Cheese TNG: less libcheese, more D-Bus

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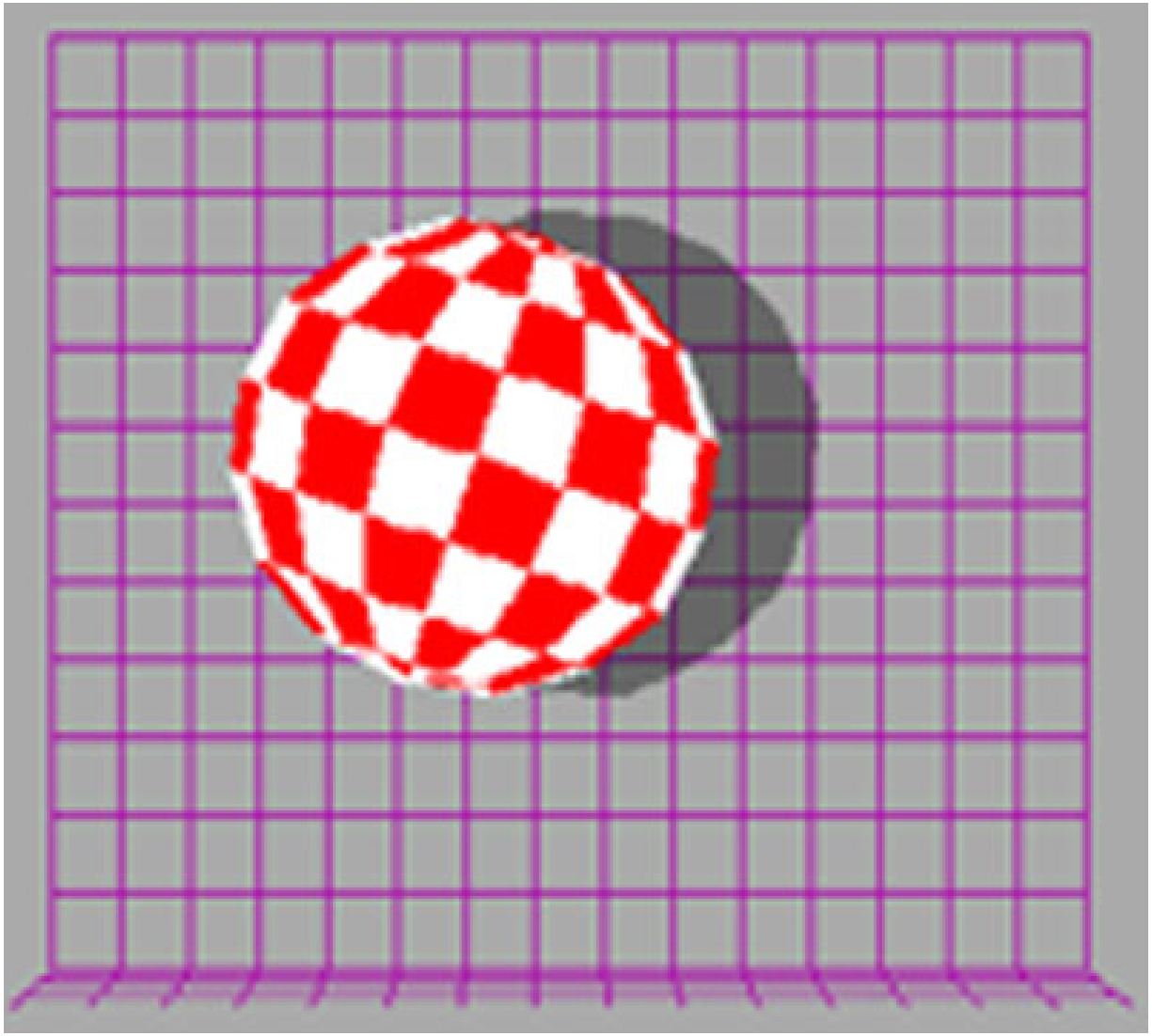
2014-07-29 / GUADEC

