

An update on the state of Etnaviv

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Lucas Stach <l.stach@pengutronix.de>

Slide 1 - <http://www.pengutronix.de> - 01/02/2016



Who's the guy in front?

- Lucas Stach
- Occasional Nouveau contributor in the NV40 days
- Kernel- and graphics developer at Pengutronix

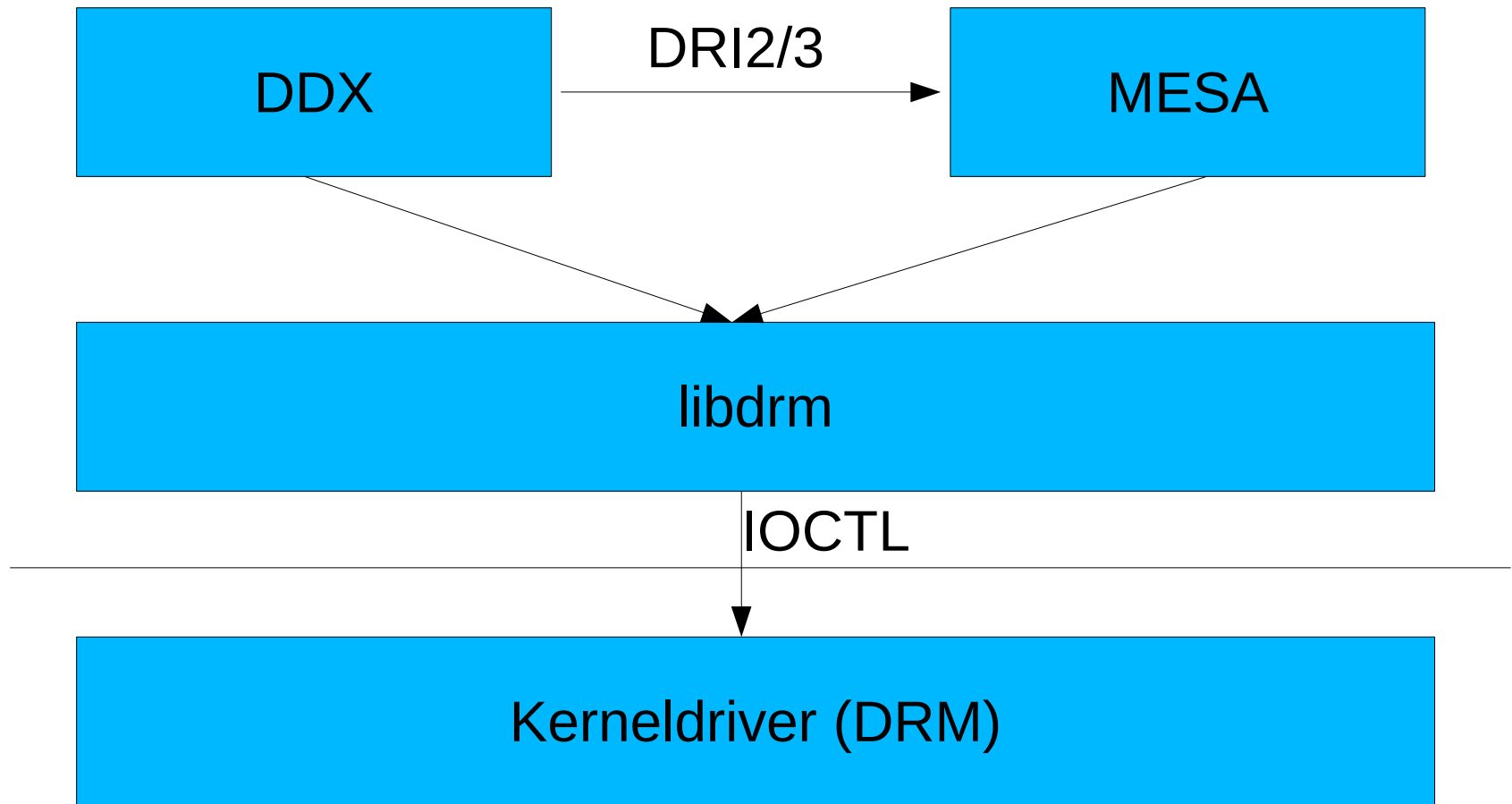


Agenda

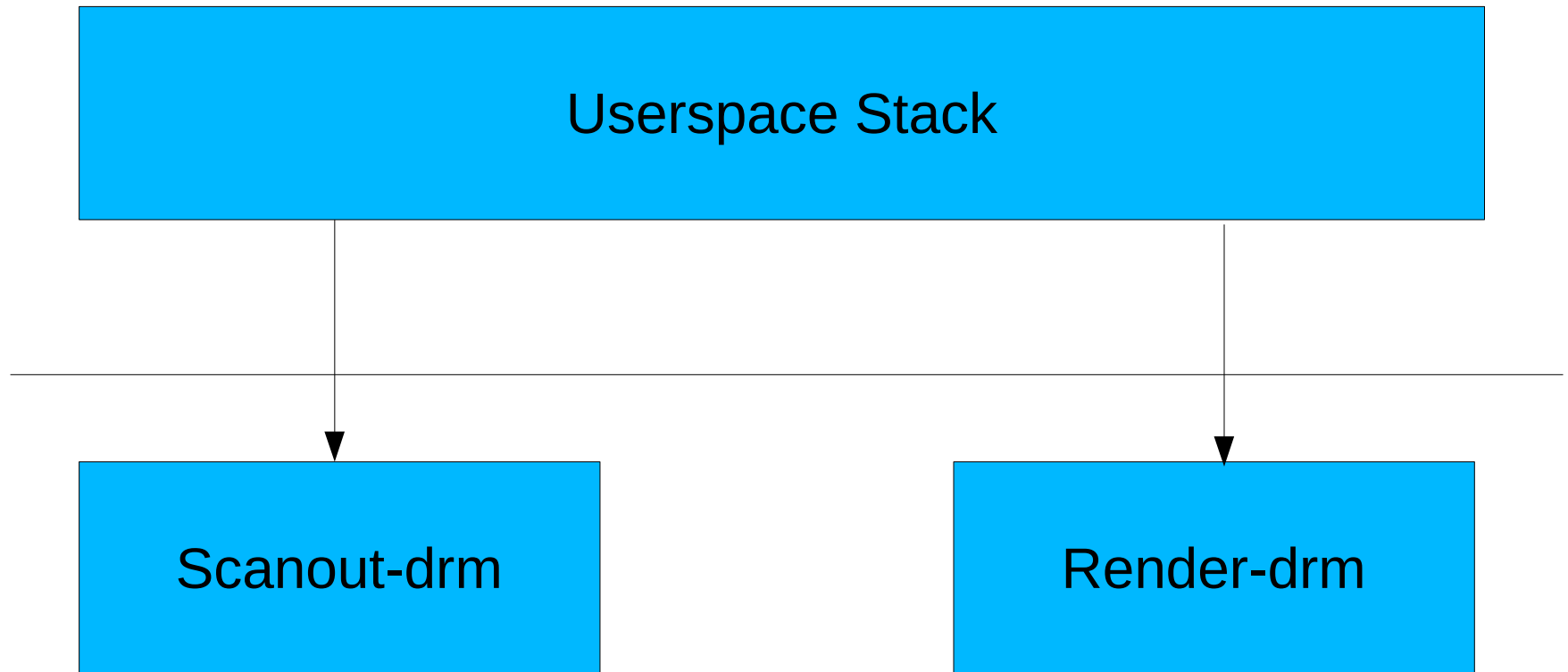
- Short introduction graphics stack and SoC hardware
- Current state of Etnaviv
- A look at the future



Linux graphics stack



SoC graphics



Why Etnaviv?

- Reverse engineering hardware
- Programming hardware at a very low level
- Allow extensions of the graphics stack



Why Etnaviv?

- Vendor lock-in
- Licencing issues
- Code hidden and not auditable



Why Etnaviv?

- Updating systems non-trivial
- API support missing
- Bugfixes take a long time to arrive



Etnaviv kernel driver

- Low-level hardware init
- Memory management
- Power management
- Synchronization
- Enforcing security



Etnaviv kernel driver

It's in 4.5-rc !



Etnaviv kernel driver

- Replaced fat and obfuscated Vivante kernel driver
- Readable and maintainable code
- 60+ KLOC → 7 KLOC



Etnaviv kernel driver

- More work to do
- Focus shifts to userspace



Etnaviv X.Org driver

- Xf86-video-armada
- 2D acceleration for common operations
- X-Video acceleration



Etnaviv X.Org driver

- Hides complexity of SoC setup
- Provides DRI2



Etnaviv libdrm

- Small layer on top of kernel interfaces
- Provides helpers for command submission
- Stabilization phase (one more API)



Etnaviv MESA driver

- Focus of current activities
- Based on Gallium3D
- Rebasing, Refactoring



Etnaviv MESA driver

- Bugfixing
- 80% Piglit pass rate
- On the running tests...



Where do we go from here?

- Stabilize Userspace for merging
- Improve performance
- Enable more OpenGL features



Where do we go from here?

- Enable Wayland
- How to bootstrap EGL on 2 DRM devices?



Thanks!

