

Easily Scale Your Apps and Data Services

Intel and Red Hat have co-developed workload-optimized data node configurations for Red Hat OpenShift Data Foundation, based on Intel® Xeon® Scalable processors and Intel® Optane™ technology



In this era of digital transformation, data volumes are exploding while performance requirements escalate. Data pipelines and data access are increasingly complex. To keep up, your containerized apps must more quickly serve up data. But you don't have time to evaluate and test various combinations of hardware and software to determine if they meet your data services' needs. You just need your data services to work—on premises, in the cloud, or across multiple clouds.

Deliver Data Services with Ease

Red Hat delivers an automated, complete cloud-native development and deployment platform with data services¹ through its Red Hat OpenShift Container Platform and Red Hat OpenShift Data Foundation products. OpenShift Data Foundation delivers persistent storage through a data service and orchestration layer that's fully integrated with and built for OpenShift. It natively provides all common storage services, including file, block, and object. It is massively scalable and provides deterministic performance at scale delivering a consistent user experience across any platform where OpenShift is deployed. Red Hat and Intel combine cutting-edge software and hardware technologies to deliver a workload-optimized data services solution that uses an external data node featuring Intel® Xeon® Scalable processors and Intel® Optane™ SSDs.

The Intel Optane SSDs serve as a cache tier in front of the capacity tier, speeding access to hot data and taking the write pressure off the capacity drives to create a solution that is optimized for both IOPS and total cost. Intel Optane SSDs are fundamentally different from other types of SSDs because they feature a memory-like capability inside an SSD form factor. This gives them lower latency, higher IOPS, and greater endurance. Data services are I/O-intensive and benefit from Intel Optane SSDs' ability to support up to 20x more drive writes per day than other SSDs. Intel Optane SSDs provide the performance, endurance, and reliability necessary to accelerate today's most demanding workloads, such as latency-sensitive big data analytics, machine learning/deep learning, and databases.

OpenShift Data Foundation data nodes are easy to deploy, easy to configure, and portable across clouds. They offer a combination of simplicity and flexibility, and streamline the process of going cloud-native using containers.

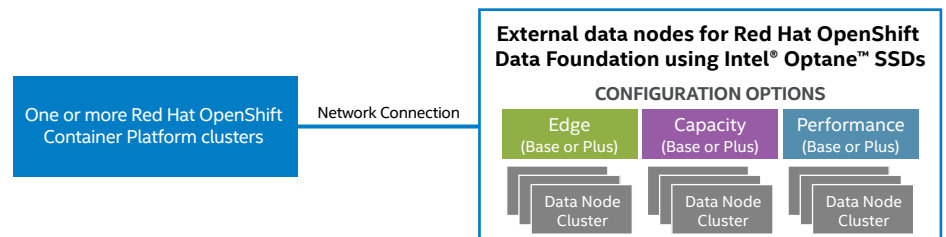


Figure 1. Predefined hardware-plus-software data node configurations eliminate guesswork and let you focus on scaling your apps and data services, not on infrastructure details.

Choose the Data Node Configuration That Fits Your Workload

Red Hat and Intel have jointly developed three workload-optimized configurations for Red Hat OpenShift Data Foundation external data nodes: Edge, Capacity, and Performance. Each configuration is available in a Base and a Plus configuration. With this range of configuration choices, you can quickly and easily right-size your data nodes for your particular workload, whether it's edge computing, high-capacity big data analytics, or latency-sensitive database transactions. Each configuration features the most appropriate Intel® Xeon® Scalable processor, Intel® SSDs, and Intel® networking products. In the near future, configurations will also be available with 3rd Gen Intel Xeon Scalable processors and 2nd Gen Intel Optane SSDs. Core-for-core, 3rd Gen Intel Xeon Scalable processors offer industry-leading performance on popular databases, HPC workloads, and AI. These configurations will take advantage of performance enhancements and provide

even more business value across a wide range of workloads. All configurations are available through major OEMs.

Using these data node configurations, you achieve the portability, consistency, and performance that you need to run your specific workloads, with confidence that the overall platform is fully interoperable with existing infrastructure.

Why Use Red Hat OpenShift Data Foundation with Intel® Technology-Based Data Nodes?

- Scalable data services
- Fast and easy to deploy
- Simplified evaluation
- Workload optimized

For more details, contact your Intel representative or visit intel.com/RedHat and redhat.com/Intel.

Table 1. Predefined Data Node Configurations for Red Hat OpenShift Data Foundation. Configurations are based on currently available hardware and software. In summer 2021, new configurations will be available.

