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# Linux AR/VR

How to write apps using the OpenXR API



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# Talk to me about

- XR, VR & AR
- [Volt Programming Language](#)
- FPGAs & FOSS
- Amiga (FPGA), mc68k (LLVM)
- Voxel/SVO rendering
- FOSS & Society
- Joining Collabora!

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- **What is AR & VR**
- **OpenXR**
- **Status**
- **Wrapping up**



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# What is Augmented Reality?

- Augment
  - verb
  - /ɔːg'mɛnt/
  - make greater by adding to it; increase





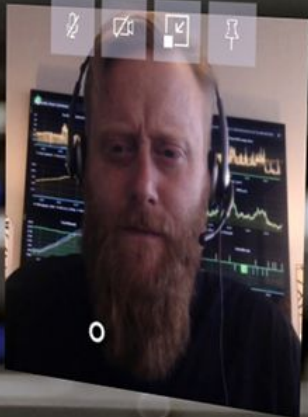
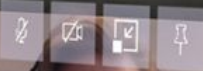


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10:45 AM

JUSTIN TURNER 00:29



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# What is Virtual Reality?

- I reject your reality and substitute my own
  - Dungeonmaster, 1984
    - (popularized by Adam Savage)



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# What is AR & VR?

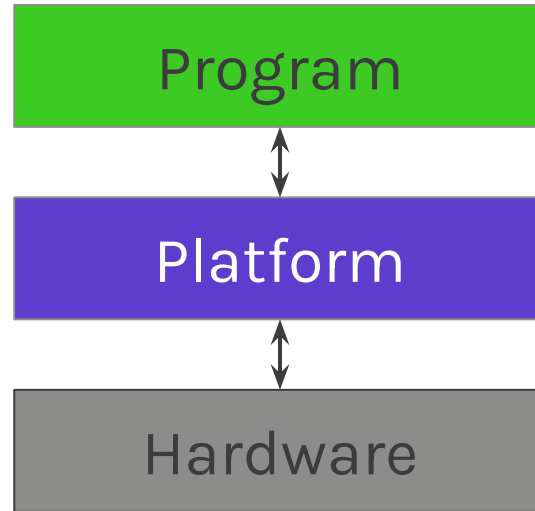
- Also known as XR
- $X = A | V$
- Not eXtended Reality



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# How do we XR?



