Qian Mai, CSC5593

Report #1, January 26, 2014

**Report on “**[**Enterprise SSDs**](http://auraria.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwTZ07DgIxDEQjehokqLlApJjJt2WVFRXVVnRJ7JRbcX-RIAruYPkVM_ZT6poI1aIAQgYogYljNWMwYo_zo_g0KNzt8kJ-Iv9t8_WkDrKf1bbmbXnonwxAF2uD9lKjFTSWBgRHYqh2V_gmKbQBJSafCrzpDoORBFvbAG8MTWb0lDxd1LHMzvj-_t6W8QdBCCh_)**”**

The article is an analysis of enterprise SSD (Solid State Drives). SSD has distinguishing superiorities because it combines the best attributes of two memory technologies: flash and DRAM. The authors focus their studies on enterprise level and compare SSD with HDD (Hard Disk Drive) performance in all aspects. For example, SSD has faster sequential read and write, and random write speeds, but SSD has poor performance in random write. In reliability of data protection, the article mentions three ways to evaluate SSD: extensive full data-path error detection/correction, wear leveling and bad-block management. However, SSD still has disadvantages in potential loss of metadata and writing amplification. With help of the structure chart, we can see how every part of SSD works under the hood. What is need to mention is SSD has exceptional performance in power saving compared with HDD. At the end of the article, authors conclude that SSD is an effective solution to improve the delivery of mission-critical applications while controlling costs and simplifying management. Despite this article is written in 2008, when is 6 years ago from now, it is definitely a good reference to review the history of the development of SSD.

**Reference**

[1] Mark Moshayedi, Patrick Wilkison, “Enterprise SSDs”, Originally published in Queue vol. 6, no. 4—

<http://0-queue.acm.org.skyline.ucdenver.edu/detail.cfm?id=1413263>