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memcg developments for Android

Friday, 20 September 2024 12:00 (20 minutes)

This talk will cover the status of recent changes in Android and upstream related to memory control groups, planned work, and outstanding issues.

Here are some details:

Updates:

- memcg v2 can now be used in A15 with PRODUCT_MEMCG_V2_FORCE_ENABLED or vendor overrides of cgroups.json
- Control of memcg activation depth is queued for A16 (Reduction in kernel memory and background work)
- In-progress: APIs for categorizing individual apps (launcher? sysui?) as "system"
- Planned: APIs for targeting memcg controls for individual apps (not just system vs apps collectively)
- Planned: Enforce limit on growth of Android system processes over time/releases w/memcg controls. (Be able to say, "core Android can run on X MiB of memory for the next Y years")
- Is there desire for support of additional features/APIs around memcg controls? (Please speak up or contact me!)

memcg v1 is now officially on the deprecation path: https://lore.kernel.org/all/20240625005906.106920-1-roman.gushchin@linux.dev/
Therefore it is likely memcg v2 will be default in Android 16, and memcg v1 will not be configured into the Android kernel.

Issues:

Need to fix incorrect reporting of v2 controller counts: https://lore.kernel.org/all/20240528163713.2024887-1-tjmercier@google.com/
(Does anyone need / want this *hierarchically* instead of root-only?)

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