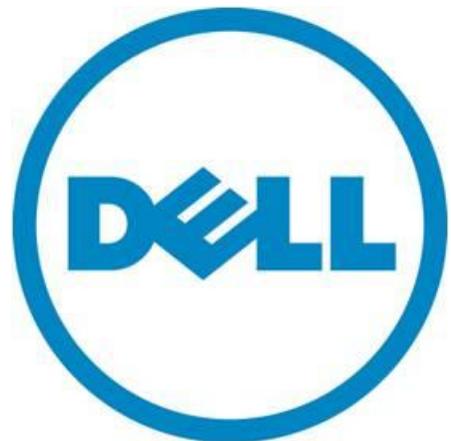


DELL DX Object Storage Platform - Remote Synchronous Replication Configuration

Dell

Storage Engineering



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Introduction

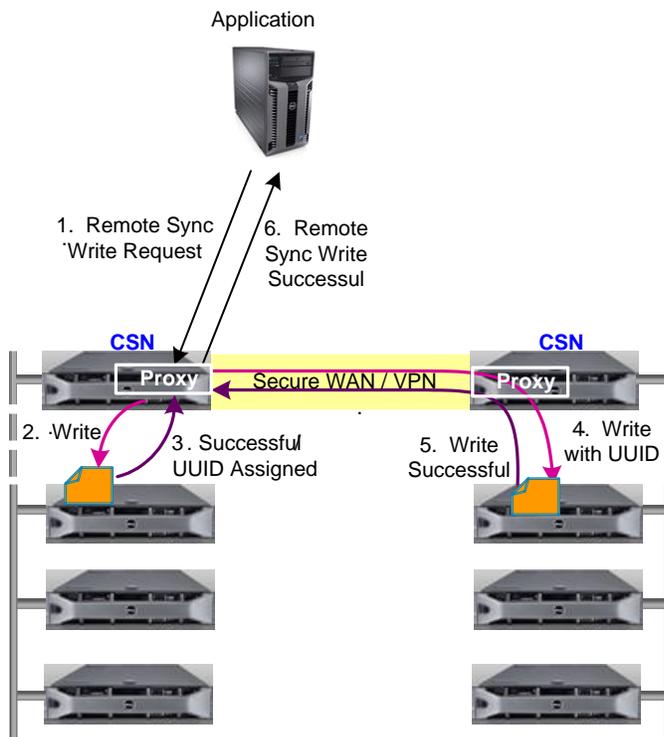
The DX™ Object Storage Platform provides a mechanism for applications to write data to a local DX Cluster and to replicate it over a standard IP network to a disaster recovery cluster synchronously, within a single request. Unlike, remote asynchronous replication that is done through the Content Router application, remote synchronous replication is not dependant on meta-data to identify streams for replication. The application specifies that an object is to be replicated to a remote cluster at the time of writing it to the local cluster. The object is written to both DX Clusters before a response is sent back to the application. Since the object is replicated long distances over an IP network, there may be performance aspects associated with remote synchronous writes that should be taken into consideration. The purpose of this document is to provide DX Storage administrators, application developers, and support teams instructions on the DX platform configuration required when applications are utilizing the remote synchronous write feature to enable synchronous writes to a local and remote DX Clusters.

Remote Synchronous Replication Overview

The DX Object Storage Platform allows an application to write or update objects on a local and remote DX Clusters with one single operation. This is done by using the remote synchronous write functionality. The Cluster Services Node (CSN) provides a SCSP Proxy interface to the DX Storage nodes (SN). This interface accepts operations from applications and re-directs them to the DX Storage Nodes in the designated cluster. It enables an application to interact with multiple DX Storage Clusters over a secure WAN interface. An application can ensure that an object is written to the local cluster and then immediately replicated to a disaster recovery DX Cluster, by writing the object to the local DX Cluster through the proxy interface identifying the remote DX Cluster to which it should be replicated and specifying that the replication should take place immediately.

When writing an object using remote synchronous writes, a single copy of the object is first written to the local cluster. If the local write fails for any reason, an error response is returned to the requestor and the operation is aborted. If the local write is successful, the SCSP Proxy will initiate a write to the specified remote DX Cluster using the UUID assigned by the local DX Cluster. This request is authenticated using the DX Storage administrator credentials specified in the configuration of the remote DX Cluster in the SCSP Proxy. If the remote write is successful, a 201 Create response is returned to the application indicating that the object was written successfully on both the local and remote DX Clusters. If the remote write fails for any reason, a 202 Accept response is returned to that application indicating that only the local write was successful. For cases when the local write succeeds and the remote write fails, the application can rely on the remote replication occurring at a later time using DX Content Router to convey the local stream to the remote cluster if that functionality is enabled. Alternatively, the local copy can be deleted and the operation retried.

