



City of Largo GNOME Technology Overview

City of Largo

Computing Details



Hardware

- 550 HP 5725 Thin Clients
 - Optional ATI 9250 Video, Heat Sink
 - 100Mb Networking
 - 1GB Memory
 - 2GB Flash Device
 - FTP Daemon
 - PulseAudio
 - Debian + HP XDM Chooser
- 50 HP Printers Using JetDirect



User Totals

- 750 Total System Users
- 300 Concurrent Maximum Load
- 24 hours, 7 days.



Logins

- Fiber optic lines use XDM for logins
- Low bandwidth sites are running NoMachine (NX).





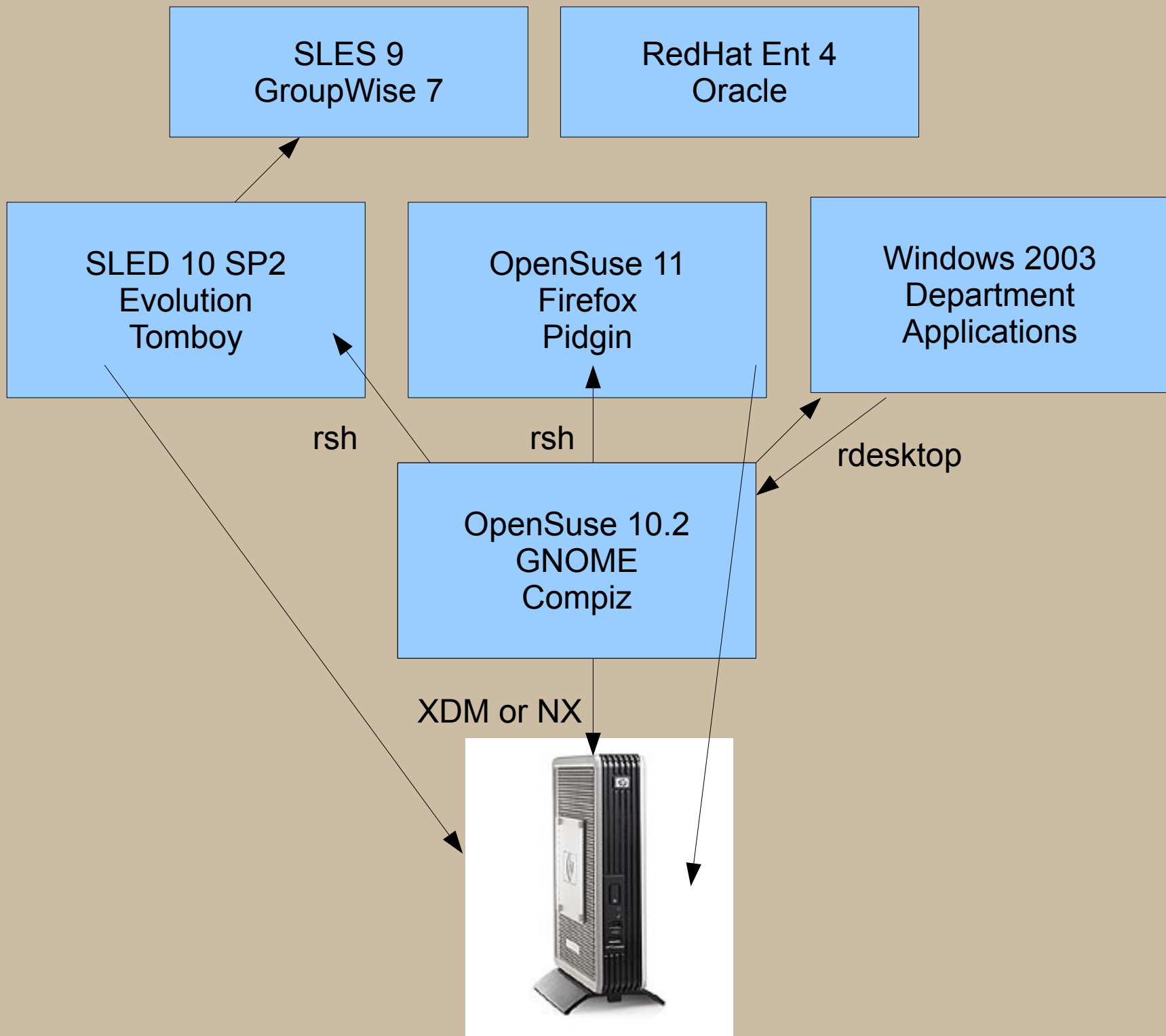
IT Staff

- 1 Director
- 3 System Administrators
- 1 Network Administrator
- 1 Security Administrator
- 2 Programmer/Analysts
- 1 Business Analyst
- 2 Help Desk
- 5 PC Support
- 1 Support Supervisor

Server Design

Application Servers
Not
Departmental Servers





Design Advantages

- One Upgrade On All Software Products
 - Client/Server would need 100s
 - Departmental Servers would need 10s
- Pick Best OS For Application
 - If support contract, they dictate choice
 - Evolution might work better on one flavor and Openoffice on another.
- Can upgrade applications without upgrading all applications at same time.





How Well Do Servers Run
With Hundreds Of Users
In This Design?

GNOME: Top With 177 Users

```
top - 14:28:39 up 17 days, 7:33, 111 users, load average: 4.85, 4.88, 5.07
Tasks: 4046 total, 7 running, 3983 sleeping, 0 stopped, 56 zombie
Cpu(s): 14.7%us, 3.9%sy, 0.0%ni, 80.5%id, 0.4%wa, 0.1%hi, 0.5%si, 0.0%st
Mem: 28080292k total, 14898040k used, 13182252k free, 216756k buffers
Swap: 20972816k total, 0k used, 20972816k free, 2977192k cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
3209	messageb	15	0	11968	9212	744	R	31	0.0	1807:26	dbus-daemon
20019	bgraham	15	0	77204	54m	4128	S	20	0.2	3:36.05	nxagent
23741	root	16	0	4600	3396	796	R	6	0.0	0:01.79	top
10740	clynch	15	0	42796	29m	10m	S	5	0.1	14:15.17	python
24880	ddore	15	0	42768	29m	10m	S	5	0.1	14:37.78	python
17023	jdunne	15	0	43100	30m	10m	S	4	0.1	14:47.59	python
25800	csingh	15	0	42984	30m	11m	S	4	0.1	16:25.35	python
12412	kweise	15	0	42756	29m	10m	S	4	0.1	14:24.61	python
7137	jhamilto	15	0	42744	29m	10m	S	4	0.1	11:55.58	python
30691	rseabol	15	0	42920	29m	10m	S	4	0.1	14:28.57	python
21232	kgullive	15	0	42776	29m	10m	S	4	0.1	14:05.22	python
23708	barlingt	15	0	42756	29m	10m	S	4	0.1	13:06.54	python
3214	haldaemo	15	0	5952	4340	1860	S	3	0.0	206:33.64	hald
17940	eangove	15	0	40980	28m	10m	S	3	0.1	17:02.43	python
19124	jbarlet	15	0	59672	30m	11m	R	3	0.1	14:49.30	python
14585	lhendric	15	0	42876	29m	10m	R	3	0.1	14:15.81	python
29638	rchaney	15	0	42820	29m	10m	S	3	0.1	13:51.79	python

Evolution: Top With 280 Users

