



CONFIDENTIAL designator

Linux Distribution's State of Gaming

A Case Study of Fedora Workstation

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About the speaker

Works as

Objective Representative for the Fedora Websites and Apps, Fedora Council
Software Engineer, Red Hat Community Platform Engineering Team

Presented and written

Talks/workshops around videogaming on GNU/Linux distributions in various conferences
Numerous articles around testing videogame performance on GNU/Linux distributions



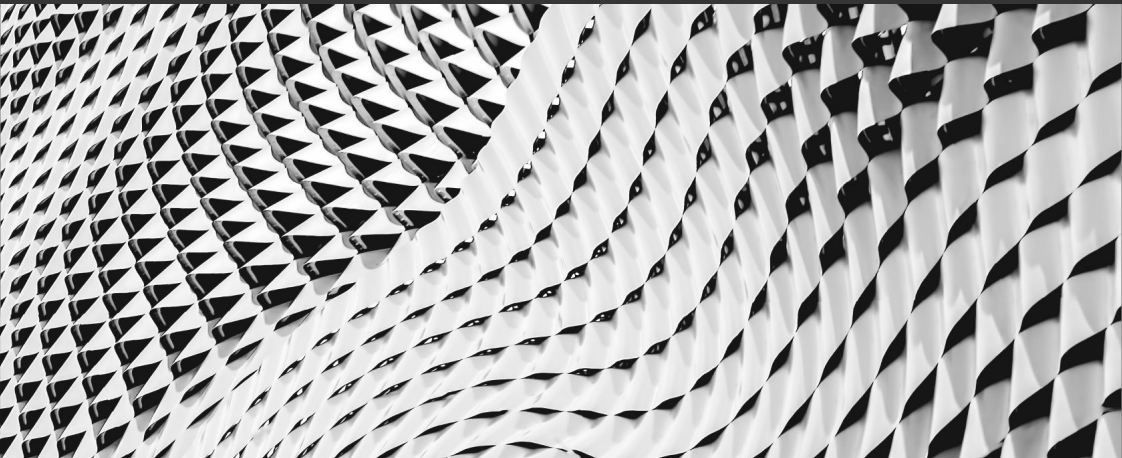
Source:

<https://fedoramagazine.org/fedora-workstations-state-of-gaming/>
<https://fedoramagazine.org/fedora-workstation-state-of-gaming-far-cry-5/>
<https://youtu.be/to-hXY9S9Pw>
<https://youtu.be/u9aLwjhYSRO>

To get started with the presentation

Lettuce ask ourselves these three questions

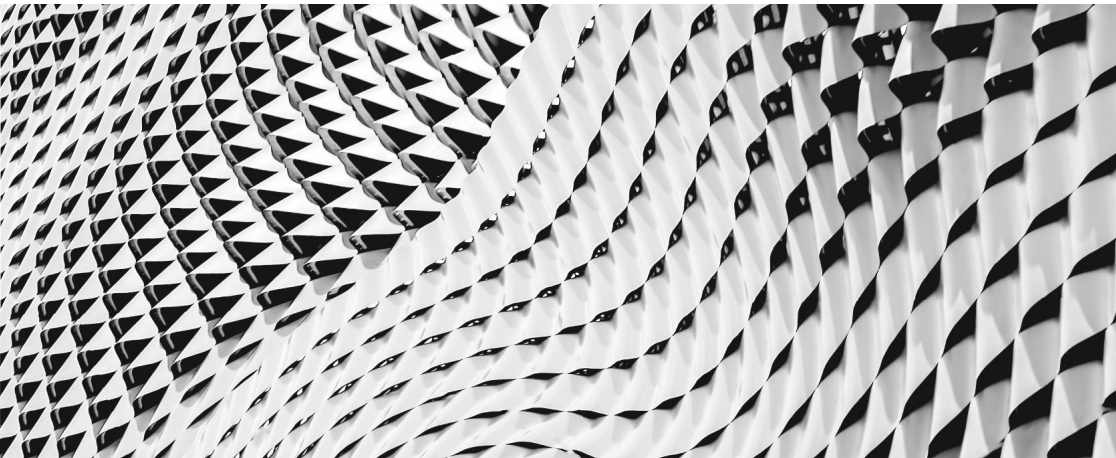
Videogaming on Linux Distributions



Which three questions you say?

