MeTV

A Journey from C and Xine
to Rust and Gstreamer, via D

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Russel Winder

- Ex theoretical physicist
- Ex UNIX systems programmer
- Ex academic:
  - Parallel programming
  - Software development and programming
  - HCI, UI, UX
- Ex Company director

- Ex Independent consultant
- Ex analyst
- Ex author
- Ex expert witness
- Ex trainer

Me TV

- Versions → 1.3.7

  - Michael Lamothe

  - C code using Xine or VLC

  - Some C++

  - Linux DVB API used direct

  - SQLite

- Version 2

  - Full client server PVR

- Version 1.4

  - Attempt to keep Me TV going in the face of no C++ developer

MythTV, KODI

RW Uses Me TV 1.3.7

- What:

  - IPL on ITV4

  - Autumn Internationals on BBC and ITV

  - Six Nations on BBC and ITV

- How:

  - Debian package didn't really work

  - Compiling 2.0.0 and 1.4.0 didn't really work

  - Compiling 1.3.7 worked

Why not just use streaming, everyone else now does?

Me TV uses GTK+2

DVB changes v3 → v5

xine becomes a "dead project"

VLC seems hard to "get into"

GNOME emphasises GStreamer

Me TV Evolution

- GTK+2 → GTK+3

- xine/VLC → Gstreamer

- C++ → C++14 (→ C++17)

Rewrite Me TV in D

- D is a better C++ with GC

- No nice IDE as yet

- GtkD a D binding generated from GIR files

- Includes GstreamerD, and MPEG-TS

Gstreamer community backs Rust

Rewrite Me TV in Rust

- Rust is a non-GC language that is far, far better than C

- gtk-rs and gstreamer-rs.

Thoughts

- D is slightly nicer than Rust

- D and Rust are far better than C++

- Rust is become the standard for GTK+ and Gstreamer work

Rust has one huge win over D:
Executors, channels, and futures
on the GTK event loop.

```
let context = glib::MainContext::ref_thread_default();
context.spawn_local({
    let c_w = control_window.clone();
    message_channel.for_each(move |message| {
        match message {
            Message::FrontendAppeared { fei } => add_frontend(&c_w, &fei),
            Message::FrontendDisappeared { fei } => remove_frontend(&c_w, &fei),
        }
        Ok(())
    }).map(|_| ())
});
```

Reactive architecture.

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Anyone fancy helping with the Rust side of the MPEG-TS library?

Anyone fancy doing a DAB/DAB+ source element in Rust?

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