allocation

Brian Starkey – Arm – Display SW
Part 1) Allocator module

• Allocation is a hard problem
  • Cross-device sharing, performance, efficiency

• Android has gralloc
  • Userspace module for handling all graphic buffer allocation

• Chrome has minigbm
  • Not so comprehensive, but works

• “Linux” has ???
  • gbm, sort-of

• Any long-term plan? Should we make one?
cubanismo/allocator / UDMA / liballocator

• Interesting for solving some problems
  • Intersections of device capability and constraints
  • Conceptually similar to gralloc

• Any future?

• We spent some time on our use-cases – found some issues

• Doesn’t actually cover physical allocation (part 2)
Part 2) Actually allocating

• Once you’ve decided what to allocate, how do you allocate it?
• Centralised / decentralised?
• Is it possible to be generic?
• Can we suit Android, Chrome and Linux?
ion

• Where does ion stand in Linux (not-Android) buffer allocation?
• string-based UAPI likely not stable enough
• Not likely to be adopted in desktop?
DUMB

• Used/abused (at least by us)
• Limited, by design.
• Little interest in extending?
  • e.g. Modifiers
• “strange” UAPI – width, height, bpp
  • Can’t know pixel format
New generic GEM ioctl?

• Should we define a new generic DRM ioctl for allocation?
• Can we unify any of the existing vendor-specific allocators?
• How would it look?
• Minimum:
  • We’d like to allocate buffers with fourcc + modifier.
• Should usages form part of it?