

Diamanti Ultima™

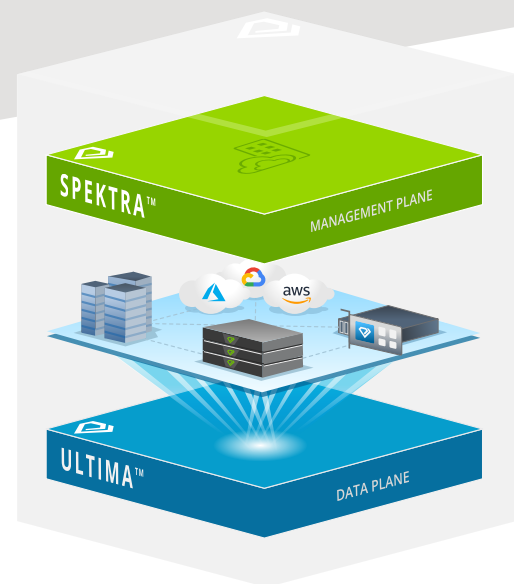
Most Powerful Data Plane Solution

Diamanti Ultima is a purpose-built software designed for the enterprise that needs a powerful data plane solution to run data-intensive applications on premises and public cloud environments. As a high-performing, flexible platform, Ultima features container-optimized storage and networking layers, providing developers with integrated data services, advanced CSI and CNI plugins, and I/O acceleration to provide a highly scalable solution that's unmatched.

Diamanti Ultima supports public clouds. As a result, developers are able to deploy applications running on clusters, migrate applications to and from different platforms; thereby, making it easy for developers to monitor and manage applications.

DIAMANTI ULTIMA USE CASES

- Application modernization
- Microservices
- Hybrid cloud
- Multi-cluster Kubernetes
- Databases
- Logging and analytics
- Streaming data processing
- AI/ML
- DevOps
- Edge
- IoT



Key Benefits

Secure

- Protect critical data with efficient snapshot-based data protection and synchronous mirroring
- Volume encryption and hardware-based (self-encrypting drive) security measures to protect against data theft and unintentional data loss
- Fault tolerant for node and availability zone failures

Simple

- Seamless deployment, expansion, migration, and failover of applications across hybrid clouds
- Easy to buy through Diamanti Central, a portal for enterprises to try and buy Diamanti Ultima software, and get technical support
- Simplify creation of Kubernetes deployment templates with easy-to-use front-end for creation of Kubernetes Podspecs
- Build once, deploy many

Performant

- I/O optimized storage layer and NVMe storage deliver high IOPs at low latency
- Seamlessly scale based on workload demands on applications without compromising network performance
- Easily track resource consumption and proactively detect potential application performance issues
- Guaranteed performance with hardware-enforced quality of service (QoS) for storage and networking
- Avoid overprovisioning of resources and eliminate “noisy neighbors”
- 70% reduction in overall data center footprint and TCO
- Diamanti Ultima I/O offload provides:
 - Offloading of storage and network traffic allowing 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

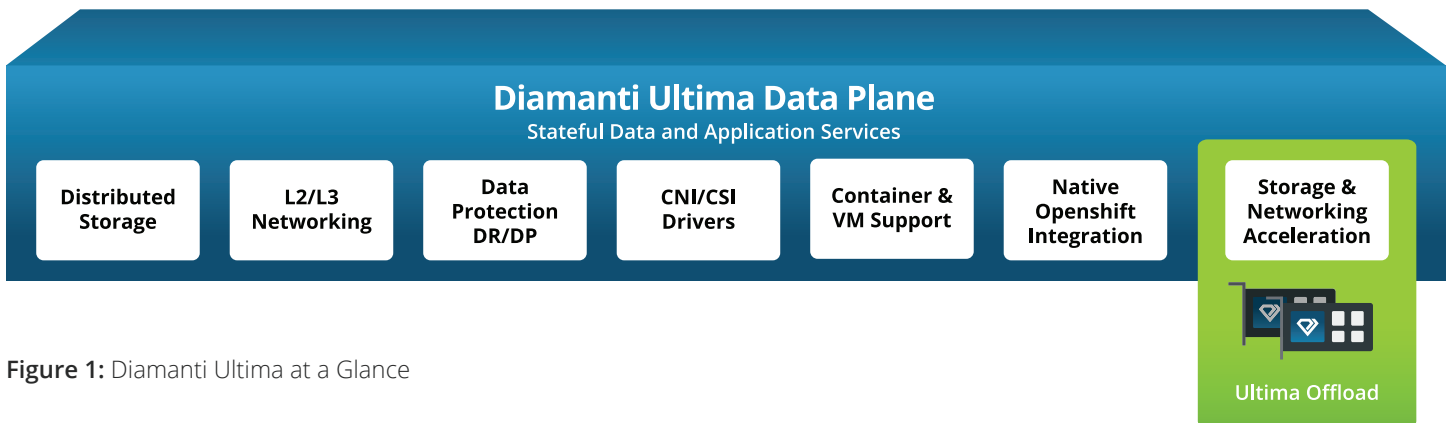


Figure 1: Diamanti Ultima at a Glance

Ultima Data Plane

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

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. It also 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.

