## Implementation of Cloud Computing Environment for Hiding Huge Amounts of Data

Chao-Tung Yang, Guan-Han Chen\*, and Shih-Chi Yu

Department of Computer Science,

Tunghai University,

Taichung 407, Taiwan

{ctyang, g98350048, g97350064}@thu.edu.tw

Received 22 February 2010; Revised 9 March 2010; Accepted 15 March 2010

**Abstract.** In this paper, we use the Hadoop system to build the cloud computing environment. By using data hiding technology to embed data into cover images, we prove that cloud computing would take less execution time than a single computer when processing a huge amount of data. Thus, cloud computing provides a convenient platform and also reduces the cost of the equipment required for processing huge amounts of data.

Keywords: cluster, cloud computing, data hiding, hadoop

## References

- [1] N. Leavitt, "Is Cloud Computing Really Ready for Prime Time?" IEEE Computer Magazine, pp. 15-20, 2009.
- [2] C. Ranger, R. Raghuraman, A. Penmetsa, G.R. Bradski, C. Kozyrakis, "Evaluating MapReduce for Multi-core and Multi-processor Systems," *Proceedings of the IEEE 13th International Symposium on High Performance Computer Architecture (HPCA)*, Phoenix, Arizona, USA, pp. 13-24, 2007.
- [3] Apache Hadoop Project, http://hadoop.apache.org/.
- [4] E. Jaliya, P. Shrideep, F. Geoffrey, "MapReduce for Data Intensive Scientific Analyses," *Proceedings of the IEEE*4th International Conference on eScience, pp. 277-284, 2008.
- [5] J. Dean and S. Ghemawat, "MapReduce: Simplified Data Processing on Large Clusters," *Proceedings of the 6th Conference on Operating Systems Design & Implementation*, San Francisco, California, USA, pp. 10-10, 2004.
- [6] S. Ghemawat, H. Gobioff, S.T. Leung, "The Google File System," *Proceedings of the 19th ACM Symposium on Operating Systems Principles*, Lake George, NY, pp. 29-43, 2003.
- [7] F. Chang, J. Dean, S. Ghemawat, W.C. Hsieh, D.A. Wallach, M. Burrows, T. Chandra, A. Fikes, R.E. Gruer, "Bigtable: A Distributed Storage System for Structured Data," *ACM Transactions on Computer Systems*, pp. 1-26, 2008.
- [8] H. Erdogmus, "Cloud Computing: Does Nirvana Hide behind the Nebula?" *IEEE Software*, Vol. 26, pp. 4-6, 2009.
- [9] W.L. Tai, C.M. Yeh, C.C. Chang, "Reversible Data Hiding based on Histogram Modification of Pixel Differences," *IEEE Transactions on Circuits and Systems for Video Technology*, Vol. 19, No. 6, pp. 906-910, 2009.
- [10] J. Conner, "Customizing Input File Formats for Image Processing in Hadoop," *Technical Report*, Arizona State University, Mesa, Arizona, USA, 2009.

<sup>\*</sup> Correspondence author