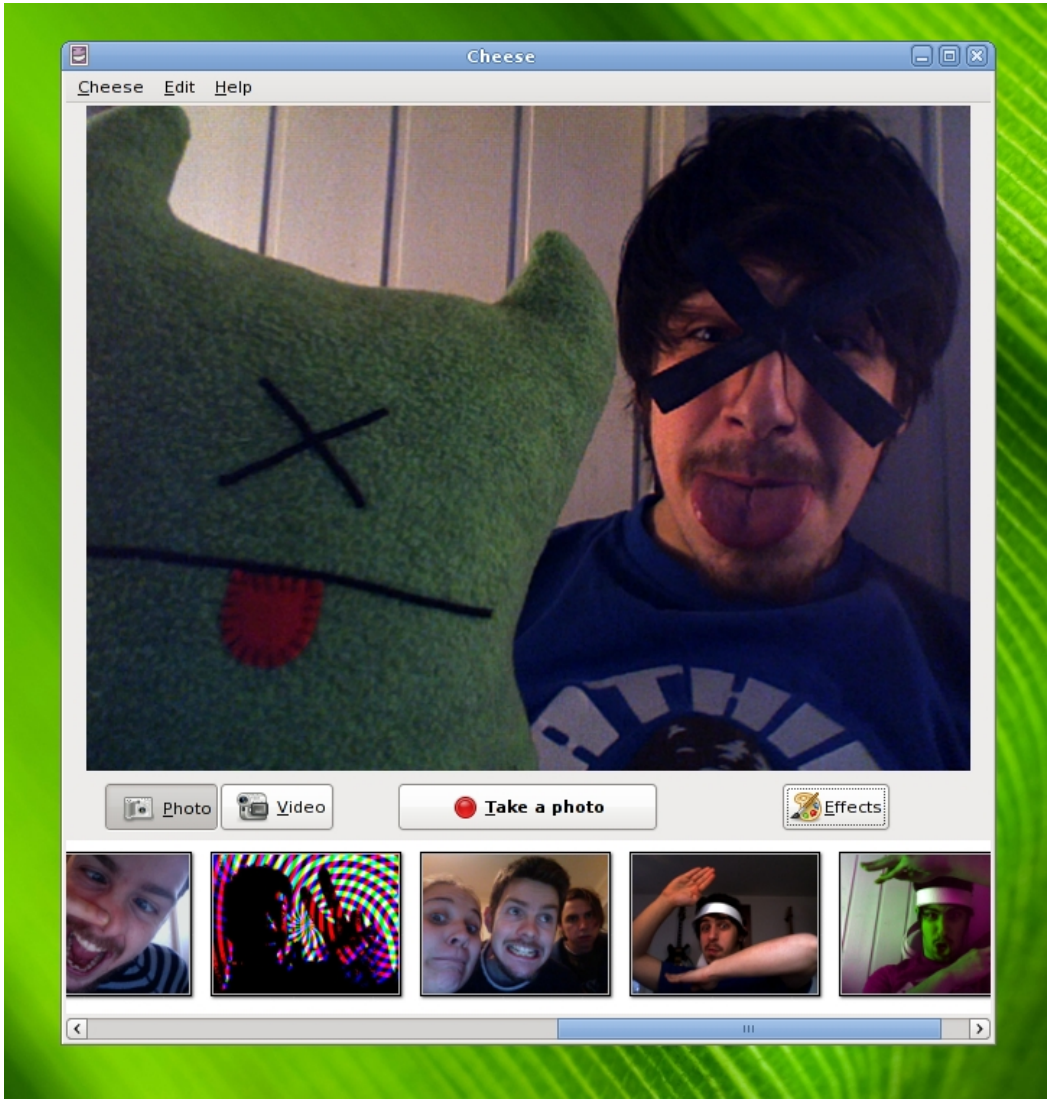
Shouldn’t that be "amigodave"?