- Is it **popular?**
- Is it **convenient?**
- Is it **performant?**

Yes, it certainly is **POPULAR***



Emulation

- **PPSSPP**
- **RetroArch**
- **Nestopia**

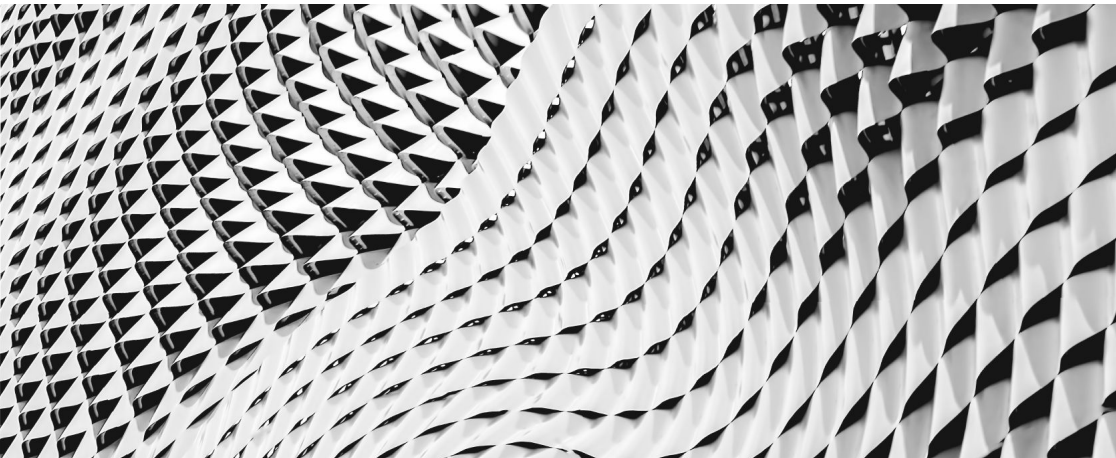
Operating systems

- **Batocera Linux**
- **Lakka**
- **RetroPie**

Consoles

- **NES Classic Edition**
- **Android Phones**
- **Steam Deck**

Yes, it certainly is **CONVENIENT***



More config based installs

- **Barebones WINE**
- **RetroArch**

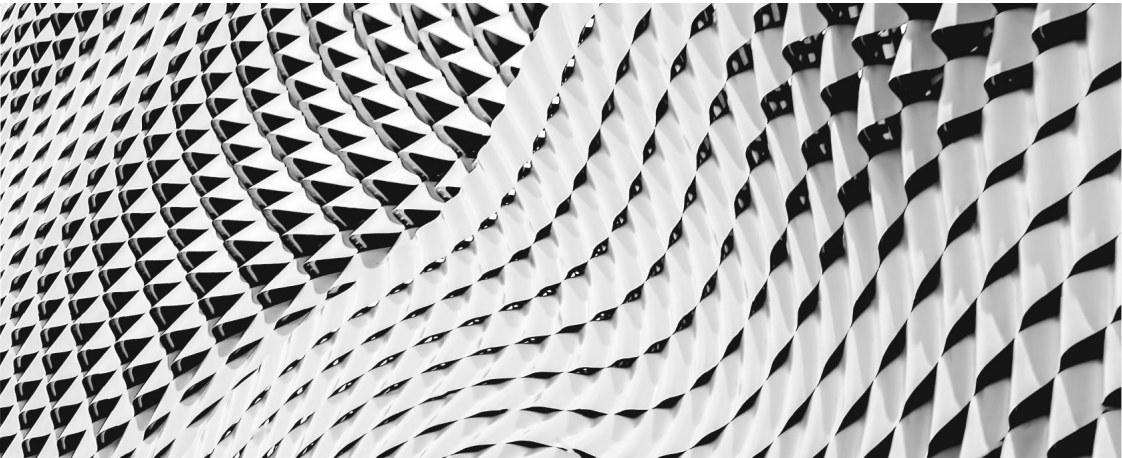
Little config based installs

- **Lutris**
- **Bottles**

Least config based installs

- **Android Phones**
- **Steam Deck**

Yes, it certainly is **PERFORMANT***



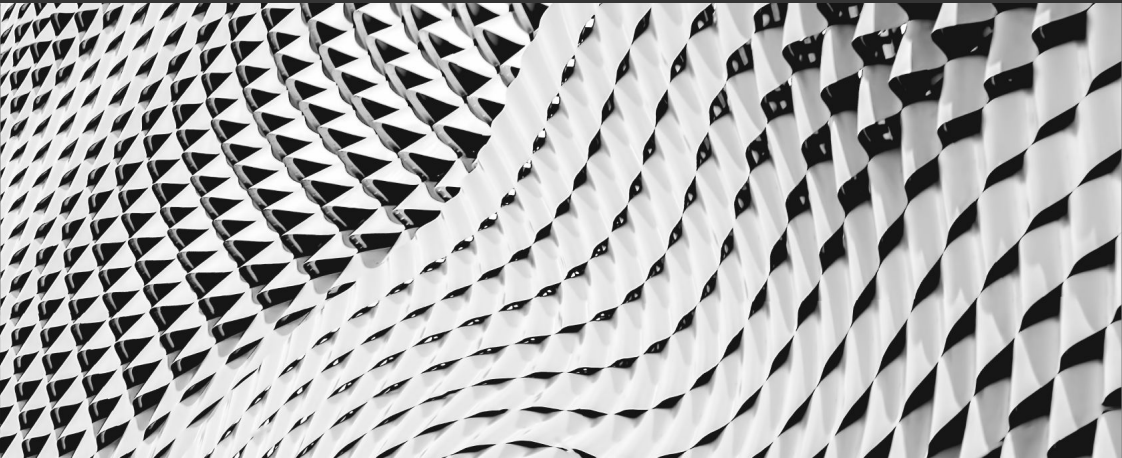
Supported videogames
perform in an average at least
15-30% better*
than other operating systems

Near native speeds are
achieved with the use of
virtualization
of a hardware

But wait a minute, if it is popular, convenient and performant

Why do you have those asterisks there?

Popular but with a tiny market share



- Market share of **around 1.38%*** in recorded gaming usage
- Other uses go **unaccounted for** in no telemetry
- Third-party devs with **tiny native builds** for Linux distributions

Hesitant with the popularity

for a valid reason



“Umm... Linux Gaming is nice and all but all my friends actually play their videogames on Windows so I can't quite... Sorry!!!!”



