# Memory providers post LPC

For 2026-10-29 guest_memfd bi-weekly upstream call

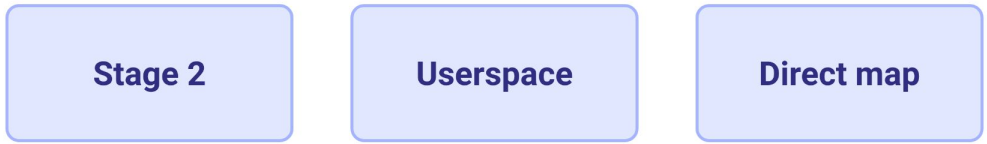
Contact ackerleytng@google.com if you have questions/suggestions!

# Summary

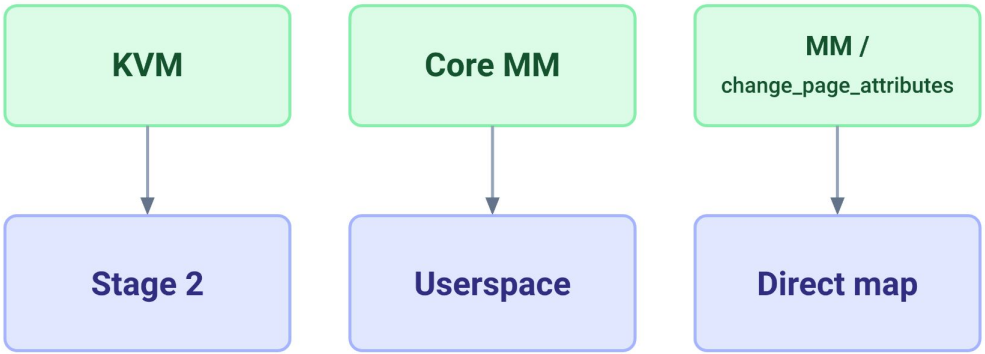
- Think of guest_memfd as 2 components: gatekeeper, memory provider
- Today: 1 memory provider: the buddy allocator, `PAGE_SIZE` pages
- Want: `guest_memfd` should support it all
  - Host memory: e.g. HugeTLBfs, tmpfs
  - PFNs: e.g. DAX
  - Host MMIO: (VFIO)

# Points we have agreement on

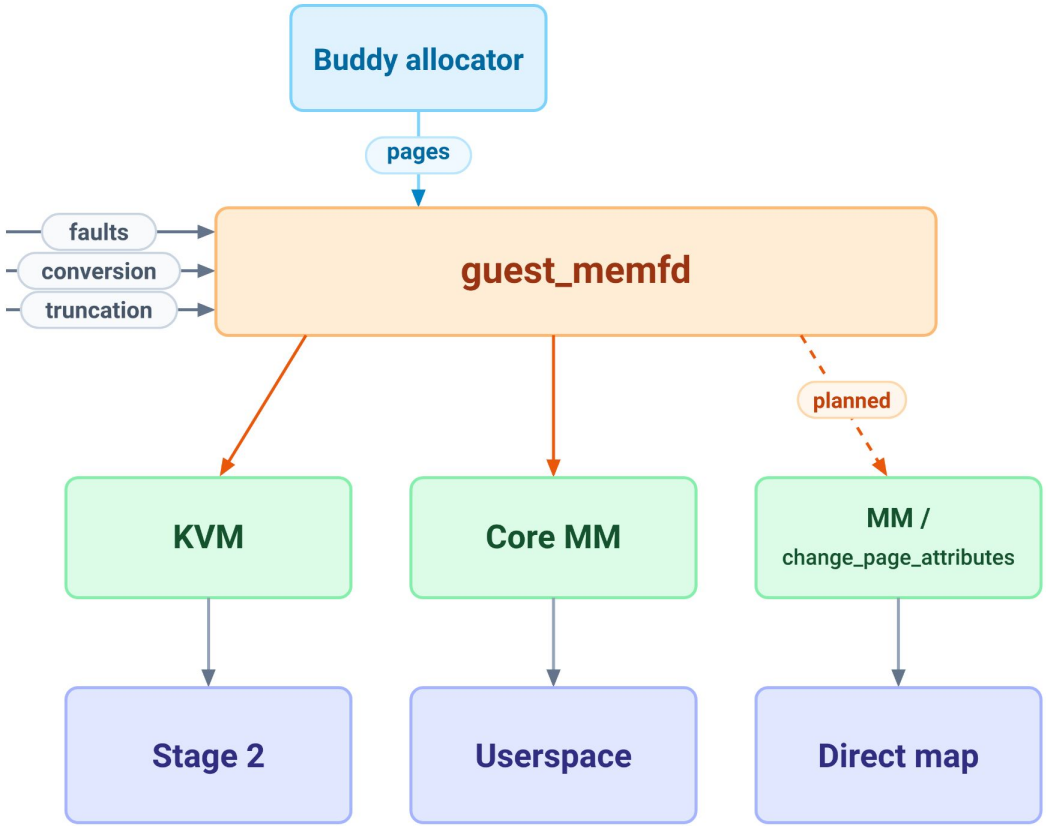
- Pass some fd to `guest_memfd`, which describes the provider
- Provider needs to expose some functions to guest_memfd
  - attach/release
  - allocate/free
- The provider and `guest_memfd` together must support revocation
  - Guest_memfd must always allow memory to be taken away



