DELL EMC POWERPROTECT DD SERIES APPLIANCES

The ultimate protection storage appliance

Dell EMC PowerProtect DD Series Appliances enables organizations to protect, manage and recover data at scale across their diverse environments. PowerProtect DD Series Appliances are the next generation of Dell EMC Data Domain appliances, that are now setting the bar for data management from edge to core to cloud. PowerProtect DD provides the ecosystem support, efficiency, comprehensive, powerful data protection and cloud-enabled capabilities that customers have come to expect and appreciate from Data Domain and takes it to the next level.

The DD Operating System (DDOS) is the intelligence that powers the Dell EMC PowerProtect DD Series Appliances. It provides the agility, security and reliability that enables PowerProtect DD to deliver high-speed, scalable and industry-leading multi-cloud protection storage for backup, archive and disaster recovery. DDOS integrates seamlessly with existing infrastructures, enabling ease-of-use with leading backup and archiving applications, and offers superior performance in conjunction with Dell EMC PowerProtect Data Manager and Data Protection Suite.

Fast, secure and efficient data protection

PowerProtect DD reduces the risk of data loss and leverages the value of protected data, while meeting ever more demanding SLAs and increasing ROI. DDOS drives PowerProtect DD to deliver up to 38% faster backups and up to 45% faster restores at higher compression levels.** This improved level of compression efficiency increases the logical capacity by up to 30% per TB*.

PowerProtect DD can now scale up to a physical capacity of 1.5PB in a single rack, thereby utilizing minimal floor space and lowering power and cooling by up to 41%.*** By employing denser disk drives, PowerProtect DD has lowered the required rack space by up to 39%.

PowerProtect DD provides up to an additional 2PB of logical capacity for long-term retention in the cloud, with Dell EMC Cloud Tier.

PowerProtect DD supports high availability within the single rack. By doing so, PowerProtect DD can further reduce the total cost of ownership by reducing downtime in the unlikely event of a hardware failure. PowerProtect DD delivers high speed networking connectivity with support for 25GbE and 100GbE network adapters.

Key benefits

Fast, secure, efficient data protection

- 1.5PB usable capacity in a single rack
- Up to 2PB capacity for long-term retention
- Improves logical capacity by up to 30% per TB*
- IA/IR of up to 64VMs and 60k IOPS*****
- High speed network connectivity – 10GbE, 25GbE and 100GbE
- Seamless integration and superior performance with PowerProtect Data Manager and Data Protection Suite
- Supports leading enterprise backup and archive applications

Industry-leading multi-cloud protection

- Software-defined protection storage on-premises and in-cloud with PowerProtect DD Virtual Edition (DDVE)
- DDVE scales up to 256TB in-cloud (AWS Google Cloud)
- Up to 3.1x faster in-cloud restores with DDVE and DDOS 7.2****
- Dell EMC Cloud Tier delivers simple and efficient long-term retention to a public, private or hybrid cloud
- Low-cost disaster recovery to the cloud

Operational simplicity

- Enhanced DD System Manager provides complete chassis view
- Lower administrative costs
- Single point of management of all PowerProtect DD appliances by PowerProtect DD Management Center

* Based on Dell EMC internal testing of PowerProtect DD with DDOS 7.0 and NetWorker with DD Boost, July 2020. Actual results may vary.
** Based on Dell EMC Internal testing with DD Boost protocol on DD9900 with DDOS 7.2 vs. DD9800 with DDOS 7.2, April 2020. Actual results may vary.
*** When comparing 1PB of data on DD9800 with Cloud Tier and PowerProtect DD9900 with Cloud Tier, April 2020. Actual results may vary
**** Based on Dell EMC internal testing comparing DDVE in-cloud restore performance with DDOS 7.2 compared to DDOS 7.1, May 2020. Actual results may vary.
***** Based on an 8KB 100% read internal test with DD Boost protocol on PowerProtect DD9900 and DDOS 7.2, July 2020. Actual results may vary

Instant access and instant recovery

Instant access and instant restore delivers high performance of VMs with up to 60,000 IOPS with the ability to instantly access up to 64 VMs simultaneously.*****

Instant access and instant recovery save time, minimizing mean time to repair (MTTR), by enabling instant access to data from the backup image on the included PowerProtect DD SSD drives. It also saves primary storage space with the ability to manage data on the appliance itself and lowers cost by better utilizing the physical resources in both the data protection as well as the production environments.

In case of any failure or disaster recovery in a virtualized environment, PowerProtect DD can spin-up production-oriented VMs immediately within the appliance itself. By doing so, the customer can continue their daily routine without experiencing any downtime, while the failed VMs are restored to the production environment.

