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Interview Question

Software Development Engineer Interview Mountain View, CA

"What happens when you type www.google.com in your browser?"

Tags: vv, frfwv, fr, vrv, vevreve

Answer | Add Tags



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What Happens When You Type 'https://www.google.com' Into A Browser And Press Enter?



Jeremy Antonio [Follow](#)

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To answer this question simply:

1. The URL (`https://www.google.com`) gets entered into a web browser
2. The browser matches the domain name to an IP address through a DNS
3. The browser sends an HTTP request to the server hosting the IP address
4. The server host returns a HTTP response to the client
5. The response carries a data packet that holds HTML file
6. Once the packet reaches the client's browser it starts rendering the HTML
7. This process repeats for each object embedded in HTML
8. After it loads all the objects from the HTML file, the browser sends further async requests as needed or as requested by the client

Now what does all of these really mean? And what is up with all of these acronyms? Let's go through these steps one-by-one.



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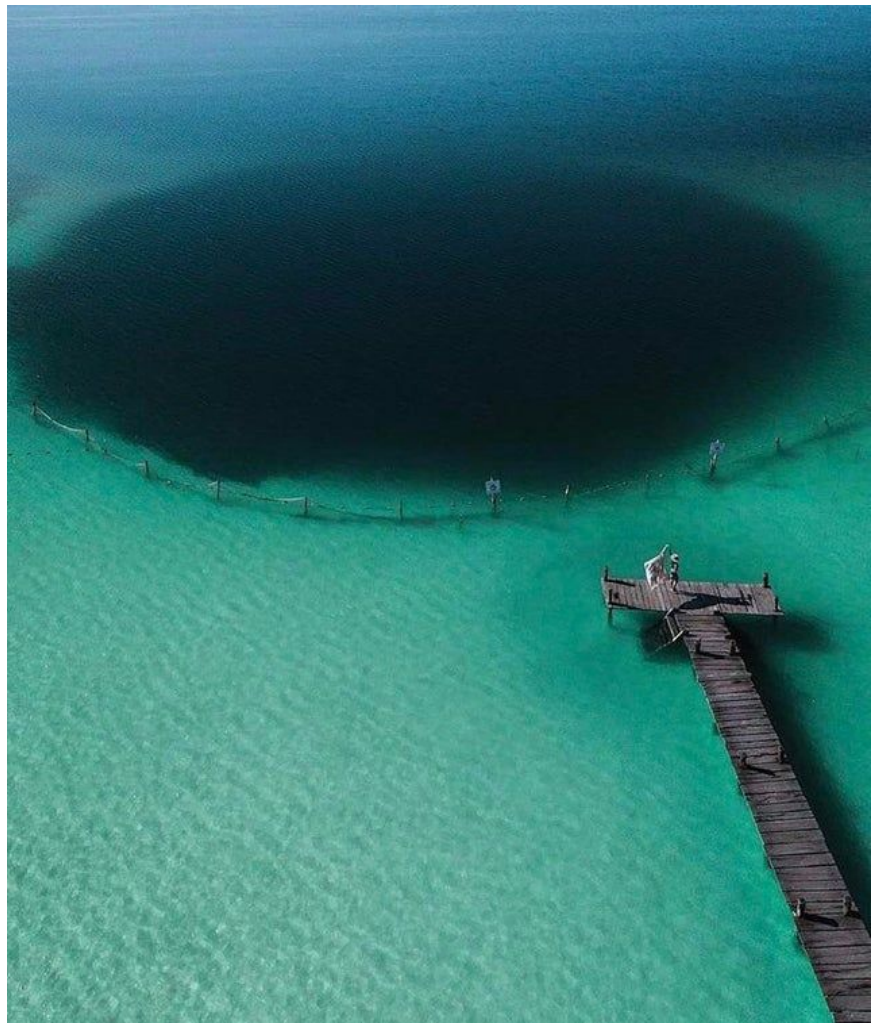
Any sufficiently advanced technology is
indistinguishable from magic.

Any technology you don't understand is,
to you, indistinguishable from magic.

Any technology you understand
is decidedly not magic.



Garbage by Maxim Kulikov from the Noun Project





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Up to “Enter”

8. After it loads all the objects from the HTML file, the browser sends further async requests as needed or as requested by the client

Now what does all of these really mean? And what is up with all of these acronyms? Let's go through these steps one-by-one.

There is a problem.

There are two problems.

Number one:

Specifics.

My Laptop.

Yoga 2 13

Ubuntu 18.04.3 LTS in
default configuration

Firefox 70.0.1

Running as Snap

Focus on address bar

Number two:

Depth.











Even after the answer is given, the phenomenon is still a mystery and possesses the same quality of wonderful inexplicability that it had at the start.

- Mysterious Answers to Mysterious Questions

1. The key with the “h” label is pressed

1. The key with the “**g**” label is pressed

1. The key with the “g” label is pressed.

99. The screen shows a pattern you recognise as a “g”.

The key
labeled
“g” is
pressed

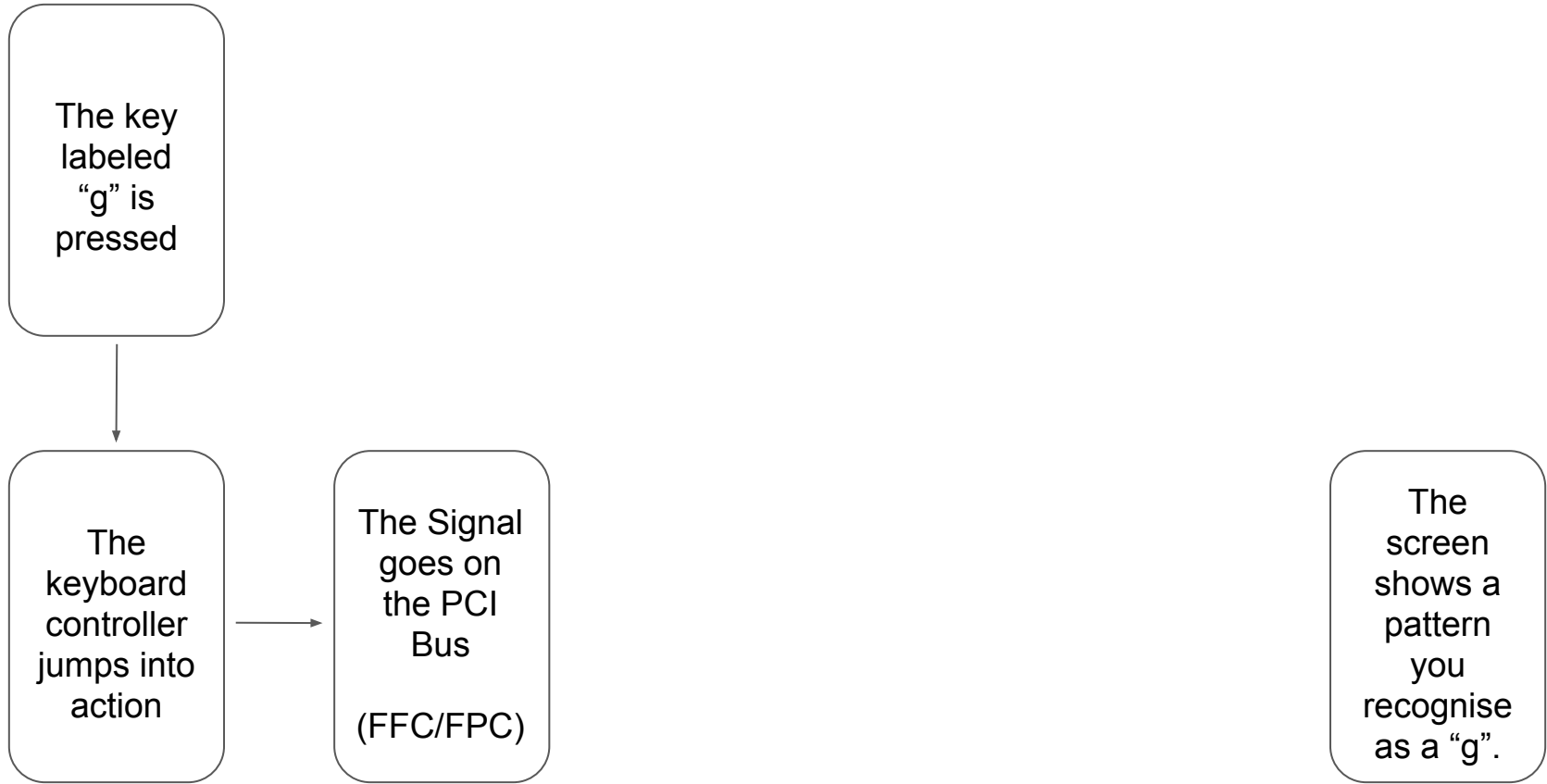
The
screen
shows a
pattern
you
recognise
as a “g”.

