

User Interfaces in the Octopus

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Roadmap

- Problems
- Ideas
- Examples
- Status and Issues



Problems

Distributed User Interfaces

- Combining old and new devices
- Without carrying hardware
- Persistent sessions
- Generic tools for UI elements
- Giving control to users



Target environment

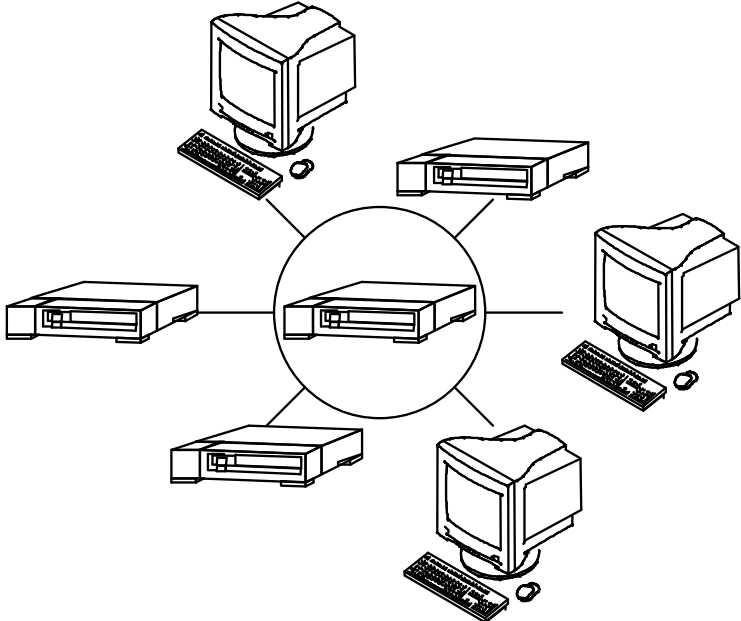
Many machines per user

Hardware cheap, available everywhere

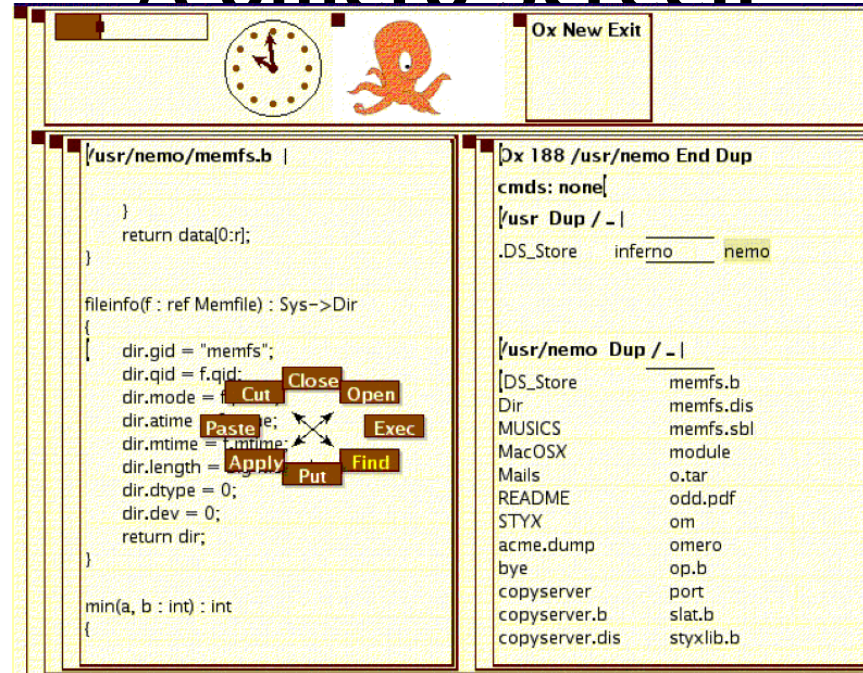
Just look around...



