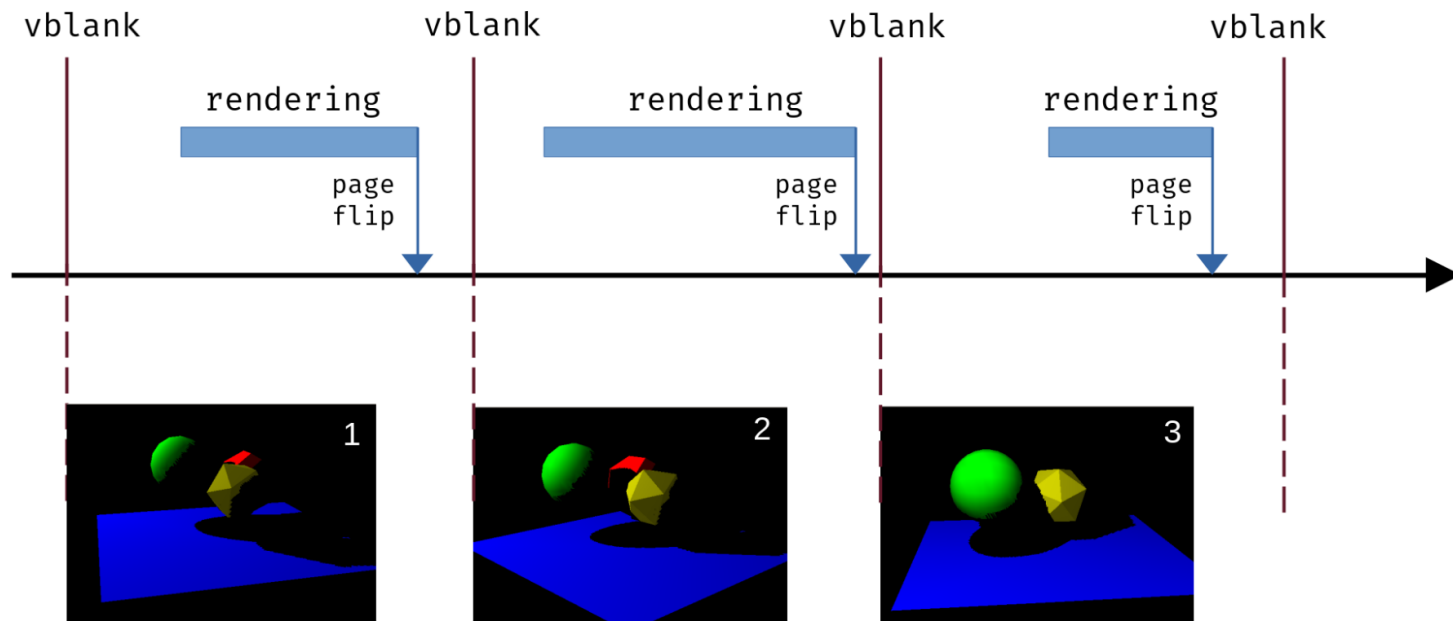


Async page flip in DRM atomic API

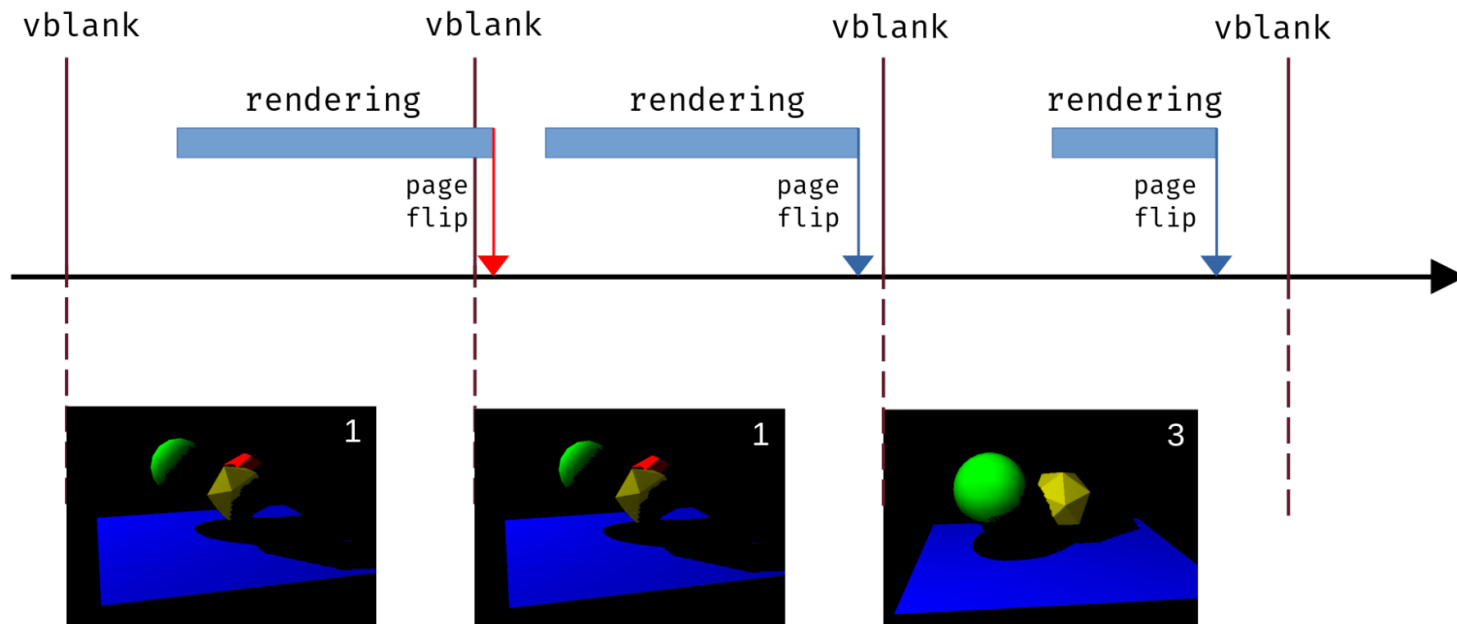
André Almeida @ Igalia

XDC 2022

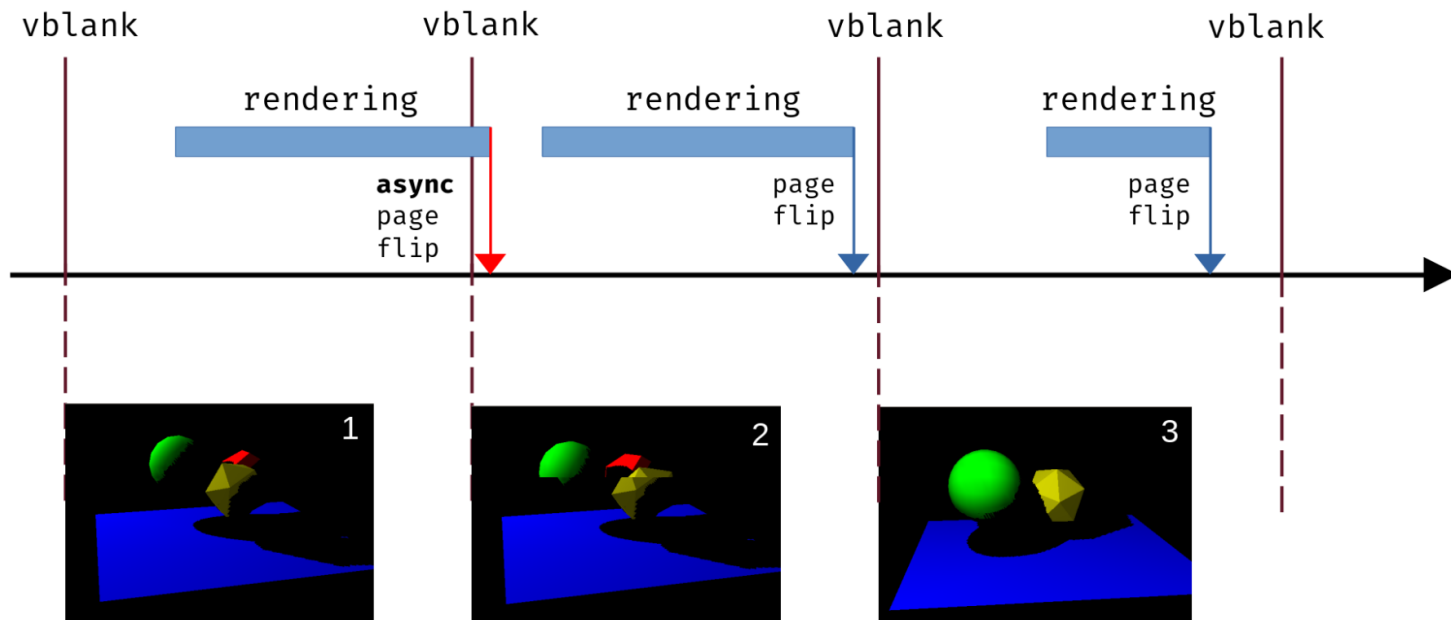
Flipping pages



Flipping pages



Flipping pages



Flipping pages *asynchronously*

Cool for gaming use-cases

more fps I guess

Legacy async support

```
drmModePageFlip(fd, crtc, fbn,  
DRM_MODE_PAGE_FLIP_EVENT | DRM_MODE_PAGE_FLIP_ASYNC,
```

Legacy async support

- amdgpu
- i915
- nouveau
- radeon
- vc4

Atomic support

```
drm_dbg_atomic(dev,  
"commit failed: invalid flag DRM_MODE_PAGE_FLIP_ASYNC")
```

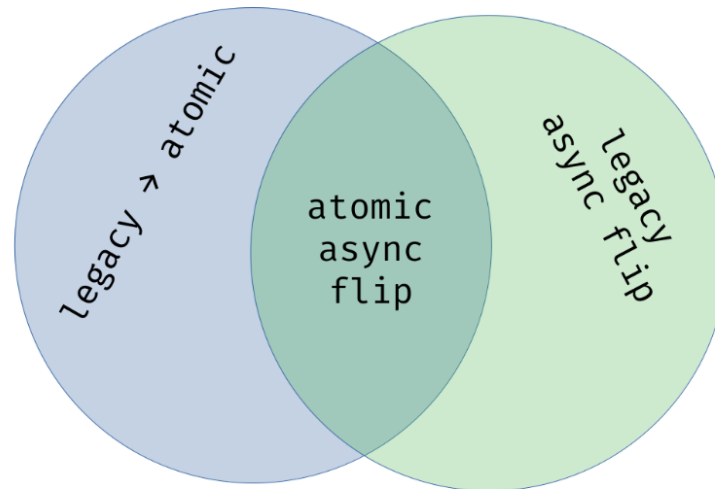

Atomic support

How to get this into atomic?