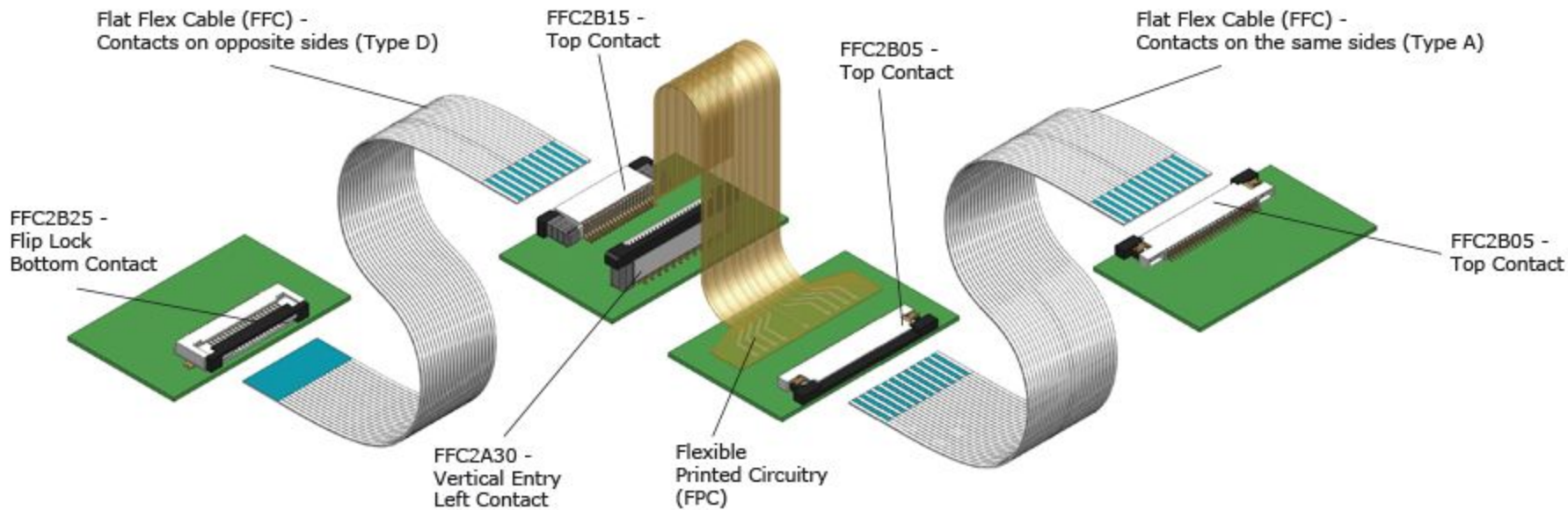
The key
labeled
“g” is
pressed

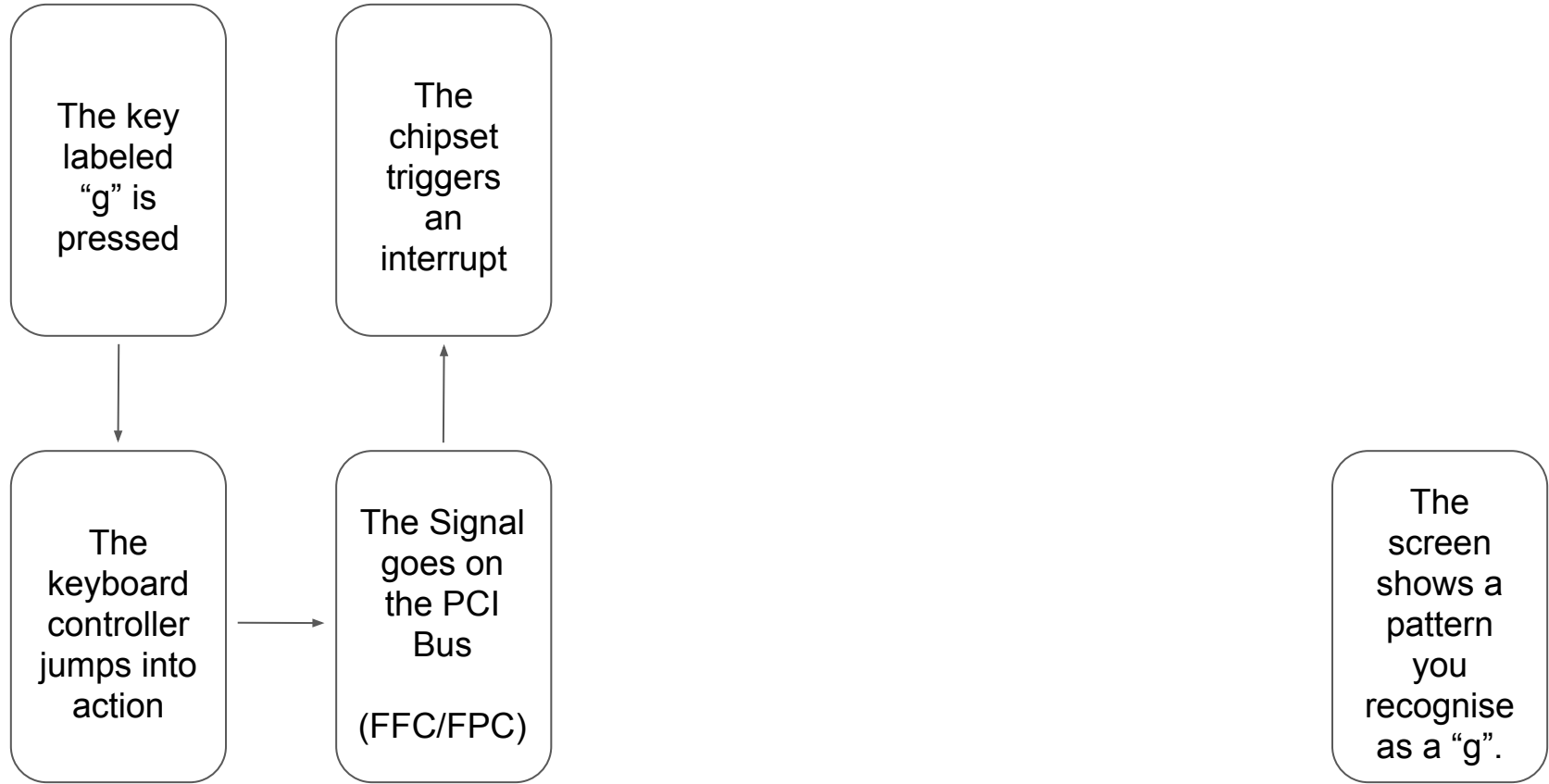


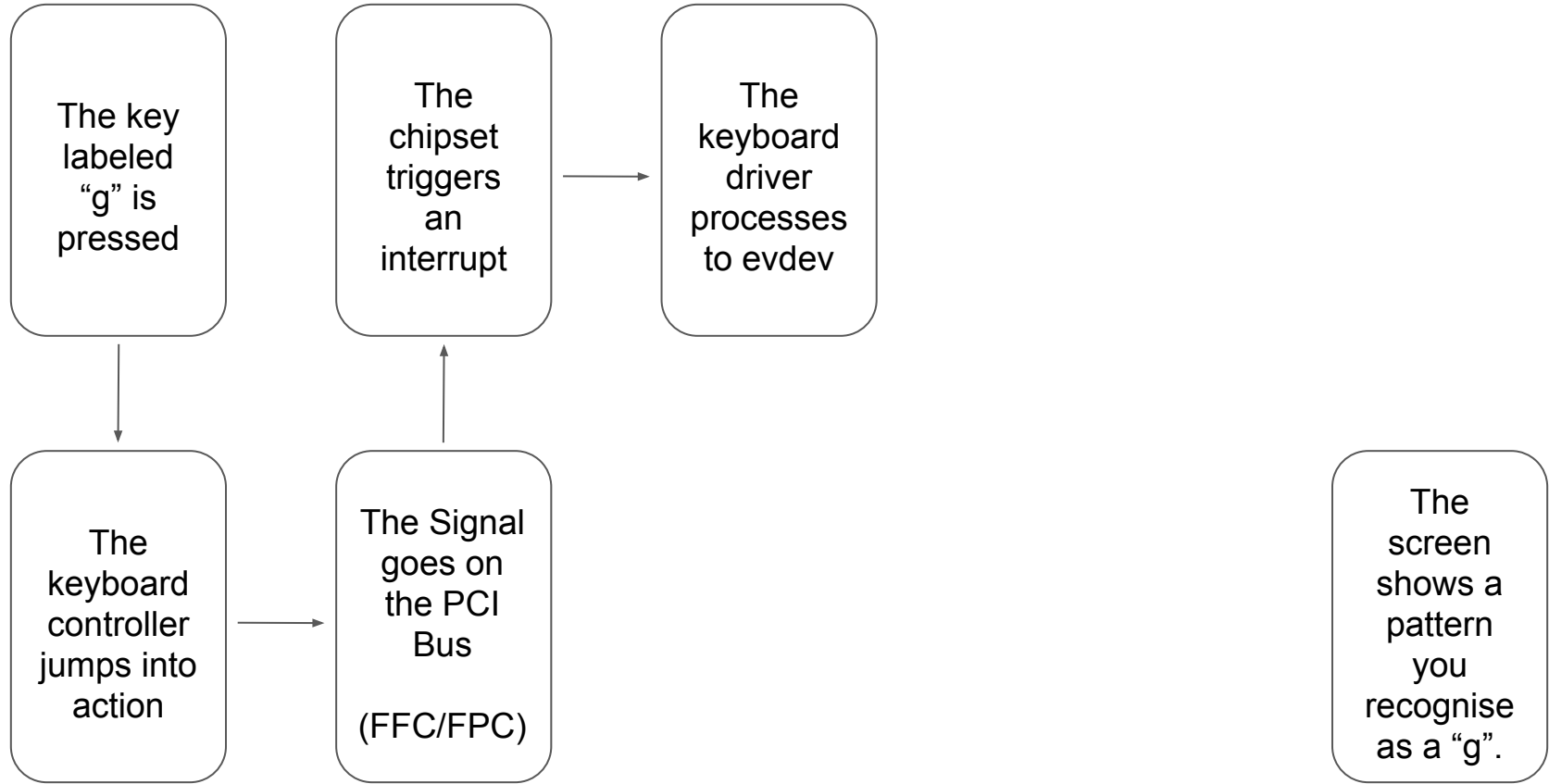
The
keyboard
controller
jumps into
action