Person Unknown
Some Battle Royale fan

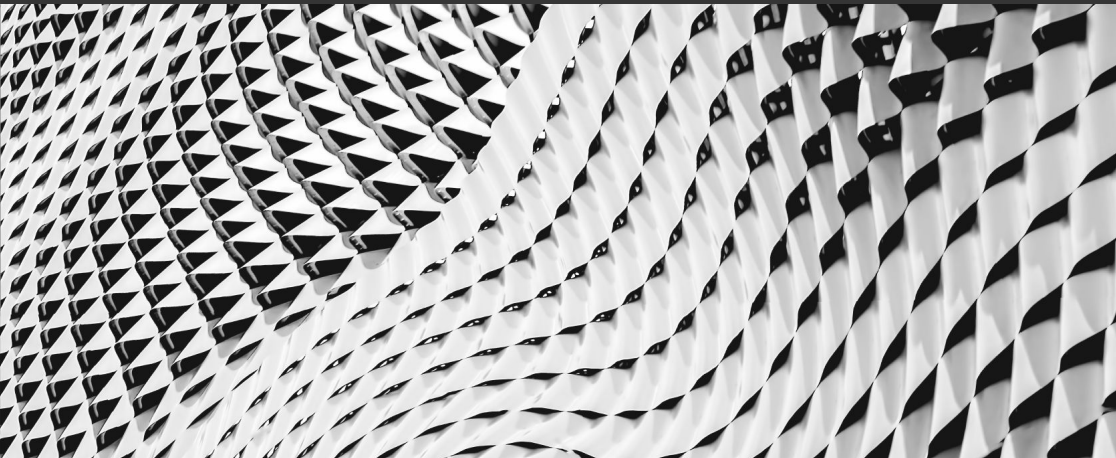


“Noo... I tried to install the videogame, tried to run it right after and bam... the stupid anti-cheat does not let me through!!!!”



Player Anonymous
Some Racing enjoyer

Convenient but difficult at the same time



- Few videogames run **as is** without any major tweaking for running.
- Some videogames need **extensive config** for them to work the way they should.
- Few videogames do **not work** because the devs do not want them to.

Uncomfortable with the convenience

for a valid reason



“Look, I tried to follow through all the steps that you mentioned – but there is so many of them and I barely get some time to play”

—

Person NoName
Some Adventure fan

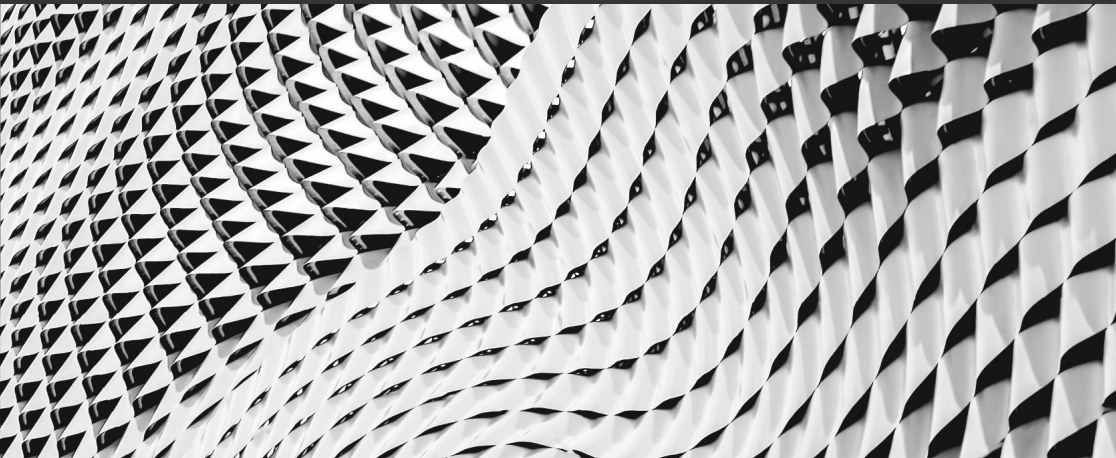


“I am gonna settle for the performance because I do not want to keep trying DXVK releases and WINE versions to tailorfit this”

—

Player Redacted
Some Stealth enjoyer

Performant but takes time to be one



- One WINE distribution can **run comfortably** some videogames.
- The same WINE dist will **not work at all** for other videogames.
- Some publishers **do not support** execution on modified env.

Unsatisfied with the performance

for a valid reason



“Woah... Look at these framerates! This almost twice as much as I get on other devices but what is with this artifacting?”



Person Who
Some Action fan



“You know, there used to be a native version of the videogame created for Linux distributions but they pulled it out!”



Player Stranded
Some Strand-type enjoyer

But hold on a sec! If it is all complains now

Have we not been doing a good work?