# How is XR formed in the past?

- OpenHMD
- OSVR
  
- SteamVR
- Oculus

# But!

Wow

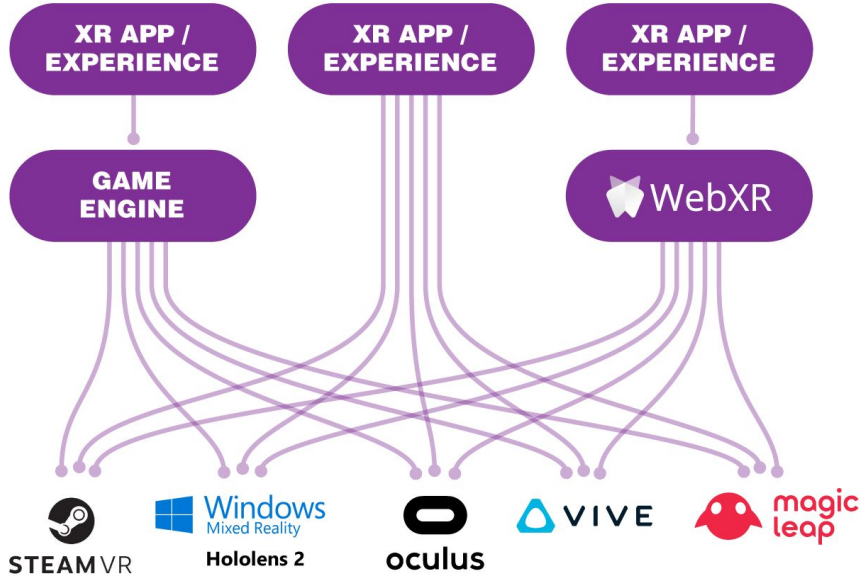
- OpenHMD
  - OSVR :D
- Much Freedom

No source

- SteamVR
  - Oculus :(
- Such Sad



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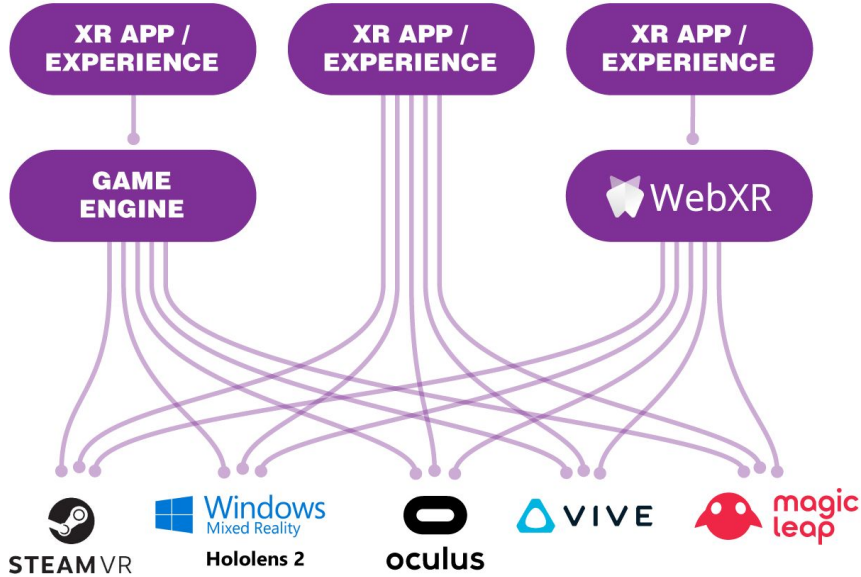


**Before OpenXR:** Applications and engines needed separate proprietary code for each device on the market.

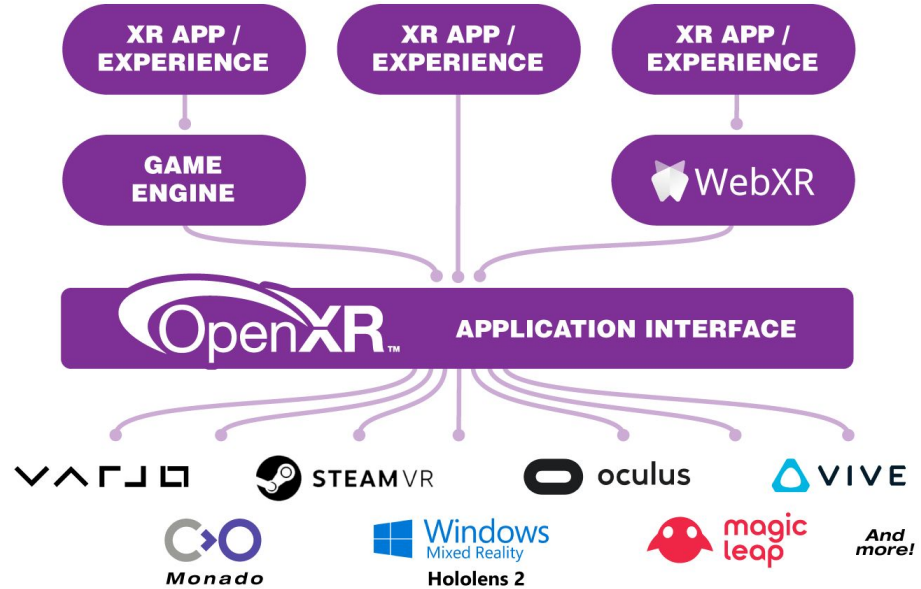
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**Before OpenXR:** Applications and engines needed separate proprietary code for each device on the market.