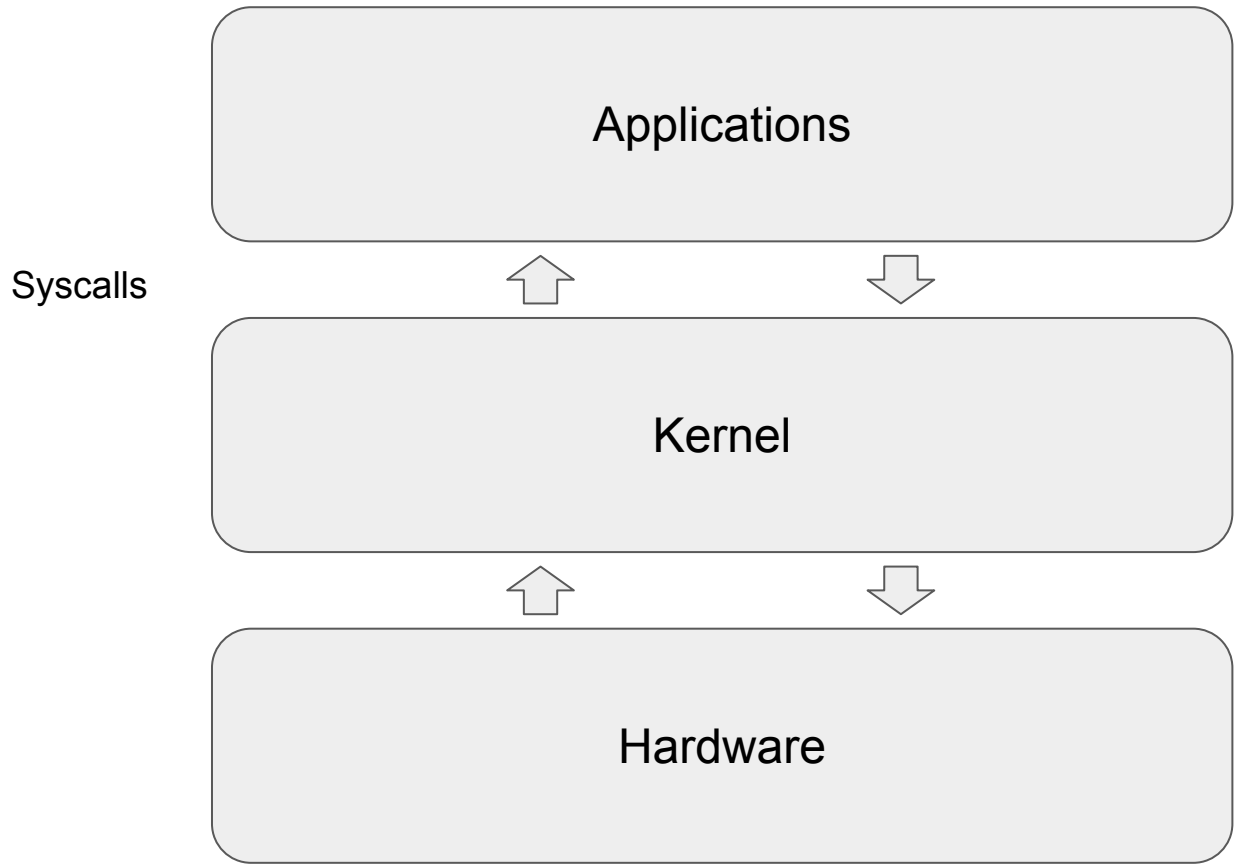
The
screen
shows a
pattern
you
recognise
as a “g”.

