



# Video Transcoding in Browser

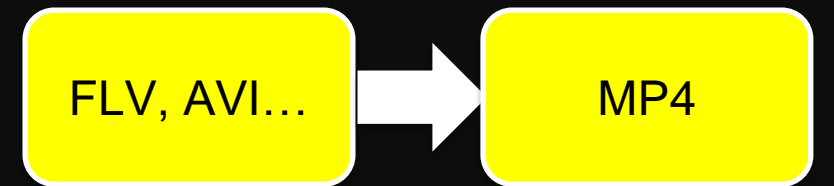
A large, faint, dark grey outline of the character Qiang Fu is positioned in the background on the right side of the slide. The character is a stylized, rounded figure with a square face and two antennae-like protrusions on top.

Qiang Fu  
from Bilibili

# bilibili In Some Scenes We Need It

- Video Preview

Make users` local video can be played in browser



usually H264 encoded

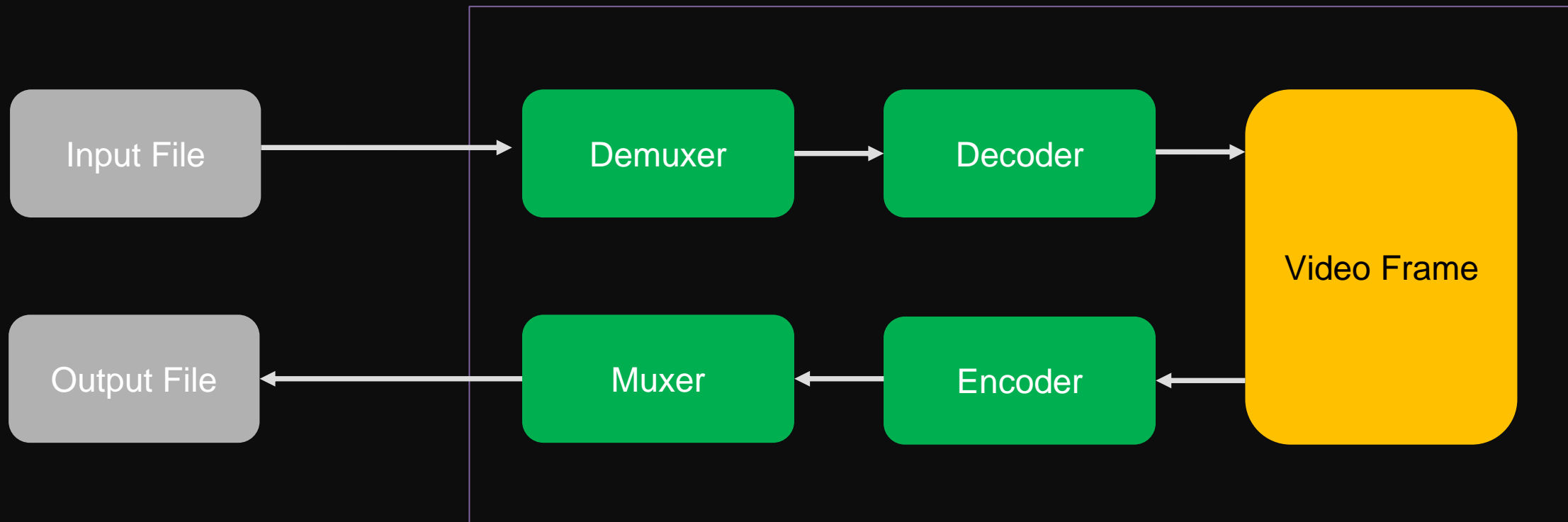
- Video Merging

Transcoding videos to the same codec can reduce the time consuming for merging