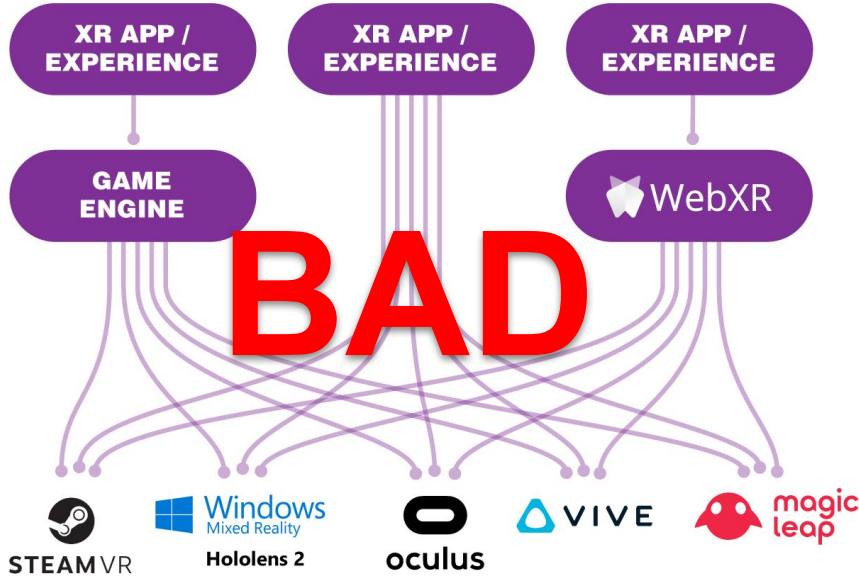
**OpenXR** provides a single cross-platform, high-performance API between applications and all conformant devices.

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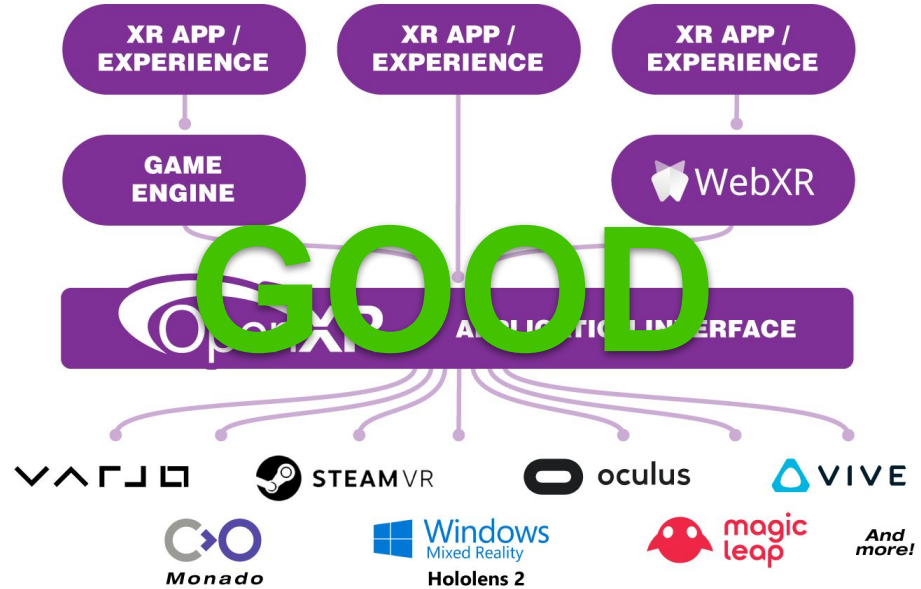




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**Before OpenXR:** Applications and engines needed separate proprietary code for each device on the market.