```
top - 14:39:22 up 1 day, 7:38, 4 users, load average: 0.61, 0.74, 0.71
Tasks: 1896 total, 3 running, 1883 sleeping, 0 stopped, 10 zombie
Cpu(s): 4.6%us, 1.0%sy, 0.0%ni, 94.0%id, 0.4%wa, 0.0%hi, 0.0%si, 0.0%st
Mem: 16628756k total, 13542488k used, 3086268k free, 353776k buffers
Swap: 16779852k total, 0k used, 16779852k free, 1322892k cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
9681	jcolgate	15	0	221m	23m	17m	S	26	0.1	0:00.80	evolution-2.6
9688	jcolgate	16	0	108m	14m	8088	S	23	0.1	0:00.71	evolution-data-
28469	mwalls	16	0	421m	41m	21m	R	7	0.3	0:26.07	evolution-2.6
9642	jcolgate	16	0	4656	3180	1736	S	4	0.0	0:00.13	gconfd-2
9691	jcolgate	15	0	36584	9372	7812	S	4	0.1	0:00.12	evolution-excha
9715	jcolgate	15	0	67880	9.8m	8228	S	4	0.1	0:00.11	evolution-alarm
9492	root	16	0	3308	2124	828	R	2	0.0	0:00.25	top
9686	jcolgate	16	0	5280	2776	2208	S	2	0.0	0:00.06	bonobo-activati
23634	jsanguin	15	0	351m	34m	20m	S	2	0.2	0:08.78	evolution-2.6
21268	clove	15	0	462m	130m	23m	S	1	0.8	0:47.31	evolution-2.6
23035	glaw	15	0	441m	46m	24m	R	1	0.3	0:38.98	evolution-2.6
1469	root	15	0	0	0	0	S	1	0.0	2:26.80	kjournald
2389	cputnam	15	0	402m	72m	24m	S	1	0.4	0:30.11	evolution-2.6
8594	tworthin	15	0	238m	25m	17m	S	1	0.2	0:01.21	evolution-2.6
23997	kgullive	15	0	662m	258m	25m	S	1	1.6	1:49.58	evolution-2.6
4005	tpeterso	15	0	330m	28m	18m	S	0	0.2	0:03.06	evolution-2.6
9379	pwright	15	0	222m	23m	17m	S	0	0.1	0:00.85	evolution-2.6

GNOME Growth

- My View:
 - Huge, HUGE potential in Government.
 - Citizens receive no direct benefit to desktop and commodity applications being on Windows.
 - Business is the second biggest growth area.
 - Move in more applications and design for office works vs home users.



GNOME Focus

- Design products for entire bell curve of skills.
- Garbage truck driver reads email 4 minutes in the morning.
- Clerical staff manages files and software 8 hours of the day.
- Administrative people do research, but do not have excellent computer skills.





Login Modifications

Xsession

- Killall: gconfd, dbus-daemon, vfs, session, keyring, settings, panel, bonobo, application-browser, main-menu, compiz, emerald, python
 - Why? Not all users are on the console. Many users simply turn off remote hardware.
- Tons of temp file cleanups: gconfd-user, ksocket-user, orbit-user.
 - Why? GNOME doesn't always like starting on different \$DISPLAY, must purge old.



Xsession

- Delete `$HOME/.local/share/applications`. Users create their own icons or dupe icons that are then broken.
- Gnome-session: force monospace 13
 - Users will pick fonts that don't work.
- Main-Menu: Don't display any new applications



Xsession

- Nautilus: hide home icon on desktop; don't use it, turned off volumes, turn on browser mode; child windows are terrible
- Metacity: Bind F12 to gnome-screenshot because PrintScreen on Windows is intercepted.
- NX: `$DISPLAY != $PULSE_SERVER`, obtained via `/var/log/messages` by ssh login.



Xsession

- Force Documents and Desktop to the NAS and softlink directories on GNOME server.
- Force set of .desktop files to always have shortcuts to common file systems. Otherwise they will delete them, and then complain they can't find them later.





GUI Modifications

MIME Helper Bars

- Review of support calls reveals that users do not know how to move files around.
- They don't want to think about what directory to use, so you pick one for them.
- They want to be able to print without opening software.
- They want to be able to send from Evolution without understanding drop/drag or attaching.



Word Processing Documents

What would you like to do with this document?



Attach
To
Evolution
Email
Message



Send
To
Desktop
Printer



Save
To Your
Desktop



Save
To Your
Documents
Folder



Edit
With
OpenOffice

OpenOffice Supports Headless
Printing

MultiMedia File

What would you like to do with this multi media file?



 Attach
To
Evolution
Email
Message

 Save
To Your
Desktop

 Save
To Your
MultiMedia
Folder

 View
With
Mplayer

Acrobat Files

What would you like to do with this Acrobat Document?



Attach
To
Evolution
Email
Message



Send
To
Desktop
Printer



Save
To Your
Desktop



Save
To Your
Documents
Folder



Export All
Pages To
Your
Pictures
Folder



View
With
Acrobat
Reader

Pdftops creates Postscript
Which Is Then Passed
To Printer

Images

What would you like to do with this picture?



Attach
To
Evolution
Email
Message



Send
To
Desktop
Printer



Save
To Your
Desktop



Save
To Your
Pictures
Folder



View
With
Eye Of
GNOME



Edit
With
GIMP

Also Used For
Screenshots
Replacing
gnome-screenshot

Zip Files

What would you like to do with this zip archive?



Attach
To
Evolution
Email
Message



Save All
Individual
Files To
Desktop



Save All
Individual
Files to
Documents
Folder



View
Archive
Contents
With
File Roller

Option To Save All Files Into
Folder Because Most Users
Don't Understand File
Roller Or Zip Archives

Ical Files

iCal Calendar Generation

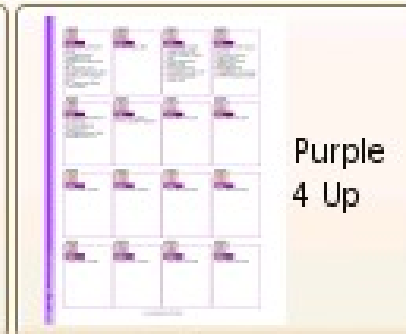
Enter Calendar Description



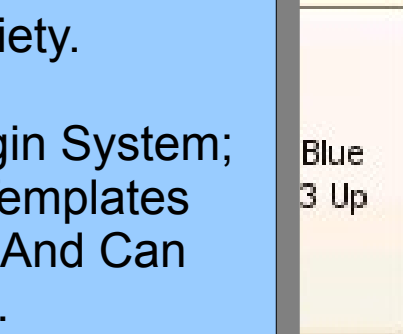
Blue
4 Up



Green
4 Up



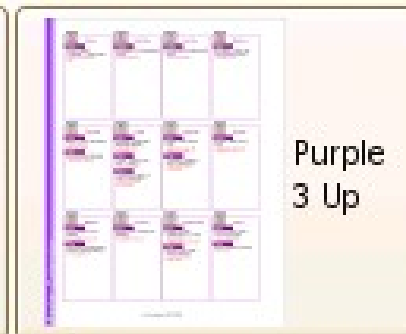
Purple
4 Up



Blue
3 Up



Green
3 Up



Purple
3 Up

description will appear on the left edge of the report. Select the desired report theme. Once complete, the report will appear on your desktop in PDF format.

.ics Files Are Exported From Evolution. Because Of Lack Of Output Variety.

GTKPrint Needs Plugin System; Fields Passed To Templates That Users Create And Can Contribute.