- Video Adjustment

Change the resolution, frame rate, even the filters quickly in browser

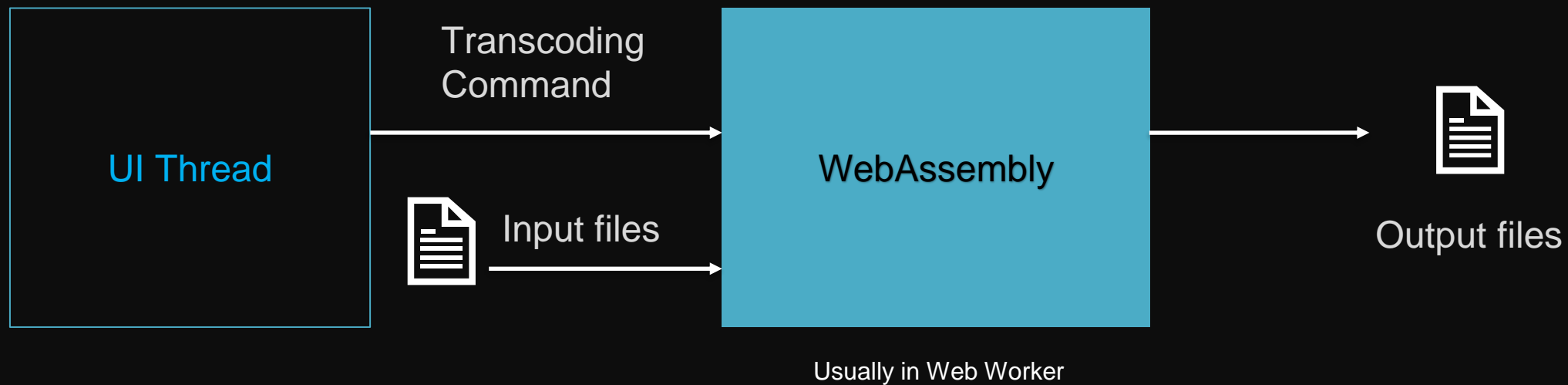
# bilibili Basic Steps of Transcoding



In FFmpeg

# bilibili Popular Way in Browser

- Compile the source code of FFmpeg to WebAssembly



Yes It's cool in first sight.

# bilibili Popular Way in Browser

## Some preparation for the solution:

- Know FFmpeg first.
- Know How Emscripten works.
- Run WebAssembly in browser.

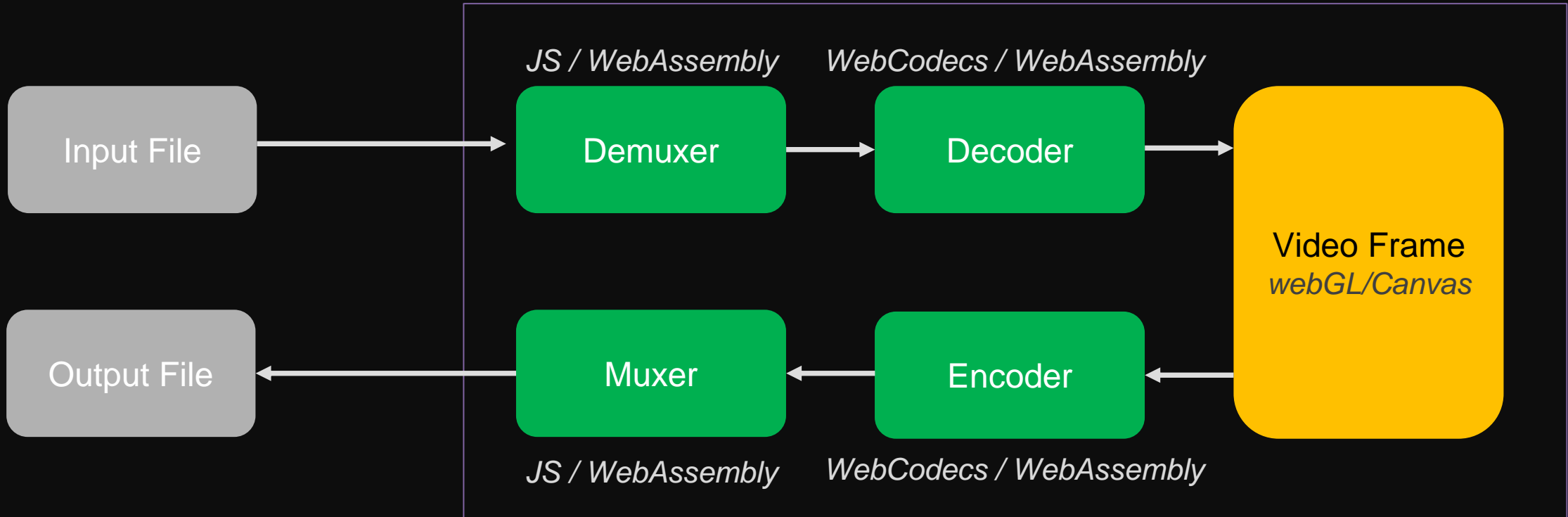
## What if I want to improve the performance:

- Check the configure of Emscripten, like multithreads, simd ..
- Check the configure of FFmpeg to see if it supports multithreads, simd ..
- Modify the Source Code of FFmpeg to support new features in WebAssembly ..



professional way

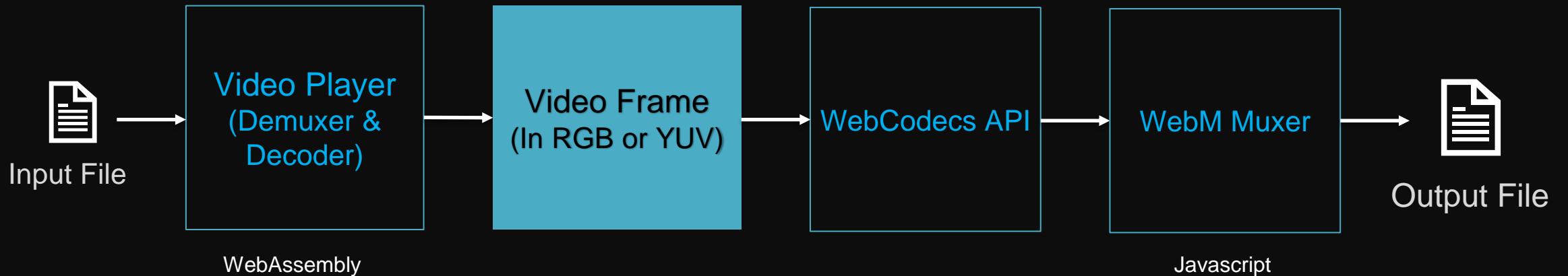
# bilibili Integrated Way in Browser



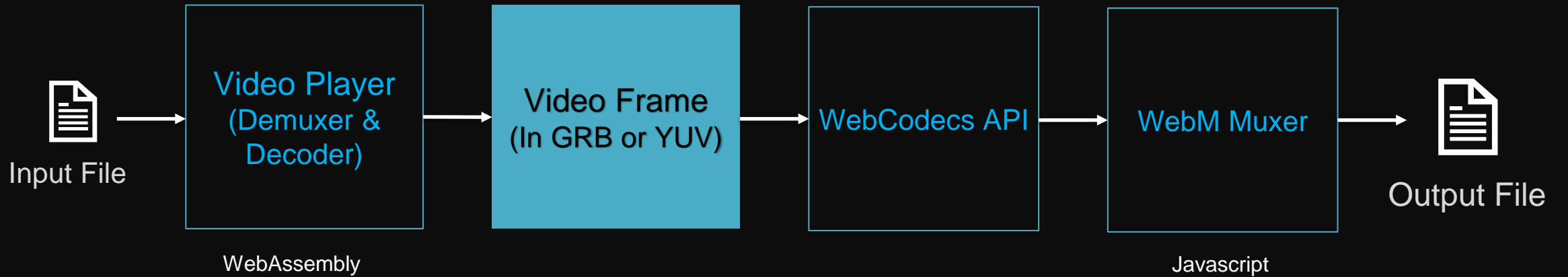
In Browser

# bilibili Integrated Way in Browser

- An Integrated Demo-Chain from Github



# bilibili Integrated Way in Browser



Thanks to Ffmpeg, it is not too difficult.

I could even change the frame in canvas.

Standard.

WebM is great, but we need more format.





# bilibili Suggestion

- Providing Official Muxer and Demuxer (e.g. For WebM) is helpful.
  - Complete the Workflow for Local Media Processing
  - Recommended formats could be popular.
  - Web Developer could build applications across professional Web APIs, not only WebAssembly compiled by professional source code 😊



**Thanks**