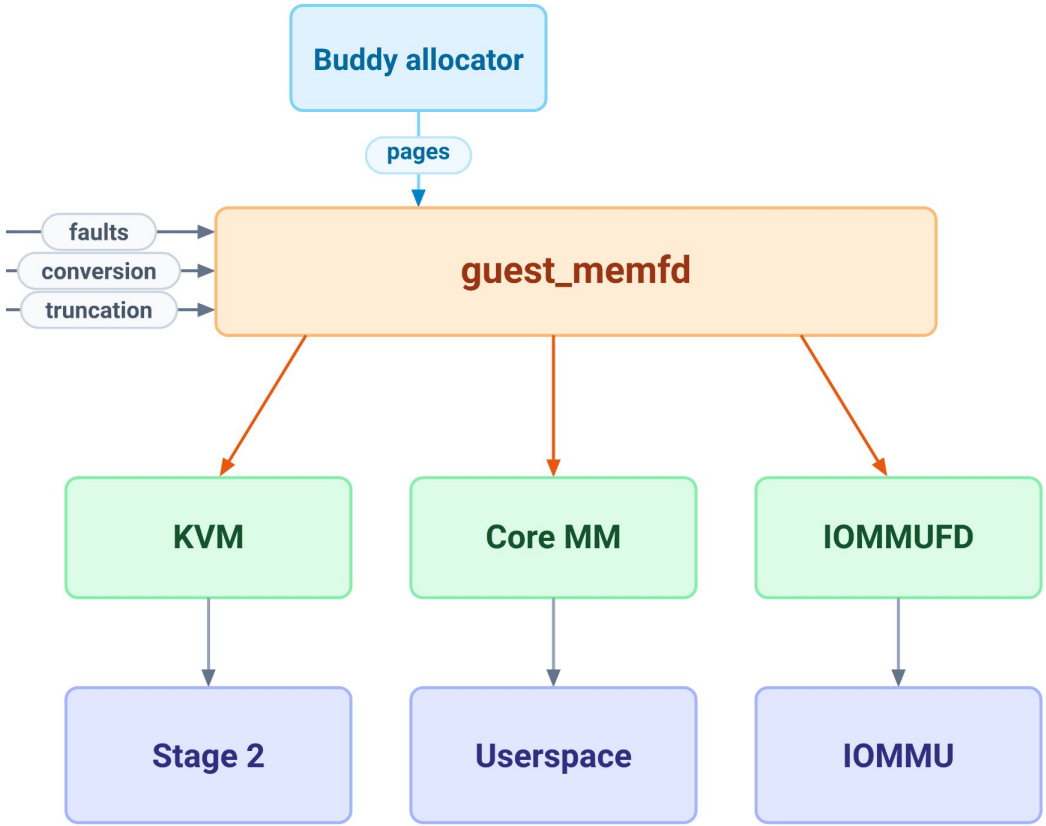

Page tables that private pages must not be mapped in



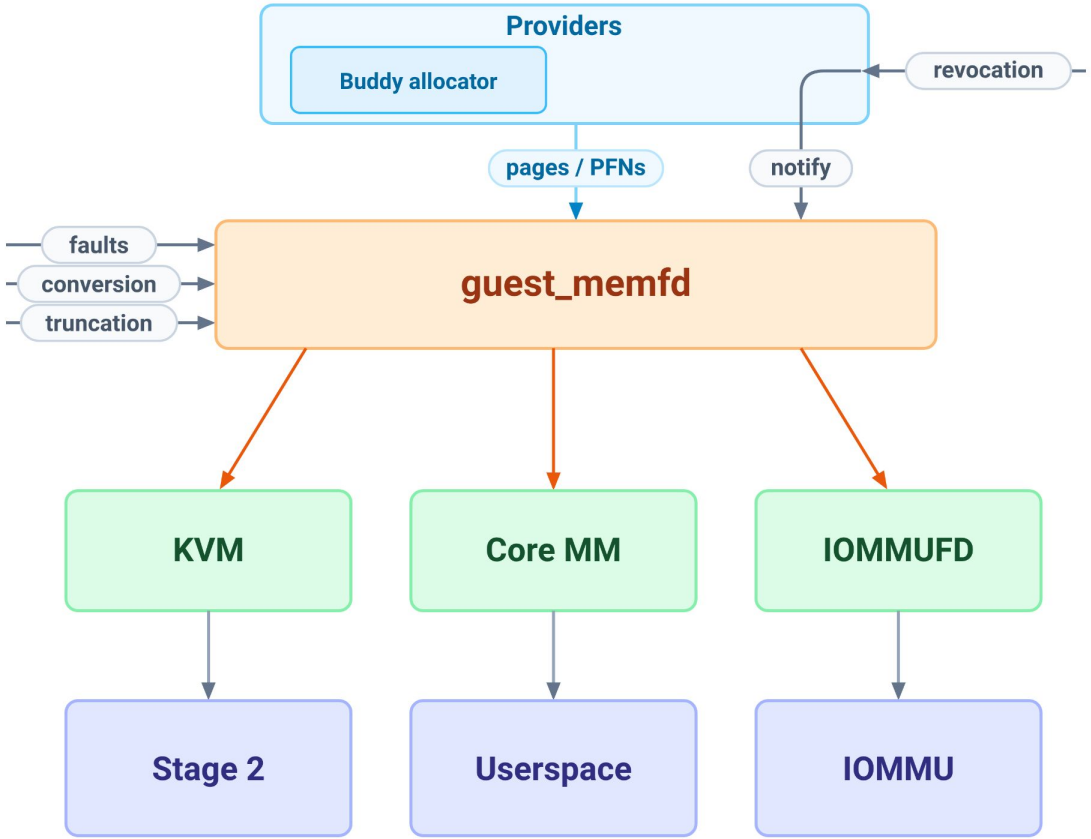

