BUSINESS BRIEF

Data Center Performance
Intel® Optane ™ DC SSDs

Step Up to a New Class of Hyperconverged Infrastructure Performance

Cisco HyperFlex* All NVMe* platform's support for Intel® Optane™ DC SSDs boosts caching performance and delivers flexibility, scalability, and cost-efficiency

63% MORE IOPS

37% LESS LATENCY

with Cisco HyperFlex* All NVMe* running a 70/30 mixed workload[1]

Industry Strategic Challenges

As data volumes continue to rise sharply, the need to optimize data handling is more critical than ever. The ability to store data efficiently and access it quickly is a key competitive differentiator. Businesses need storage that's responsive for today's needs, but also able to scale at the pace of tomorrow.

Many businesses currently rely on SATA and magnetic disks. These legacy systems, with their limited scalability, cannot keep up with growing data demands. And in many cases, old proprietary systems have created data silos—complex and hard for IT to provision efficiently. Even hyperconverged infrastructure (HCI), fast growing in popularity, doesn't always deliver performance improvements across all workloads. Businesses need HCI solutions that benefit latency-sensitive and mission-critical enterprise applications, reduce TCO with greater VM density, and maximize end user productivity.

To meet these needs, Intel and Cisco have co-innovated a new class of HCI performance—and a new path to modernization that offers fast storage I/O, easy platform management, and scalability. Combining the latest Cisco HyperFlex* platform with the latest Intel® Xeon® Scalable processors, the system uses all NVMe* SSDs including Intel® Optane™ DC SSDs for caching and Intel® 3D NAND SSDs for capacity storage. And it has been qualified, validated, and engineered by Intel and Cisco—BIOS, driver, and controller—as one solution.[2]

Solution Summary

Cisco HyperFlex* All NVMe*

Intel® Optane™ DC Solid State Drives

3D NAND | **NVMe* Technology**

Intel® Volume Management Driver

Intel® Xeon® Processors

Improved caching performance[3]

Fast, scalable deployments

Potential benefits for:

- Databases
- Virtual servers
- Virtual desktops
- Containers
- Analytics
- Other Cisco platform applications

Intel® architecture-based enhancements to Cisco HyperFlex* All NVMe* platform address many of the pain points and application needs of today's enterprise IT.

Business Drivers and Desired Outcomes

- Maximize data value with quicker access and faster time-to-insight
- Reduce silos so data is accessible by more applications
- Support demanding workloads like artificial intelligence (AI) and machine learning
- Get more out of current servers
- Simplify IT deployment and management
- Plan effectively for future storage needs
- Scale easily and cost-effectively

Business Value

Cisco and Intel technologies are combined in this solution to deliver new capabilities and cost benefits for enterprise storage.

- Less than one hour to install a new cluster[4]
- Higher VM density at lower cost
- Consistent performance across VMs[5]
- Maximized CPU utilization, so data centers can increase users, add more services, and perform more workloads per server
- New insights from larger memory pools with bigger, more affordable data sets

Digital Transformation and Business Innovation

Transforming storage can impact how businesses capitalize on the data available to them. This solution enables companies to access and work with larger data sets, analyze them faster, and expand capacity as needed—an unprecedented balance of performance, cost, and capacity not economically feasible before. One of biggest advancements of this solution over previous HCI systems is that the Cisco HyperFlex All NVMe platform takes full advantage of the Intel® Volume Management Device—technology that inserts a control point between the individual drives and the CPU that maintains LED control and makes possible hot-swaps and hot plugs without crashing the system.

Solution Value Proposition

This solution delivers benefits that help keep enterprises agile and productive:

- Fast storage
- Easy platform management
- Scalability

Enabling Transformation

With this solution, Intel and Cisco provide a new option for businesses to optimize storage without having to compromise on performance or cost. It allows for faster, better use of data—especially for AI and machine learning—and cost-effective scaling, enabling competitive advantage now and in the future.

Intel Technology Foundation

Intel has been pioneering technologies to meet IT and business needs—and opportunities—created by sharply rising data volume. Building on experience with flash cell technology, Intel® 3D NAND is architected for the highest areal density, with smaller cell size and minimal wasted space. This allows capacity scaling and higher performing apps, while driving down long-term IT costs. Next-level performance with Intel® Optane™ technology is made possible through Intel® Optane™ memory media and its unique cross point structure and breakthrough materials that eliminate the need for transistors, which increases capacity and performance, while reducing overall cost.

Where to Get More Information

- For more information about Intel® Optane™ technology: www.intel.com/optane
- Cisco HyperFlex Solutions: cisco.com/c/en/us/products/hyperconvergedinfrastructure/hyperflex-solutions
- ESG Lab Validation of Cisco HyperFlex: esg-global.com/cisco-hyperflex

[1] "Mission-critical Hyperconverged Workload Performance Testing on Cisco HyperFlex All NVMe with Intel Optane DC SSD," April 2019, pp. 9-11 under ESG Testing; cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/dc-ssd-esg.pdf

[2] "Mission-critical Hyperconverged Workload Performance Testing on Cisco HyperFlex All NVMe with Intel Optane DC SSD," April 2019, p. 6 under Cisco's Fully Engineered HCI Approach; https://www.cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/dc-ssd-esg.pdf

[3] "Mission-critical Hyperconverged Workload Performance Testing on Cisco HyperFlex All NVMe with Intel Optane DC SSD," April 2019, pp. 9-12 under ESG Testing; cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/dc-ssd-esg.pdf

[4] "Mission-critical Hyperconverged Workload Performance Testing on Cisco HyperFlex All NVMe with Intel Optane DC SSD," April 2019; page 6 under Fast, Easy Deployment; https://www.cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/dc-ssd-esg.pdf

[5] "Mission-critical Hyperconverged Workload Performance Testing on Cisco HyperFlex All NVMe with Intel Optane DC SSD," April 2019, pp. 9-12 under ESG Testing; cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/dc-ssd-esg.pdf

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