Legacy DRM (in an atomic way)

```
[drm:drm_ioctl] DRM_IOCTL_MODE_PAGE_FLIP  
amdgpu [drm:drm_atomic_state_init] Allocated 2639390  
amdgpu [drm:drm_atomic_commit] committing 263939dd
```

Legacy DRM (in an atomic way)



Wiring up things

```
int drm_mode_atomic_ioctl(struct drm_device *dev,  
+   if (arg->flags & DRM_MODE_PAGE_FLIP_ASYNC)  
+       set_async_flip(state);
```

feat. Simon Ser

Wiring up things

```
+/**  
+ * DRM_CAP_ATOMIC_ASYNC_PAGE_FLIP  
+ *  
+ * If set to 1, the driver supports &DRM_MODE_PAGE_  
+ * commits.  
+ */  
+#define DRM_CAP_ATOMIC_ASYNC_PAGE_FLIP    0x15
```

feat. Simon Ser

Wiring up things

- DRM uAPI should reject async with other updates
- Just on primary plane

Degraded async

Up until now, amdgpu was silently degrading to vsync when user-space requested an async flip but the hardware didn't support it.

What's done

- IGT test
- gamescope support
- DRM drivers
 - amdgpu waiting to be merged
 - i915 works, I'll send a patch

What's done

[PATCH v3 0/6] Add support for atomic async page-flips

<https://lore.kernel.org/dri-devel/20220929184307.258331-1-contact@emersion.fr/>

What's next?

- Wayland protocol: tearing updates
- Your driver?
 - Hint: make legacy go through atomic

Lessons learned

- Sometimes the work is done, it just need to connect some wires :-)
- Maybe more legacy things can be activated for atomic

Thanks!