The subsystems that manage those page tables



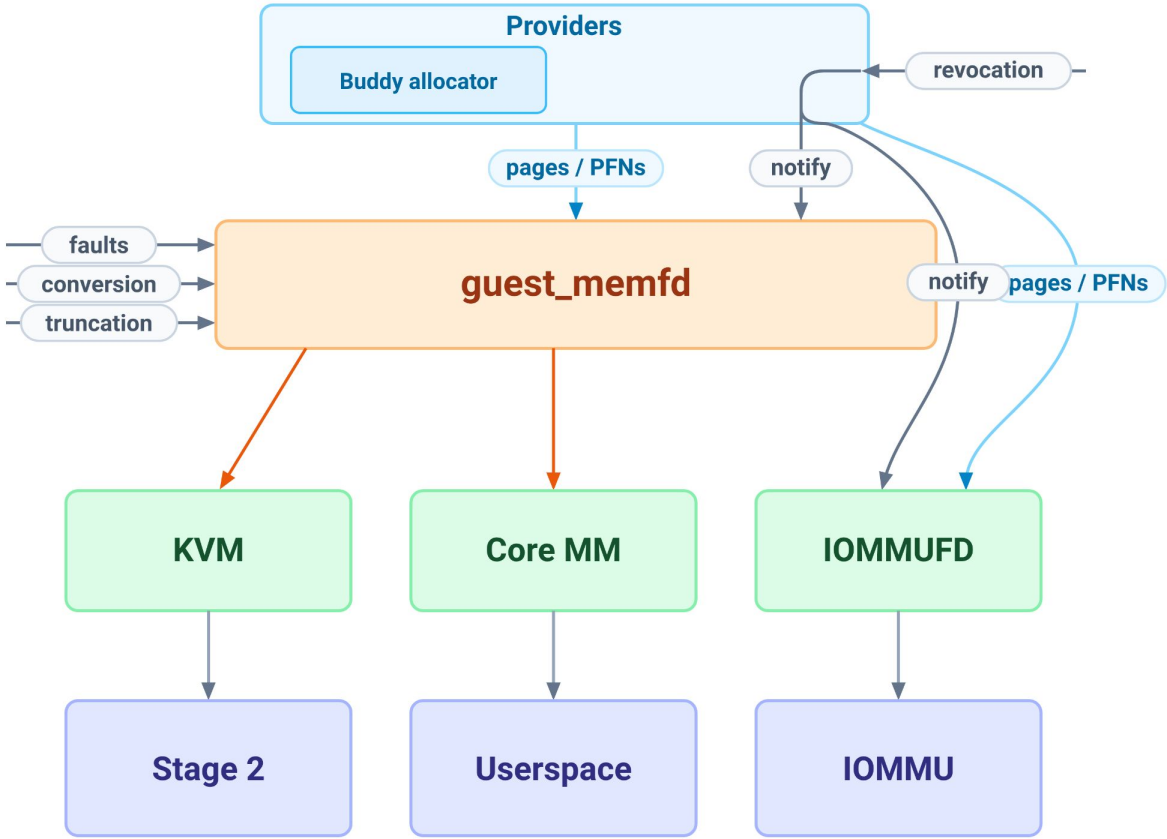

guest_memfd works with those subsystems



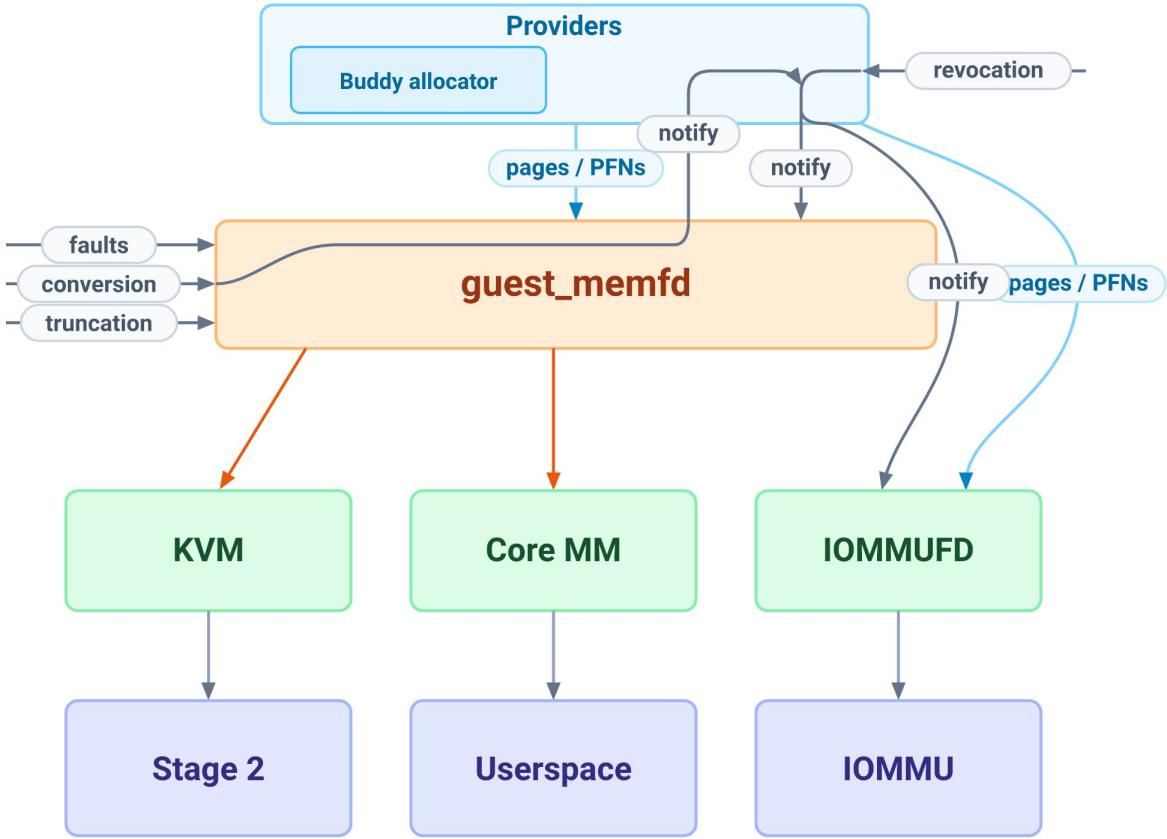

Put aside direct map first, look at IOMMU for Confidential IO




Proposal, with other providers




Alternative




Alternative, considering conversions