Mandatory File Shortcuts



/users Folder



Trash



Documents Folder



HP USB Access



/home/largo Folder



Pictures Folder

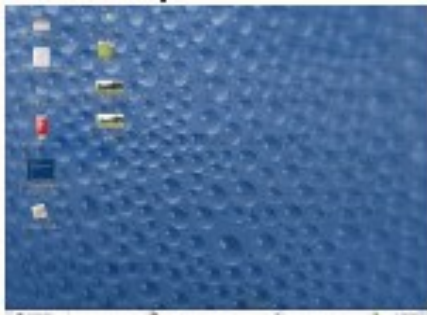
Compiz-Fusion

- Ccsm has way **WAY** too many selections for the users.
 - Some of the options don't work on all video cards.
 - Some of the options don't work over remote display.
- Simple-ccsm has too few options
- Far better to have multiple levels, with pre-selected settings
- Thousands of variations cannot be supported by IT.



Pre-Defined Compiz Settings

2D Desktop

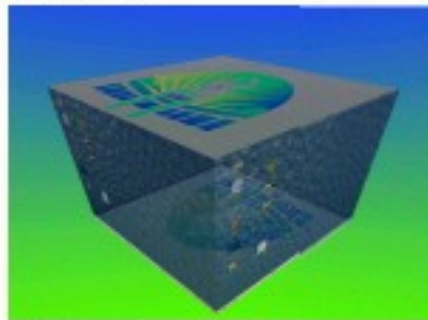


Features

No compositing effects, fastest possible presentation

Enable 2D (No Effects)

3D - Basic

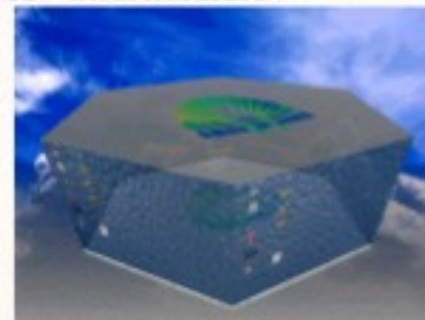


Features

- 4 Viewports (Cube)
- CubeCap

Enable 3D (Basic)

3D - Intermediate

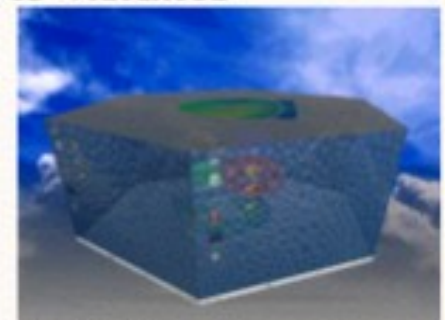


Features

- 6 Viewports (Hexagon)
- CubeCap
- SkyDome

Enable 3D (Intermediate)

3D - Advanced

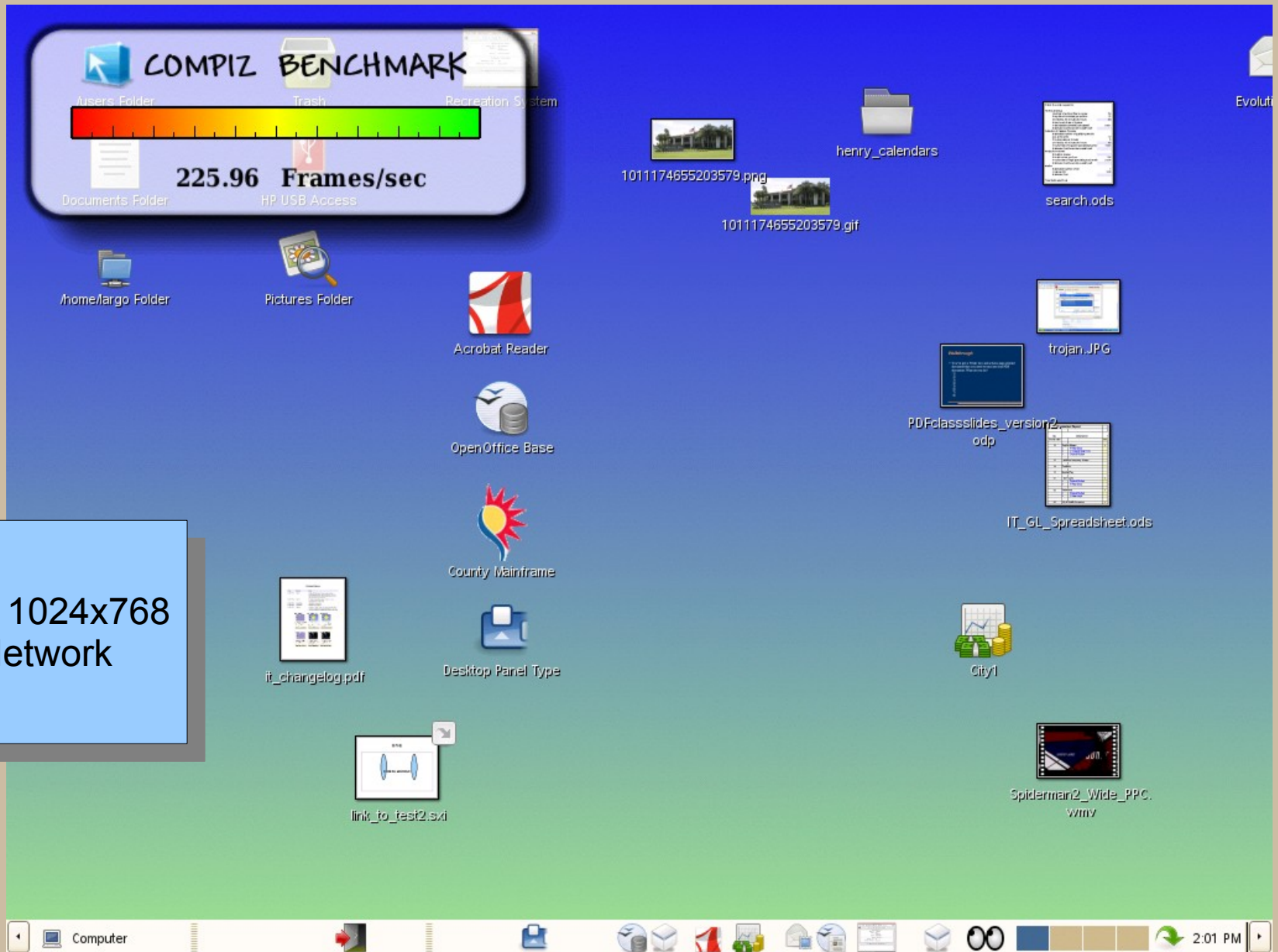


Features

- 6 Viewports (Hexagon)
- Cubecap
- SkyDome
- Spinning Gears
- Window List Thumbnails
- Transparent Windows
- Expo Hot Spot
- Window Preview Hot Spot