Data Invulnerability Architecture

PowerProtect DD is designed as the storage of last resort – providing you with the confidence that you can always reliably recover your data. The Data Invulnerability Architecture is built into DDOS and PowerProtect DD Series Appliances to provide the industry's best defence against data loss. Inline write and read verification protects against and automatically recovers from data integrity issues during data ingest and retrieval while RAID-6 and hot spares protect against disk failure.

Capturing and correcting I/O errors inline during the backup process eliminates the need to repeat backup jobs, ensuring backups complete on time and satisfy service-level agreements. In addition, unlike other enterprise arrays or file systems, continuous fault detection and self-healing ensures data remains recoverable throughout its lifecycle on PowerProtect DD.
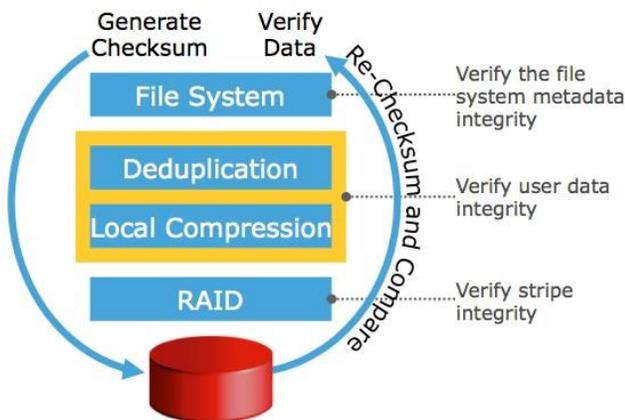
End-to-end data verification

End-to-end data verifications reads data after it is written and compares it to what was sent to disk, proving that it is reachable through the file system to disk and that the data is not corrupted. Specifically, when DDOS receives a write request from backup software, it computes a checksum over the data. After analysing the data for redundancy, it stores the new data segments and all the checksums. After all the data is written to disk, DDOS verifies that it can read the entire file from the disk platter and through PowerProtect DD, and that the checksums of the data read back match the checksums of the written data. This confirms the data is correct and recoverable from every level of the system.

End-to-end data verification

Comprehensive Dell EMC PowerProtect DD Series Portfolio

	DDVE - 96TB	DD3300	DD6900	DD9400	DD9900
Backup Ingest (w/DD Boost)	Up to 11.2TB/hr	Up to 7.0TB/hr	Up to 33TB/hr	Up to 57TB/hr	Up to 94TB/hr
Logical Capacity (w/Active Tier)	Up to 4.8PB	Up to 1.6PB	Up to 18.7PB	Up to 49.9PB	Up to 97.5PB
Usable Capacity (w/Active Tier)	1TB-96TB	4TB-32TB	24TB-288TB	192TB-768TB	576TB-1.5PB

Logical capacity based on up to 50x deduplication (DD3300) and up to 65x deduplication (DD6900, DD9400, DD9900) based on additional hardware-assisted data compression of up to 30% better than previous generation. Actual capacity & throughput depends on application workload, deduplication, and other settings.

Seamless integration

PowerProtect DD integrates easily with existing infrastructures, enabling ease-of-use with leading backup and archiving applications, and offers superior performance in conjunction with PowerProtect Data Manager and Data Protection Suite.

Since PowerProtect DD can simultaneously support multiple access methods including NFS, CIFS, VTL, NDMP and DD Boost™ all applications and utilities can be supported in the same PowerProtect DD appliance at the same time to enable greater protection storage consolidation. A system can present itself as a file server, offering NFS, CIFS access over Ethernet; as a virtual tape library (VTL) over Fibre Channel; as an NDMP tape server over Ethernet; or as a disk target using application specific interfaces like DD Boost. DD VTL is qualified with leading open systems and IBM i enterprise backup applications.

Industry-leading multi-cloud protection

PowerProtect DD simplifies and obtains operational efficiencies including resiliency and scale as you grow in any cloud environment – private, public and hybrid. PowerProtect DD supports the most extensive cloud ecosystem – AWS, Azure, VMware Cloud, Google Cloud, Alibaba Cloud, and Dell EMC ECS to deliver excellent in-cloud data protection at reduced costs. PowerProtect DD can natively tier deduplicated data to any supported cloud environment for long-term retention with Dell EMC Cloud Tier. PowerProtect DD provides fast disaster recovery with orchestrated DR and provides an efficient architecture to extend on-premises data protection with lowered costs.