	Edge Configuration	Capacity Optimized (Big Data and AI/ML)	Performance I/O Optimized (Analytics/Database)
Options	Base (10 TB) or Plus (20 TB)	Base (30 TB) or Plus (60 TB)	Base (15 TB) or Plus (30 TB)
Workloads or Services	Small footprint edge configurations	Big data workloads	Latency-sensitive workloads, such as transaction processing
Platform	2U 1 node	2U 1 node	2U 1 node
CPU	Base: 1x Intel® Xeon® Gold 5218R processor (16 cores) Plus: 2x Intel Xeon Gold 5218R processor (16 cores)	Base: 1x Intel® Xeon® Gold 6242R processor (20 cores) Plus: 2x Intel Xeon Gold 6242R processor (20 cores)	Base: 2x Intel Xeon Gold 6242R processor (20 cores) Plus: 2x Intel® Xeon® Gold 6248R processor (24 cores)
Memory	Base: 96 GB Plus: 192 GB	Base: 96 GB Plus: 192 GB	Base: 192 GB Plus: 384 GB
Data Network	Base: 2x Intel® Ethernet Network Adapter X710-T2L (10 GbE) Plus: 2x Intel Ethernet Network Adapter X710-T2L (10 GbE)	Base: 2x Intel Ethernet Network Adapter XXV710-DA2 (25 GbE) Plus: 2x Intel Ethernet Network Adapter XXV710-DA2 (25 GbE)	Base: 2x Intel Ethernet Network Adapter E810-CQDA2 (50 GbE) Plus: 2x Intel Ethernet Network Adapter E810-CQDA2 (100 GbE)
Management Network	1x Intel® Ethernet Connection X710-DA2 (10 GbE)	1x Intel Ethernet Connection X710-DA2 (10 GbE)	1x Intel Ethernet Connection X710-DA2 (10 GbE)
Storage Cache	Base: None Plus: 1x Intel® Optane™ SSD DC P4800X (375 GB)	Base: 1x Intel Optane SSD DC P4800X (750 GB) Plus: 2x Intel Optane SSD DC P4800X (750 GB)	Base: 2x Intel Optane SSD DC P4800X (750 GB) Plus: 2x Intel Optane SSD DC P4800X (1.5 TB)
Storage Media	Base: 6x Intel® SSD DC-S4510 (1.92 TB, 2.5" SATA, TLC) Plus: 6x Intel SSD DC-S4510 (3.84 TB, 2.5" SATA, TLC)	Base: 8x Intel SSD DC-S4510 (3.84 TB, 2.5" SATA, TLC) Plus: 16x Intel SSD DC-S4510 (3.84 TB, 2.5" SATA, TLC) or 8x Intel® SSD DC-S4510 (7.68 TB, 2.5" SATA, TLC)	Base: 8x Intel® SSD DC-P4610 (1.92 TB, 2.5" U.2 NVMe, TLC) Plus: 8x Intel SSD DC-P4610 (3.84 TB, 2.5" U.2 NVMe, TLC)
OpenShift Data Foundation ²	Attach to OpenShift Container Platform cluster Bare metal: RS00421 or Core pair: MCT4051	Attach to OpenShift Container Platform cluster Bare metal: RS00421 or Core pair: MCT4051	Attach to OpenShift Container Platform cluster Bare metal: RS00421 or Core pair: MCT4051



¹ Data services (or Data-as-a-Service) are collections of small, independent, and loosely coupled functions that enhance, organize, share, or calculate information collected and saved in [data storage volumes](#). Data services amplify traditional data by improving its resiliency, availability, and validity, as well as adding characteristics to data that it doesn't already have natively—like metadata.

² OpenShift Data Foundation subscriptions are entitled on the OpenShift Container Platform nodes that consume the data. If OpenShift Container Platform is subscribed for bare metal, add RS00421 to each OpenShift Container Platform node (1-2 sockets, up to 64 cores). If OpenShift Container Platform is subscribed per core pair, add one MCT4051 per core pair subscription. This provides entitlement for Red Hat OpenShift Data Foundation Advanced with Premium support.

Performance varies by use, configuration and other factors. Learn more at intel.com/PerformanceIndex. No product or component can be absolutely secure. Your costs and results may vary. Intel technologies may require enabled hardware, software, or service activation. Intel and the Intel logo, and other Intel marks are trademarks of Intel Corporation or its subsidiaries. Other names and brands may be claimed as the property of others. © Intel Corporation 0321/SMUI/KC/PDF 346567-001US