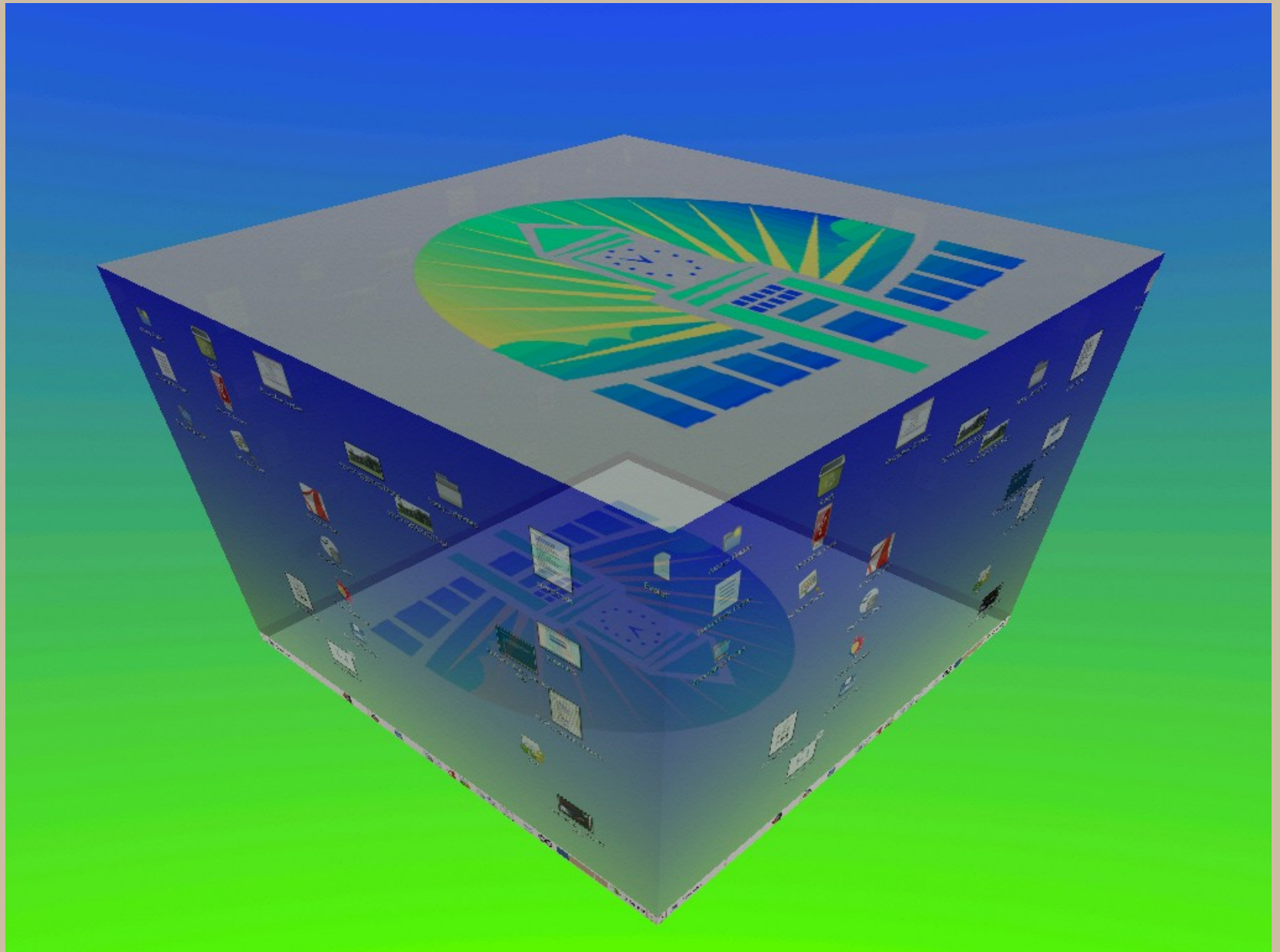
Enable 3D (Advanced)

Compiz Performance Over Remote Display



16 Bit Color, 1024x768
100Mb Network

Compiz Works Well



Recent Meeting With Users

Favorite Features

- Multiple Desktops (Cube/Hexagon)
 - Previously had it with workspaces, but no one figured out how to use it on their own.
- Easier Drop And Drags
- Running Multiple Evolution Windows
 - Was demonstrated during upgrade time and related, but not a single person figured it out on their own.



Recent Meeting With Users

Favorite Features

- Single Level Of Menus
 - Confirming usability study, cascading menus do not work. Users have to find things in 2 clicks or less or they will never find it
- Transparent Windows
 - Compiz, allows them to see windows in the back of the stack.
- Shortcuts To File Systems
 - Added by me, but turned out to be one of the favorite features.



GNOME Enterprise Improvements

- **Test Resolution Changes**
 - Users log in from different devices. They might use 1680x1025, 1024x768 and 800x600 in the same day.
 - Session management expects the same resolution on next login. Software not tested flipping back and forth.



GNOME Enterprise Improvements

- **Temporary Files & Multi-Users Systems**
 - Clean up files after use.
 - Clean up files left behind after previous crash
 - Maybe store files in `$HOME/.tmp` so that when user is removed, all files are deleted as well. Otherwise our staff has to look for them all.



GNOME Enterprise Improvements

- **Processes, Stop What You Start**
 - Lots of applications leave behind processes.
 - When users log off, processes are left behind.
 - 750 a day, times 2 stuck processes leaves 1500 processes
 - Custom cron jobs required to look for left over processes and halt them on :00 and :30





GNOME Enterprise Improvements

- **Test With Changing \$DISPLAY**
 - Often have problems relaunching an application from a different \$DISPLAY than last
 - GNOME: Have to delete lots of tmp files because it seems to have problems with new \$DISPLAY otherwise.
- **Think About Non-Technical Flow**
 - User was picking a theme, selected it and then picked Customize thinking that saved their choice.

GNOME Enterprise Improvements

- **Don't Open File Manager When Asking For Setting.**
 - For instance, if you want to allow them to pick a wallpaper or cubecap, they have no idea what you are asking them.
 - They don't know how to navigate to the file, or what file to look for. Png? Jpg? What?
 - Allow drop and drag, or when something is downloaded put it right into an Images area and generate a list of choices with thumbnails.



GNOME Enterprise Improvements

- **Allow Admins To Lock Down Valid File Names**
 - We discourage spaces and special characters. GNOME gladly takes them.
 - Harder transfer files to media for Windows with Linux specific names.
 - `Dave.odt` vs `dave.odt`



GNOME Enterprise Improvements

- **Timeouts on all thumbnailers**
 - If .5% of documents cannot be thumbnailed from PDF for whatever reason, that's easily 1-2 failures a day for large amount of users.
 - Have to kill thumbnail processes by hand.
 - Users Nautilus hangs and additional documents fail to render
 - 2-3 seconds, then give up.



GNOME Enterprise Improvements

- **Think In Terms Of Multiple Users For Downloads.**
 - Weather applets, 300 concurrent users all downloading the same information is a waste of resources.
 - Detect multiple instances and offload to daemon and have anyone share.



Weather GUI Windows + F9

The screenshot displays a weather application window titled "Weather". It features a navigation bar with tabs for "Local", "Florida", "SouthEast", "Atlantic", "7 Day", and "Hurricane lke". Below the navigation bar are buttons for "First", "Back", "Forward", "Last", and "Refresh". The main content area is divided into two sections: "Doppler Radar 100-Mile" and "The Week Ahead".

The "Doppler Radar 100-Mile" section shows a map of the Tampa Bay area with a color-coded legend for precipitation: RAIN (Light, Heavy), MIX/ICE (Light, Heavy), and SNOW (Light, Heavy). The map labels include Clearwater, Tampa, Brandon, Plant City, St. Petersburg, Ruskin, Ft. Lonesome, and Duette. The map is timestamped "9:19 GMT / 26 Sep 2008 03:19 PM EDT" and includes the "The Weather Channel" logo and "weather.com" text.

The "The Week Ahead" section shows a calendar for "September 22, 2008" with tabs for "Mon", "Tue", "Wed", "Thu", "Fri", "Sat", and "Sun". It lists "Birthdays" and "Hire Dates" for various individuals.

