

# A Day in the Life of a Media Plumber

Sanchayan Maity

# Who

- ▶ Who am I?
  - ▶ Embedded Systems background
  - ▶ Prefer C, Haskell and Rust
  - ▶ Organize and speak at Rust and Haskell meet-ups in Bangalore
- ▶ Work?
  - ▶ Software Engineer @ **asymptotic**
  - ▶ Open source consulting firm based out of Bangalore and Toronto
  - ▶ Work on low level systems software centred around multimedia
  - ▶ GStreamer, PipeWire, PulseAudio
  - ▶ Language Polyglots

# Open source contributions

- ▶ GStreamer
- ▶ gst-plugins-rs
- ▶ PipeWire
- ▶ PulseAudio
- ▶ Linux
- ▶ u-boot

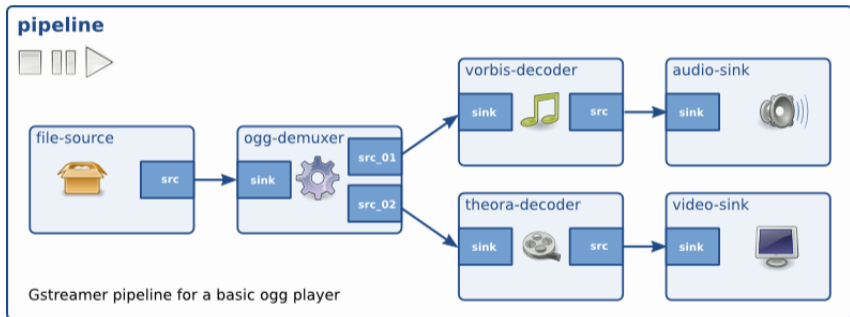
# GStreamer

- ▶ Multiplatform Pipeline based multimedia framework
- ▶ Bindings for various languages
- ▶ Allows building complex media processing workflows
- ▶ Some applications
  - ▶ PiTiVi (Video Editor)
  - ▶ amaroK, Banshee, Clementine (audio players)
  - ▶ Empathy (VOIP and video conferencing)
  - ▶ GstLAL (gravitational wave data analysis)
  - ▶ Rygel (DLNA streaming server and renderer)
  - ▶ Totem (movie player for the GNOME desktop)

## Simple pipeline

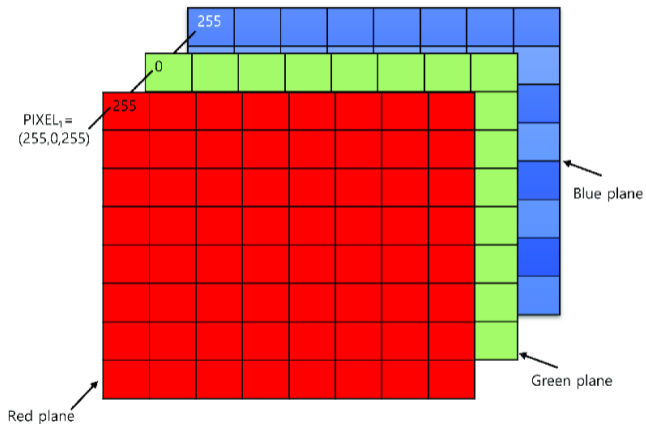
```
gst-launch-1.0 videotestsrc ! autovideosink  
gst-launch-1.0 audiotestsrc ! autoaudiosink
```

# Media pipeline<sup>1</sup>



<sup>1</sup>Dynamic Pipelines

# Internals<sup>2</sup>



## Alpha compositing<sup>3</sup>

- ▶ How does it look?



# Demo

- ▶ Using Cairo<sup>45</sup>

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<sup>4</sup>GStreamer Cairo example

<sup>5</sup>GStreamer Cairo example project

## Rounded corners



```
gst-launch-1.0 filesrc location=bunny.mp4 ! decodebin ! videoconvert !  
roundedcorners border-radius-px=100 ! videoconvert ! gtsink
```

## Getting started

- ▶ [GStreamer Basic Tutorial](#)
- ▶ [GStreamer Application Development](#)

# Questions

- ▶ Reach out on
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  - ▶ Blog: [sanchayanmaity.net](https://sanchayanmaity.net)