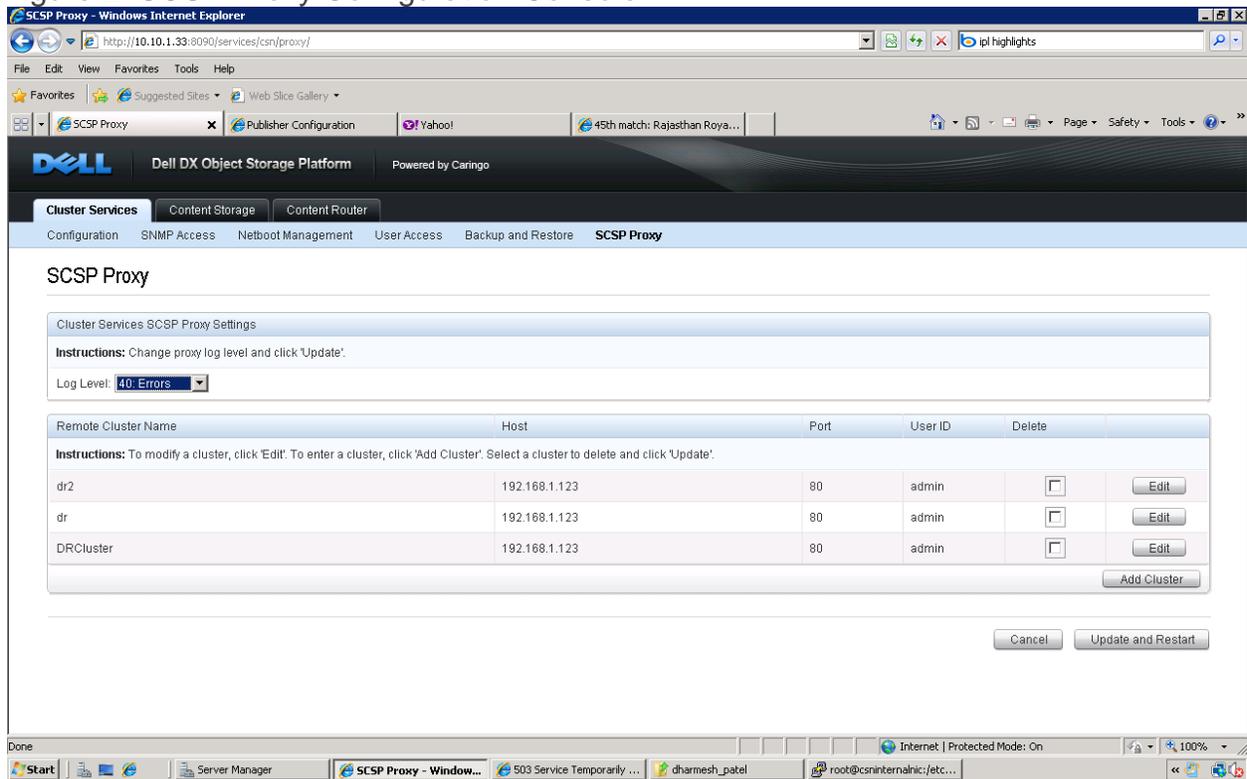
Figure 1: Remote Synchronous Writes



Configuration of the Proxy

The SCSP Proxy is capable of communicating with remote DX Cluster to enable replication between DX Clusters and other supported remote methods that are described in the SCSP Proxy Overview document. The proxy on the CSN is configured during the bootstrap process. In order to communicate with remote DX Clusters, the DX Administrator must configure a list of remote DX Clusters on the CSN. This can be done through the CSN web-based console under the Cluster Services->SCSP Proxy tab.

Figure 2: SCSP Proxy Configuration Console



To add a remote DX Cluster to the configuration list, click the 'Add Cluster' button. To edit an existing remote DX Cluster, click the 'Edit' button. To delete a DX Cluster from the list, click the checkbox in the Delete column next to the DX Cluster that should be deleted and then click the 'Update and Restart'.