Quite the opposite actually, to be honest

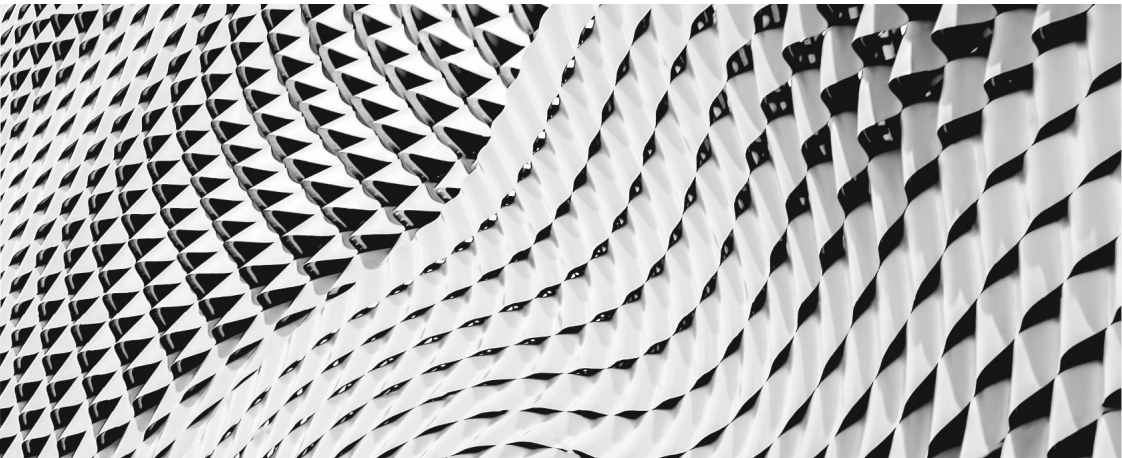
The community has been doing a great job

But with the silver lining and all

There are things that we can do better

Establish reliable userbase metrics for developers

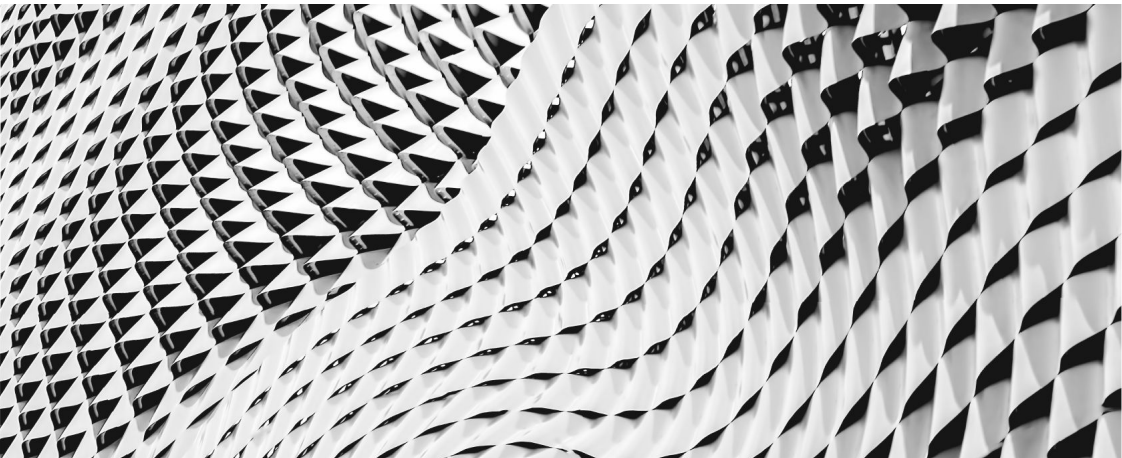
[1 of 6] (Helps popularity)



- People know about those who play videogames with Steam PC and Steam Deck.
- Do they know about those who play on Lutris, Bottles or emulators?
- Is telemetry really as bad as we make it sound or can we do something?