Keeping the Amiga alive



In the beginning

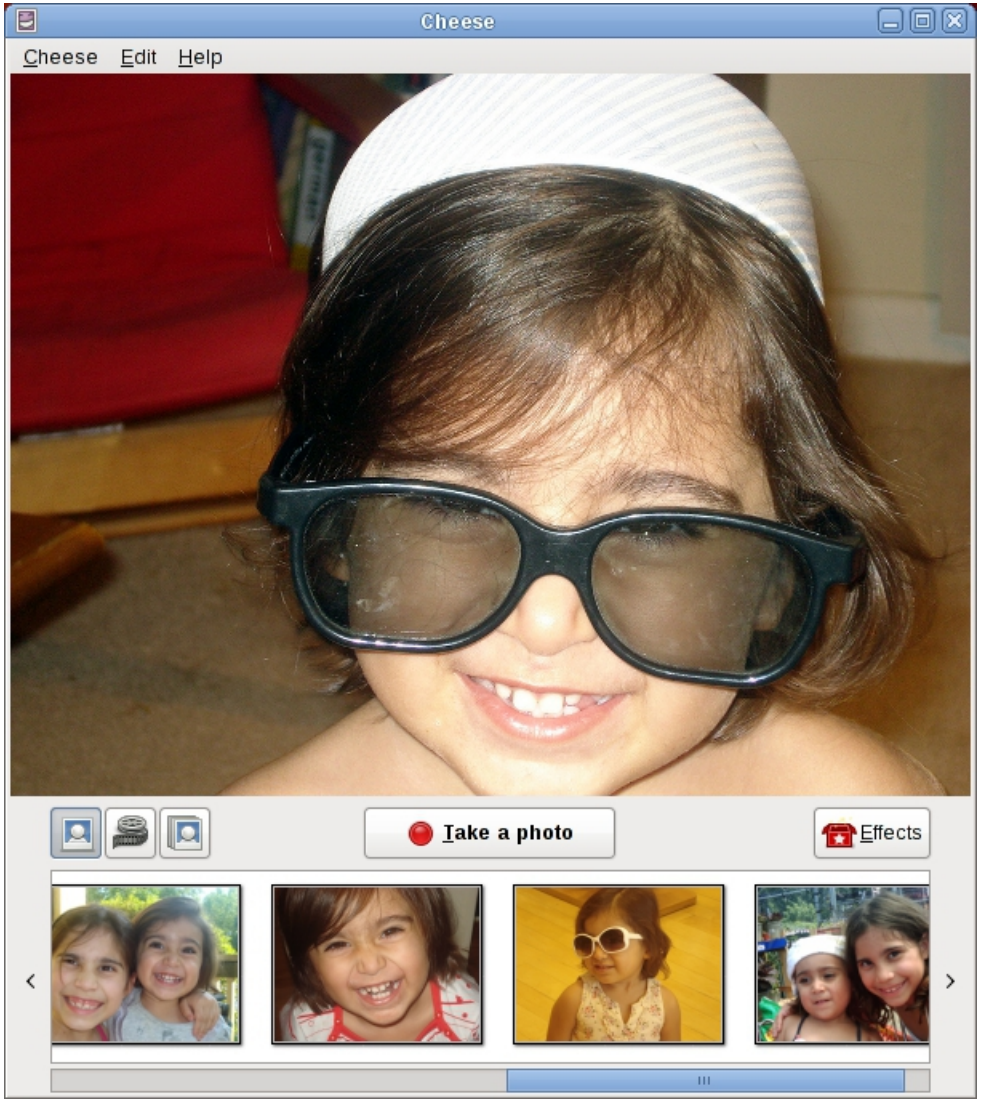
- Started as a GSoC 2007 project by Daniel Siegel
- First released as part of GNOME 2.22
- Initially conceived as a Photobooth clone


Cheese
Cheese Edit Help
Photo
Video
Take a photo
Effects


SURE, CHEESE LOOKS NICE
BUT I DON'T HAVE A WEBCAM!
memegenerator.net

Early development

- GSoC projects to add better GNOME integration (Felix Kaser) and OpenGL effects (Filippo Argiolas)
- auto-detection of camera devices with HAL, later udev
- split into a library by Bastien Nocera in 2.29
- UI rewritten in Vala in 2.31