Organization

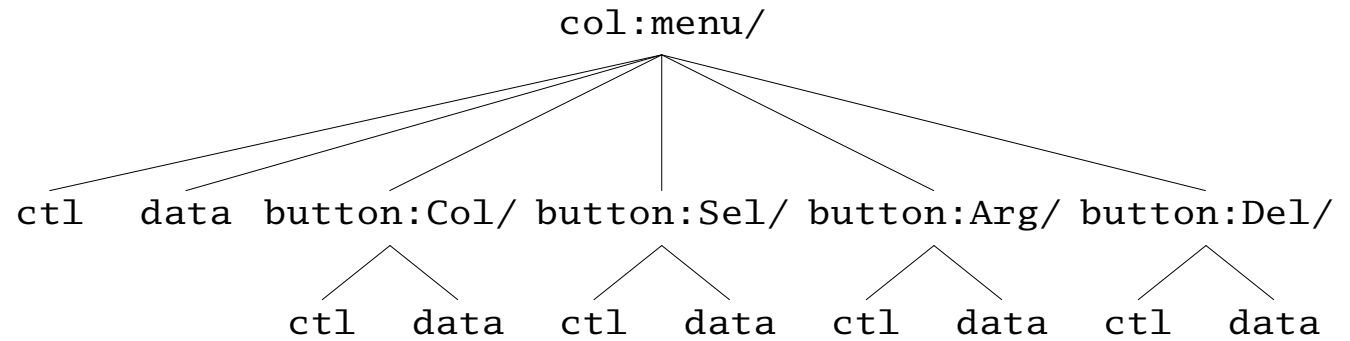


A omero screen

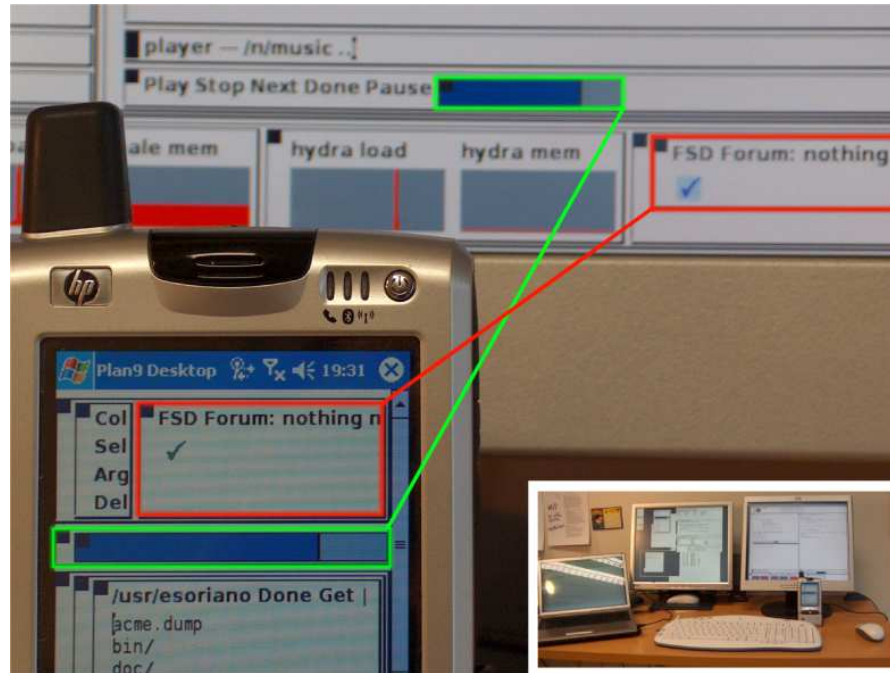


UI elements as files

■ Col
Sel
Arg
Del



Users move and copy controls



Programs move and copy controls

```
% cd /mnt/ui
```

```
% mkdir appl/text:xample
```

```
% cp /NOTICE appl/text:xample/data
```

```
% mkdir screen
```

```
% echo copyto /screen/row:wins/col:1 >  
appl/text:xample/ctl
```

```
% echo moveto /screen/row:wins/col:2 >  
screen/row:wins/col:1
```



More things can be done:

- search for buttons:

```
du -a /mnt/ui | grep 'button:'
```

- press a button:

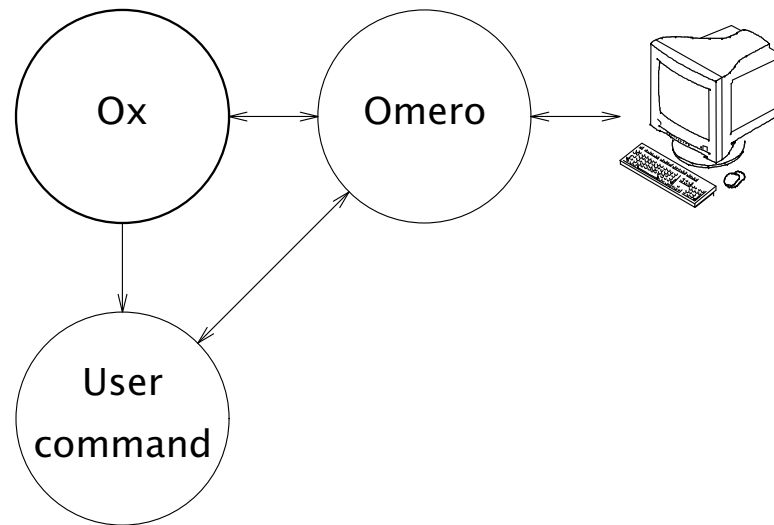
```
echo press >/.../button:Play/ctl
```

- Change its label:

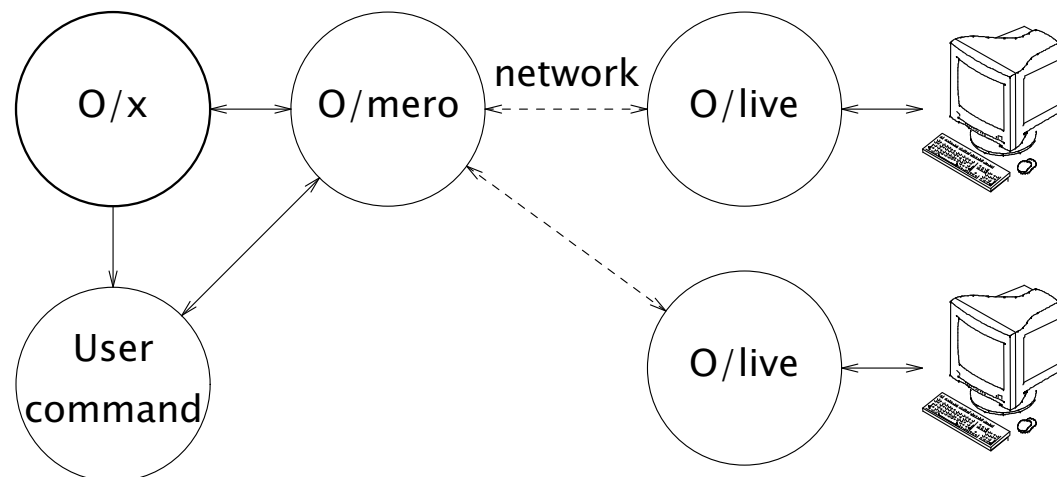
```
echo Pause >/.../button:Play/data
```



Omero (Plan B)



O/mero and O/live (Octopus)



Events (O/mero – Appl.)

Event	Meaning
<i>Look</i>	look for something in the file system
<i>Exec</i>	execute a command
<i>Apply</i>	apply a command to the selection
<i>Close</i>	last replica for the panel is closed
<i>Click</i>	mouse event (only sent when requested)
<i>Keys</i>	keyboard event (only sent when requested)
<i>Interrupt</i>	user wants to interrupt the application
<i>Clean</i>	the panel is clean (no edits by the user)
<i>Dirty</i>	the panel is dirty (user made edits)



Events (O/mero – O/live)

Event	Meaning
<i>Update</i>	update the view for a subtree
<i>Top</i>	view the subtree rooted here
<i>Insert</i>	text was inserted in a text panel
<i>Delete</i>	Text was deleted from a text panel



API

```
panels->init();  
  
ui := Panel.init("xample");  
  
text := ui.new("text:xample", 1);  
  
sfd := open("/NOTICE", OREAD);  
  
dfd := open(text.path+"/data",  
            OWRITE|OTRUNC);  
  
panels->copy(dfd, sfd);
```



API (cntd)

```
scr := hd panels->screens();  
col := hd panels->cols(scr);  
text.ct1(sprintf("copyto %s\n", col));
```



API (cntd)

```
c := ui.eventc();  
for(;;){  
    ev := <-evc;  
    if (ev == nil) break;  
    print("path %s id %s ev %s\n", hd  
ev, hd tl ev, hd tl tl ev);  
}
```



Complexity

- O/mero: 2785 lines of Limbo
- O/live: 6749 lines of Limbo
- O/x: 4294 lines of Limbo
- panel module: 295 lines of Limbo



Issues

Latency when in production.

- Command language to handle panels.
- UI automations
- O/live for non programmers
- O/mero for native appls.



More info

<http://lsub.org>