Cloud-Native Storage

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

Plug-And-Play Networking

Diamanti eliminates configuration roadblocks with its unique plug-and-play CNI that integrates directly with existing network infrastructure.

Multi-Zone Clustering

Synchronous mirroring allows enterprises to deploy Ultima across stretched clusters, enhancing fault tolerance and application availability by deploying workloads across geographically distributed availability zones.

Enterprise-Class Data Management

Diamanti Spektra console provides options for enabling data management features such as snapshots, mirroring, multi-cluster asynchronous replication, backup and restore, volume encryption and self-encrypting drives (SEDs). Additionally, Diamanti provides enterprises a method of assigning resources based on new concepts of projects and tenants that layered on top of the basic Kubernetes resource and access controls.

High Availability And Instant Failover

Diamanti Ultima abstracts all the Kubernetes complexities and offers a turnkey solution that makes it easy to deploy and manage any type of application across multiple Kubernetes clusters, spread across hybrid cloud environments. Diamanti Ultima offers flexibility for deploying highly available Kubernetes applications. In case of a failure, the Diamanti control plane can fail over instantaneously from one location to another with zero disruption. Kubernetes applications can seamlessly access storage volumes across geographically distributed availability zones, thus enabling high availability of application data.

Data-At-Rest Encryption

Diamanti Ultima offers protection for data-at-rest with AES 256-bit volume encryption and SEDs on supported hardware. With these capabilities, enterprise customers can prevent data theft and protect against security breaches while not incurring significant performance penalties.

AI/ML Integration

Diamanti Spektra enables easy integration of GPU resources and intelligent storage thus enabling scalable AI infrastructure and helps simplify AI/ML workloads deployment. Using the power of Kubernetes on bare-metal, data scientists can tap into performance, ease of use, and flexibility of deploying AI/ML workloads in containers.

Cloud Support

Diamanti Ultima supports cloud environments by giving developers the ability to deploy applications running on public cloud clusters, and migrate applications to and from clouds; thereby, making it easier for developers to monitor and manage applications.

Transformational Application Performance With I/O Acceleration

Diamanti Ultima storage and network cards are used to offload storage and networking I/O from the host CPU. This frees up compute and memory resources, resulting in 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 bandwidth
- Provisions virtual network interfaces on-demand

Diamanti Central

Diamanti is revolutionizing how developers get started on Kubernetes and making it widely adopted within their organizations. By launching Diamanti Central, large and small organizations alike can access to best practices, a library of curated Helm charts and Diamanti Operators, documentation, reference architectures, and technical support.

Best of all, once registered, developers will receive a free trial of Diamanti Spektra and Diamanti Ultima. No upfront investment. No hassle.

As a premium software solution, Diamanti Ultima delivers the most comprehensive data plane management, storage and networking capabilities for the modern enterprise needing a solution to run Kubernetes data.

Choice of Hardware

Modern Hyperconverged Platforms

Diamanti Spektra works with your choice of x86 hardware, including options directly from Diamanti or from leading server providers including Dell Technologies and Lenovo. Diamanti Spektra supports a wide range of hardware configurations. The Diamanti D20 family of modern hyperconverged platforms consists of D20, D20X, G20T, and G20P each includes ultra-fast NVMe storage. The D20 series now comes with additional 2 x 10G ports increasing bandwidth by 100 percent.

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).

Diamanti G20T and G20P are purpose-built to support artificial intelligence (AI) and machine learning (ML) use cases with maximum utilization and return on investment (ROI). G20T is ideal for AI/ML model training and supports Nvidia NVLink technology. G20P is intended for AI/ML inference to cater to the varying AI/ML use cases in production.

Diamanti D20 series now adds 2 ports, increasing network bandwidth by 100%. This enables enterprises to get the highest performance and TCO from investment in the infrastructure.



ABOUT DIAMANTI

Diamanti is solving the challenge of container-based hybrid clouds with a simple and cost-effective platform that addresses enterprise requirements for managing Kubernetes data at any scale.

www.Diamanti.com

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