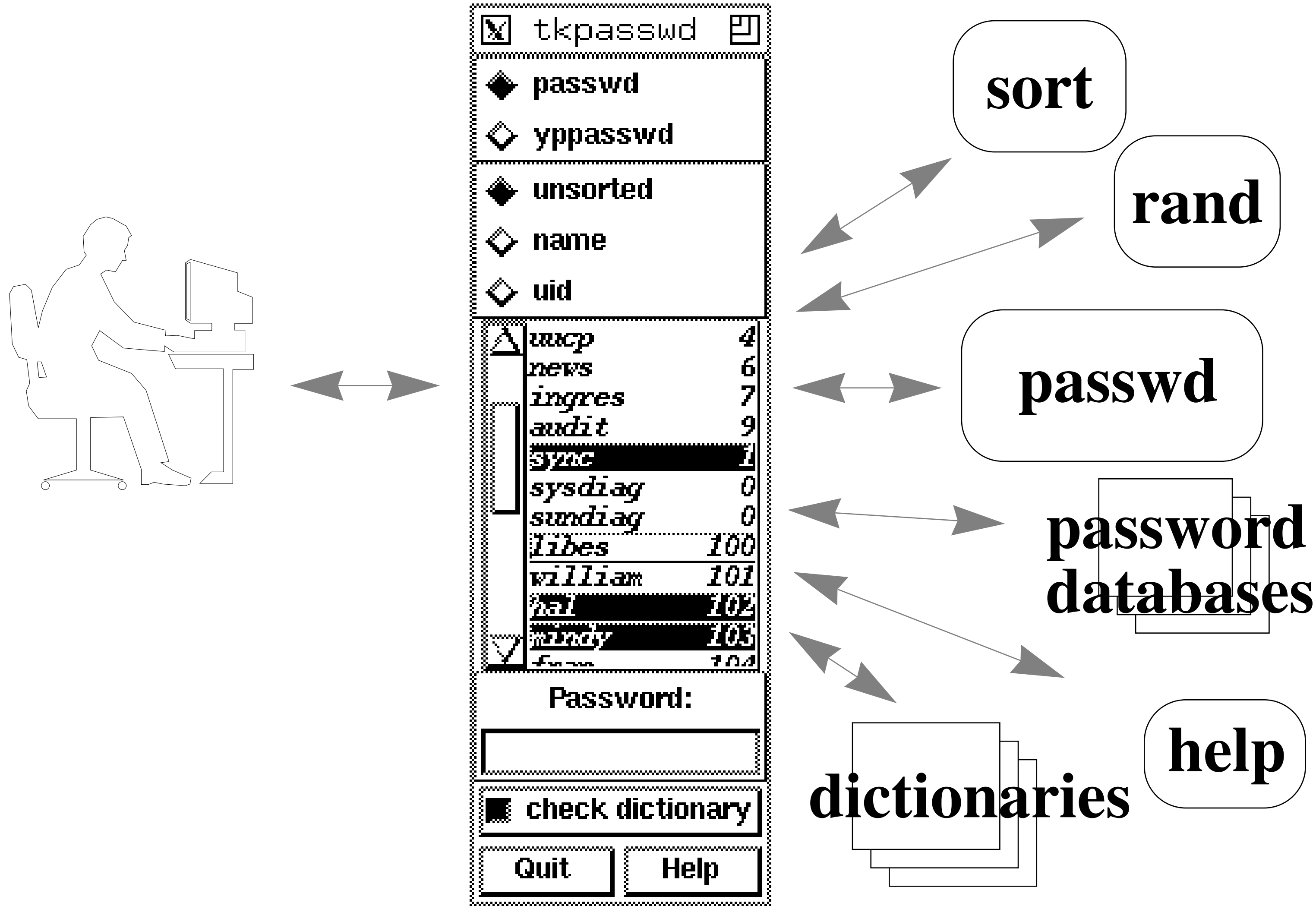
Expectk – Script Driven



Example – Password Setting



Performance Metrics



Other Applications – Lots

- Basic UNIX stuff
  - adb, fsck, crypt, tip, dump, ftp, lpc, nslookup, passwd, etc
- Most are proprietary
- Multiple processes
- Creation or prototyping of brand new X applications

Future

- Better understanding of character graphics
  - Curses

Summary – Expectk

- Lowers cost of moving existing apps into the modern world
- Leverage – reuse existing commands, less testing required
- Interpreted, Scripted: flexible, easy to change, user-customizable
- Use for new tools or prototypes

Expectk is in the public domain and is available from ftp.cme.nist.gov. Further information in the Proceedings.