Account for the feedback and promote participation

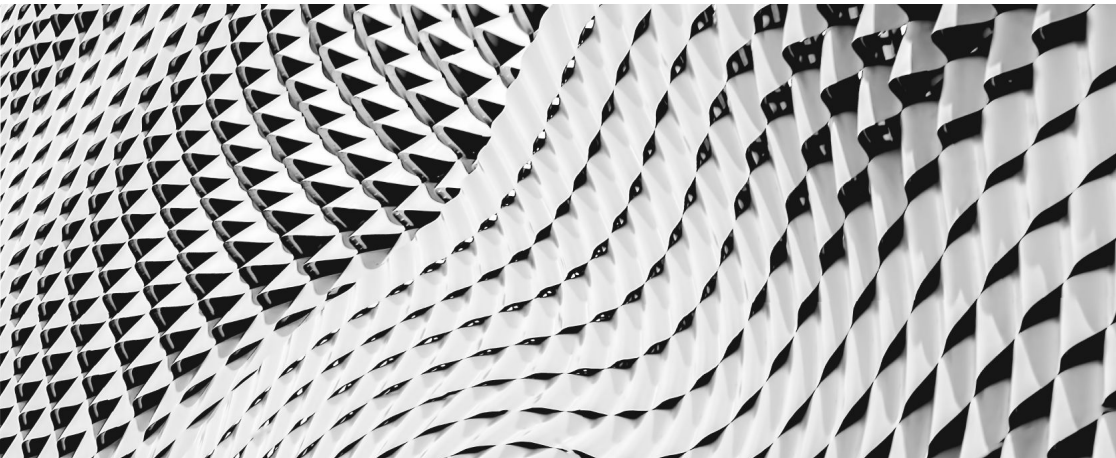
[2 of 6] (Helps popularity)



- The users should be able to decide what advancements a tooling should have.
- An empathetic perspective of the users would help understand the requirements.
- If people are heard and communicated to, they would be more inclined to contribute.

Evaluate the usability of the tools we have

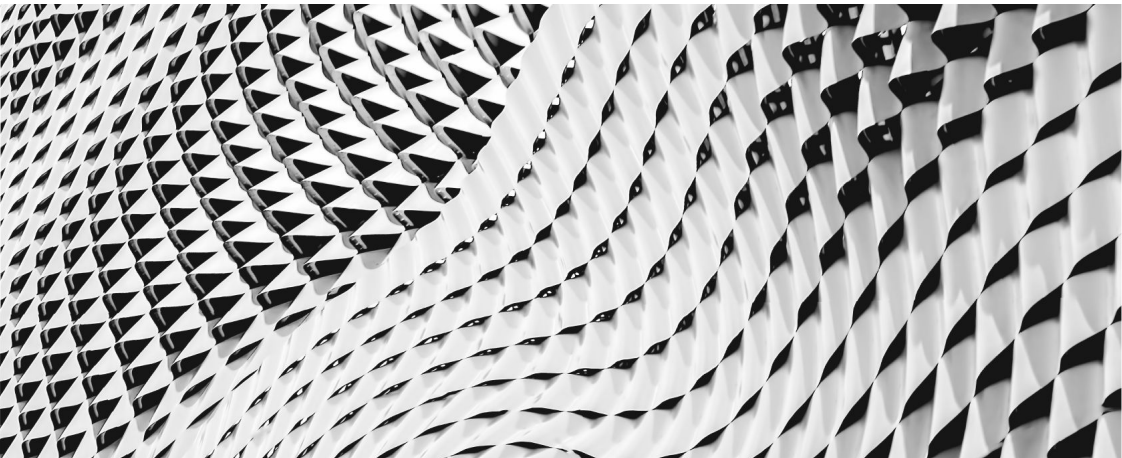
[3 of 6] (Helps convenience)



- It does what it is supposed to do - why bring about a change to our tooling?
- If it is not easy to find or easy to make, we cannot expect people to work on it for videogames.
- Can we make it convenient so that people can focus only on their videogames?

