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# Developments in disk and tape storage at the RAL Tier 1

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RAL's Ceph-based Echo storage system is now the primary disk storage system running at the Tier 1, replacing a legacy CASTOR system that will be retained for tape. This talk will give an update on Echo's recent development, in particular the adaptations needed to support the ALICE experiment and the challenges of scaling an erasure-coded Ceph cluster past the 30PB mark. These include the smoothing of data distribution, managing disk errors, and dealing with a very full cluster.

In addition, I will discuss the completed project to remodel RAL's CASTOR service from a combined disk and tape endpoint to a low-maintenance system only providing access to tape.

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