Firefox Wayland post mortem

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Firefox Wayland state

• Developed on Fedora (Gnome), paid by Red Hat.
• Shipped as stable since Firefox 121.0 (8 months ago).
• 20% of users are on Wayland (XWayland before)
• Fedora, Arch Linux, Ubuntu 22.04+
• Started 10 years ago after switch to Gtk3 (Bug 635134)
• ESR128 / Thunderbird 128 / RHEL
• Mutter (GNOME)
• Kwin (KDE)
• Sway, Weston etc.
Firefox Wayland pros

- Security (app sandbox)
- HiDPI support, multi-monitor
- Works better on Xwayland (D&D, popups etc.)
Firefox Wayland cons

- Popups
- Focus
- Testing (Fedora)
Firefox Wayland state

- Patient is stable
- Fixing protocol corner cases & minor issues
- Missing automated testing (Nightly)
- Missing PIP Always-on-top
- Different focus handling
  - Focus steal / focus transfer
Main road blocks

- Various Wayland compositor bugs (D&D popup rendering)
- General Gtk3/Wayland integration
  - `wl_output`, data devices
- Rendering to GtkWidget (Gtk3)
  - `wl_subsurface`, `mContainer`
- Multi-thread rendering (WebRender/ Compositor / GtkMain thread events)
  - Offscreen rendering, missing `wl_surface` (before/after creation)
  - Frame callbacks, VSync
- Clipboard – async/sync
- D&D
- Wayland freeze – ping (wayland-proxy)
- Popup windows
Wayland popup nigthmare

- `wl_subsurface` vs. `xdg_popup`
- `xdg_positioner`
  - `Gtk4 xdg refresh (resize, move)`
  - `Gtk3 map/unmap`
  - `Map/unmap for hierarchy changes`
- `wl_subsurface` mutter bugs (tooltipy)
- `xdg_positioner` bugs (mutter/Gtk - map)
Further development

- Aim Gtk3 limitations (missing direct rendering, popups)
  - Move to Gtk4 or backport to Gtk3
- Update automated upstream testing
- Fix proxy to process pings
THANK YOU

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