

Linux Plumbers Conference 2024



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Waste-Free Per-CPU Userspace Memory Allocation

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Introduce the librq per-CPU user-space memory allocator. It implements concepts similar to the Linux kernel percpu allocator in userspace, and thus reduces waste of per-CPU data structures hot cache lines by eliminating padding usually required to eliminate false-sharing, and in addition tackles issues that arise from resident memory waste when restricting processes with scheduler affinity or cpusets.

It allows prototyping kernel algorithms within the safe limits of user-space.

Discuss open issues about interaction between use of shared and private file mappings within a process and the need to keep the shared mappings from being shared with children processes across fork.

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