

Enhancing the Security and Performance of GPU Access in Web Browsers

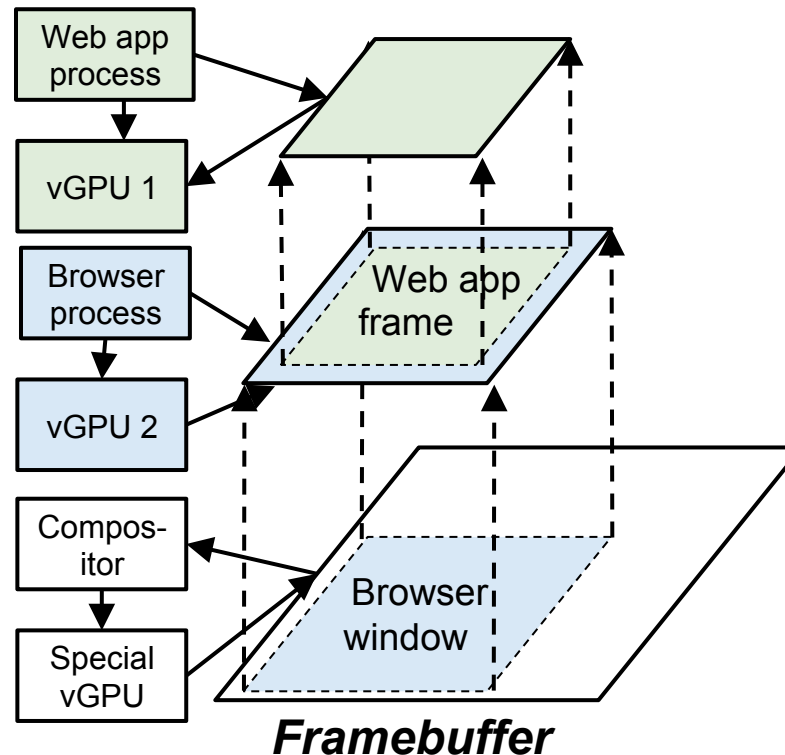


Challenge:

- Allowing untrusted web application to use the GPU for graphics securely and with high performance.

Solution:

- Leverage new virtualization features of GPUs
- Web app uses its own virtual GPU (vGPU)
- Rendered frames are securely composited on the framebuffer



Scientific Impact:

- Introduces novel hardware-based techniques to enhance security and performance
- Motivates virtualization support in I/O devices

Broader Impact:

- Enhances web browsing security and performance, critical to users today
- Can be adopted by browser vendors
- Award used to recruit underrepresented students
- Developed techniques used in courses

Award: CNS-1617513
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