

# Gtk 3 and Beyond

## (and GLib)



# Ryan Lortie

## Codethink



Codethink



**...recent history**

**future history...**



**CodeMink**

 **GNOME**

# We've come a long way...

 GTK+ 3.0.0: February 10 2011



CodeMink

 GNOME

# We've come a long way...

 GTK+ 3.0.0: February 10 2011

 GTK+ 2.0.0: March 11 2002



# New themes with CSS

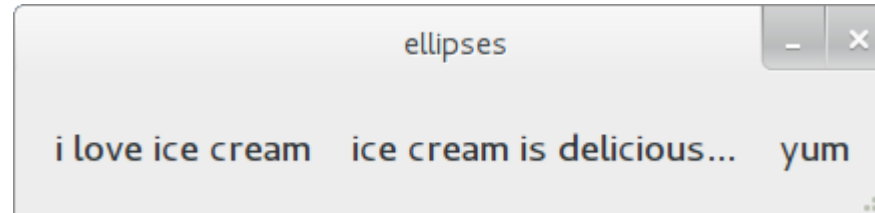
```
desrt@mimico: /usr/share/themes/Adwaita/gtk-3.0
/*****
 * Progress bar *
 *****/
GtkProgressBar.progressbar {
    background-image: -gtk-gradient (linear,
                                   left top, left bottom,
                                   from (@progressbar_background_a),
                                   to (@progressbar_background_b));

    border-radius: 3;
    border-style: solid;
    border-color: @progressbar_border;
}

GtkProgressBar.trough {
```



# Extended layout (demo)



# G(tk)Application

```
desrt@mimico: ~/Desktop/gnome.asia talk
class QuickApp : Gtk.Application {
    protected override void activate () {
        var w = new Gtk.Window ();
        w.application = this;
        w.show ();
    }

    QuickApp () {
        Object (application_id: "ca.desrt.QuickApp");
    }

    static int main (string[] args) {
        Gtk.init (ref args);

        var app = new QuickApp ();
        return app.run ();
    }
}
```





# G(tk)Application

```
desrt@mimico: ~/Desktop/gnome.asia talk
void activate (GLib.Application app) {
    var w = new Gtk.Window ();
    w.application = app as Gtk.Application;
    w.show ();
}

int main () {
    var app = new Gtk.Application ("ca.desrt.QuickApp", 0);
    app.activate.connect (activate);
    return app.run ();
}
~
~
~
~
~
```



# Gdk Cleanup

 remove X specific drawing API



# Multiple Gdk backends

🐾 enabled at compile time

🐾 selected at run time

🐾 wayland, Broadway, ...

🐾 just set GDK\_BACKEND

# GtkWidget::draw signal



# GtkWidget::draw signal

```
desrt@mimico: ~/Desktop/gnome.asia talk
class FancyWidget : Gtk.Widget {
    protected override bool expose_event (Gdk.EventExpose expose) {
        var cr = Gdk.cairo_create (expose.window);

        /* draw to the cairo_t */

        return true;
    }
}
```



# GtkWidget::draw signal

```
desrt@mimico: ~/Desktop/gnome.asia talk
class FancyWidget : Gtk.Widget {
    protected override bool draw (Cairo.Context cr) {
        /* draw to the cairo_t */

        return true;
    }
}
~
~
~
```