The following information is required for all remote clusters being configured:

Remote Cluster Name: The common name for a remote cluster that will be used in request sent to the proxy. This name may not contain white spaces.

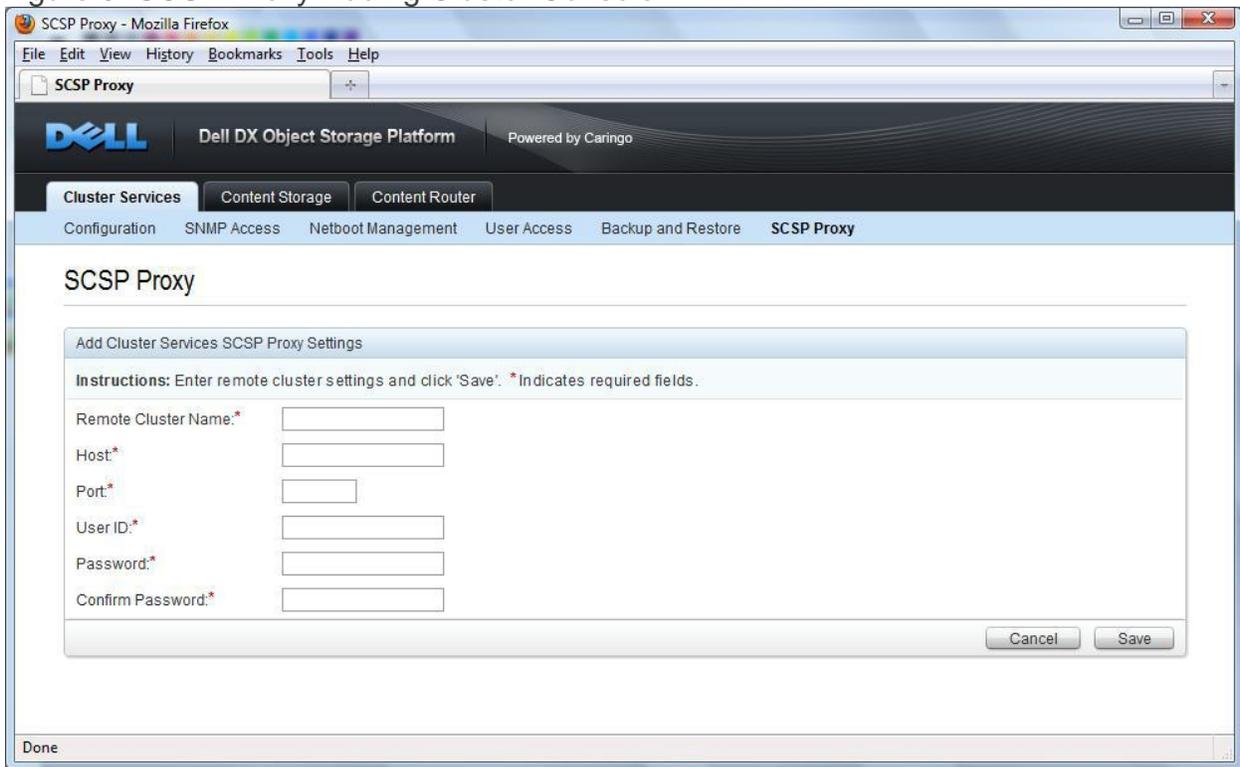
Host: The IP address or hostname of the remote proxy the local proxy will communicate with. The host name may not contain whitespace.

Port: The port on which the remote proxy will listen to incoming requests. This is usually port 80.

User ID: The name of a DX Administrator that belongs to the DX Storage Administrators group for the remote DX Cluster. This may not contain whitespace.

Password/Confirm Password: The password for the DX Administrator specified in the UserId field. This option may contain spaces as long as they are not leading or trailing.

Figure 3: SCSP Proxy Adding Cluster Console



Additional References

The following documents can be found on www.support.dell.com and can be referenced for additional information on platform configuration required when utilizing the remote synchronous write feature to enable synchronous writes to a local and remote DX Cluster.

Document	Description
Cluster Services Node Installation and Configuration Guide	Provides information on configuration and administration tasks for deploying and monitoring a DX Cluster Services Node.
DX Object Storage Application Guide	Guides application programmers who are developing or customizing client-side programs.
SCSP Proxy Overview	Provides an overview of the SCSP proxy and covers the steps for configuring and running the proxy.