



Service Description

Maintenance Health Check for a Dell | EMC Solution - Standard

Service SKUs

See Appendix A for further information on T1, T2 and T3 Standard Maintenance.

Service Overview

This service provides for a yearly health check on a Dell | EMC storage area network (“SAN”) or direct attached storage (“DAS”) array environment consisting of a single Dell | EMC storage array and up to 23 hosts (servers) (the “Service” or “Services”), as set forth more specifically in this Service Description. This Service includes an analysis of the logs and configuration of the SAN or DAS environment and its associated components, such as hosts, switches, host bus adapters (“HBA”s) and disk array enclosures (“DAE”s). This Service provides for the upgrade and/or update of the software array components, the identification of any issues affecting the proper operation of the array, and, if necessary, initiating a call to Dell Storage Support for the Customer, to address any identified issues. Issues outside the scope of this Service must be addressed by the Customer through the normal Dell support processes.

The Service is scheduled to occur over a number of calendar weeks in three phases: discovery, analysis, and delivery, and may be provided remotely. Dell will use the results of the discovery and analysis phase of this Service to determine the delivery method. The Standard Maintenance Service may be delivered remotely via telephone and/or web-based session with the Customer assisting at the array location.

This Service requires a valid Gold or Platinum Enterprise Support agreement for each applicable array and server, and is initiated by the Customer by contacting the Dell Gold or Platinum Storage Support group, as applicable at 1-800-945-3355.

Not Included With This Service

- Multiple arrays; each array requires a separate Service agreement.
- Storage arrays containing more than 23 hosts, which would require a separate Service agreement.
- Any activities related to hardware or software other than those specifically noted in this Service Description; these include, but are not limited to:
 1. Tape backup devices.
 2. Upgrade or installation of any components into non-Dell servers.
 3. Non-Dell | EMC disk enclosures.
 4. Any Non-Dell hardware.
 5. NAS hardware other than Dell PowerVault™.
 6. Tape backup software.
 7. Applications, such as Visual SRM®, Microsoft® Exchange, Microsoft SQL™, Oracle® and back office applications.
 8. Replication software.
 9. Host network operating systems (“NOS”s) and updates, patches, or Service Packs.
 10. Host peripheral card firmware and drivers.
- Clustering of hosts or applications.
- Performance tuning of the array environment.
- De-installation or re-installation of product(s) or application(s).
- Any design changes or consultation Services such as modifications or enhancements to the environment to take advantage of new features contained in the new software versions.
- Reconfiguration of any of the Customer’s hardware or software.



- Any activities other than those specifically noted in this Service Description.

Customer's Responsibilities

- **Complete a backup of all existing data and programs on all affected systems prior to the delivery of this Service. DELL WILL HAVE NO LIABILITY FOR LOSS OR RECOVERY OF DATA OR PROGRAMS or loss of use of system(s) arising out of the services or support or any act or omission, including negligence, by Dell or a third-party service provider.**
- Initiate this scheduled Service by contacting Dell Gold or Platinum Storage Support via telephone.
- Ensure that the Dell | EMC (disk processing enclosure ("DPE")/ storage processing enclosure ("SPE") has an active Platinum or Gold Enterprise Support Service agreement at the time this Service is performed.
- Make certain that all software affected by this Service is registered through the Dell | EMC Powerlink website. The registration process can take up to four business days to complete.
- Purchase applicable software from Dell and have a valid software support agreement in place in order to receive software upgrades or updates.
- Ensure that the NOS on each host is at the required Service Pack or Patch level in accordance with the EMC® Support Matrix.
- Make appropriate system maintenance window(s) available for Dell (or authorized agents) as needed and consider the following:
 1. When requesting hardware/software additions, the Discovery phase will not commence until the hardware/software is confirmed to be at the location where the Service will be delivered.
 2. Once the Discovery phase is performed, the Service Delivery phase may only be rescheduled once.
 3. During the Service Delivery phase, the software upgrade will likely cause a temporary loss of connectivity to the hosts attached to the array.
- Ensure that any third party hardware or software components are compatible with any upgrade performed to the Dell | EMC array environment and if necessary, purchase additional Services and/or hardware/software from those third parties or Dell in order to assure interoperability within the storage solution.
- Provide at least one technical contact with system administration responsibilities and appropriate system/information access privileges to the hosts, switches and storage arrays. Contact must be available on-site near the affected array during the delivery phase of the Service.
- Contact must have capability and availability to work with Dell via remote web-based session when the Service is performed remotely by Dell.
- Provide a dedicated console for access to the affected array during the Service delivery.
- Make certain that the storage array is functioning with no open support incidents prior to Dell delivering this Service.
- Refrain from making any changes to the storage array between the discovery and Service delivery phase of the maintenance Service.

