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CEPHFS: a new generation storage platform for Australian high energy physics

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In this paper we present a CEPHFS use case implementation at the Center of Excellence for Particle Physics at the TeraScale (CoEPP). CoEPP operates the Australia Tier-2 for ATLAS and joins experimental and theoretical researchers from the Universities of Adelaide, Melbourne, Sydney and Monash. CEPHFS is used to provide a unique object storage system, deployed on commodity hardware and without single points of failure, used by Australian HEP researchers in the different CoEPP locations to store, process and share data, independent of their geographical location. CEPHFS is also working in combination with a SRM and XROOTD implementation, integrated in ATLAS Data Management operations, and used by HEP researchers for XROOTD or/and POSIX-like access to ATLAS Tier-2 user areas. We will provide details on the architecture, its implementation and tuning, and report performance I/O metrics as experienced by different clients deployed over WAN. We will also explain our plan to collaborate with Red Hat Inc. on extending our current model so that the metadata cluster distribution becomes multi-site aware, such that regions of the namespace can be tied or migrated to metadata servers in different data centers.

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