

Requirements Specification

GDD Colorado

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FBCs 2008/1718 and 2005/1483

Revision History

<i>Version</i>	<i>Comments</i>	<i>Date</i>	<i>Author</i>
1.0	Initial draft	07/21/08	Binu Jose Philip

Always update the revision history after making changes to this document.

1. Project Description

1.1 What it is

This project is a direct requirement that stems out of the Colorado project. This project will make a wad consisting of PxFS, DCS and Global Devices and make the associated Global namespace optional. The term optional implies smooth functioning of the cluster with or without the above modules. The features directly provided by the modules above will be available to the user depending on whether the modules are installed or not. The project will consist mainly of:

1. Identifying hidden dependencies on various binaries, libraries and exported functions that cluster has to work with shared devices and Solaris Volume Managers.
2. Remove dependencies identified above without affecting rest of the cluster's functionality.

1.2 Scope

At present Sun Cluster manages shared devices, both physical and volumes ie. meta-devices, via DCS and the global device namespace. DCS keeps track of device to node connectivity maps and also manages importing and exporting the said devices as and when a failover or switchover demands it. Global device namespace provides a consistent path to all devices in the cluster from all nodes in the cluster.

Global devices and in part DCS, is built on top of PxFS. Removing or installing any of the above components implies including the other two in the way being removed or added. PxFS has various hooks into Solaris which are activated when the node is booted up in cluster mode. There are multiple cluster utilities which perform volume administration related tasks. While making the above modules optional, we will have to hunt down the above cases and provide safe stubs to be called when the relevant module is not installed. The project will restrict itself to keeping the cluster functional and not to provide the same features by using any other means or devices to emulate those features.

This project will address and leverage Colorado requirements R21, R23 and R24. Only part of R24 will at present be addressed, namely optionally installing and enabling the feature. This project will not address all requirements from Colorado pertaining to PxFS, DCS and Global devices particularly R41 or R43.

1.2.1 Goals

- DCS, PxFS and Global device namespace will not be needed for cluster to function.
- DCS and PxFS can be installed at a later point in the clusters life and global device namespace instantiated at that time.

1.2.2 Non-goals

- DID will not be part of the optional package
- HAStoragePlus will only manage zpools and not shared devices.

2. Functional Requirements

R1: PxFS will be made optional

Cluster will boot and function safely without PxFS module being loaded. All hooks PxFS has into Solaris will be made safe to call in cluster without PxFS code in place. PxFS module can be installed at a later time and made active.

R2: DCS will be optional

Cluster will boot and function safely without DCS module being loaded. Any exported hooks from DCS will be made safe to call without being DCS in place. DCS module can be installed at a later time and made active.

R3: Global devices and Global device namespace will be optional

There will be no attempt to create _____ global device namespace at boot or at a later point in system life if the optional package is not installed and enabled.

R4: All SVM related utility commands will be part of the optional package.

metaclusterbindevs, devfsadm, scgdevs, etc. need not be part of cluster unless the underlying framework is present. Leaving them in place would necessitate modifying all of them to accommodate the optional nature.

R5: All cluster libraries and daemons for Volume management have to be part of the optional package.

rpc.metacld, libsdsc ... which are required only when Volume management is active and supported by cluster must be part of the optional package to avoid accidental registering of volumes or mediators.

R6: All DCS, PxFs and global device related administration commands which are not part of the optional package will return an error message informing the user that the feature is disabled.

eg: running "cldevice populate" should cause no other problems than the commands failing with the error:

"global device namespace is not enabled on this cluster"