

Abstract: Design and Implementation of Metadata Cache Management Strategy for the Distributed File System

Junjian Chen², Jingning Liu^{1*}, Wei Tong¹, Lei Tian¹, Cong Chen¹

¹*Wuhan National Laboratory for Optoelectronics, Wuhan, China*

¹*School of Computer Science & Technology, Huazhong University of Science & Technology, Wuhan, China*

²*School of Electronic & Information Engineering, Foshan University, Foshan, China*

cjj_hust@163.com, j.n.liu@163.com, weitong@163.com, ltian@hust.edu.cn, chenconghill@163.com

Abstract

Caching mechanism as an important means to improve the access performance of the system is widely used in various distributed file systems. Caching strategies and the resulting cache coherence control technique have become the key techniques for the system development. Based on the up-to-date study of the cache technology of the distributed file systems, and combined with the design requirements and characteristics for our multi-user parallel file system Cappella, this paper proposes a new meta-data cache management strategy. And this strategy not only improves the performance of metadata services, reducing the user access latency, but also controls metadata cache consistency very well.

Acknowledgement

This research was supported by the National Basic Research 973 Program of China under Grant No. 2011CB302301, 863 project 2009AA01A402, NSFC No. 61025008, 60933002, 61173043.