

Linux Plumbers Conference 2025



Contribution ID: 328

Type: **not specified**

EROFS and containers

Friday 12 December 2025 12:00 (30 minutes)

EROFS is a modern, high-performance, block-based Linux image filesystem with an advanced on-disk format (e.g., separated layouts for (un)compressed data, (optional) external data blobs, (optional) data compression supporting multiple algorithms within a single filesystem, fine-grained data deduplication and (optional) metadata compression) and a highly optimized runtime implementation (e.g., fast decompression subsystem, FSDAX support, etc.).

Originally well-known to be used in Android system firmware, EROFS is now deployed on billions of devices and addresses various target scenarios. Nowadays, almost all mainstream Linux distributions support and utilize EROFS, including enterprise distributions like RHEL 9/10 and popular cloud distributions like Amazon Linux, Alibaba Cloud Linux, Azure Linux and Oracle Linux.

In recent years, we have focused on improving EROFS for container-related use cases, such as container images, immutable OS images (e.g. AWS bottlerocket), and even application sandboxes. Note that EROFS has already been adopted by projects such as composefs, containerd and Kata containers.

In this talk, we still concentrate on container use cases. we will recap the highlight features of EROFS, summarize its benefits, and discuss ongoing features and scenarios, such as page cache sharing, filesystem (e.g. container rootfs) data integrity verification, unprivileged mounts and efficient remote storage passthrough (e.g., S3 object storage) for AI infrastructure.

Primary author: GAO, Xiang (Alibaba Cloud)

Presenter: GAO, Xiang (Alibaba Cloud)

Session Classification: Containers and checkpoint/restore MC

Track Classification: Containers and checkpoint/restore MC