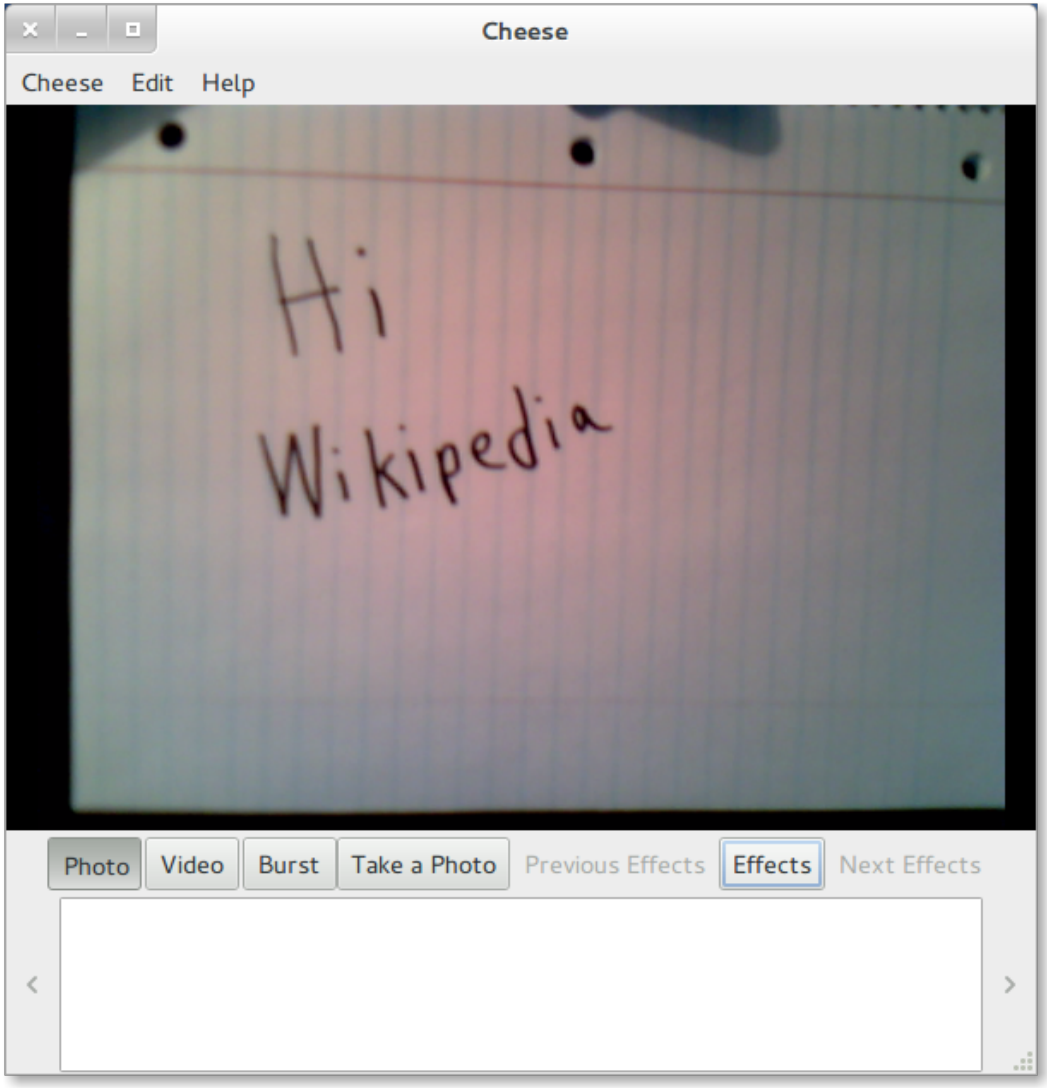

Cheese
Cheese Edit Help
Take a photo
Effects

Picard does not like Vala

GNOME 3

- split off effects into gnome-video-effects
- use clutter for video widget
- lots of GtkApplication and GTK+ 3 porting by Patricia Santana Cruz as part of Openismus trainee program (and later OPW)
- I joined as a maintainer around 3.2.0