Abstract the complex but open for the curious

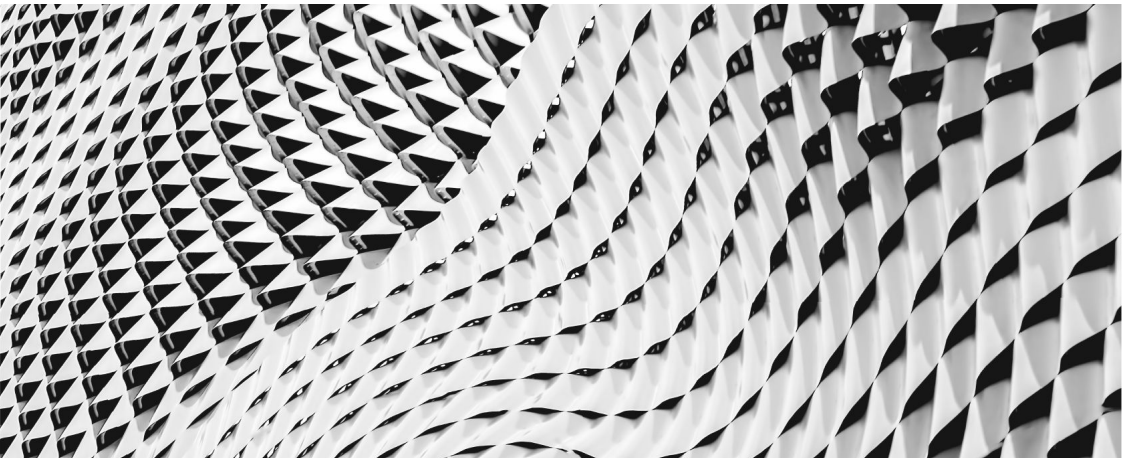
[4 of 6] (Helps convenience)



- Having the ability to customize from the get-go is cool for those who need it.
- But show those dials to folks who want things easy and you might scare them away.
- It is important to strike the balance between what is simple and what is complicated.

Package as much tools and services needed

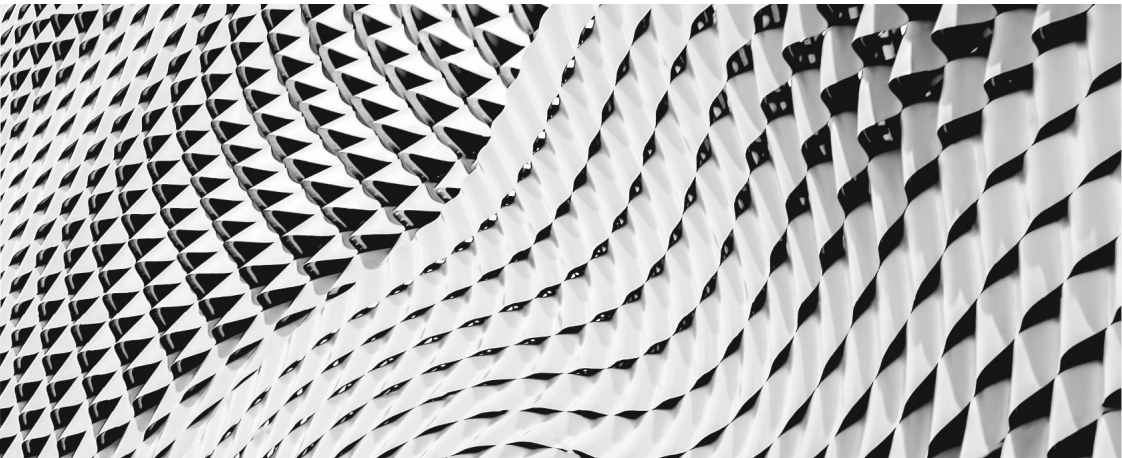
[5 of 6] (Helps performance)



- Drivers, Codecs, Kernel Modules, Services, Shaders and everything else in between!
- People are here to play videogames and not build software from source.
- Availability of support natively paves way for user retention in a GNU/Linux distro.

Build standard workflows to test and quantify conduct

[6 of 6] (Helps performance)



- A standard benchmarking workflow would be able to reliably test videogames.
- Helps detecting frame rate inconsistencies and visual artifacting even in apparent goodness.
- If people know that distributions provide for a better experience, they would use it.