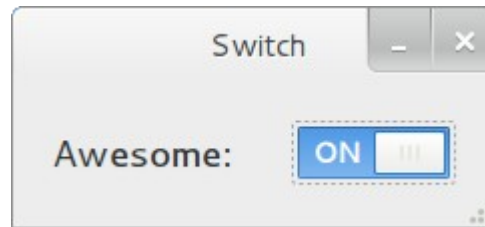
# GtkWidget::draw signal

🐾 shared cairo\_t

🐾 containers can do fun things

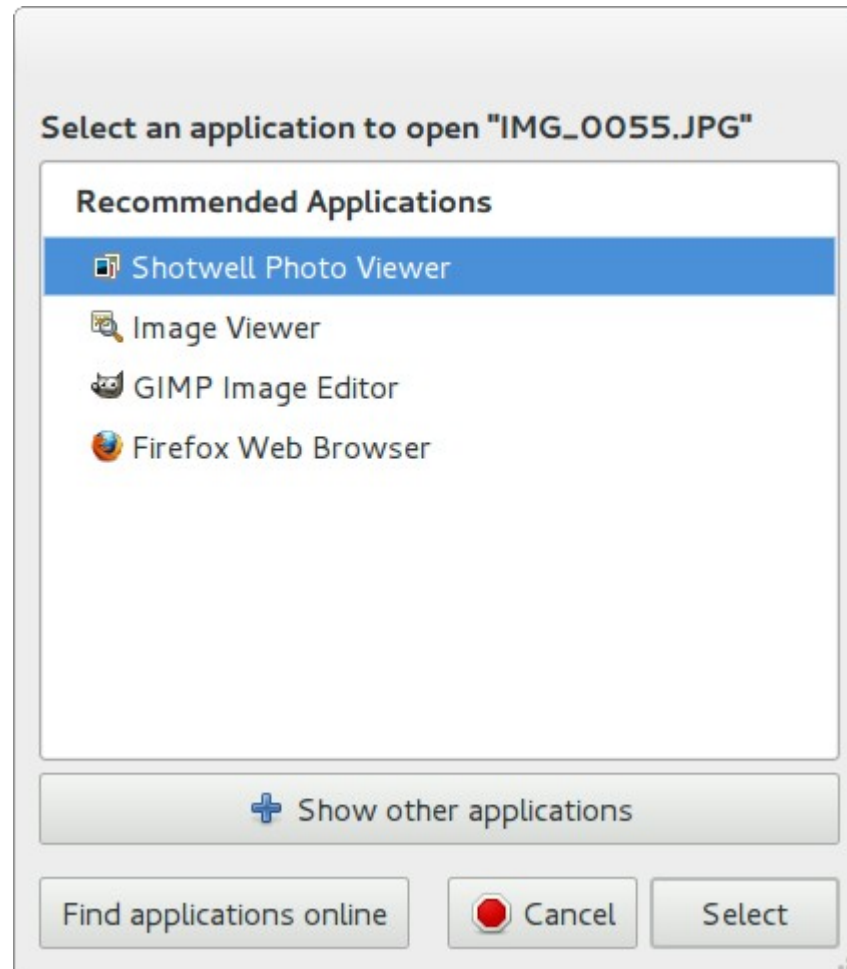


# Switches everywhere!





# Application Chooser Dialog



# Random Cleanups

 -Bsymbolic-functions

 no public members



# Systemtap

 easier debugging of GLib programs



# GSettings

🐾 much nicer API than GConf

🐾 uses dconf

🐾 much faster than GConf



# GDBus

 powered by GVariant

 and GAsyncResult

 and GMainContext



# GVariant

- 🐾 API for constructing D-Bus values
- 🐾 GDBus, GSettings
- 🐾 many many other users

# Networking

 proxy support

 TLS/SSL support

 more



# GLib etc

 buffers, bit locks

 GDateTime

 object binding

 monotonic GMainLoop





# Gtk Widget packing

 GtkGrid

 alignment

 future death of GtkMisc



# The brave future...



CodeMink

 GNOME

# gtk4



CodeMink



# Frame-based rendering

 paint clock

 timelines

 theme animation API



# Scrolling

🐾 take advantage of `::draw`

🐾 overlays

🐾 pre-caching



# Input

🐾 XI2, touch, gestures

🐾 bubble down, bubble up

🐾 container transformations



# Non-toplevel GdkWindow

🐾 omg the rectangles!

🐾 kthxbye



# Built in accessibility

 move accessibility into gtk+

 kill libgail





# Merge Gdk and Clutter

🐾 suspend your disbelief...

🐾 Clutter is really just a fork of Gdk...



# Actions and Menus

🐾 work started with GtkApplication

🐾 actions already on D-Bus

🐾 menus too, soon



# Merge libglib

 glib, gobject, gthread, gmodule



# New "simple" object

 in libglib

 can use for hashtable, queue, tree, ...

 no properties, qdata, etc.



# Easier properties

🐾 kill {get,set}\_property

🐾 use accessor functions directly



# No marshallers

 libffi

 other ideas...



# Mainloop Improvements

 scalability

 accuracy

 clock sources, signals, etc

 support edge triggered



kthxbye



CodeMink

