EDE

Light Desktop Environment
Description And Best Practices

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Introduction

EDE = Equinox Desktop Environment

Desktop environment like:

- KDE
- GNOME
- XFCE

Introduction

- Fast
- Familiar look and behaviour
- Simple
- Small
- Suitable for older computers

Look and feel

- Already known look and behaviour
- Common desktop elements
- Not trying to reinvent the wheel
- Almost no documentation to start using it

GUI Toolkit

FLTK = Fast Light ToolKit

http://www.fltk.org

GUI Toolkit

- Used in movie industry (Titanic, King Kong, etc.)
- ONLY GUI toolkit
- Small core and very portable
- Small library dependency
- Fast startup time

GUI Toolkit

ldd on

gtk+ 2.10 (gtk-demo):	33
Qt 3.3 (qtconfig):	36
Qt 4.4 (qtconfig):	31
FLTK (fluid):	22

GUI Toolkit

EDE 1.x used our FLTK fork

eFLTK (*extended FLTK*)

GUI Toolkit

edelib:

- Additional widgets
- freedesktop.org stuff
- D-Bus
- Common things like:
  - linked list
  - strings
  - functions (scandir, strlcpy, etc.)

GUI Toolkit

edelib:

- NO STL
- NO Boost
- NO *whatever-today-is-popular-in-C++-world*

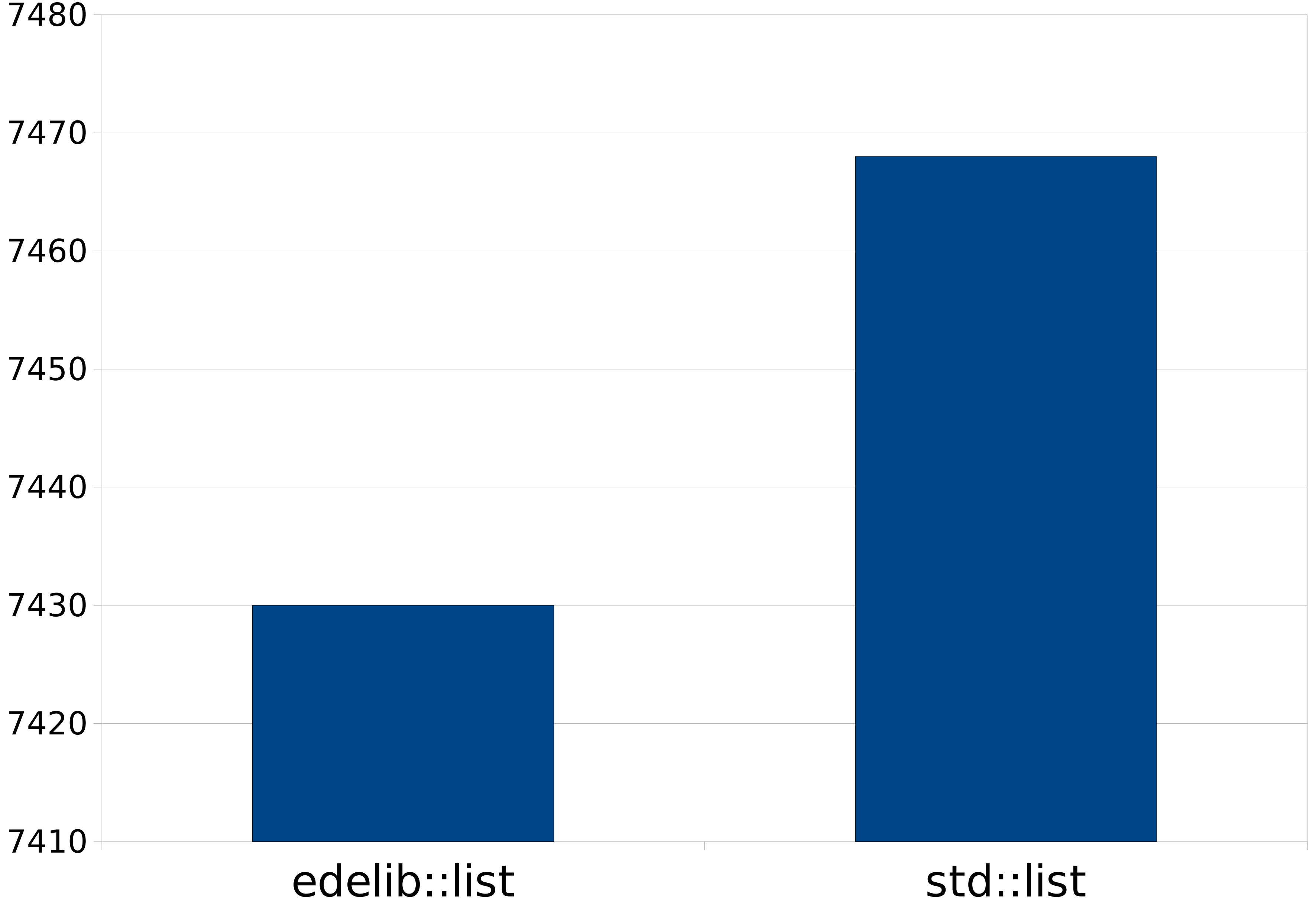
GUI Toolkit

std::list vs. edelib::list

- SMALLER executable size
- FASTER compile time
- STABLE sort() algorithm

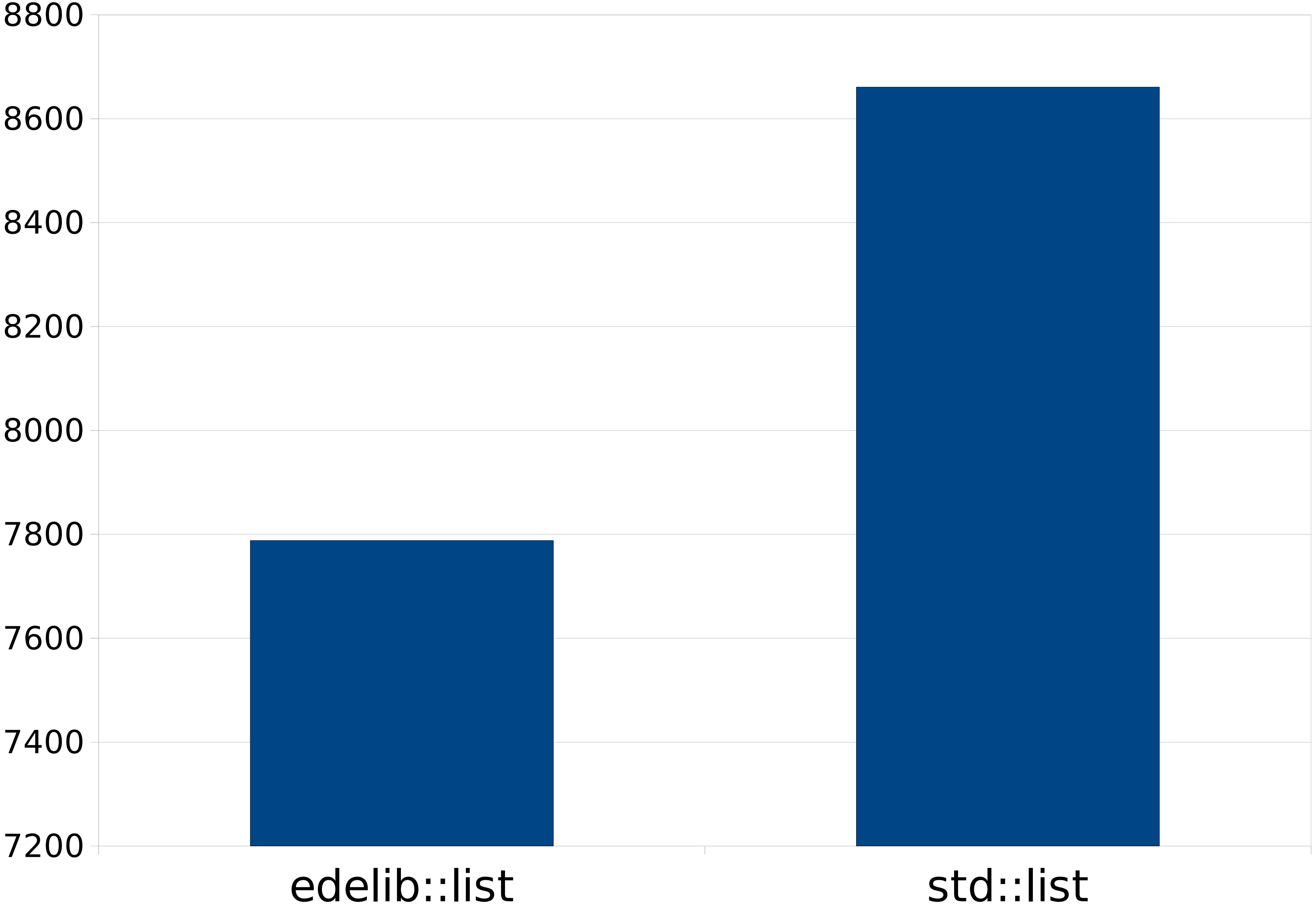
Executable size

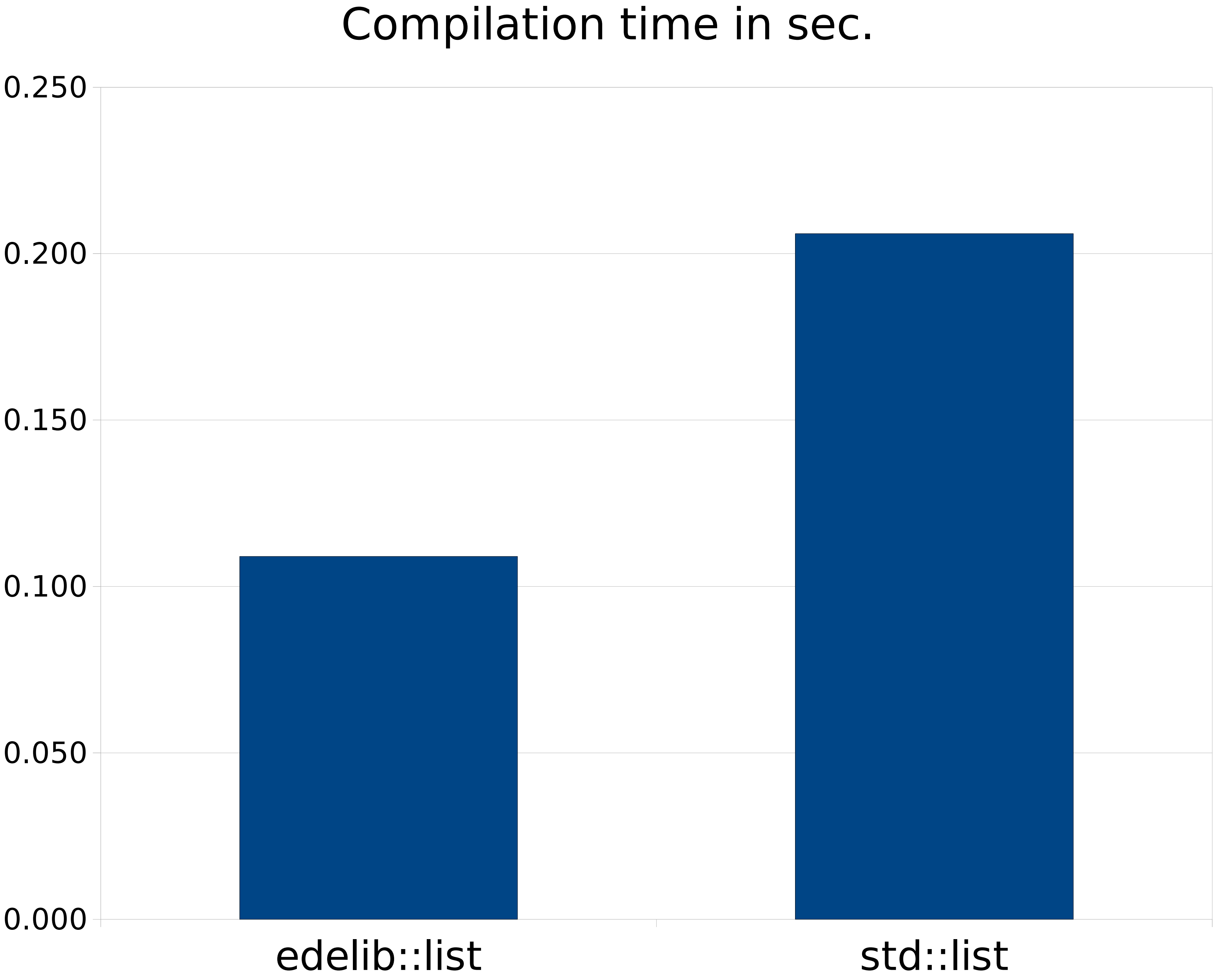
g++ -O2



Executable size

g++ -Os





Compilation time in sec.

