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Next-Gen Storage Infrastructure for ALICE: Paving the Road Toward Hi-Luminosity LHC

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ALICE introduced ground-breaking advances in data processing and storage requirements and presented the CERN IT data centre with new challenges with the highest data recording requirement of all experiments. For these reasons, the EOS O2 storage system was designed to be cost-efficient, highly redundant and maximise data resilience to keep data accessible even in the event of unexpected disruptions or hardware failures. With 150 PB of usable storage space, EOS O2 is now the largest disk storage system in use at CERN. We will report on our experience and the effectiveness of operating this full production system in Run-3 and during the LHC heavy-ions run and on how this will help in paving the road towards the data deluge coming with Hi-Luminosity LHC. In particular, we will report on our experience with RS(10+2) erasure coding in production, the achievable performance of EOS O2, reliability figures, life cycle management, capacity extension and rebalancing operations.

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