Key Service Steps

- **Discovery**
 1. The following information will be collected for review:
 - a. Storage processor event logs.
 - b. Storage processor configuration logs.
 - c. Switch configuration and event logs.
 - d. Storage array related host information:
 - i. NOS and Service pack versions.
 - ii. HBA driver revision.
 - iii. HBA firmware (utilities or downtime may be required).
 - iv. Failover software versions and path status information.
 - v. Navisphere® Agent/CLI versions.
 - vi. Event logs (varies based on operating system).
- **Analysis**



- Review the following logs and identify current or potential issues in the environment that may be impacting functionality and reliability:
 - a. Storage processor event logs – Array related events that affect the productivity of the DPE and DAE devices.
 - b. Storage processor configuration logs – potential device configuration issues, array based software revisions and host connectivity status as seen by the array.
 - c. Switch configuration and event logs – port-by-port review looking for error counters that would indicate a failure or potential failure on devices outside of the host or DPE (examples include, but are not limited to, cables and internal switch related hardware).
 - d. Storage array related host information – Analysis of Storage array related software revisions, path status, event logs (these events include, but are not limited to, HBA driver, failover software, device timeouts on Storage array based logical unit number (“LUNs”) or read/write events on storage array based LUNs).
- 2. Notify the Customer regarding the steps required for Service delivery including but not limited to, preparation, time required to perform the services and potential issues.
- **Service Delivery**
 1. Upgrade or update of the array software and firmware as necessary, including:
 - a. Navisphere Manager.
 - b. Navisphere Agent.
 - c. Array Base code/FLARE® code including:
 - i. Access Logix.
 - ii. Dell CLARAlert®.
 - iii. MirrorView™/A and MirrorView/S.
 - iv. SAN Copy™.
 - v. SAN Copy/E for AX100, AX150, and CX300.
 - vi. SnapView™.
 - d. HBA driver.
 - e. HBA firmware.
 - f. Switch firmware.
 2. If the Customer has purchased and implemented the following software, it will also be updated:
 - a. Navisphere Analyzer.
 - b. PowerPath®/ATF.
 - c. Replication Manager SE CLARiiON®.
 - d. VisualSAN®.
 3. If the array has more than four hosts and if this Service is delivered remotely, more than one web based session (multiple hours per session) may be required.
 4. If issues are discovered that are affecting the functionality and reliability of the array, contact Dell Storage Support to initiate a resolution for the Customer. Additional charges could apply unless covered by the Customer's existing support agreement.
- **Project Closeout:**
 1. Verify the following:
 - a. Successful reboot of the storage array.
 - b. Visibility of LUNs/Virtual Disks to the appropriate hosts.
 - c. Email home functionality.
 2. Provide documentation to reflect the Services performed.
 3. Obtain Customer sign off acknowledgement.



Important Additional Information

Service is available in the United States only. Customer may contact its Dell Sales Representative for information on the availability of Service outside the United States.

Purchase of additional Services may be required or travel expenses and time may be invoiced to the Customer, if the Customer requires Dell or Dell's representatives to be on Customer site for delivery of any portion of the T1 Service. These fees or expenses may apply when the EMC FLARE or base software code on the DPE or SPE must be upgraded to EMC FLARE base code software release 24, available in January 2007, or a later release of this software.

This Dell | EMC Maintenance Service shall expire at the end of the agreement term (reflected on Customer's invoice) or use of the entitled Service, whichever comes first.

Dell is pleased to provide these Services in accordance with this Service Description and the terms and conditions of Customer's applicable signed service agreement with Dell or Dell's third-party service provider, or, in the absence of such an agreement, the terms and conditions of Dell's Customer Master Services Agreement available for US and Latin America Customers at http://www.dell.com/service_contracts/, or for Canada Customers at <http://www.dell.ca/servicecontracts/>.

PowerVault is a trademark of Dell, Inc.

EMC, CLARiiON, CLARAlert, Navisphere, FLARE, Visual SRM, PowerPath and VisualSAN are registered trademarks of EMC Corporation. MirrorView, SAN Copy and SnapView are trademarks of EMC Corporation.

Oracle is a registered trademark of Oracle Corporation.



Appendix A

Standard Maintenance

Legend	SKU #	Description	AX100	AX150	CX200	CX300	CX3-10	CX3-20	CX400/500	CX3-40/80	CX600/700
T1-Standard Maintenance											
T1M1P1	986-3029	T1 Standard Maintenance 1 per Year/1Year				Y	Y				
T1M1P2	986-3039	T1 Standard Maintenance 1 per Year/2 Years				Y	Y				
T1M1P3	986-3049	T1 Standard Maintenance 1 per Year/3 Years				Y	Y				
T1M1P1	980-0738	T1-Standard Maintenance 1 per yr for 1 yr		Y							
T1M1P2	980-0747	T1-Standard Maintenance 1 per yr for 2 yrs		Y							
T1M1P3	980-0748	T1-Standard Maintenance 1 per yr for 3 yrs		Y							
	980-0907	T1-Standard Maintenance 1 per yr for 1 yr, APOS	Y	Y	Y	Y	Y				
T2-Standard Maintenance											
T2M1P1	980-0788	T2-Standard Maintenance 1 per yr for 1 yr						Y			
T2M1P2	980-0797	T2-Standard Maintenance 1 per yr for 2 yrs						Y			
T2M1P3	980-0798	T2-Standard Maintenance 1 per yr for 3 yrs						Y			
	980-0957	T2-Standard Maintenance 1 per yr for 1 yr, APOS						Y	Y		
T3-Standard Maintenance											
T3M1P1	980-0838	T3-Standard Maintenance 1 per yr for 1 yr								Y	
T3M1P2	980-0847	T3-Standard Maintenance 1 per yr for 2 yrs								Y	
T3M1P3	980-0848	T3-Standard Maintenance 1 per yr for 3 yrs								Y	
	980-1007	T3-Standard Maintenance 1 per yr for 1 yr, APOS								Y	Y