At the bottom of the window, there is a small image of a building and the text "The Marquee Is Coming Soon."

The Windows taskbar at the bottom shows the system tray with the time "3:27 PM" and various icons.

Everyone Shares Images
Which Are Downloaded
Once Every 10
Minutes

GNOME Enterprise Improvements

- **Users Lose Dialogs In Window Stack.**
 - Lots of calls about non-responsive windows and things beeping.
 - Put dialogs into the same GUI as the screen so they cannot lose it.



Evolution 2.6

System Stinks, Why Can't I Type Into Composer Window??

The screenshot shows the Evolution 2.6 Mailbox window. The mailbox contains 26 total messages, with 1 unread. The selected message is from Federico Mena Quintero, dated Thu, 25 Sep 2008 18:10:02 -0500 (19:10 EDT), with the subject "Re: Hotel Information Please". The composer window is open, showing the "To:" field filled with "Federico Mena Quintero <federico@novell.com>". A warning dialog box is displayed over the composer window, asking "Are you sure you want to discard the message, titled 'Re: Hotel Information Please', you are composing?". The dialog box has three buttons: "Discard Changes", "Cancel", and "Save Message". A blue arrow points from the text "System Stinks, Why Can't I Type Into Composer Window??" to the "Save Message" button. The composer window also shows a text area with the following content:

Here is some text

On Thu, 2008-09-25 at 18:10 -0500, Federico Mena Quintero wrote:

On Thu, 2008-09-25 at 16:09 -0400, Dave Richards wrote:

> So I arrive 1:25pm on the 6th. If you can hold your presentation until that afternoon, I can go right to ~~Novell~~ from the airport and meet you guys. Then I can walk to the hotel after the events that day. No big deal at all to walk 10-15 minutes, I do that everyday anyway.

Sure, I'll hold my presentation until the afternoon. I'll just wait until you get to the office.

> Then I'll plan on doing my presentation on the 7th. I'm working on it right now in fact. What time do you want me to present?

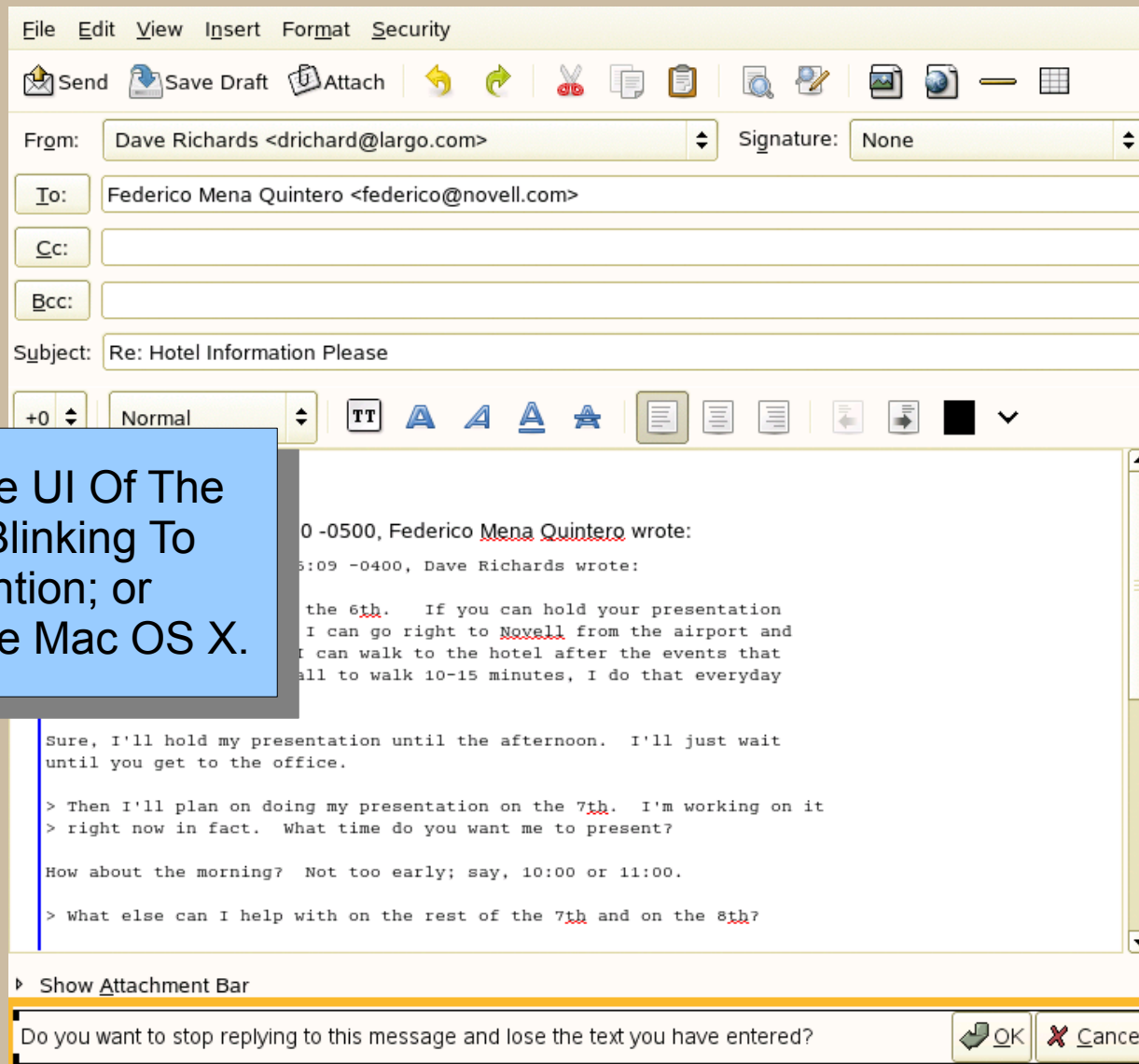
How about the morning? Not too early; say, 10:00 or 11:00.

> What else can I help with on the rest of the 7th and on the 8th?