GUI Toolkit

edelib:

- And NO exceptions

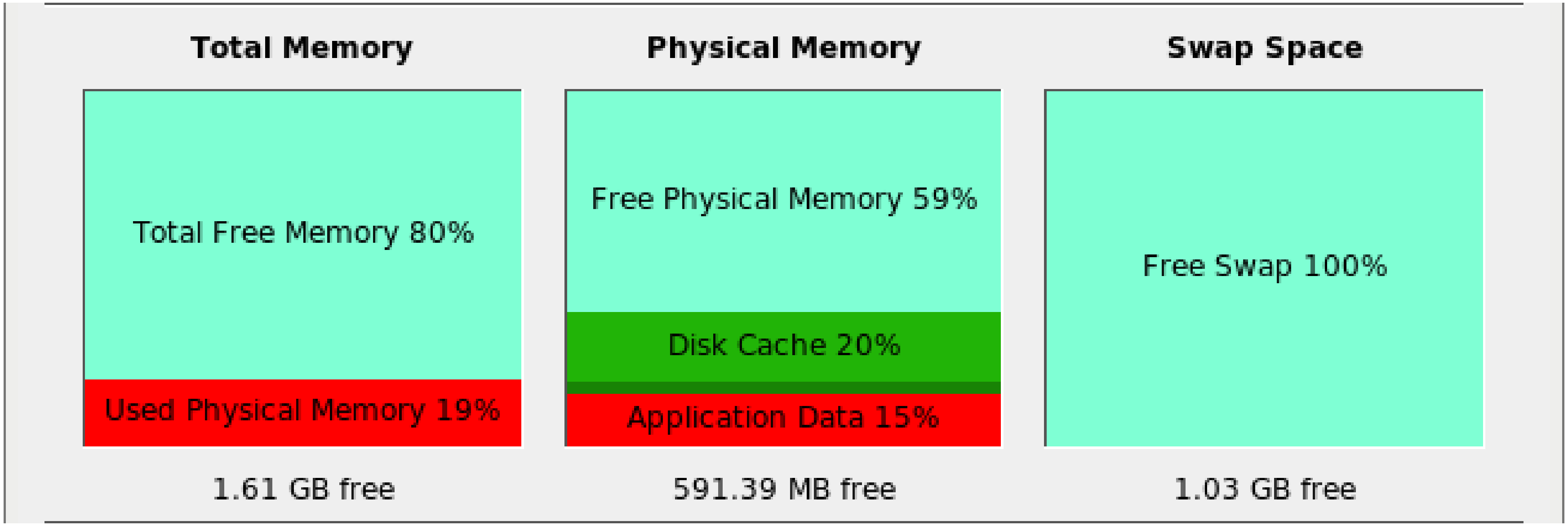
No exceptions?#@!!

- Hard to use correctly
- Code becomes hard to follow
- Hard to deduce what are exceptional cases and what not
- Binary size increases

“g++ -fno-exceptions” possible with FLTK and edelib

Desktops memory usage comparison (quick)