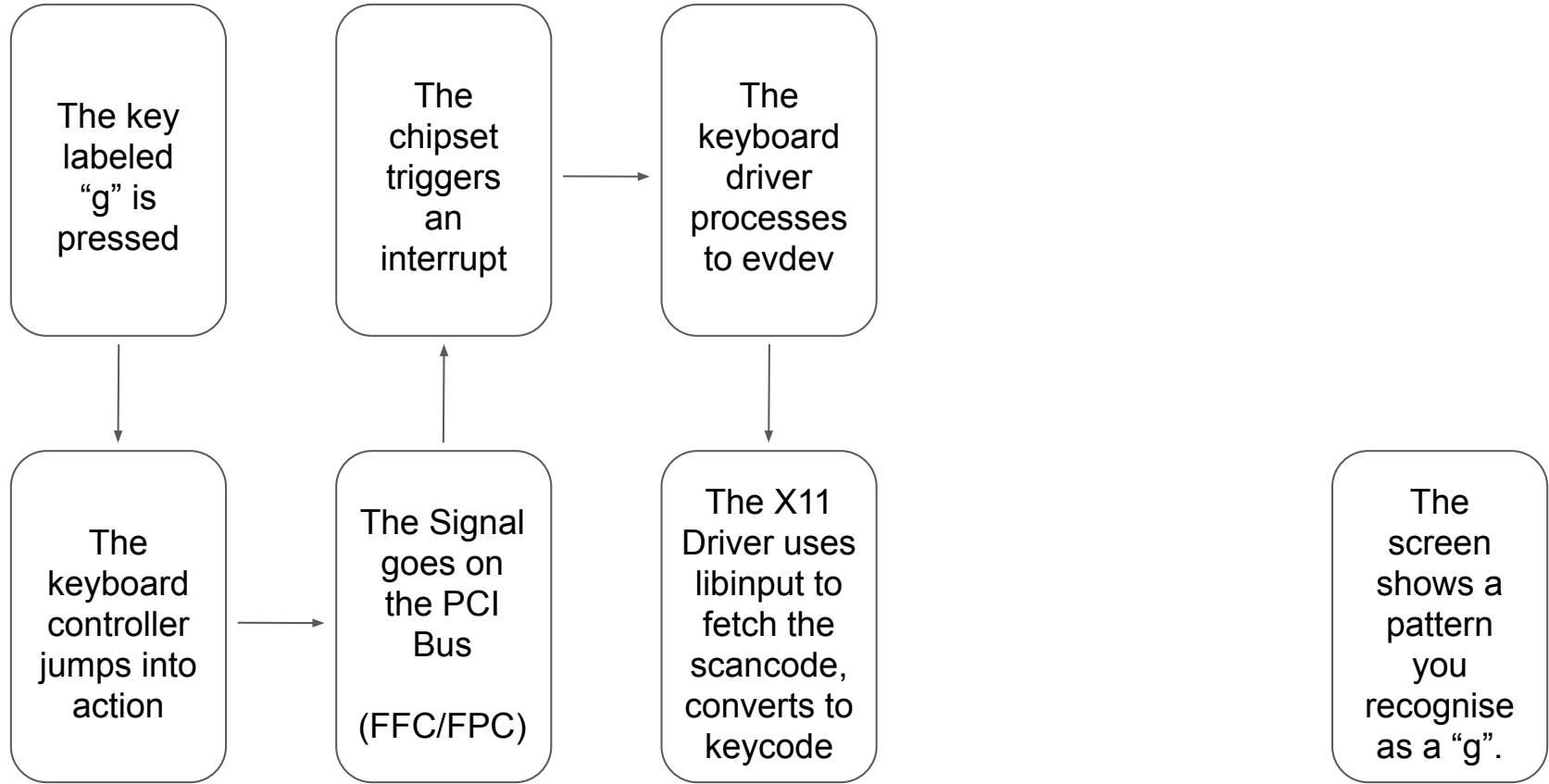


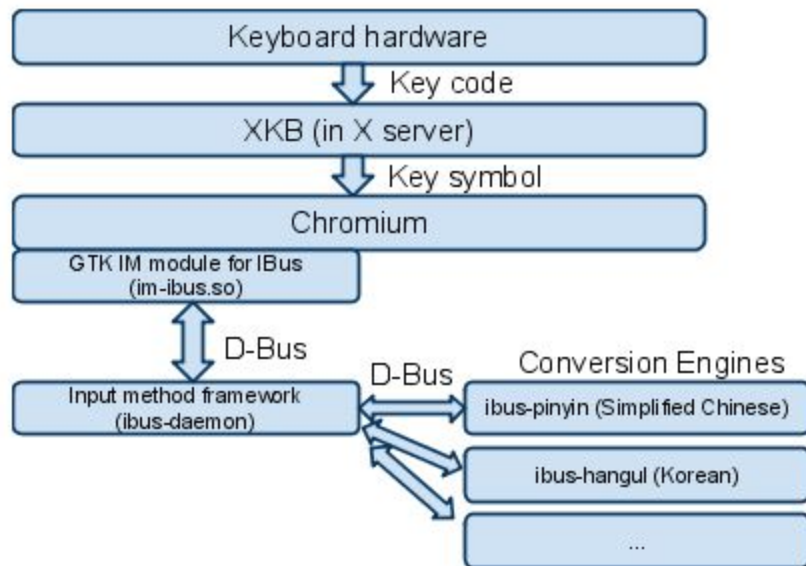


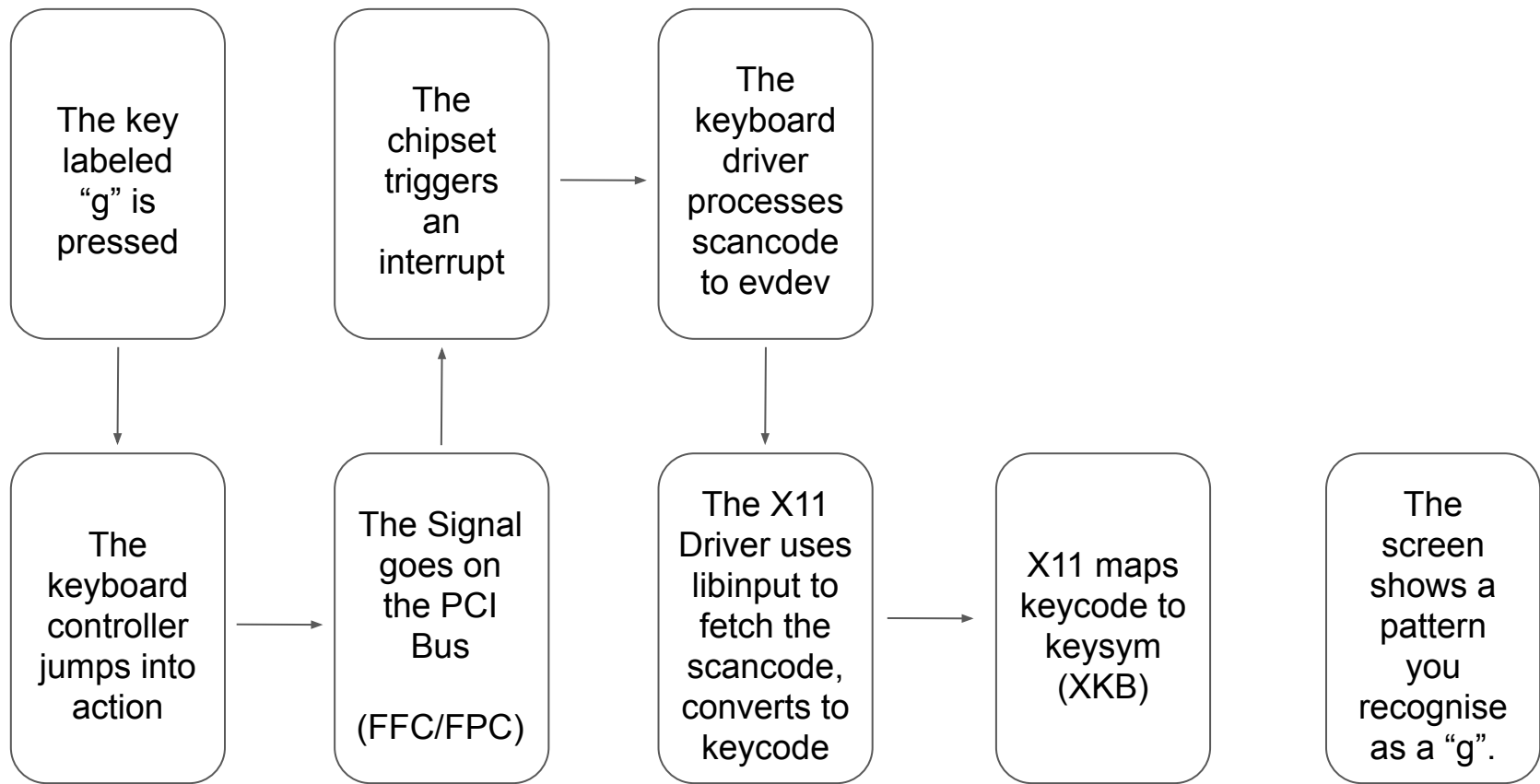


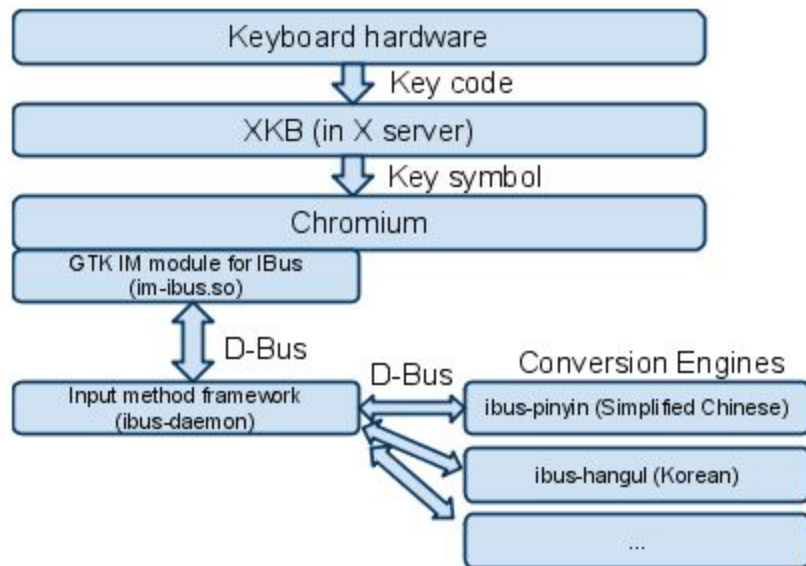


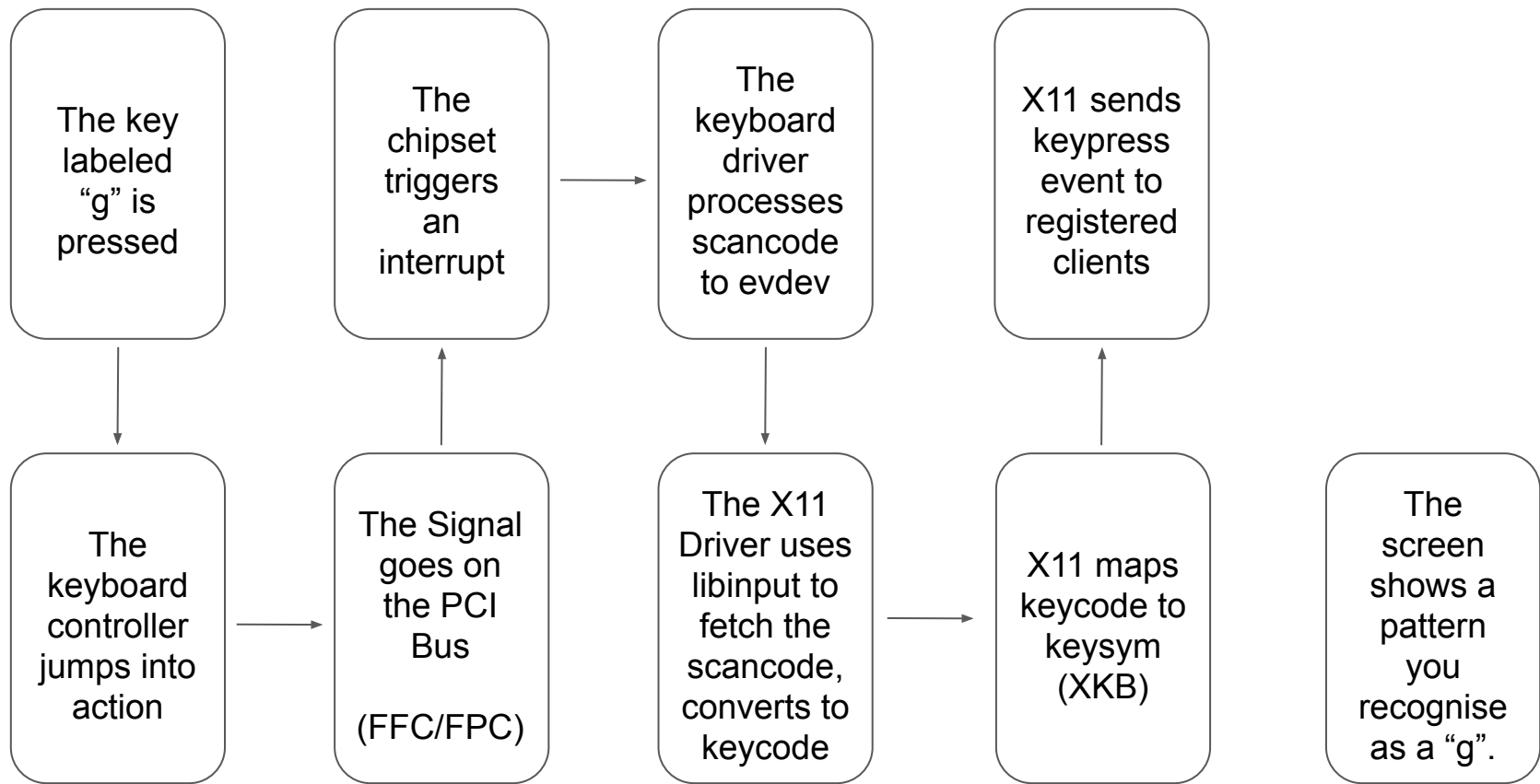


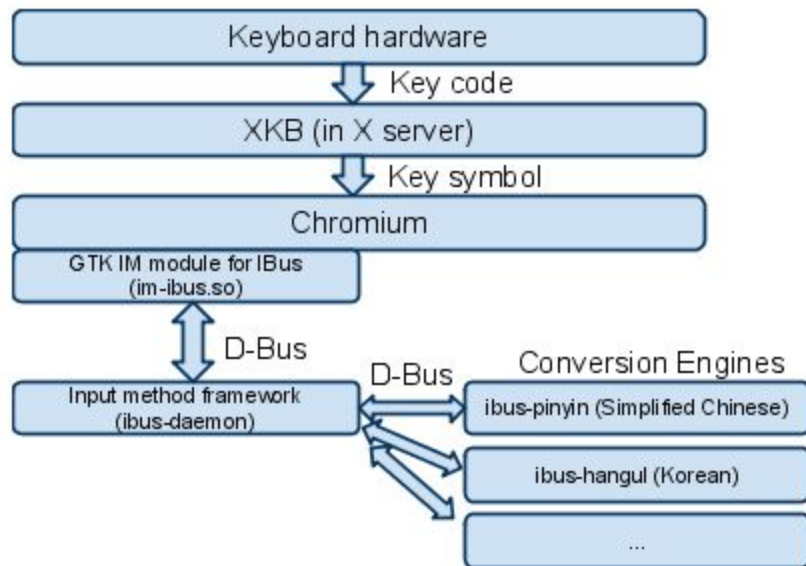


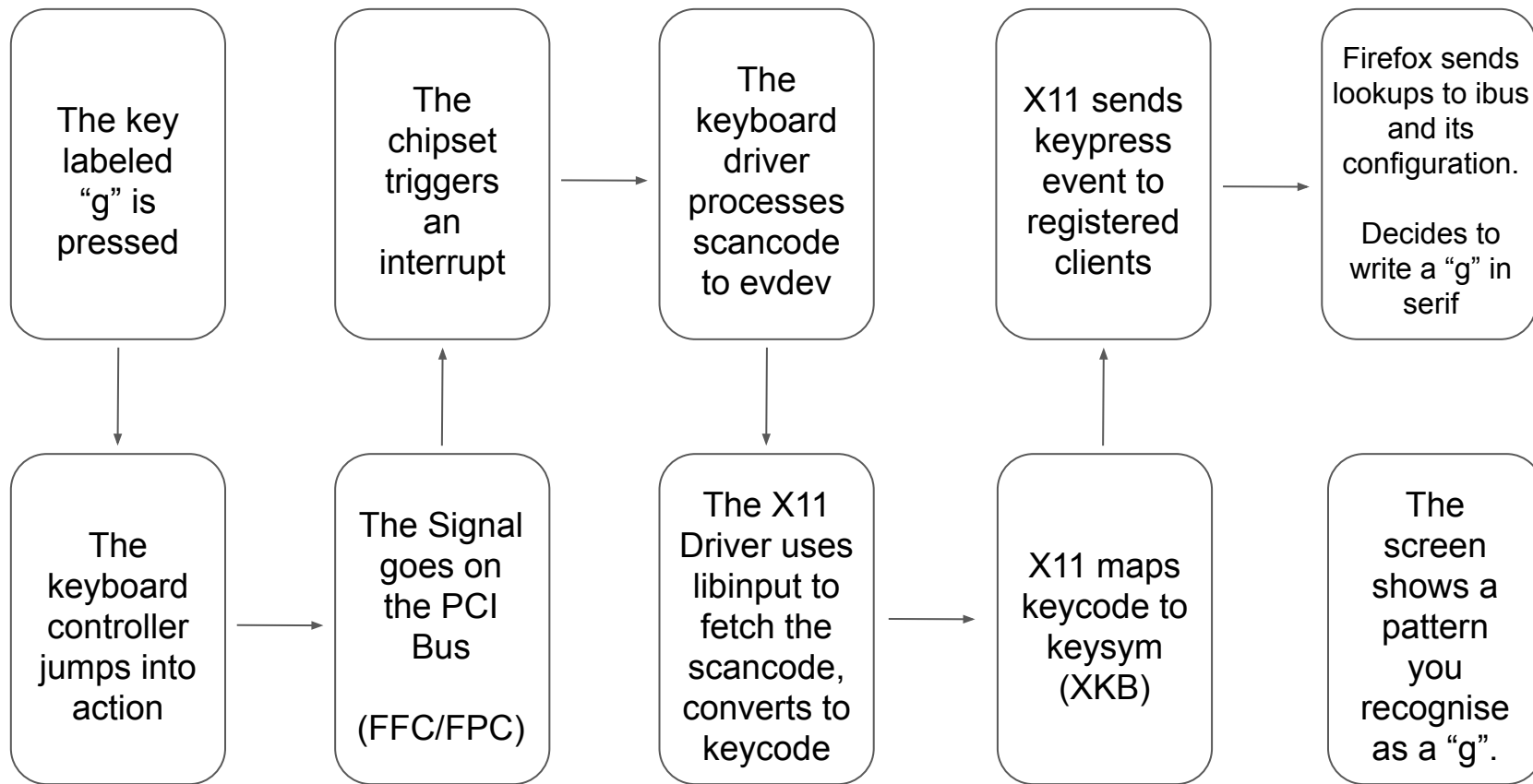


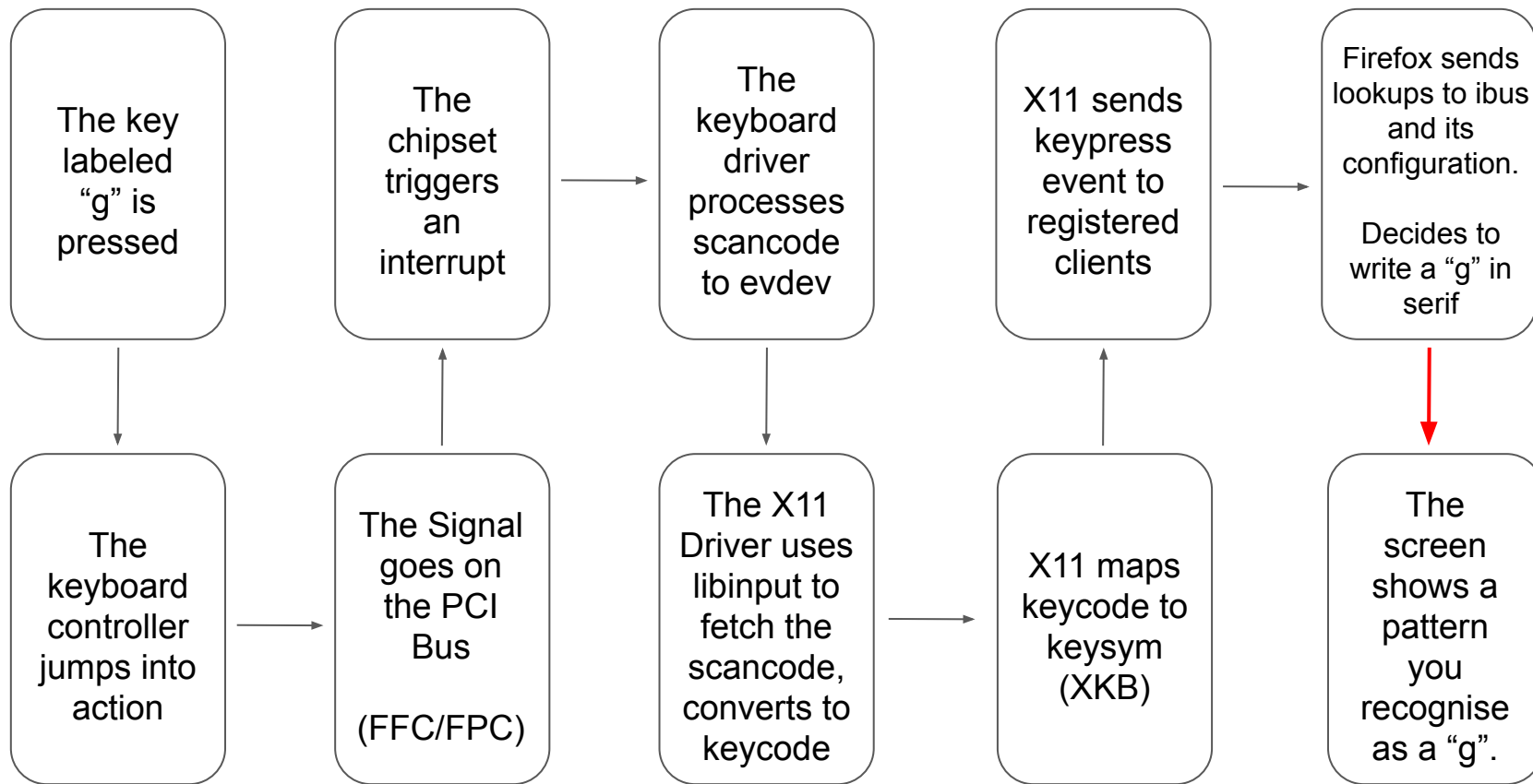


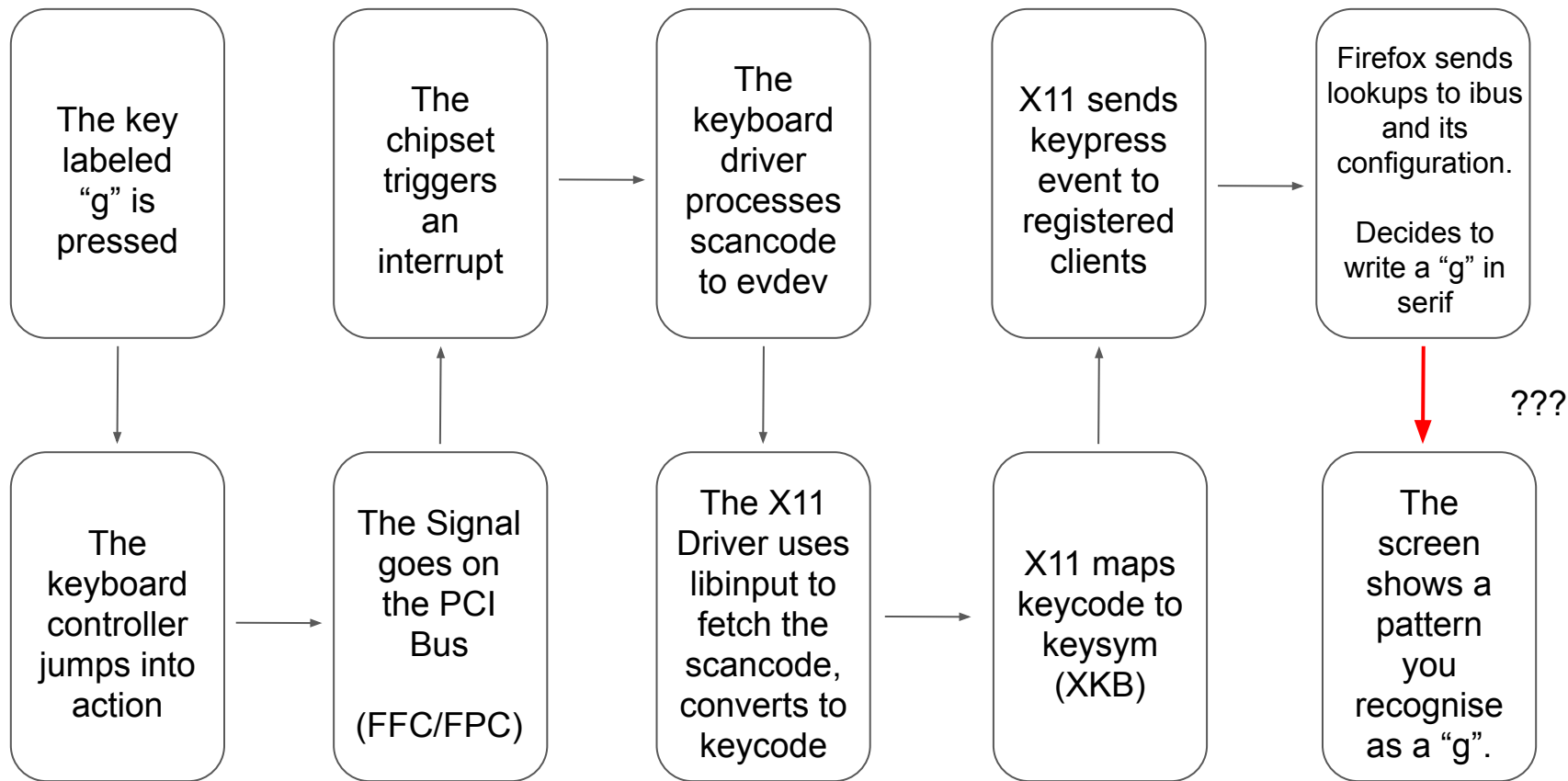















Firefox
decides to
