RISINGTIDE systems

RTS DIRECTOR

The RTS Director is a unified single-system-image SAN cluster manager. It comprises a shell, active library and API. The active library and API provide an open, extensible platform that provides complex functionality, such as high availability and striping. The shell offers location-transparent access to all complex objects in the SAN cluster. New functionality and devices can be added in plug-in modules.

The RTS Director is a comprehensive, active distributed platform and framework for operating a cluster of RisingTide SAN arrays, and managing them via a single-system image. It is based on a modular extensible architecture with pluggable service modules. The RTS Director aggregates service modules via a core library, and exports them through a unified API. In its basic configuration, it includes a generic multiprotocol Target service module that allows managing a single local RisingTide SAN node, independently of the underlying fabric (iSCSI, FCoE, FC, IB, etc.). Additional service modules include RAID Controllers, Snapshots, High Availability, and Striping. The RTS Director currently comes with a CLI (shell), and will include a GUI in the future.

Active Distributed Platform

The RTS Director itself is architected as a highly-available distributed system. It includes the necessary comprehensive clustering services, such as a cluster controller, a cluster resource manager, a robust discovery protocol, fault isolation, and a heartbeat mechanism. The number of SAN nodes is virtually unlimited.

Library and API

The RTS Director maps all objects in a SAN cluster into a unified object tree that represents their inherent structure. This object tree presents a cluster-wide single system image, which allows accessing all storage objects and resources through a single RTS library and API.

The Local API provides access to all RTS Director services via a single-system-image API for cluster wide storage management.

The Remote API provides transparent access to the RTS Director API over the network.

User Interface

The RTS Director includes an intuitive CLI that provides user access to RTS services. The CLI allows smart navigation through storage objects and their attributes, offers context-sensitive defaults for all operations together with smart tab auto completion. Lean CLI semantics allow configurations of complete targets and HA setups in only a few steps. In the future, RisingTide will complement the RTS Director with a GUI.

DISTRIBUTED SYSTEM

The RTS Director provides unified management of an entire RisingTide SAN cluster. It is implemented itself as a highly available distributed system, with no limit on the number of nodes.

MODULAR ARCHITECTURE

The RTS Director is based on a modular architecture that can be extended with service plugins.

SERVICE MODULES

The RTS Director is extended with pluggable service modules that deliver premium features. The modules currently comprise: Multiprotocol Target, Control Demon, Snapshots, and High Availability.

LIBRARY & API

Storage objects are mapped into a unified object tree that presents a single-system-image. A core library manages the object tree, aggregates service modules, and provides access via a single API.

USER INTERFACE

A powerful and easy CLI on top of the ALI and core library allows managing complex, large HA SAN clusters with a small set of semantically lean operations.

YOUR DATA. **DELIVERED.**

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Service Modules

The Target Module is the control module for one or more local targets on an array node. It is designed around a number of semantically lean operations, similar to the other modules, which offer orthogonal services and operations.

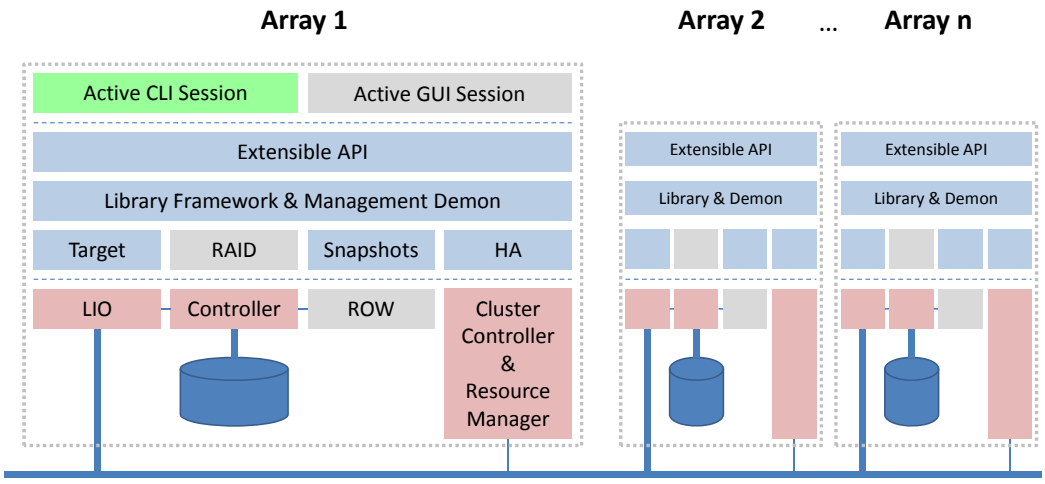
The Demon Module exports the local targets to the network for remote management.

The Snapshot Module provides management of snapshots (COW/ROW) in a semantically lean, efficient RTS Director platform.

The RAID Controller Module integrates the supported RAID controllers (Adaptec/LSI).

The HA Module allows setup, configuration and management of HA clusters in a simple shell. To manage "split brain" scenarios, it can use physically redundant network paths to fence off IP SAN nodes and ensure data continuity.

The Striping Module will provide symmetric, seamless and virtually infinite scale-out of LUNs beyond a single SAN node.



Technical Specifications

User Interface
Intuitive CLI builds on the API and allows seamless access to entire storage clusters.

Library and API
Semantically lean, extensible library and API integrate and export cluster storage services.

Distributed Highly-Available System
The RTS Director is a highly available distributed system, and the foundation for the RisingTide unified SAN management. It contains a cluster controller, a heartbeat infrastructure, etc., and can tolerate "crash" failures. The number of nodes in a RisingTide SAN cluster is virtually unlimited.

Modular Architecture
RTS Director is built in a modular architecture that can be extended via dynamic service plugins.

Service Modules
Plugins encapsulate additional features to be integrated into the CLI/API platform.

OPERATING ENVIRONMENTS

Microsoft
Windows Server 2003 / 2008 / R2
Windows 7 / Vista / XP

Apple
OS/X (with 3rd party initiator)

Unix
Solaris 10 (x86 / SPARC)
OpenSolaris
HP-UX

Linux
Red Hat RHEL 4.x / 5.x
SuSe SLES 10.3 / 11
Red Hat Client

Virtual Machines
VMware ESX 4.0 / vSphere
Windows Virtual PC
KVM / Qemu
Oracle xVM / VirtualBox
Xen

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