WinWin Update

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About WinWin

- A computer program that aids in the capture, negotiation, and coordination of requirements for a large system
- WinWin is a Motif/X-Window program running on UNIX operating systems
- WinWin Versions
  - WinWin 0.8 released in Feb., 1994
  - WinWin 1.0 released in Aug., 1995
  - WinWin 1.1 released in Jul., 1996
  - WinWin 1.2 released in May, 1997

WinWin API

- Providing a library so external programs can interact with WinWin
  - API provides the WinWin client's functions
    - whatever a user can do using the WinWin User Interface, a programmer can do using the WinWin API
  - Applications which call WinWin API should follow the general WinWin processes
    - applications should call project_create() or project_open() before access WinWin Data
    - applications can not call artifact_set() to an artifact which is inactive or frozen by the WinWin system
- Under Development
WinWin API - Example Code

```c
#include "win-api.h"
main(argc, argv)
...
char *host = strdup(argv[1]);
...
/* initialize a WinWin client */
if (init(host, port, homedir, datadir, username) == -1) { /* initialization failed */
    fprintf(stderr, "%s
", get_error_msg());
    exit(1);
}
proj_no = project_list(&proj_list);
res = project_open(proj_list[0]);
artf_no = artifact_list(AGRE, &artf_list);
artf_item_no = artifact_get(artf_list[0], BODY, &value);
res = artifact_set(artf_list[0], NAME, 1, "Schedule");
...
res = project_close();
clear_result(proj_list, proj_no);
...
project_exit();
```

Creating Java WinWin

- Motif WinWin is confined to LAN and shared file system
- General Strategy
  - Reuse existing code wherever possible
  - Strip out Motif code and replace by Java AWT
  - Use sockets to communicate between the application server and the Java applet
  - Develop protocol
  - Provide the same "look and feel" as the Motif WinWin
Splitting Motif WinWin into 2 Components - Application Server and Java Applet

PART I
JAVA APPLET
- UI Generation
- Event Handling
- Data Structure Creation/Management
- Binding Routine
- Client Stub

BREAKING MOTIF WINWIN
- Main Loop
- UI Generation
- Event Handling
- Data Structure Creation/Management
- Others
  - Data Processing
  - Calculation
  - I/O
  - Comm. with other programs

APPLICATION SERVER
- Dispatching Routine
- Binding Routine
- Server Skeleton
- Data Structure Creation/Management
- Others
  - Data Processing
  - Calculation
  - I/O
  - Comm. with other programs

- Binding Routines setup a socket connection between the Remote UI and the application server
- the Dispatching Routine dispatches the incoming request from the Remote UI to the appropriate procedure

Java WinWin Architecture - Connection Initialization

Step 1: User sends a request to a web server by clicking on an anchor in a Web page (1, 2)
Step 2: The Web server finds a web document which is a Java applet (3)
Step 3: The Web server sends the Java applet to the client (4, 5)
Step 4: The applet sends a request to the Web server asking for a TCP/IP connection with an application server on the Web server machine (6, 7)
Step 5: The Web server initiates the CGI program that invokes an application server (8)
Step 6: A connection is made between the application server and the Java applet (9, 10)
Java WinWin Architecture - After the Connection Initialization

- Direct connection between the WinWin application server and the WinWin applet
- WinWin applets can work cooperatively with other WinWin applets and Motif WinWin applications

Differences between Motif WinWin and Java WinWin

<table>
<thead>
<tr>
<th></th>
<th>Motif WinWin</th>
<th>Java WinWin</th>
</tr>
</thead>
<tbody>
<tr>
<td>File Location</td>
<td>in the local directory that the user has designated</td>
<td>in the predetermined directory on the application server machine</td>
</tr>
<tr>
<td>Login Procedure</td>
<td>No explicit login procedure</td>
<td>Explicit login procedure</td>
</tr>
<tr>
<td>Tools Menu</td>
<td>No constraints</td>
<td>Only the Java Cocomo is available</td>
</tr>
<tr>
<td>Attachment</td>
<td>No constraints</td>
<td>Can not run tools directly from the Java WinWin</td>
</tr>
<tr>
<td>Export</td>
<td>Available</td>
<td>Not available</td>
</tr>
<tr>
<td>Print</td>
<td>Prints to MIF, TEXT, and HTML format</td>
<td>Only prints to HTML format</td>
</tr>
</tbody>
</table>
FTP Sites for Downloading WinWin 1.2

- WinWin 1.2 (Solaris Version)
  - ftp://ftp.usc.edu/pub/soft~engineering/winwin1.2/winwin1.2~solaris2.x.tar.gz

- Java WinWin 1.2