Diamanti D20 RH for Red Hat OpenShift

Break from legacy architectures

The Diamanti® D20 RH for Red Hat® OpenShift® enables enterprises building and deploying containerized applications to maximize the performance, scalability, and operational efficiency of Red Hat's best-in-class developer tools and industry-leading containers and Kubernetes platform. Diamanti accelerates the return on your Red Hat OpenShift investment with a turnkey approach that breaks from legacy architectures to deliver transformational application performance. Diamanti's full-stack solution with an accelerated data plane and patented I/O technology enables enterprises to overcome infrastructure challenges and focus on delivering cloud-native applications instead.

With Diamanti D20 RH, platform architects, IT operations, and application owners can take advantage of the performance and enterprise-class features they need to run containerized applications in production and at scale, complete with data protection and business continuity features built-in.
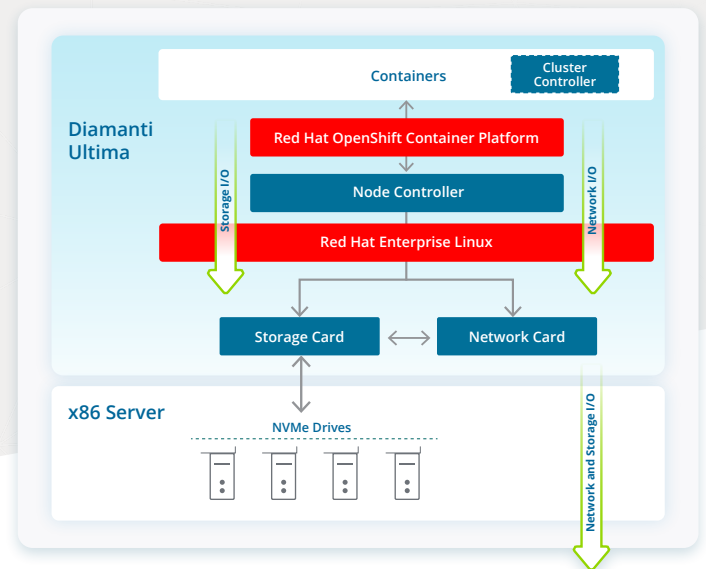
DIAMANTI AND RED HAT PARTNERSHIP

Red Hat Ready Partner, Global ISV Program

Red Hat Hardware Certified

Diamanti D20 RH

Key Benefits

Simple

- Integrated hardware and software infrastructure optimized for Red Hat OpenShift
- Pre-integrated with Diamanti's best-in-class Container Networking Interface (CNI) and Container Storage Interface (CSI) plugins
- Seamless addition of additional data plane nodes for increased scalability
- Optimized for enterprise security and high availability at scale
- Cloud-native data plane supports integrated volume snapshots, backup and disaster recovery for containerized applications
- Volume encryption and hardware-based self-encrypting drives (SED) on supported hardware

Performant

- Bare-metal OpenShift deployments remove unnecessary layers of abstraction
- Purpose-built CNI and CSI plugins optimized for use with Diamanti Ultima I/O acceleration cards and high performance Intel® Xeon® Scalable Processors and ultra-fast NVMe storage
- Diamanti Ultima offers:
  - Guaranteed performance with hardware-enforced quality of service (QoS) for storage and networking
  - Offloading of storage and network traffic allows greater than 95% of compute resources for applications
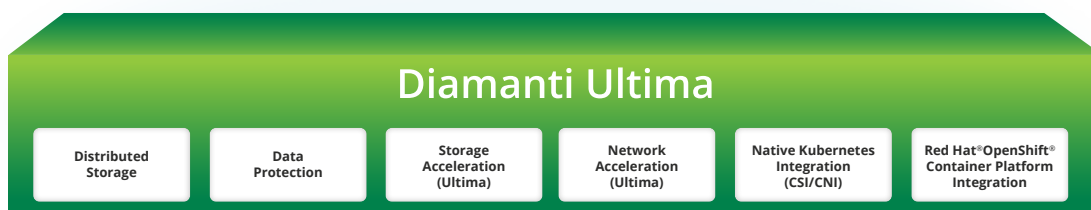 - 1 million IOPS per node with less than 100-microsecond latency
  - Intelligent storage resource controls that deliver built-in data protection and business continuity
  - Up to 30x performance improvements for I/O-intensive applications

Cost-Efficient

- Deliver massive cost savings by eliminating virtualization overhead and reducing hardware costs
- Run data-intensive workloads more efficiently and avoid overprovisioning of resources and "noisy neighbors"
- Achieve 70% reduction in overall data center footprint and TCO