write a “g”,
serif

The
screen
shows a
pattern
you
recognise
as a “g”.

```
graph TD; A[Firefox decides to write a "g", serif] --> B[Harbuzz, looks up Fontconfig]; C[The screen shows a pattern you recognise as a "g".];
```

Firefox
decides to
write a “g”,
serif

Harbuzz,
looks up
Fontconfig

The
screen
shows a
pattern
you
recognise
as a “g”.

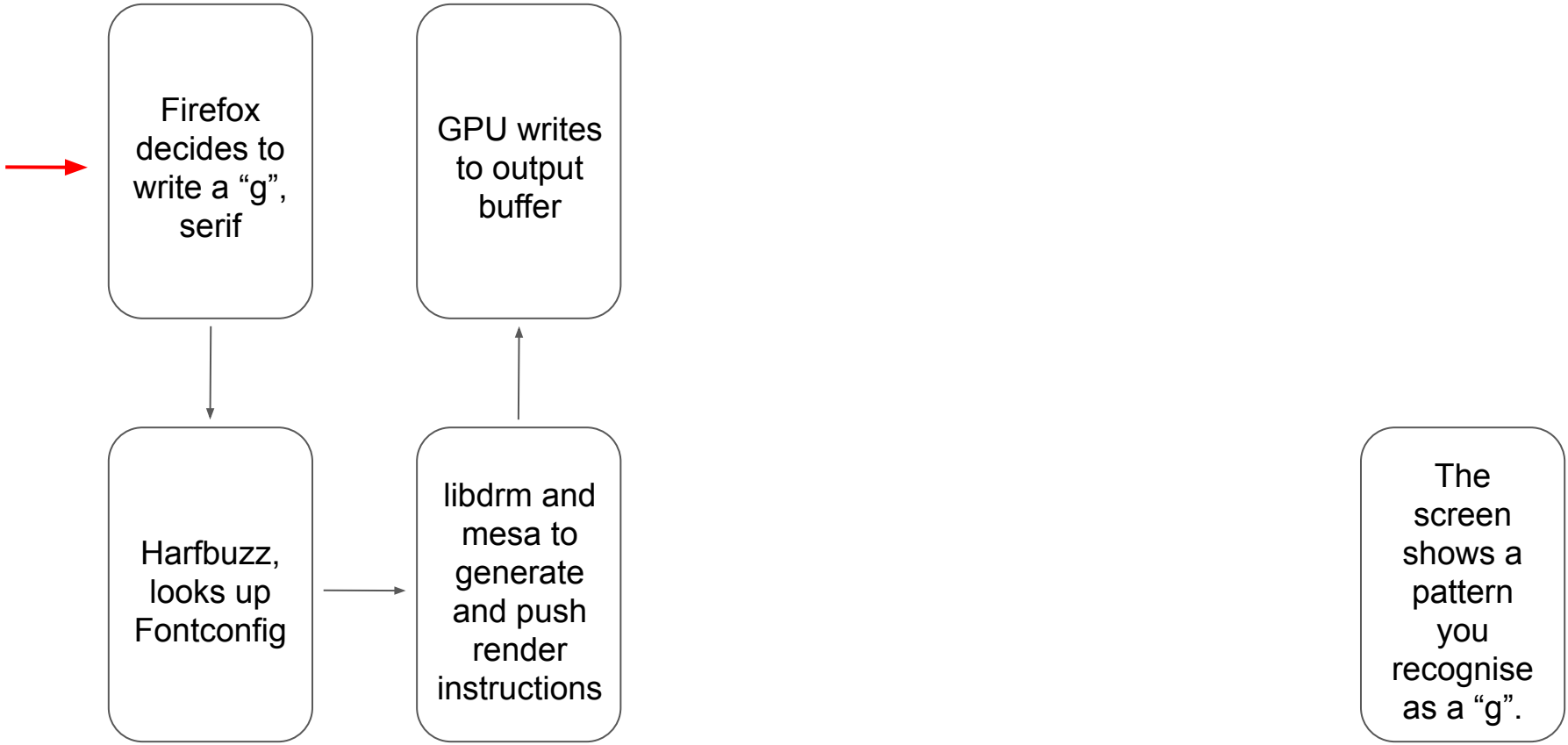
```