XFCE 4.4.1



Total Memory

Total Free Memory 80%

Used Physical Memory 19%

1.61 GB free

Physical Memory

Free Physical Memory 59%

Disk Cache 20%

Application Data 15%

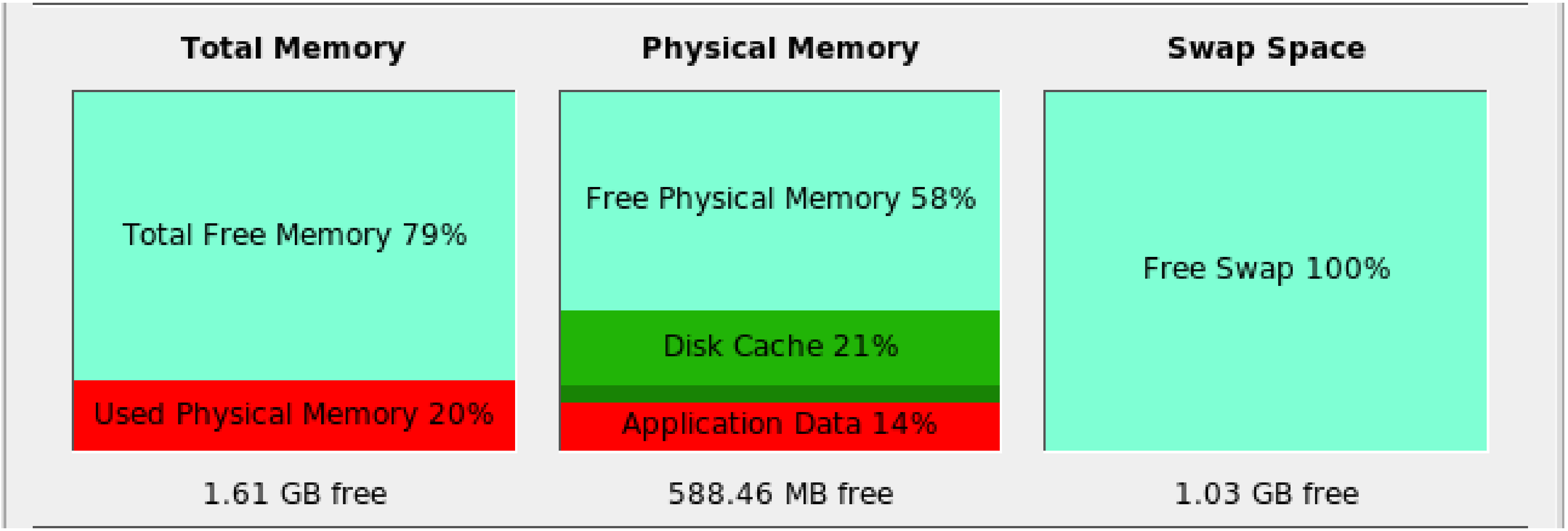
591.39 MB free

Swap Space

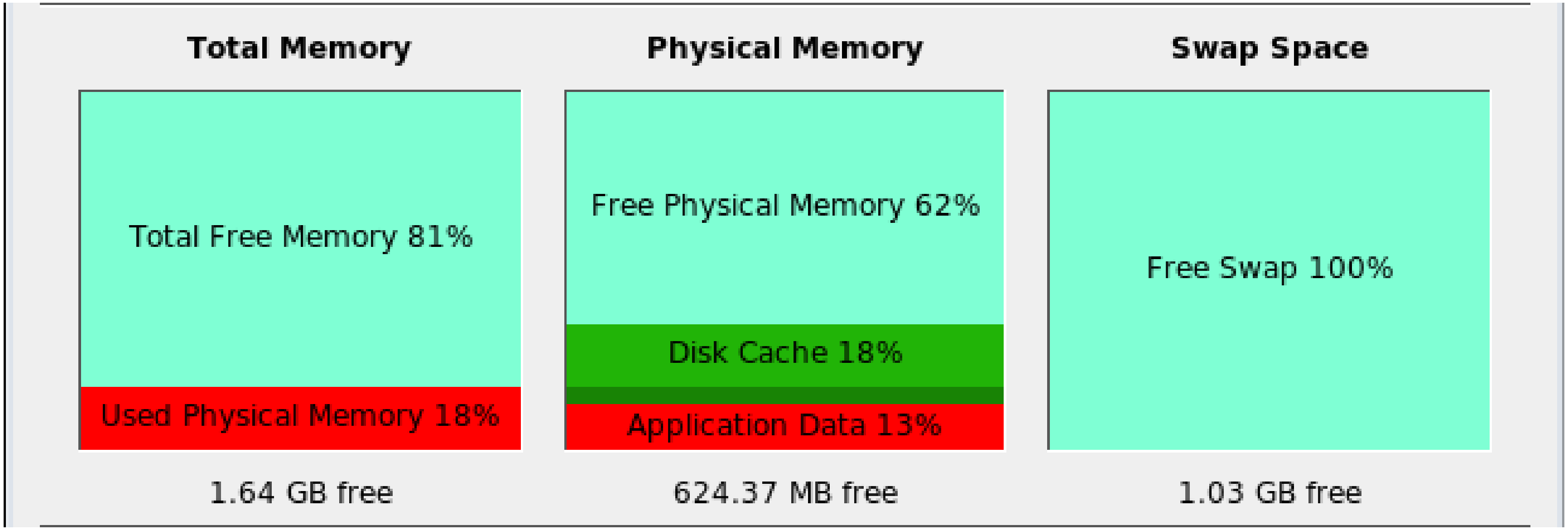
Free Swap 100%

1.03 GB free

E17


Total Memory
Total Free Memory 79%
Used Physical Memory 20%
1.61 GB free
Physical Memory
Free Physical Memory 58%
Disk Cache 21%
Application Data 14%
588.46 MB free
Swap Space
Free Swap 100%
1.03 GB free

EDE 2.0b



Total Memory

Total Free Memory 81%

Used Physical Memory 18%

1.64 GB free

Physical Memory

Free Physical Memory 62%

Disk Cache 18%

Application Data 13%

624.37 MB free

Swap Space

Free Swap 100%

1.03 GB free

Compilation time counted too!

Build tools

- *make* unusable without autoconf and automake
- Have you every tried to write advanced *make* scripts???
- *make* replaced with jam

  (http://www.perforce.com/jam)

Build tool

- jam benefits:
  - Sane syntax
  - No make recursion problem: targets are scanned in one pass
  - Allow you to write some library and reuse code
  - FAST!!!

jam sample

```
rule EdeProgram
{
   if ! $(EDELIBLIB) {
      Echo "EDELIBLIB not defined; $(1) will not be built" ;
      return ;
   }

   MakeProgramPrivate $(1) : $(2)
         : $(EDELIB_GUI_LIB) $(EDELIBLIB) $(FLTKLIB) $(STDLIB)
         : $(GLOBALFLAGS) $(EDELIBINCLUDE) $(FLTKINCLUDE) ;

   if $(3) != "noinstall" {
      InstallEdeProgram $(1) ;
   }
}

# calling
EdeProgram demo : demo-file1.cpp demo-file2.cpp ;
```