About Diamanti D20 RH for Red Hat OpenShift

Diamanti D20 RH provides a container-native data plane that includes a distributed storage layer and integrated Container Networking Interface (CNI) and Container Storage Interface (CSI) plugins, making it possible to deliver advanced data services. Diamanti D20 RH includes built-in storage backup and restore, volume snapshots, synchronous replication for stretched clustering, and asynchronous replication for offsite disaster recovery (DR). Enterprises can seamlessly deploy, migrate and manage both stateless and stateful applications across multiple OpenShift clusters, spread across hybrid cloud environments.

Diamanti Ultima

Distributed Storage	Data Protection	Storage Acceleration (Ultima)	Network Acceleration (Ultima)	Native Kubernetes Integration (CSI/CNI)	Red Hat®OpenShift® Container Platform Integration

Diamanti Ultima Data Plane

Distributed Storage Layer

Diamanti's patented block storage architecture provides containerized applications with easily consumable persistent volumes. Diamanti's custom storage controller dynamically assigns PCIe VF interfaces to pods as they are scheduled, presenting each virtualized volume as a native NVMe block device.

Cloud-Native Storage

Diamanti D20 RH includes a CSI plugin that supports persistent data and provides the performance required for modern applications. Diamanti D20 RH supports advanced features for enterprise-grade data protection and disaster recovery (DP/DR).

Plug-And-Play Networking

Containers have their own unique system of port mappings, overlays, and bandwidth requirements that create a host of interoperability challenges. Diamanti eliminates these configuration roadblocks with its unique plug-and-play CNI that integrates directly with existing network infrastructure.

Enterprise-Class Data Management

Diamanti D20 RH console provides options for enabling data management features such as snapshots, mirroring, multi-cluster asynchronous replication, backup and restore.

High Availability And Instant Failover

Diamanti D20 RH offers flexibility for deploying highly available OpenShift clusters. In case of a failure, the Diamanti control plane can fail over instantaneously from one location to another with zero disruption. Applications can seamlessly access storage volumes across geographically distributed availability zones, thus enabling high availability of application data.

Data-At-Rest Encryption

Diamanti D20 RH offers protection for data-at-rest with AES 256-bit volume encryption and Self-Encrypting Drives (SED) on supported hardware. With these capabilities, enterprise customers can prevent data theft and protect against security breaches while not incurring significant performance penalties.

Detailed Real-Time Monitoring

Monitor cluster nodes and application containers with intuitive dashboards that depict overall compute and memory consumption, network utilization, and storage performance and capacity.

24x7 Enterprise-Class Support

Diamanti and Red Hat offer a seamless, unified customer support experience for Diamanti D20 RH.

Diamanti Ultima™ Offload

Transformational Application Performance With I/O Acceleration

Diamanti D20 RH can be paired with Diamanti Ultima Offload cards to offload storage and networking I/O traffic from the CPU, freeing compute and memory resources, enabling greater than 95% host utilization, for your workloads. Using a pair of PCIe cards, Ultima accelerates storage and networking I/O while delivering traffic isolation and guaranteed Quality of Service (QoS).

Diamanti Ultima Storage Card

- Second generation PCIe based I/O acceleration card
- Utilizes SR-IOV to provision volumes as virtual functions
- Implements container granular QoS policies for guaranteed IOPS
- Performs volume management
- Offers enterprise-class storage services such as snapshots, mirroring, asynchronous replication and backup and restore
- Allocate-on-write snapshot architecture ensures zero performance impact on applications when snapshots are created

Diamanti Ultima Network Card

- Second generation PCIe based I/O acceleration card
- 4x10 GbE via QSFP+ module
- Utilizes SR-IOV to provision network interfaces as virtual functions
- Implements container granular QoS policies for guaranteed throughput
- Provisions virtual network interfaces on-demand

Choice of Hardware
Modern Hyperconverged Platforms

Diamanti D20 RH works with your choice of x86 hardware, including options directly from Diamanti or from leading server providers including Dell Technologies and Lenovo. Diamanti D20 RH supports a wide range of hardware configurations. The Diamanti D20 family of modern hyperconverged platforms consists of D20, D20X and each includes ultra-fast NVMe storage.

The Diamanti D20X is equipped with the latest Intel® Xeon® Scalable Processors delivering unmatched performance for modern applications delivering a significant reduction in footprint and total cost of ownership (TCO).

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