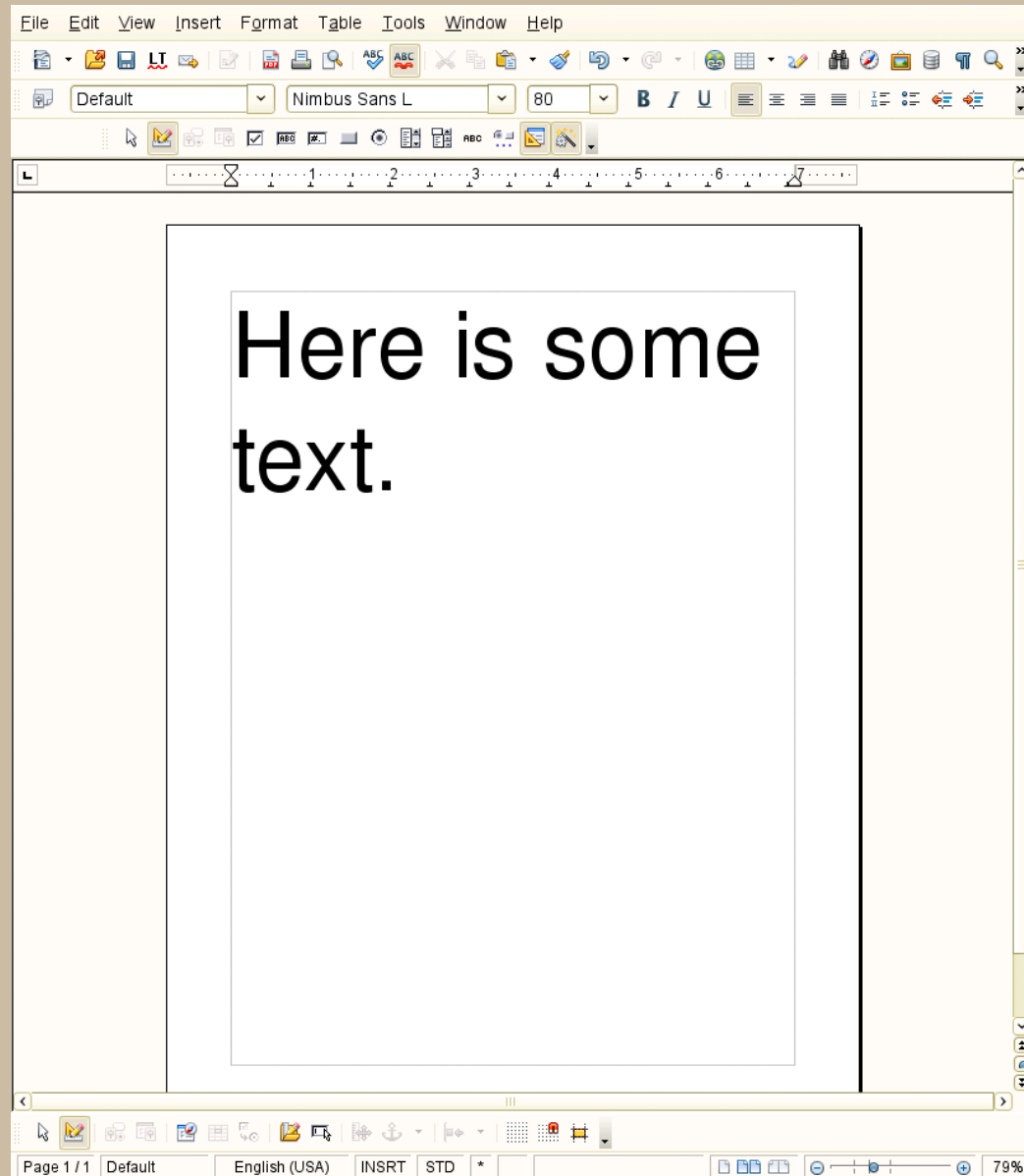
```
120.222.99.200
```

Evolution 3.0 :)

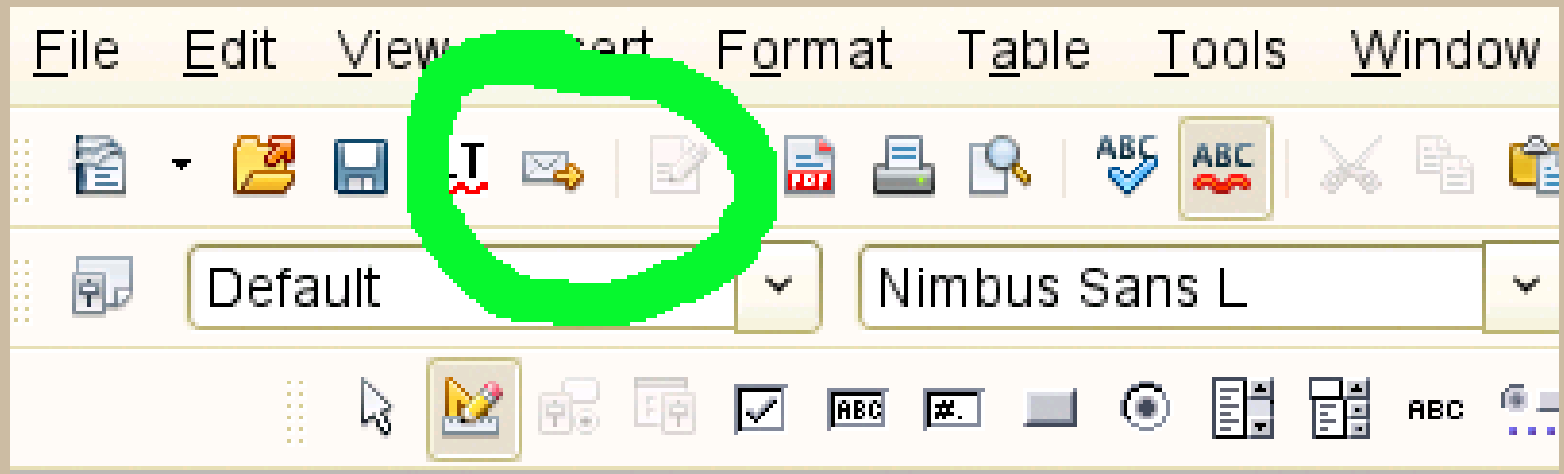
Questions Are In the UI Of The Parent Window. Blinking To Grab Their Attention; or Attached Dialogs Like Mac OS X.



What Is The Most Important Feature On This Screen?