graph TD; A[Firefox decides to write a "g", serif] --> B[Harfbuzz, looks up Fontconfig]; B --> C[libdrm and mesa to generate and push render instructions]; C --> D[The screen shows a pattern you recognise as a "g".];
```

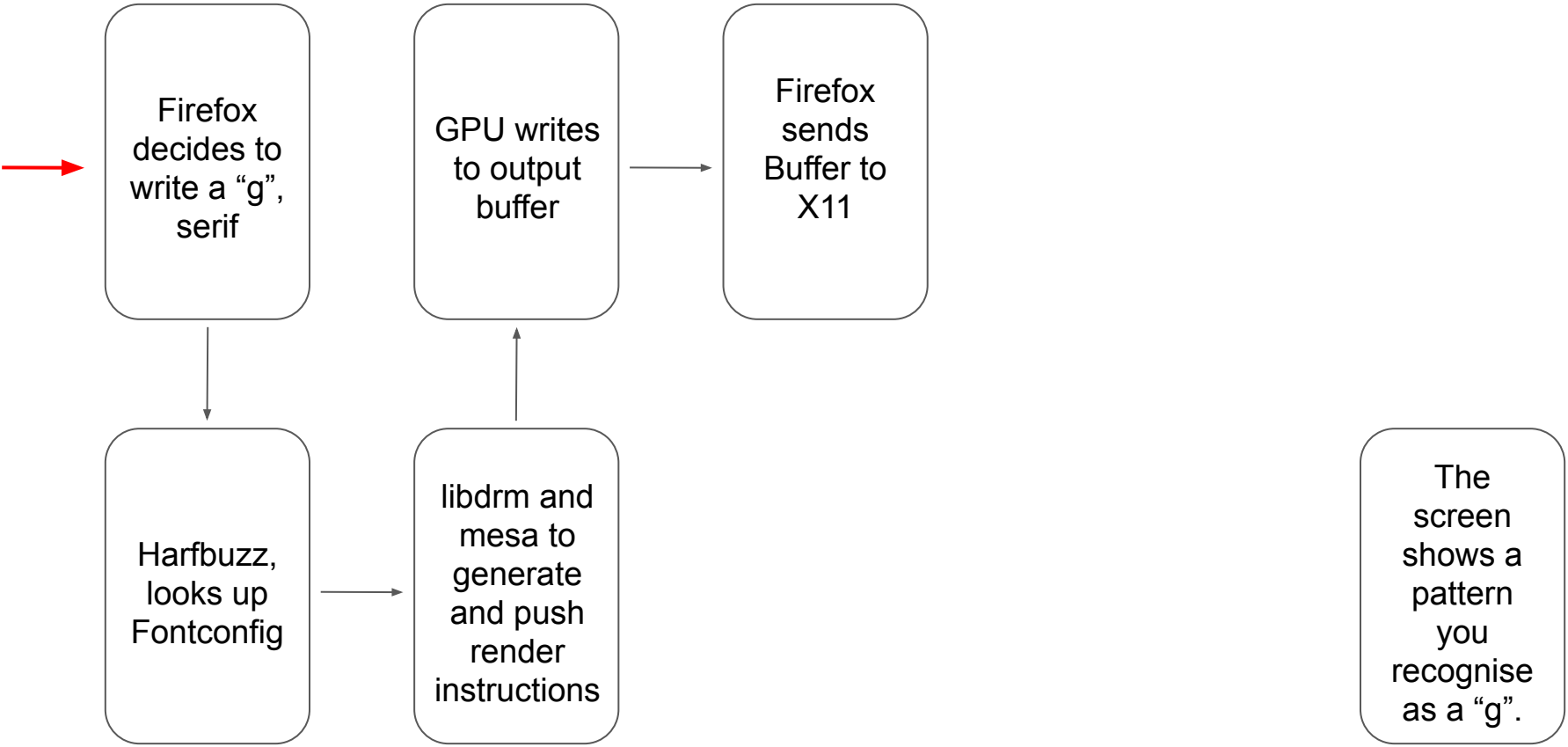
Firefox
decides to
write a “g”,
serif

Harfbuzz,
looks up
Fontconfig

libdrm and
mesa to
generate
and push
render
instructions

The
screen
shows a
pattern
you
recognise
as a “g”.







