

The GNOME™ Conference GUADEC

Reworking threading in GNOME Software

Philip Withnall

Endless

`philip@tecnocode.co.uk`



History of gnome-software

- 🐾 Project started in 2012
- 🐾 Plugins added in 2013
- 🐾 Architecture has always been entirely plugin based
- 🐾 AppStream support from 2013

Previous architecture

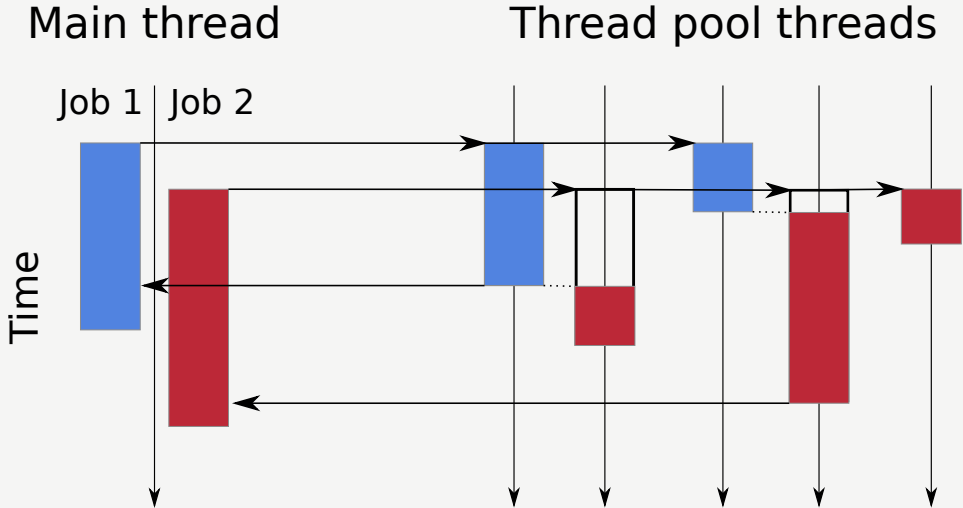


Figure: Previous architecture of gnome-software

Issues

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2. Large number of threads uses lots of resources (memory)
3. Locking required everywhere causes serialisation (slow)
4. Threading overhead is large for simple jobs (slow)

GDBus threading

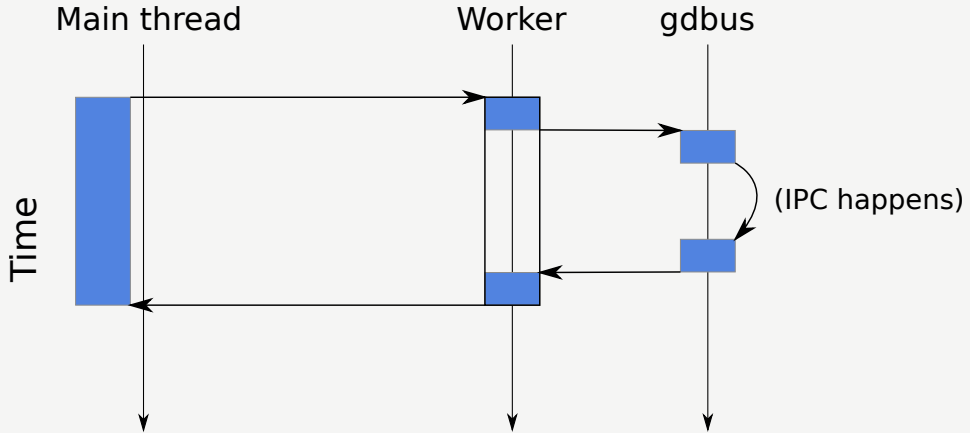


Figure: Threading when making a GDBus call

Previous architecture

Main thread

Thread pool threads

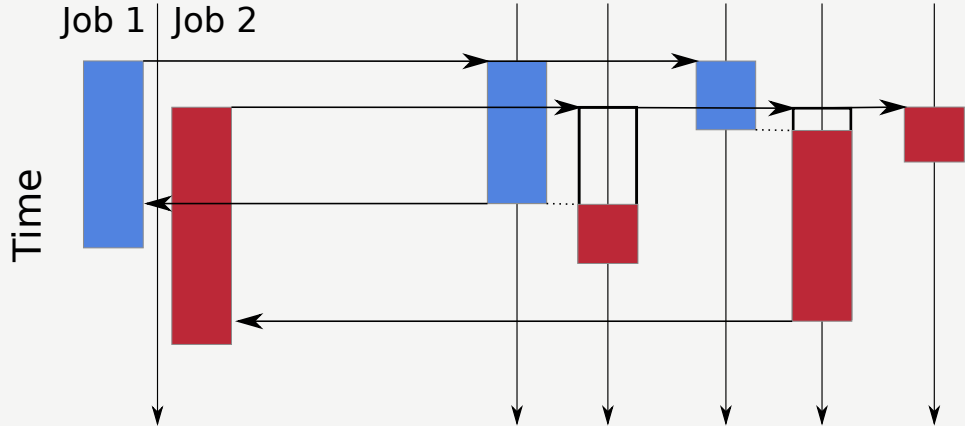


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New architecture

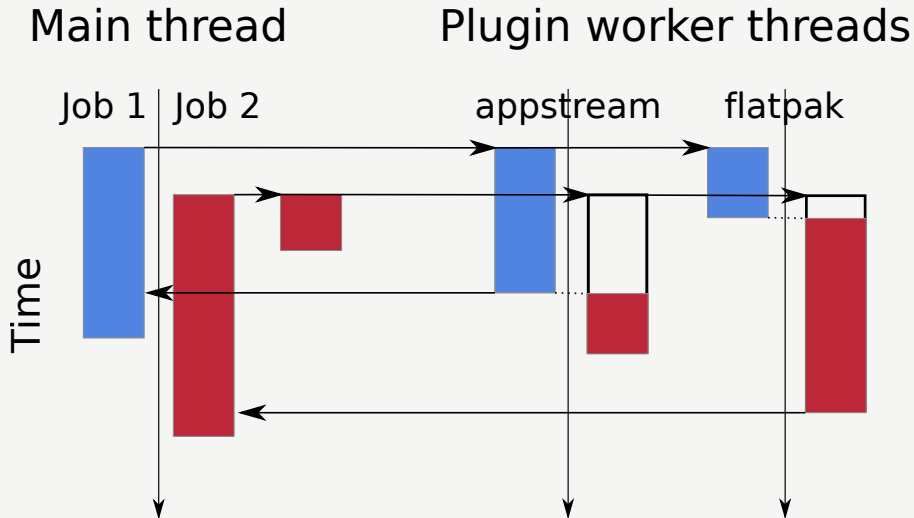


Figure: New architecture of gnome-software

Different approaches to threading in C

- 🐾 Synchronous code always run in a worker thread
- 🐾 Asynchronous code run somewhere
- 🐾 Threading model determined at a high level vs locally

Approaches for landing big changesets

- 🐾 Land early
- 🐾 Keep things working
- 🐾 Keep adapter wrappers around old code and drop it eventually

Miscellany

Slide source [https://gitlab.com/pwithnall/
guadec-gnome-software-presentation-2022](https://gitlab.com/pwithnall/guadec-gnome-software-presentation-2022)

gnome-software project <https://gitlab.gnome.org/GNOME/gnome-software>



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Beamer theme: <https://gitlab.gnome.org/GNOME/presentation-templates/tree/master/GUADEC/2022>