**OpenXR** provides a single cross-platform, high-performance API between applications and all conformant devices.

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# What is Khronos

- Industry group
  - OpenGL, Vulkan and ...
  - A foreign thing for most FOSS people



# Participating members



# Participating members



# OpenXR

- C API
- API feel inspired by Vulkan
- Bindings
  - Python - <https://pypi.org/project/openxr/>
  - Rust - <https://github.com/Ralith/openxrs>





# Portable

- OS/Distro
- Hardware

# Input

- Action based
- Not button



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# More information

- Unifying Reality: Building Experiences with OpenXR
  - By Ryan Pavlik
  - <https://youtu.be/F6jZCwko1Qs>
- MSDN
  - <https://docs.microsoft.com/en-us/windows/mixed-reality/develop/native/openxr>



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# Status on Linux

- Available on Linux
- Monado
- SteamVR

# Engines

- FOSS

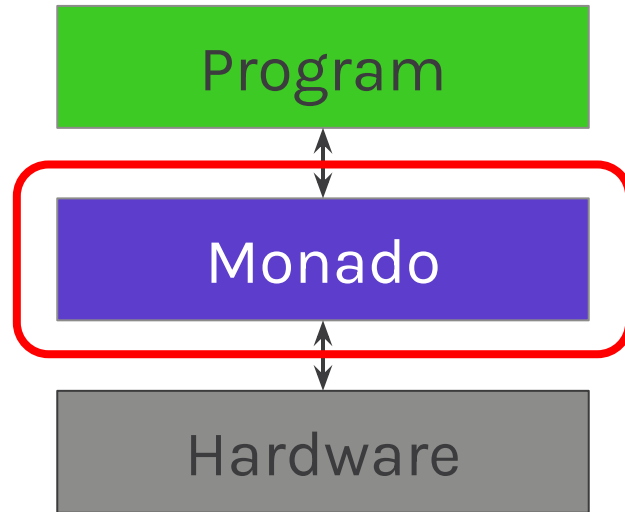
- GODOT - <https://godotengine.org/>
- LÖVR - <https://lovr.org/>
- Blender

- Proprietary

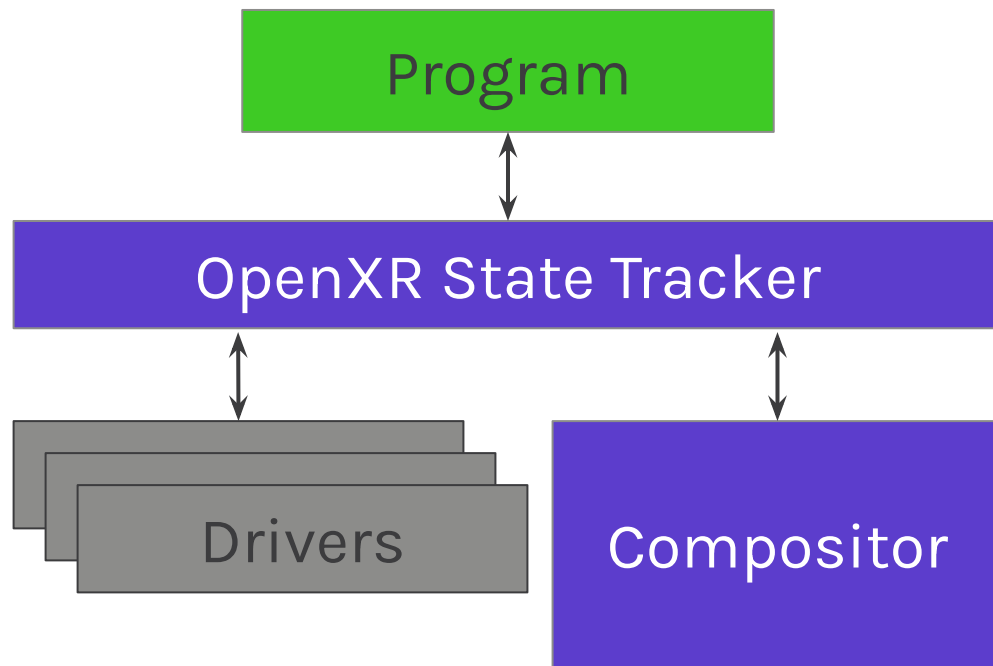
- Unreal (Linux supported in 4.27, out soon)