PowerProtect DD Virtual Edition

PowerProtect DD Virtual Edition (DDVE) leverages the power of DDOS to deliver software-defined protection storage on-premises and in-cloud. DDVE is fast and simple to download, deploy and configure - can be up and running in minutes. DDVE can be deployed on any standard hardware, converged or hyper-converged, and runs in VMware vSphere, Microsoft Hyper-V, KVM, as well as in-cloud with AWS, AWS GovCloud, VMware Cloud, Azure, Azure Government Cloud, and Google Cloud. DDVE is also certified with VxRail and Dell PowerEdge servers. An assessment tool can be run during deployment to check the underlying infrastructure and ensure it meets recommended requirements. A single DDVE instance can scale up to 256TB in-cloud (AWS and Google Cloud) and up to 96TB on-prem and in Azure. Capacity can easily be moved between virtual systems and/or locations and can scale in increments of 1TB allowing you to grow capacity as the business demands. DDVE maintains the core DDOS features and includes DD Boost, DD Encryption and DD Replicator. DDVE can be configured and managed using DD System Manager and centrally manage multiple DDVE instances, on-premises and in-cloud, through PowerProtect DD Management Center.

Long-term retention and disaster recovery in-cloud

With Dell EMC Cloud Tier (Cloud Tier), DDOS can natively tier data to a public, private or hybrid cloud for long-term retention. Only unique data is sent directly from PowerProtect DD to the cloud and data lands on the cloud object storage already deduplicated. It supports AWS, AWS Gov Cloud, Azure, Google Cloud, IBM Cloud, Alibaba Cloud, and Dell EMC Elastic Cloud Storage (ECS). With deduplication ratios of up to 65x, storage footprint is greatly reduced lowering overall TCO. Cloud Tier can scale up to 2x the max capacity of the active tier of a PowerProtect DD appliance (Up to 2PB). With DD Encryption, data in the cloud remains secure. Cloud Tier works with DDVE for on-prem deployments.

Dell EMC Cloud DR (Cloud DR) allows enterprises to copy backed-up VMs from their on-premises PowerProtect DD environments to the public cloud (AWS, Azure) and to orchestrate DR testing and failover of workloads to the cloud in a disaster scenario with end to end orchestration. In addition, Cloud DR also supports failover of workloads to VMware Cloud™ on AWS for even simpler management and orchestration.

Operational simplicity

PowerProtect DD is very simple to install and manage resulting in lower administrative and operational costs. Administrators can access DDOS through command line over SSH or through DD System Manager, a browser-based graphical user interface.

Multiple PowerProtect DD appliances can be managed and monitored through a single interface, PowerProtect DD Management Center, or DDMC. Customizable dashboards provide visibility into aggregate status, status by geo, and the ability to drill-down to system-level details. Role-based access allows different levels of access via assigned user roles for various levels of expertise within the organization. Simple programmability as well as SNMP monitoring provides additional management flexibility. DDMC offers a pre check option before scheduling a DDOS upgrade to make sure your environment is compatible with the update. Once the pre check is complete you can schedule a one to many upgrade allowing you to schedule multiple DDOS upgrades as opposed to one to one updates. Configuring multiple PowerProtect DD appliances is simple with DDMC by allowing you to create and apply configuration templates to your appliances. With cyber-attacks and threats on the rise, DDMC can provide compliance alerts when a system's configuration is out of compliance.

In addition, PowerProtect DD has an automatic call-home system reporting called auto-support, which provides email notification of complete system status to Dell EMC support and a selected list of administrators. This non-intrusive alerting and data collection capability enables proactive support and service without administrator intervention, further simplifying ongoing management.

PoweProtect DD software add-ons

DD Boost

DD Boost software delivers an advanced level of integration with backup applications and data base utilities, enhancing performance and ease of use. Dell EMC also provides a DD Boost File System Plug-In (BoostFS) with DD Boost for even greater application support, which enables all the benefits of DD Boost for applications that use NFS for data protection. Rather than sending all data to the system for deduplication processes, DD Boost enables the backup server or application client to send only unique data segments across the network to the system.

DD Replicator

DD Replicator software provides automated, policy-based, network-efficient and encrypted replication for disaster recovery and multi-site backup and archive consolidation. DD Replicator software asynchronously replicates only compressed, deduplicated data over the WAN. Cross-site deduplication further reduces bandwidth requirements when multiple sites are replicating to the same destination system. This improves network efficiency across all sites and reduces daily network bandwidth requirements making network-based replication fast, reliable and cost effective. In order to meet a broad set of DR requirements, DD Replicator provides flexible replication topologies, such as full system mirroring, bi-directional, many-to-one, one-to-many, and cascaded.

Dell EMC Future-Proof Program

Dell EMC Future-Proof Program is a customer facing program that gives our customers additional peace of mind with guaranteed satisfaction and investment protection through a comprehensive set of world class technology capabilities and programs for future technology changes. Dell EMC PowerProtect DD Series Appliances participates in this Future-Proof Program.

Learn more about
PowerProtect DD

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