Email Document Button

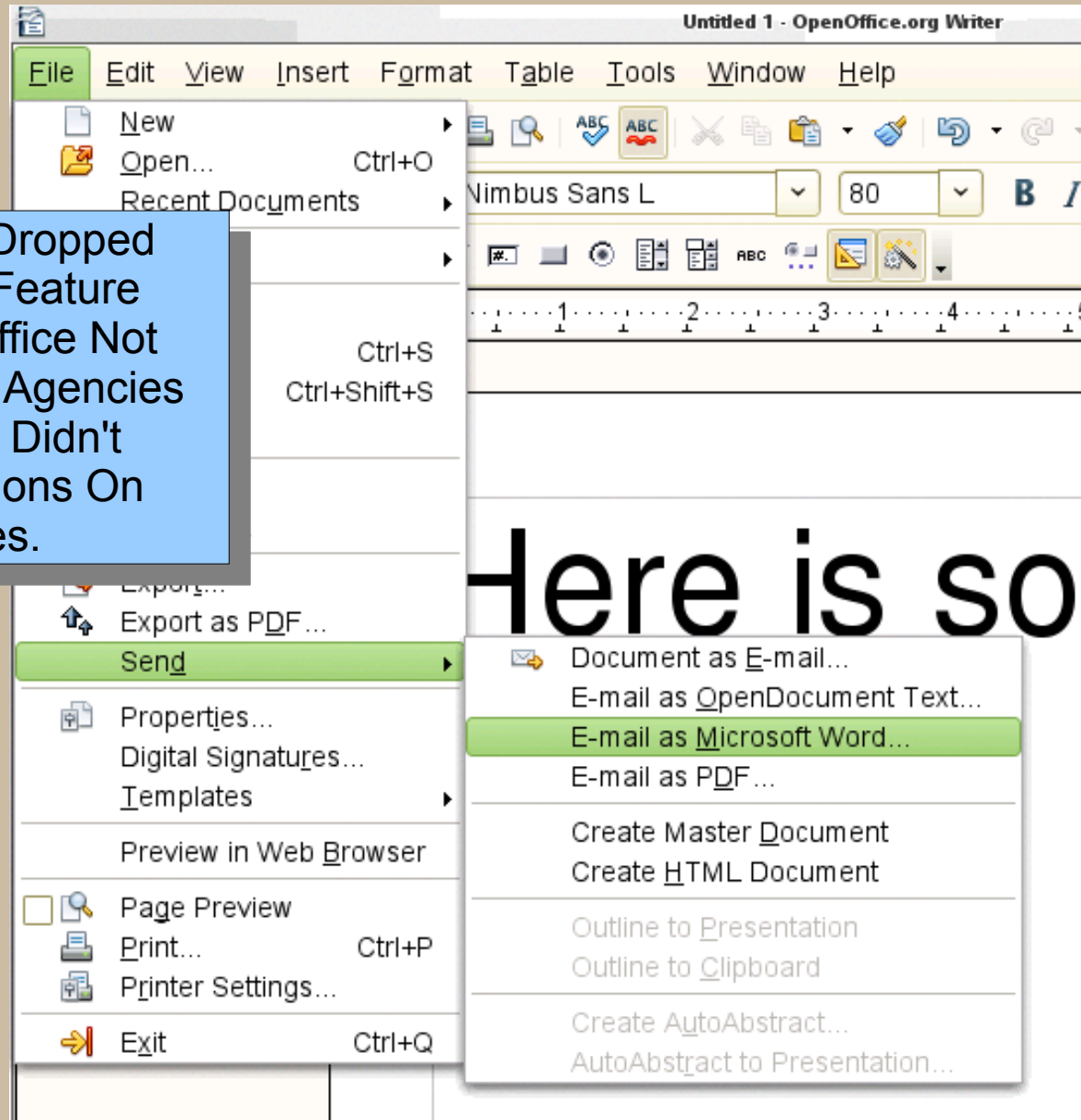


Thousands Of Features, And
Email Button Is What I Hear
About The Most; No Idea How To
Email Otherwise.

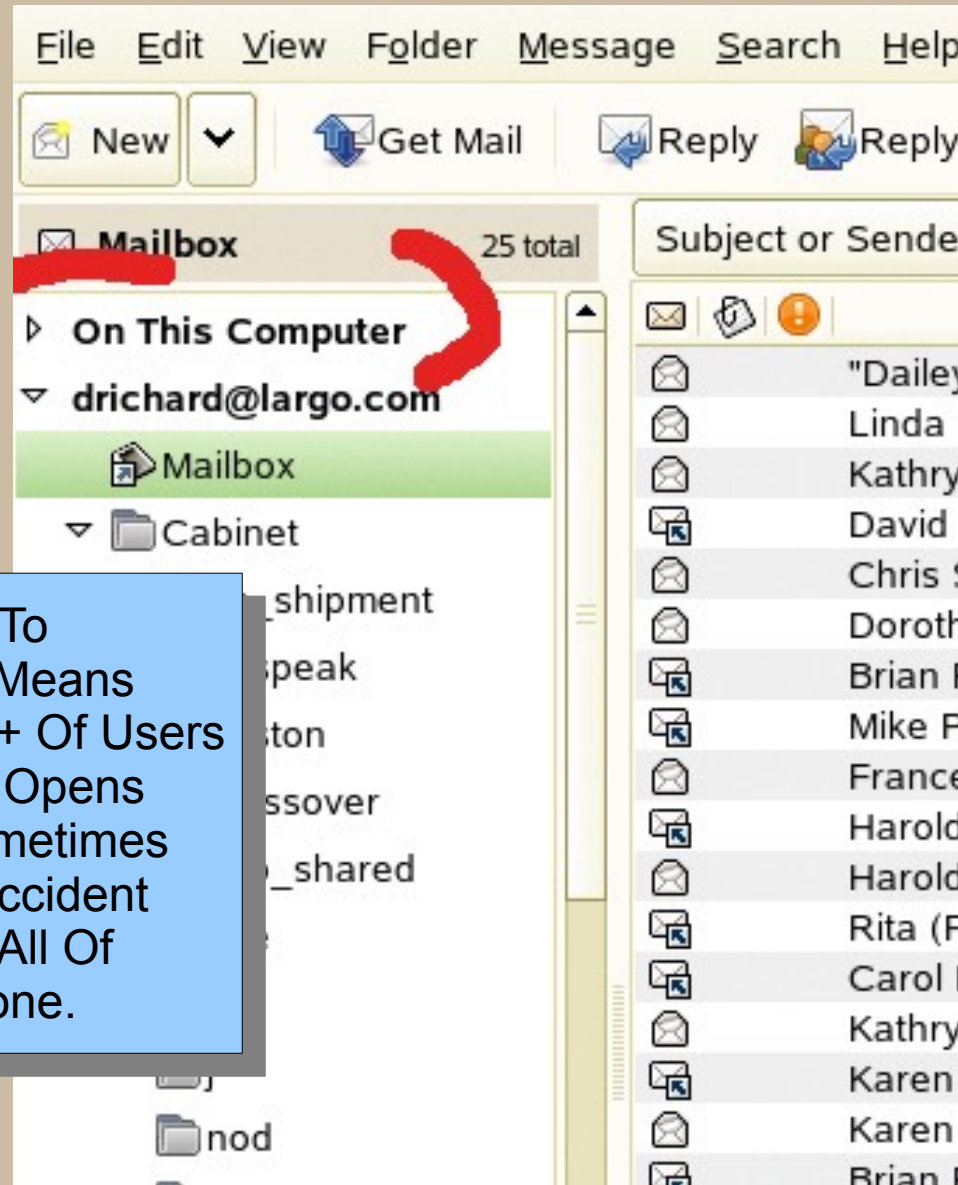
Here is

Users Cannot Convert Documents

User Dissatisfaction Dropped Greatly When This Feature Was Added. OpenOffice Not Working With Outside Agencies Was Because They Didn't Understand Instructions On Converting Files.



UI That Is Simple To Us; Has No Meaning To Users



The Arrow Next To 'On This Computer' Means Nothing To Users. 70%+ Of Users Do Not Know Arrow Opens Additional Items. Sometimes Click On Arrow By Accident And Call Because All Of Their Email Is Gone.

