

Performance improvements for live-update reboots

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Completed performance improvements

- Deferred struct page init with KHO ([bf480c](#), [c60737](#), [797fe9](#))
- Skip checksum verification in purgatory when safe ([94f9ce](#))
- iommu/iova: Move CPU magazine init to first insert ([f5cd97](#))

In progress performance improvements

- Parallel device shutdown
 - Takes by far the most time in shutdown.
 - [\[PATCH v21 0/9\] shut down devices asynchronously](#)
- Make pre-HVO compatible with hugepages preservation
- pci: polling improvements (part of acpi_init)
- iommu: batching and parallelization

In progress performance improvements

Theme: small improvements over using KHO to preserve everything.

- KHO can provide huge savings but if it requires extensive/intrusive changes, it will be hard to get it merged.
- Cold boot is not optimized well enough that we have to take drastic measures.

Future performance improvements

- intel: don't scan ACPI OEM tables we don't need
- pci: skip unnecessary work for preserved devices
- smp init improvements
- kexec: image reallocation & decompression

Tips for developers

- Enable CONFIG_DEFERRED_STRUCT_PAGE_INIT
- Get rid of drivers
 - Either move them to a VM or fully off the node.
- Shrink your kernel
- Quiet serial console
 - Use pstore with ram backend with reserve_mem to preserve shutdown dmesg
- Just boot with *initcall_debug* and give logs to AI