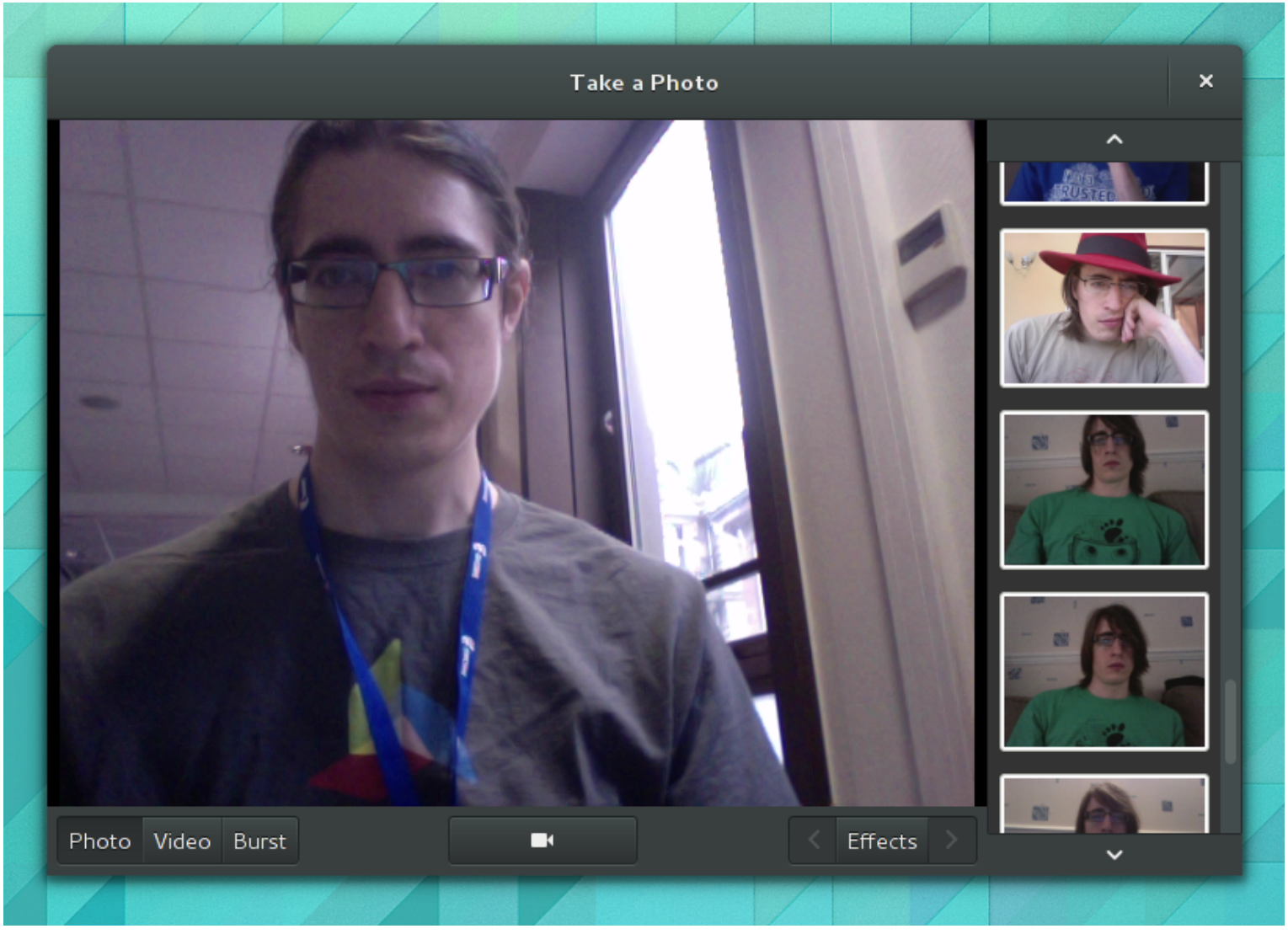
New Cheese maintainer


Cheese
Cheese Edit Help
Hi
Wikipedia
Photo
Video
Burst
Take a Photo
Previous Effects
Effects
Next Effects