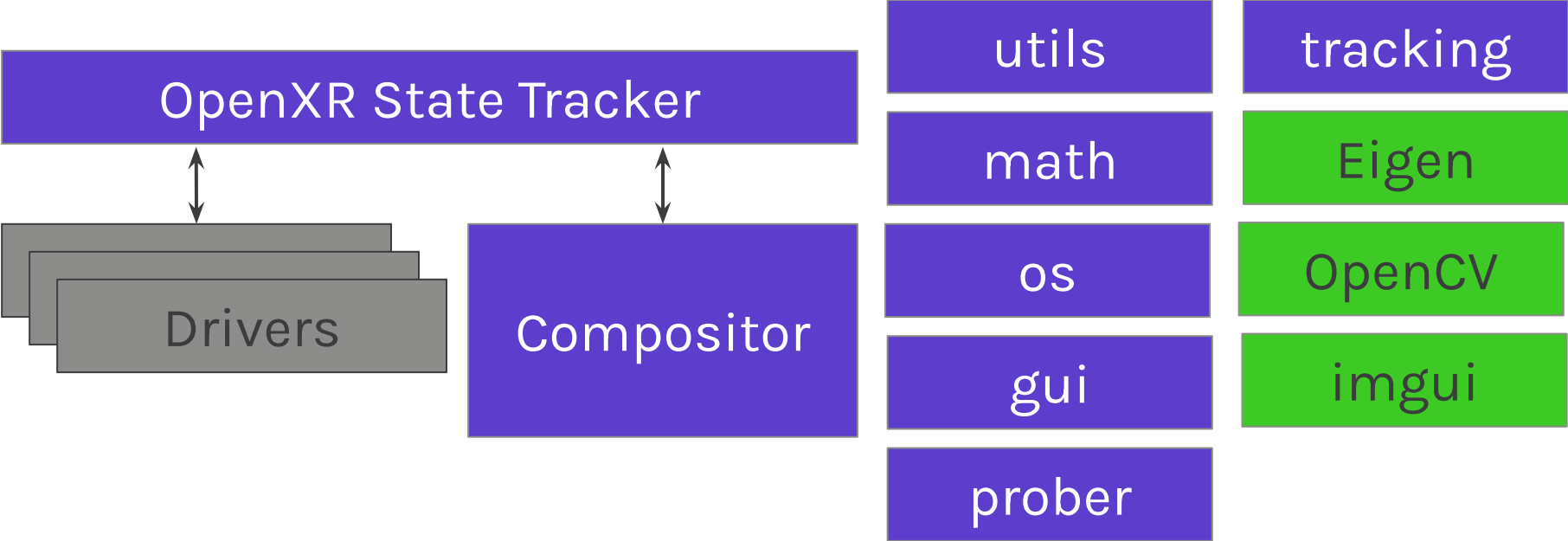
# Where does Monado fit in?