Firefox
decides to
write a "g",
serif

GPU writes
to output
buffer

Firefox
sends
Buffer to
X11

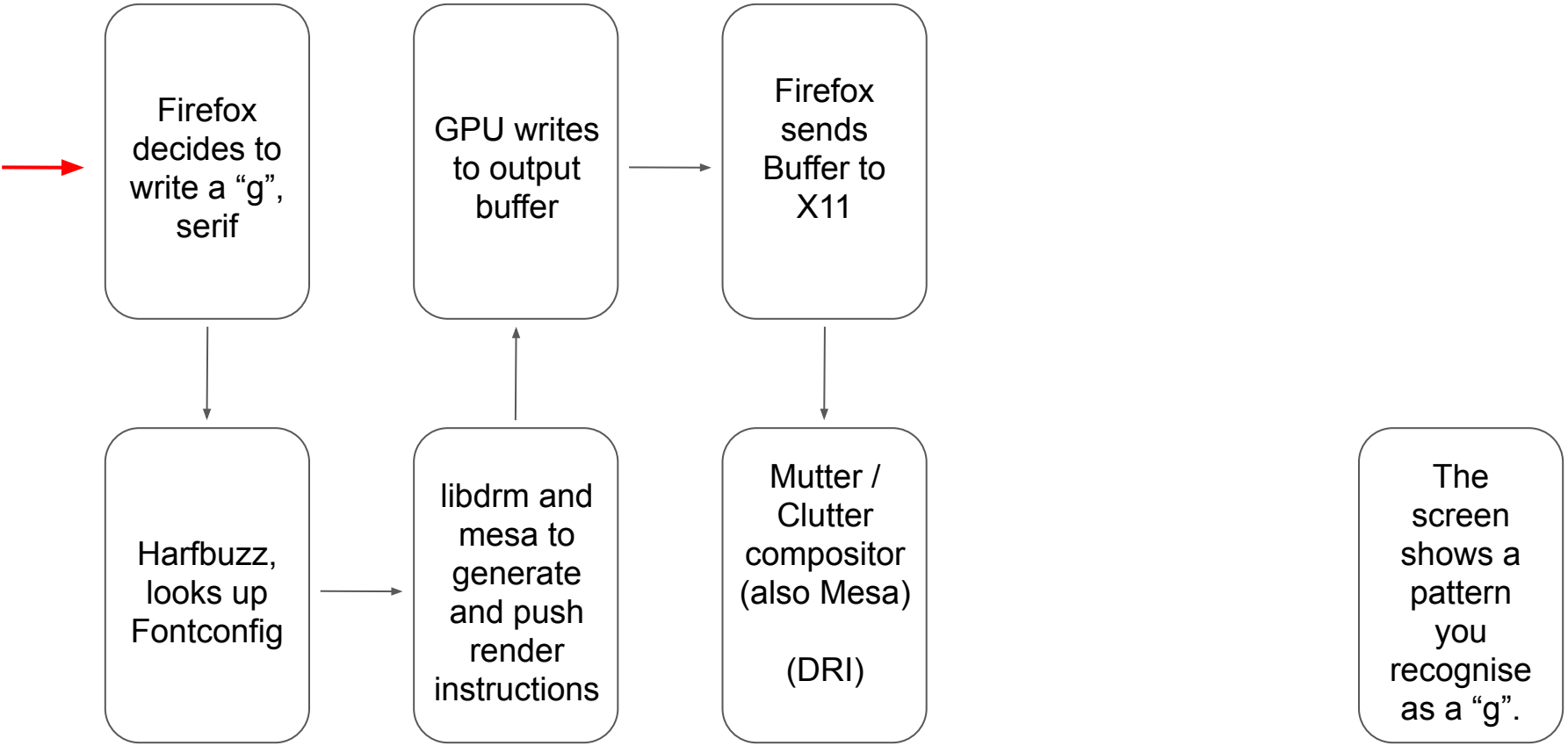
Harfbuzz,
looks up
Fontconfig

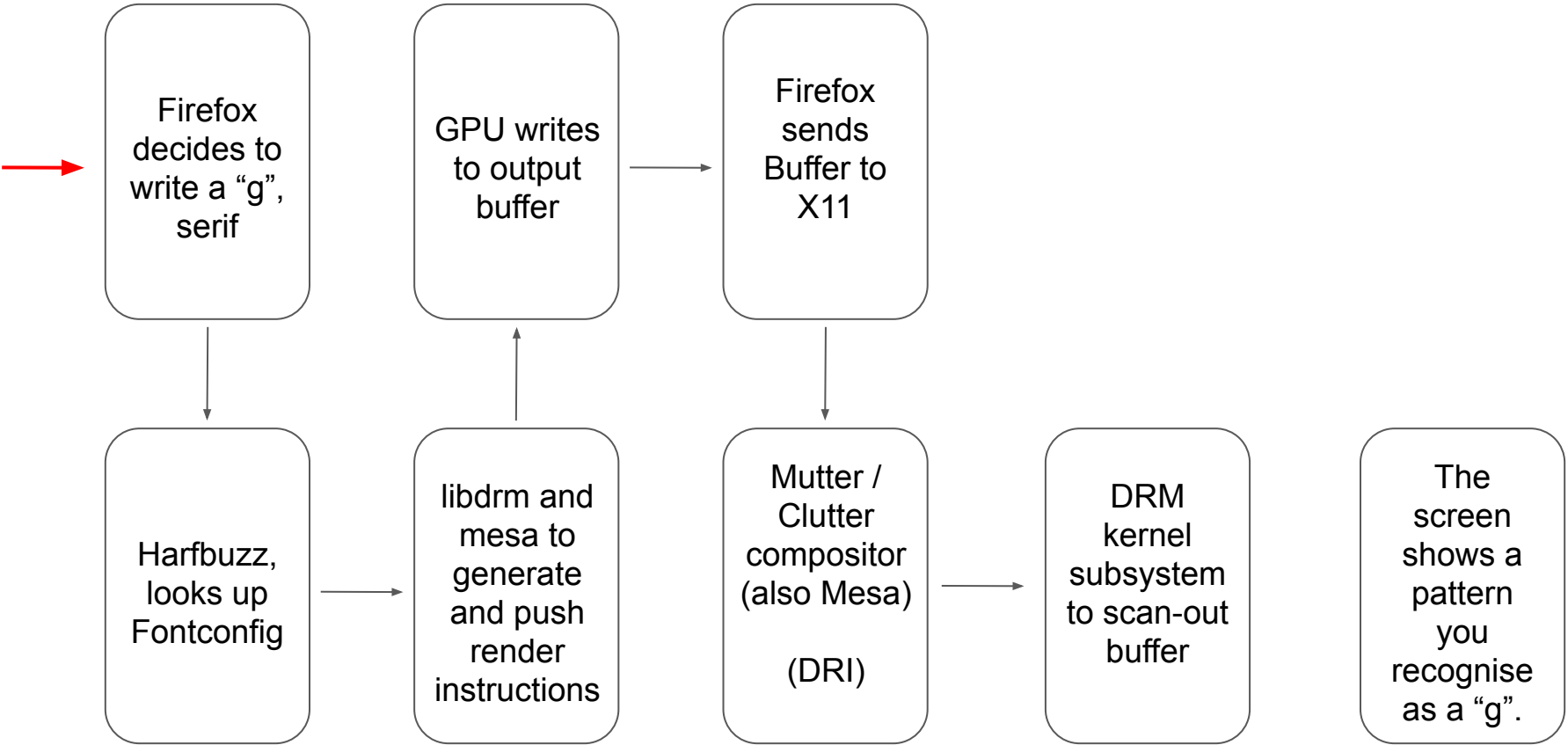
libdrm and
mesa to
generate
and push
render
instructions

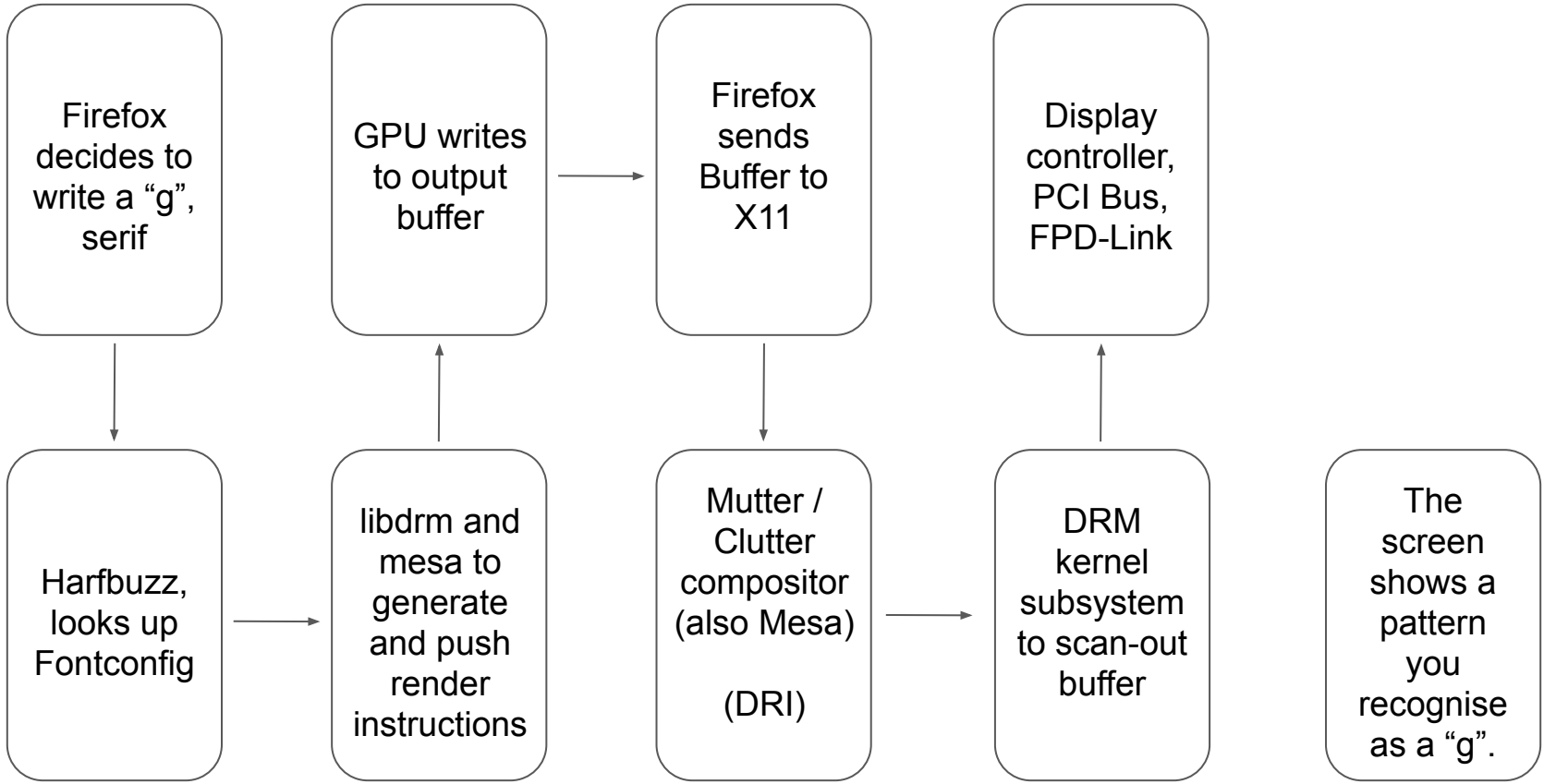
Mutter /
Clutter
compositor
(also Mesa)