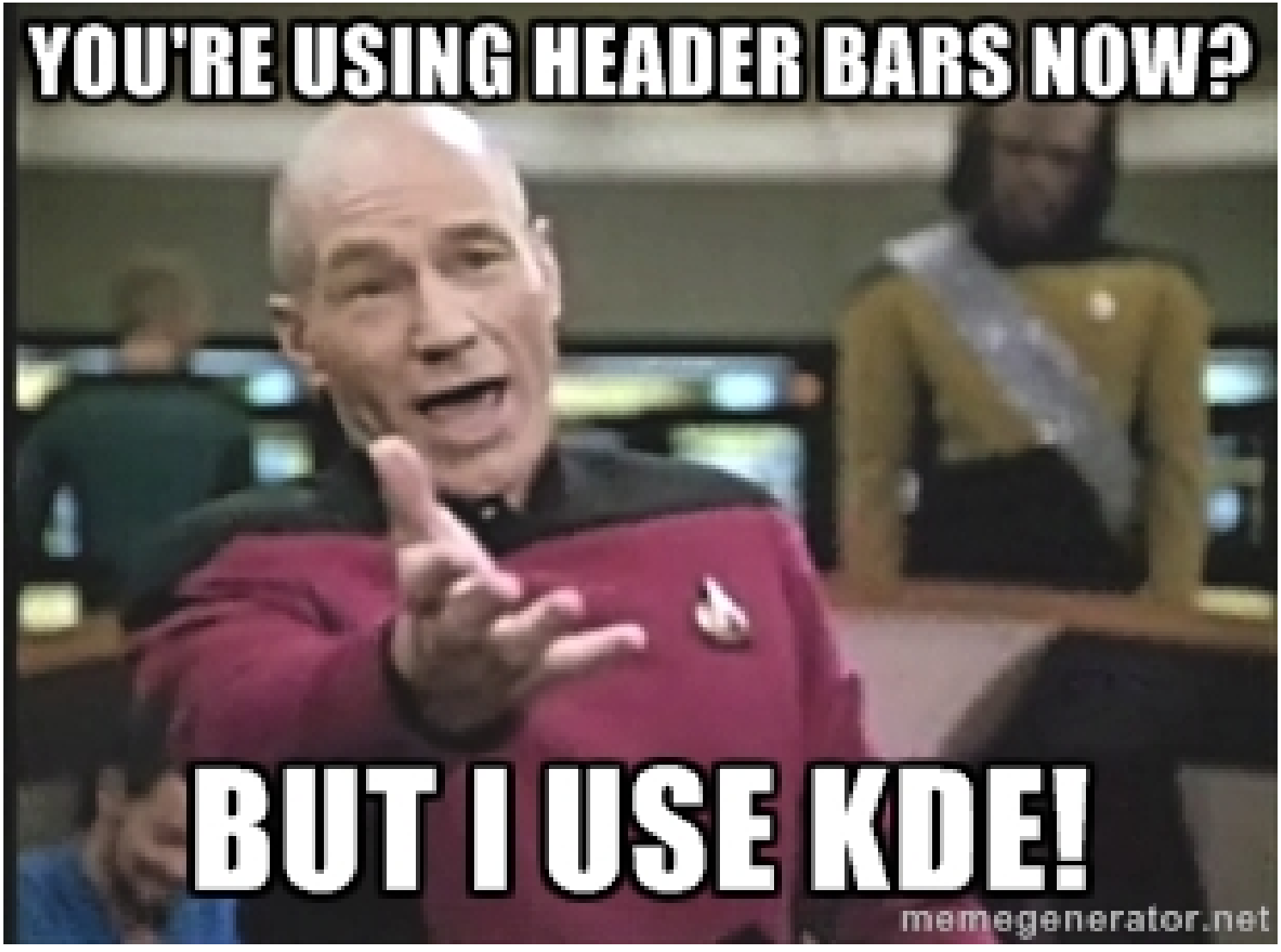
Post-GNOME3 development

- port to GStreamer 1.0 and camerabin2
- composite widget templates
- header bars
- better fullscreen handling (implemented by Rashi Aswani)

