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EOS filesystem deployment on Ceph RBD and CephFS using Kubernetes

In the present work the possibility to exploit EOS, an open-source storage software solution for multi-PB storage management at CERN Large Hadron Collider, has been investigated in order to deploy a distributed filesystem over a storage backend provided by CEPH, an open-source software platform capable to expose data through interfaces for object, block and posix-compliant storage.

The work has been carried out as part of the collaboration between INFN-CNAF and CERN aimed at evaluating and test different technology for next-generation storage challenges at CNAF.

The motivation for this integration is to combine the high level scalability and stability of EOS services with the reliability and redundancy features provided by CEPH. To do so, EOS services have been deployed as container and orchestrated by Kubernetes, an open-source container-orchestration system for automating computer application deployment.

In this respect, Kubernetes has been used as a natural framework to test different cluster-deployment scenarios (on cloud and bare-metal) and assess their performances, bringing important improvements in terms of system operations, management and scaling.

The obtained results carried out by measuring the performances of the different combined technologies, comparing for instance block device and filesystem as backend options provided by a CEPH cluster deployed on physical machines, will be shown and related conclusion will be draft.

Significance

This activity focused on the integration, via Kubernetes, of different storage systems (EOS and CEPH) with the aim to combine the high level scalability and stability of EOS services with the reliability and redundancy features provided by CEPH.

References

Speaker time zone

Compatible with Europe

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