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gluster file system optimization and deployment at IHEP

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Gluster file system adopts no metadata architecture, which theoretically eliminates both a central point of failure and a performance bottleneck of metadata server. Firstly, this talk will introduce gluster compared to lustre or hadoop. However, its some mechanisms are not so good in current version. For example, it has to read the extend attributes of all bricks to locate one file. And it is slow to list files in one directory when there are too many bricks or brick servers are busy. Some other functions, such as expand or shrink volume, file distribution, replication policy and so on, performs not so well in large scale storage system. This talk will analyze the advantages and disadvantages of gluster file system in high performance computing system. To solve these problems, we proposed some new methods, optimized or developed some modules, including modifying elastic hash algorithm implementation, introducing a new index module, designing a new replication layer, and on so. This talk will introduce these methods or functions. We already deployed a gluster file system in production data analysis environment. The talk finally describes the deployment scenario and some lessons we can learn from it.

Summary

Primary author: Dr CHENG, Yaodong (Institute of High Energy Physics, Chinese Academy of Sciences)

Presenter: Dr CHENG, Yaodong (Institute of High Energy Physics, Chinese Academy of Sciences)

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