freedesktop.org (fd.o) standards conformance

Implemented fd.o specs

- XSETTINGS
- Base Directory specification
- Desktop Entry
- Icon theme
- Menu
- Window manager hints (not full)
- Autostart

Pending fd.o specs

- File trashing
- Sound themes
- Thumbnailing (when/if gets completed ;))

Coding?

Simple window in FLTK

```
#include <FL/Fl.H>
#include <FL/Fl_Window.H>

int main(int argc, char **argv) {
  Fl_Window *win = new Fl_Window(100, 100, “Sample window”);
  win->show(argc, argv);
  return Fl::run();
}
```

```
g++ foo.cpp -o foo `fltk-config –cflags --ldflags`
```

Simple window in edelib

```
#include <FL/Fl.H>
#include <edelib/Window.h>

EDELIB_NS_USING_AS(Window, MyWindow)

int main(int argc, char **argv) {
  MyWindow *win = new MyWindow(100, 100, “Sample window”);
  win->show(argc, argv);
  return Fl::run();
}
```

```
g++ foo.cpp -o foo `pkg-config edelib –cflags –libs` `fltk-config –cflags --ldflags`
```

Another example

```
#include <FL/Fl.H>
#include <FL/Fl_Button.H>
#include <edelib/Window.h>
#include <edelib/IconTheme.h>

EDELIB_NS_USING_AS(Window, MyWindow)
EDELIB_NS_USING(IconTheme)
EDELIB_NS_USING(ICON_SIZE_SMALL)

static void close_cb(Fl_Widget*, void *ww) {
 MyWindow *win = (MyWindow*) ww;
 win->hide();
}

int main(int argc, char **argv) {
 MyWindow *win = new MyWindow(300, 300, “My Window”);
 win->begin();
   Fl_Button *b = new Fl_Button(10, 10, 90, 25, “Click me”);
   b->callback(close_cb, win);
   IconTheme::set(b, “some-icon”, ICON_SIZE_SMALL);
 win->end();
 win->show(argc, argv);
 return Fl::run();
}
```

http://equinox-project.org