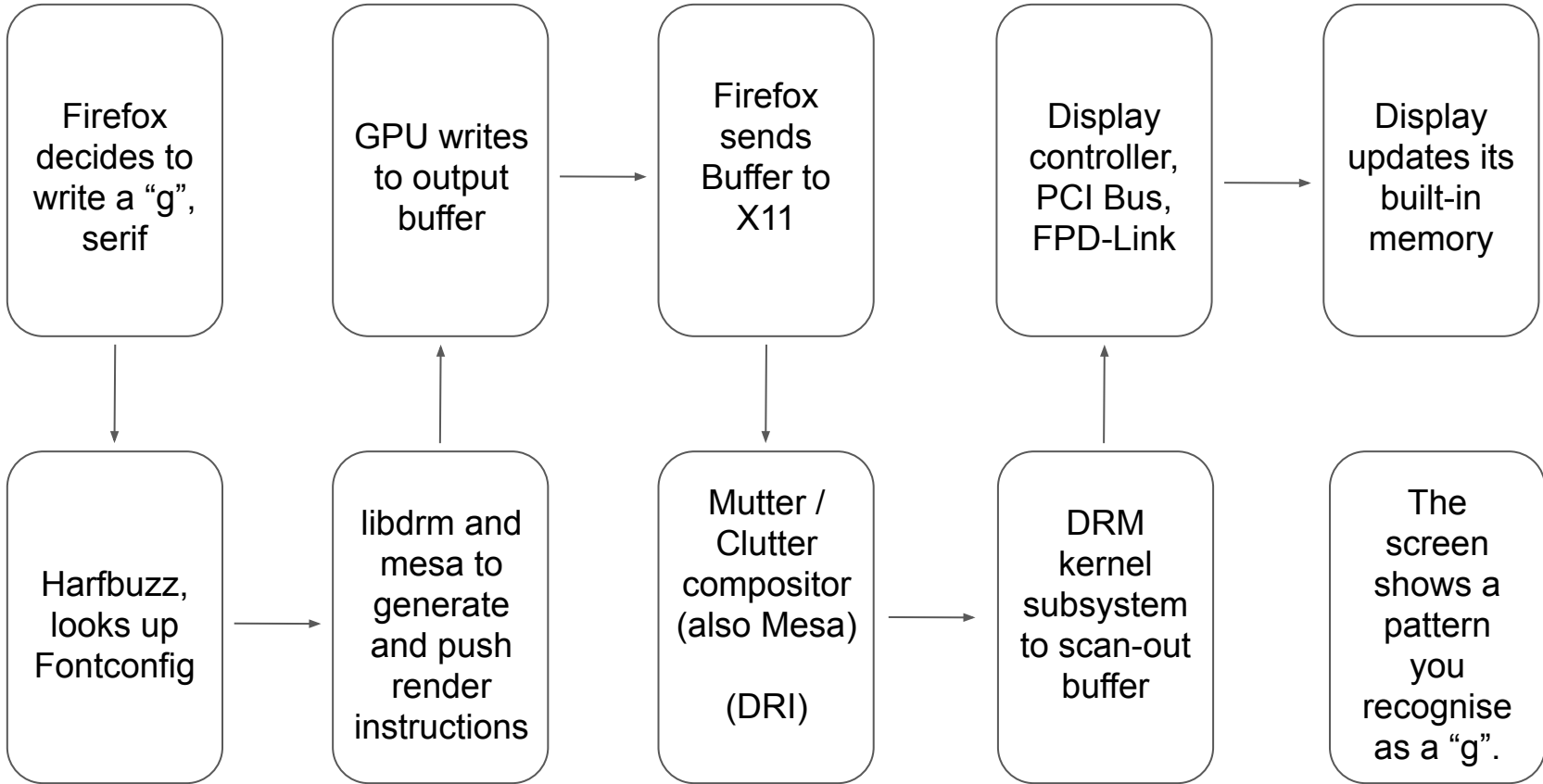
(DRI)

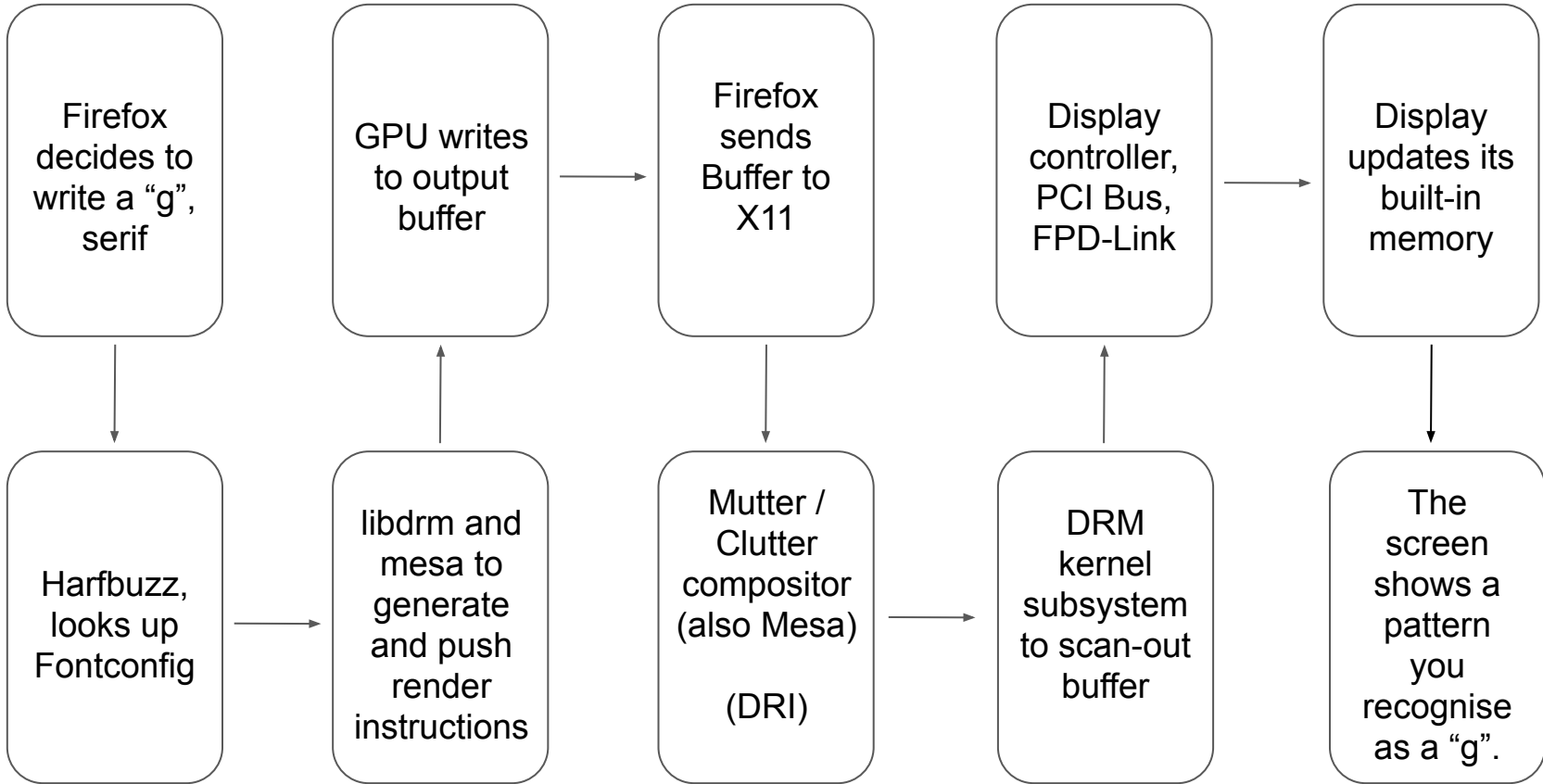
The
screen
shows a
pattern
you
recognise
as a "g".













lug-muc@haefner.social

Andreas Häfner