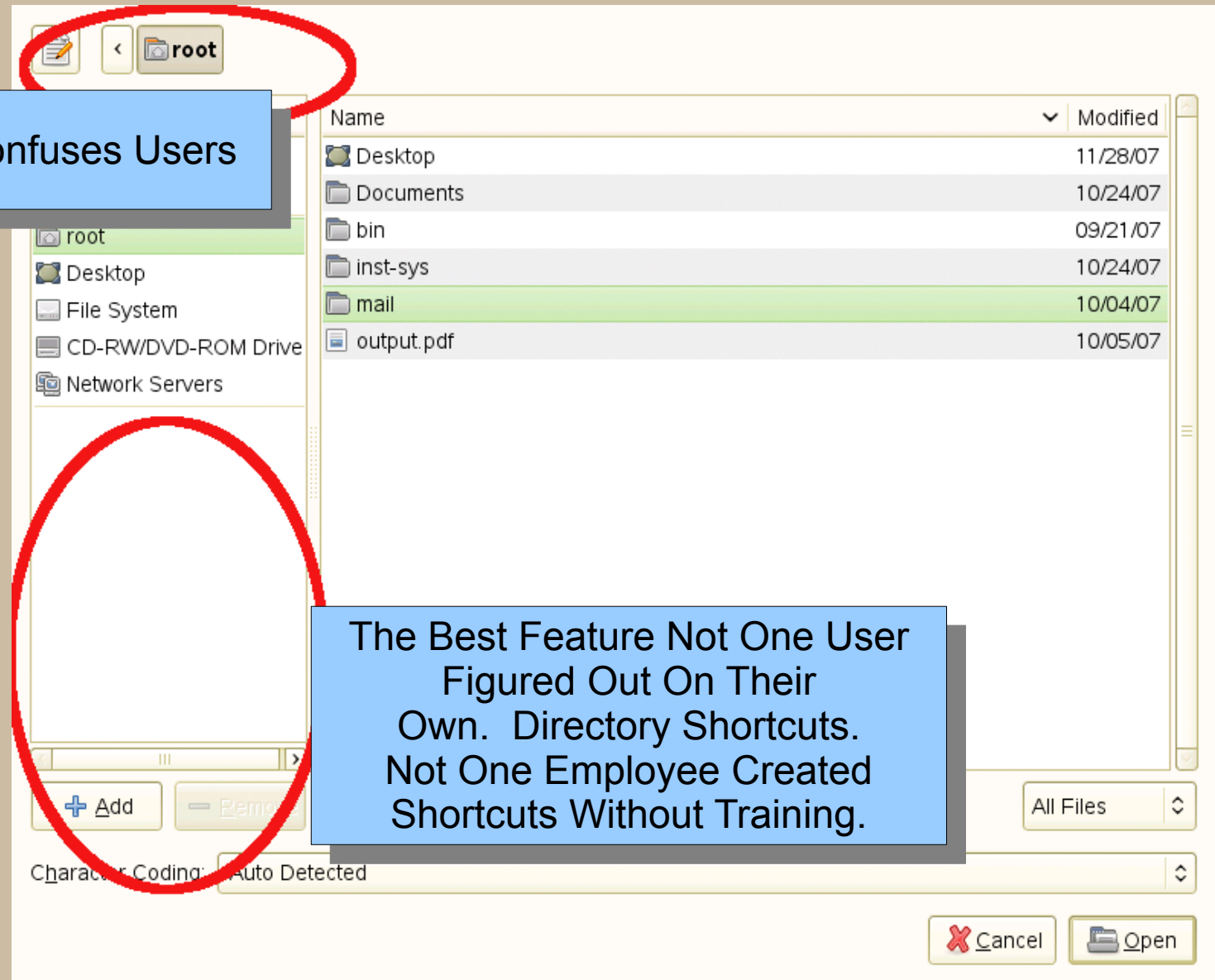
File Management

Is Without A Doubt Our Biggest Problem. What Type Of File? Where Is It Stored? Why Do I Have To Remember This Stuff?



GNOME File Manager

This Navigation Confuses Users



Future GNOME File Manager

- Nautilus And File Manager Should Be The Same.
- Stop The Picker Vs Manager Issue. If You See A File Not From The Current Product, Allow It To Launch. It's OK To Zig Zag Your Work Flow.
- Add 'Most Often Used' Directories
- Help Add Shortcuts After Used Often.
- Recent Documents By Historical Date With Slider With Extra Bling. Thumbnails, Zooms Of Dates, Sliders.
- Let Users Delete Files From Manager.





Future GNOME File Manager

- Connection to networked Beagle or NFS mounted beagle data.
 - All beagle information is put into static indexes each night at 11pm. No realtime access to changes; recent documents should pick those up
- Document management system built into Nautilus
 - Allow check in and check out of documents, watch dog for changes or waiting for someone else to finish; version history; who has it checked out?

DBUS

- Giving Me Lots Of Problems.
- No Parent Shell From Which To Run
- When To Terminate It?
- Multiple Applications On Same Server, Which One To Kill?
- Do You Try And Share Them?
- Harder For Support, Log Into Machine And Start Software For Debugging.



KeyRing Is A Problem

- Users don't know what it is, what they should enter.
- Possibly, hundreds of support calls.
- Server level password entered for all users by root?



Embrace OpenOffice

- When I Blog About OpenOffice; I'm often reminded OOo Is Not A Part of GNOME.
- Without OOo, There Is No GNOME In Government/Business.
- Integrate And Theme Support In Last Few Years Is An Excellent Step.
- Should Make Use Of Document Management Backend Via Nautilus/File Picker



Tightly Integrate Connections

- 3270 Developer Interested In GTK Canvas And Fonts; Help Him. IBM Mainframes Are Heavily Used.
- Gnome-terminal Needs Performance Love. Had To Force gconf Font Setting Because Some Options Are Too Slow.
- Rdesktop Integration
- Contact Citrix; Help Them Move Off Of Motif Widgets Currently In Use.



Not Always On Laptop Or Console

- As You Develop, Remember That Some Users Will Be On Other Hardware.
- NX/Citrix/VNC Allows GNOME To Be Run On iPhone, Handhelds, Mobile Computers
- Some Users On Mac Will Have Single Mouse Button.



Application-Browser Groups

- As Blogged About; Main Menu Groups On Left Need To Scroll.
- Currently If Too Many For Resolution; Force GUI Larger Than Screen.



New Widgets

Transparent Overlays In Evolution.
Bling Matters. It Has To Be Useful,
And Look Cool.

The screenshot displays a Mac OS X desktop environment with several widgets and overlays. The central focus is a calendar application window showing a weekly view for April 14th and 15th. The calendar is populated with various events, each represented by a colored block with text details. To the left of the calendar is a sidebar with a list of tasks and a monthly calendar view for April 2005. To the right of the calendar is a 'To Do' list widget titled 'To Do by Priority 2', listing several tasks with checkboxes. Further right is a detailed event view for 'Swimming practice. My turn to drive.', showing location, all-day status, and time range. In the foreground, an 'iCal alarm' window is visible, featuring a red alarm clock icon and a notification for 'Distribute iCal email' scheduled for 'Today at 3:54 PM'. The desktop background is a scenic image of a beach and ocean.

Tasks in sidebar:

- Lisa Secret
- Training
- Vacation Rental
- Vacation
- House Renovation
- Zach Swimming

Calendar events (approximate times):

- 8:00 AM: Surfing with Gerry - OB
- 8:00 AM: Database overhaul
- 8:00 AM: Swimming practice. My turn to drive.
- 8:00 AM: Plumbing fixtures installed.
- 8:30 AM: Lock down. No more changes.
- 9:30 AM: 1st Round of Markup
- 9:45 AM: Go over rough draft with Alex. Ask for more time.
- 10:00 AM: New trainees. Go over agenda.
- 10:45 AM: Sales Presentation on with Marcom
- 10:45 AM: City inspector for final inspection.
- 11:30 AM: Distribute iCal email
- 12:30 PM: Lunch with John and Frank
- 1:45 PM: Meet with Stephen on
- 1:45 PM: New Event
- 2:00 PM: Swim meet at Howard

To Do list:

- Deadline
- Need screen
- Call Larry
- Email Bob
- Need to call inspector to confirm appointment.
- Distribute email
- Check on inventory
- Call Sam and ask him about status of report.

Swimming practice. My turn to drive.

Location:

all-day

From: 04/13/05 at 8:00 AM
to: 04/13/05 at 9:30 AM

repeat: None

attendees: None

calendar: Zach Swimming

alarm: None

iCal alarm

Today at 3:54 PM
Distribute iCal email

Two+ Sided GUI/Widgets

- For instance, clicking between List View and Icon View in Nautilus would flip GUI over.
- When moving between Evolution modules (email, tasks, address, calendar, notes) GUI would flip
- Of course, this would be a user setting to disable if desired.



What Is Better?

'Better' Is Software That Allows Users Not To Have To Ask For Help, Attend Classes Or Remember It From Day To Day.



Feature Requests

- Prompting Via Shell Scripts From notify-send. Ask Questions And Return To Standard Out. Sits On Top Of Windows; Very Clean.
- TV Tuner (Zapping) Updated.
- Project Management in GTK
- Evolution: Meeting Resend, Meeting Retract, Email Retract With GroupWise.