Now let us look into how things are

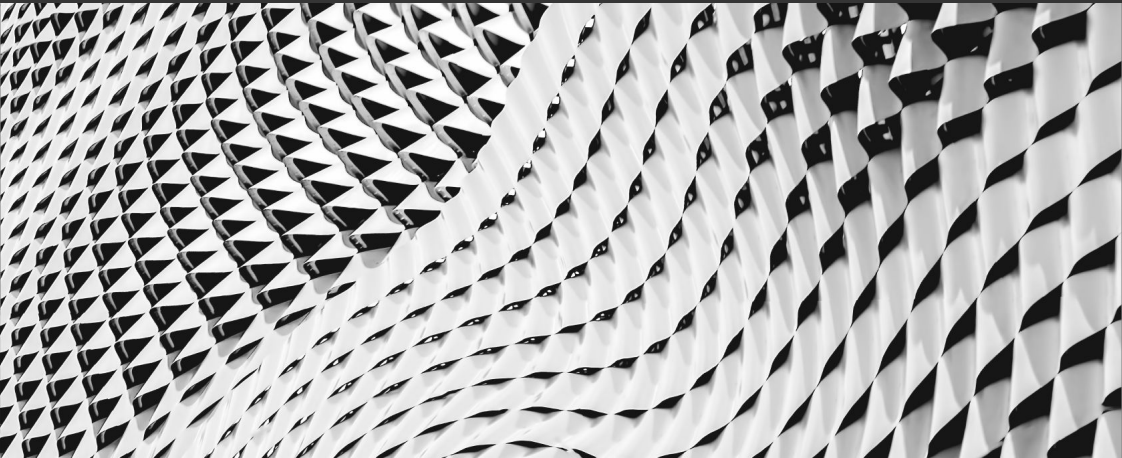
In our case study of Fedora Workstation

Platform of choice to extend your own



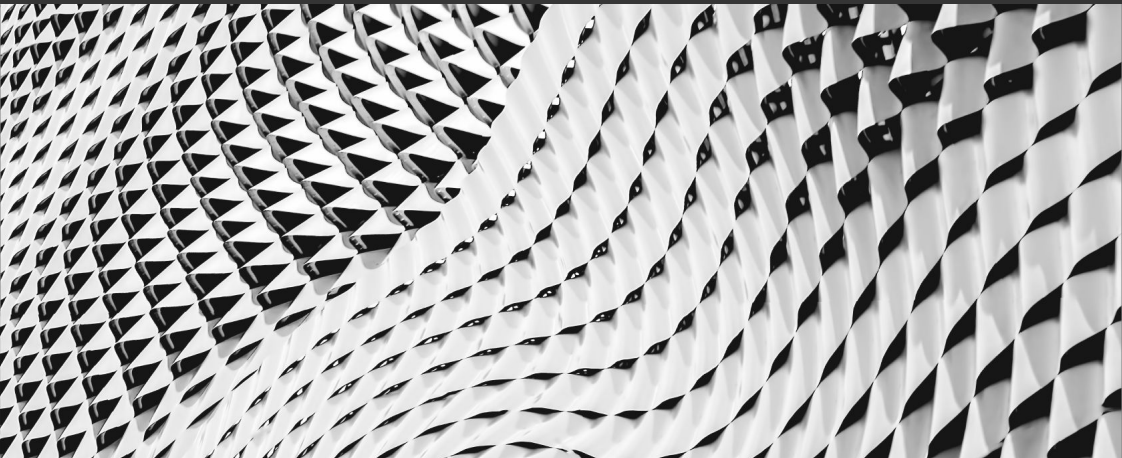
- Projects like Nobara Workstation have extended the base Fedora Linux provides.
- Meaningful additions ensure that it becomes accessible for folks to play their videogames.
- Heavily popular among developers working on the Bottles and Lutris for the leading-edge nature.

Required tooling are readily available



- The open-source AMD drivers work out of the box and RPM Fusion repos provide for NVIDIA drivers.
- Bottles is available as a Flatpak and Lutris is available as an RPM package in official repos.
- The default GNOME desktop keeps the workflow smooth and unintrusive.

Consistently performant across the board



- Supported videogames work extremely well with configurations done right and in a modular manner.
- The latest and greatest versions of kernel and the software are made available for trying out.
- Customizable enough to further minimize the footprint to dedicate resources to videogames.

Thank you!


We would love to answer your questions.

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