



Servers Direct Content Solution Platform – StorageIO™ Lab Review and Solution Brief

Hardware and software defined content solutions platform - June 4, 2015

By Greg Schulz of Server StorageIO™ @StorageIO

Introduction

This StorageIO™ Industry Trends Perspectives Solution Brief and Lab Review looks at the Servers Direct (www.serversdirect.com) 1U and 2U converged Content Solution platforms powered by Intel.

Content Solutions – The Big “Picture”

Recently I had the opportunity by Servers Direct to get some hands-on test time with one of their 2U Content Solution platforms. Content solutions span from video (4K, HD and legacy streaming, pre-/post-production and editing), audio, imaging (photo, seismic, energy, healthcare, etc.) to security surveillance (including Intelligent Video Surveillance [ISV] as well as Intelligence Surveillance and Reconnaissance [ISR]).

In addition to big fast data, other content solution applications include: content distribution network (CDN) content caching, network function virtualization (NFV), software-defined network (SDN), cloud rich unstructured big fast media data, analytics and little data (e.g. SQL and NoSQL database, key-value stores, repositories and meta-data) among others.



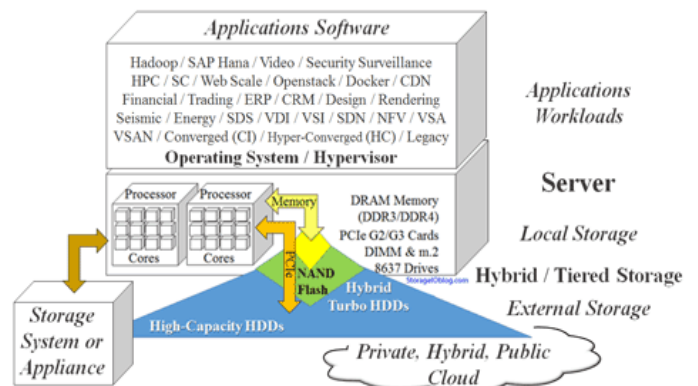
2U Servers Direct Content Solution Image via StorageIO.com

A common theme with content solutions is that they are *defined* by hardware options (compute, memory, storage and/O networking connectivity) as well as some type content software.

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Fast content needs fast solutions

A common industry and customer trend is that information and data are getting larger, living longer, as well as there is more of it. This ties to the fundamental theme that applications and their underlying hardware platforms exist to process, move, protect, preserve and serve information. Fast content applications need fast software, multi-core processors (compute), vast memory (DRAM, NAND flash, SSD and HDDs) along with fast server storage I/O network connectivity. Content based applications benefit from having frequently accessed data as close as possible to where the compute occurs (e.g. locality of reference).



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Hardware and Software Defined Converged Content Platform

An industry and customer trend is leveraging converged platforms based on multi-socket processors with dozens of cores and threads (e.g. logical processors) to support parallel or high-concurrent threaded content based applications. These servers have large amounts of local storage (DRAM memory, NAND flash SSD and HDD) space capacity and associated I/O performance (PCIe, NVMe, 40 GbE, 10 GbE, 12 Gbps SAS along with others) in addition to using external shared storage (local and cloud) as shown above.



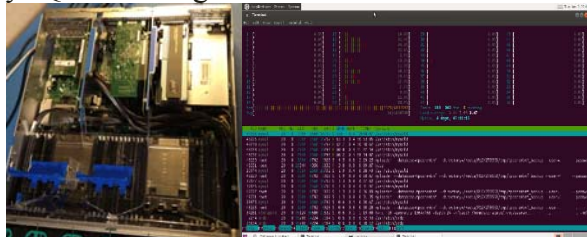
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What today's Content Solutions Need

Content solution and application servers need flexibility in terms of compute options (number of sockets, cores, threads), main memory (DDR3, DDR4 DIMM slots), PCIe (including G3) expansion slots for I/O networking and NVMe flash storage, as well as front-side internal storage slots for NVMe, SSD and HDD devices.

Servers Direct Content Solution

Available in 1U ([here](#)) and 2U ([here](#)) physical footprints, these platforms can be *software defined* and hardware defined to meet your specific content solution needs. For my test-drive, I used a 2U Content Solution platform that was software defined using Ubuntu Linux 14.04 along with MySQL 5.5 along with other tools.



Inside of 2U server and MySQL database load (http)

The 2U platform was *hardware defined* as follows:

- Dual multi-core E5-2600 series (54 logical processors)
- 64GB DRAM (expandable to 768GB with 32GB DIMMs)
- Dual-port 40 GbE CNA and traditional NICs
- 16 x 2.5" front side storage bay drive slots, eight (8) with 12 Gbps SAS (Hardware RAID protected), four PCIe (x4) NVMe, SAS/SATA converged (SFF-8637) aka "Blue Slots" and four SAS/SATA (These slots are by default SATA and can be SAS enabled with optional software key, or by attaching them to a SAS/SATA HBA or RAID controller) slots.
- 4 x Seagate Enterprise 10K SAS Turbo 1.8TB HDDs
- 2 x Seagate Enterprise 15K SAS Turbo 600GB HDDs
- 7 x Seagate Enterprise Capacity 7.2K 2TB HDDs
- 2 x Intel 800GB NVMe (8637) flash SSD drives
- 2 x Intel 2TB 3700 NVMe flash PCIe cards
- 1 x Intel 6 Gbps 300GB SATA flash drive
- Room for memory DIMMs and PCIe card expansion

Test-driving the Content Solution Platforms

For my "behind the wheel" hands-on test-drive the 2U Content Solution platform was put through various workloads. In addition to MySQL, general file serving workloads were run including small sized as well large (e.g. 4-10GB) files along with large I/O sizes 256 Kbytes to represent video and other content serving environments. From a performance perspective, maintaining sustained 6,000 MBps (e.g. 6 Gbps or 48 Gbps) was easily achieved without having to use all of the available hardware resources (plus there is expansion room).

Wrap-up and Summary

Fast content applications need fast content and flexible content solution platforms, such as those from Servers Direct. A key to a successful content application deployment is having the flexibility to *hardware define* and *software define* the converged platform solution to meet your needs. Just as there are many different types of content applications along with diverse environments, content solution platforms need to be flexible, scalable and robust, not to mention cost effective. Learn more at the www.serversdirect.com landing page for content solutions.



About the author

Greg Schulz is Founder, Sr. Advisory Analyst of independent IT advisory consultancy firm Server StorageIO (StorageIO), he is a Microsoft MVP File System Storage and six-time VMware vExpert and author of several books including two on the Intel Recommended Reading List. Learn more at [@StorageIO](http://www.storageio.com)

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