3.12



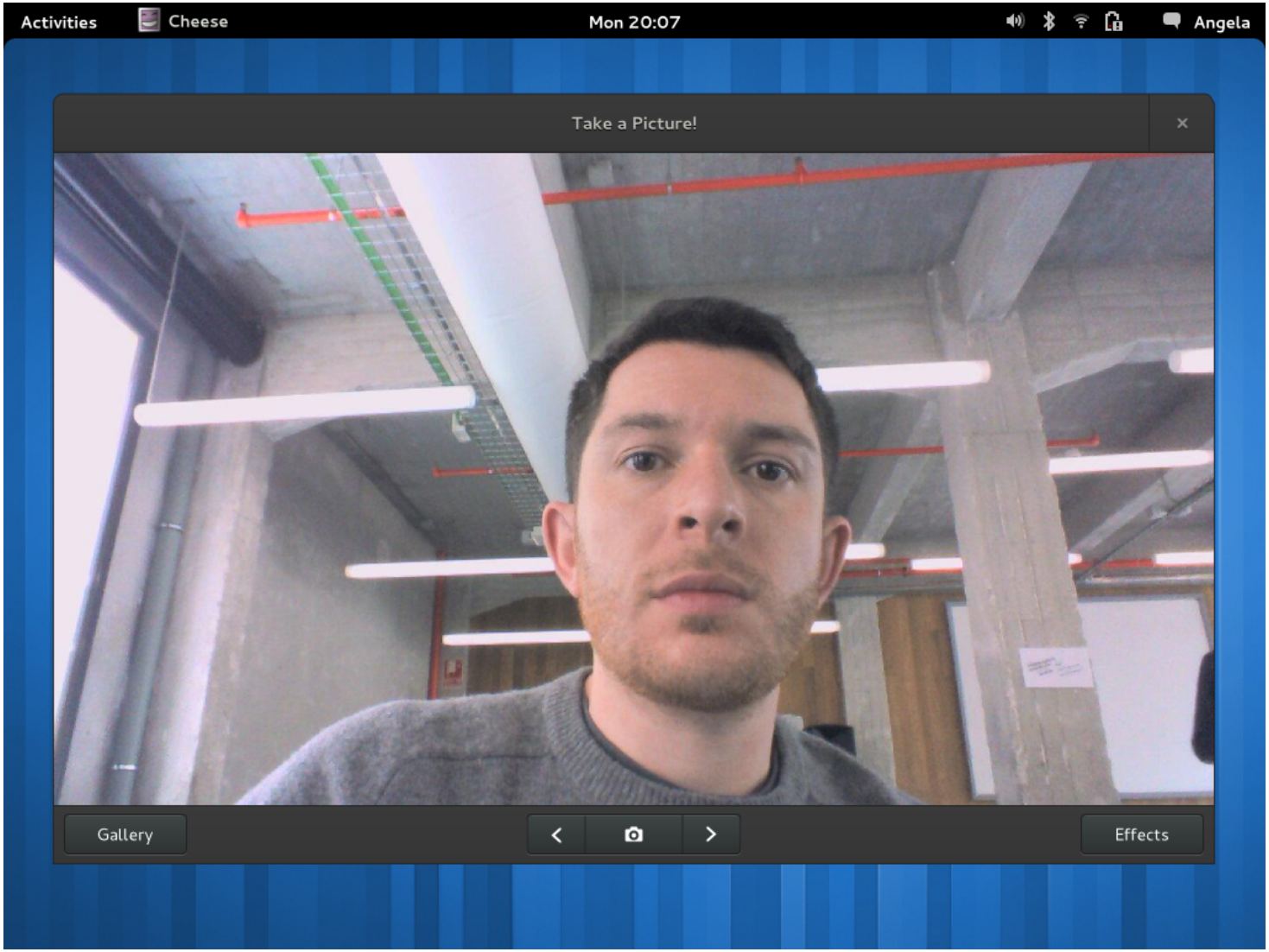
Picard does not like CSD



Planned design overhaul

- thanks to Fabiana and Allan
- https://wiki.gnome.org/Design/Apps/Cheese
- streamlined interface with on-canvas (OSD) controls
- header bar and fullscreen mode changes merged
- looking for a willing GSoC student!

3.16?


Activities
Cheese
Mon 20:07
Angela
Take a Picture!
Gallery
Effects

Cheese as a sandboxed application

- sandboxed applications will not have access to raw device nodes
- it will be necessary to request access to hardware devices
- access to the webcam should be suspended on logout, screen lock and user switching

Application sandboxing (easy bits)

- CheeseAvatarChooser is used to take webcam photos and use them as avatar images
- replace in-process libcheese API with an out-of-process D-Bus API to show a chooser dialogue
- D-Bus service handles requests, shows the dialogue and returns an image to the application
- no direct access to the V4L2 device is needed by the application
- prototype implementation exists

Difficulties for advanced applications

- Applications like Cheese need access to the video stream, to apply effects and do processing
- Changing properties of the camera (resolution, brightness, autofocus, and so on) needs access to the device node
- No good way to enforce permissions on the video device node in a user session service

What about another D-Bus service?

- a D-Bus service on the system bus, with exclusive permission to the video device nodes
- move most of the camera properties and video processing of libcheese into the service
- provide a video stream to sandboxed clients
- lots of overhead going through the D-Bus server

PulseVideo?

- video is like audio, in that low latency and high(er) throughput is required
- traditional D-Bus is not fast enough
- use kdbus/memfds as a transport
- not too difficult for the Cheese use case, but difficult to expose all properties and be generic

Summary

- need to figure out the scope of a video device server
- waiting on memfds and kdbus to be merged into the kernel
- sandboxing itself is not a hard requirement (but a video server is required for better application sandboxing)
- D-Bus avatar chooser service in 3.14 (hopefully!)

Picard loves application sandboxing

Acknowledgements

- Bastien Nocera for all his great work
- Hans de Goede for various patches
- Daniel Siegel for starting off the project (and the Laphroaig)
- Luciana Fujii Pontello for maintenance and GStreamer help
- Star Trek: TNG