# Monado



# Monado



# Info

- Info

- <https://monado.freedesktop.org/>



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# XR FOSS Community

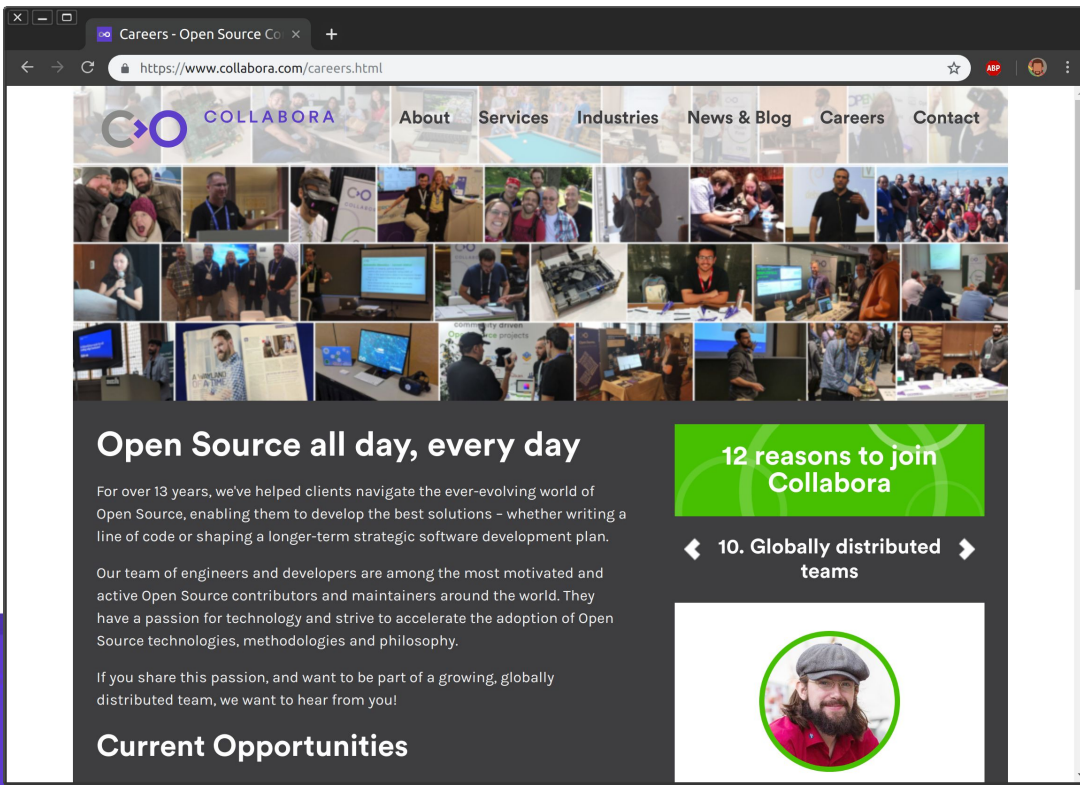


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# We are hiring



The screenshot shows a web browser window with the URL <https://www.collabora.com/careers.html>. The page features a navigation menu with links for About, Services, Industries, News & Blog, Careers, and Contact. Below the menu is a grid of images showing various people working and interacting. The main content area is divided into two columns. The left column has a heading "Open Source all day, every day" followed by two paragraphs of text. The right column has a green box with the heading "12 reasons to join Collabora" and a sub-heading "10. Globally distributed teams" with a circular image of a man wearing a cap.

**Open Source all day, every day**

For over 13 years, we've helped clients navigate the ever-evolving world of Open Source, enabling them to develop the best solutions – whether writing a line of code or shaping a longer-term strategic software development plan.


Our team of engineers and developers are among the most motivated and active Open Source contributors and maintainers around the world. They have a passion for technology and strive to accelerate the adoption of Open Source technologies, methodologies and philosophy.

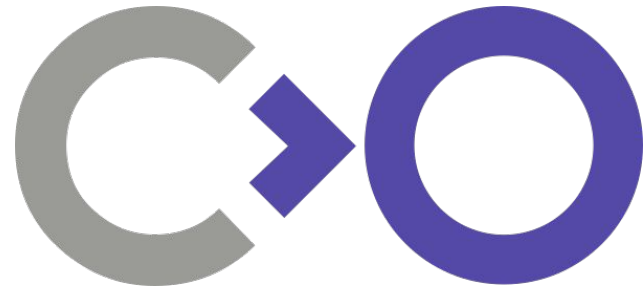
If you share this passion, and want to be part of a growing, globally distributed team, we want to hear from you!

**Current Opportunities**

**12 reasons to join Collabora**

◀ 10. Globally distributed teams ▶



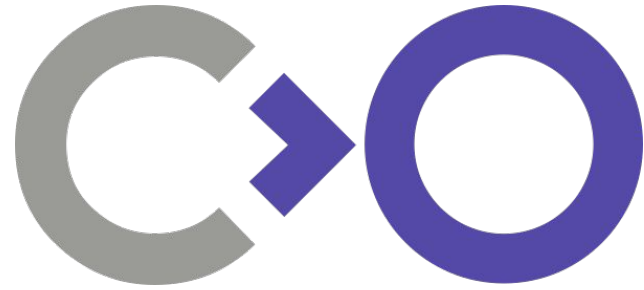


Questions?



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**Thank you!**



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