Using hardware overlays in Weston

Ander Conselvan de Oliveira

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Overview

Shell

Compositor

Backend

Renderer

OS / Hardware
Repaint cycle

- Driven by the monitor refresh
- Iteration over list of surfaces, drawn backwards
- Optimize out redrawing of obscured areas (needs clients help)
ander@ander-mobil:~/wayland/weston

ander@ander-mobil:~/wayland/weston$ ./clients/simple-egl -o
[1]+ Stopped ./clients/simple-egl -o
ander@ander-mobil:~/wayland/weston$ bg
[1]+ ./clients/simple-egl -o 6
ander@ander-mobil:~/wayland/weston$ ./clients/simple-shm

[Image of a triangle with vibrant colors]
andering:~$ ./clients/simple-egl -o
[1]+  Stopped   ./clients/simple-egl -o
andering:~$ bg
[1]+  ./clients/simple-egl -o 6
andering:~$ ./clients/simple-shm
Opaque region
Planes

- Planes are groups of surfaces
Primary plane

• By default surfaces belong to the *primary* plane

• Only surfaces on the primary plane are composited with the renderer
Plane assignment

• Before each repaint, the backend can move surfaces to other planes
Planes on the DRM backend

- Cursor plane
- Scanout plane
- Sprite planes
Planes on the DRM backend

- Primary Plane
- Scanout Plane
- Sprite plane
- Cursor plane
Scanout plane

- "Disables" composition for fullscreen clients
- Very low overhead
Scanout plane
Scanout plane

Primary plane

Scanout plane
Sprite planes

- Use the hardware overlay
Sprite plane
Sprite plane

Primary plane

Sprite plane
Cursor Plane

- Supports 64x64 surfaces
- SHM only, contents are copied to an appropriate buffer
Cursor plane

Primary plane

Cursor plane
Plane assignment

• Current implementation is very simple
• First surface that can use a plane gets to use it
• We could do better
Plane assignment
Plane assignment
Plane assignment
Plane assignment
Plane assignment
Plane assignment
We could do better
Demo
Questions