## DRS

### Overview

A cluster is a collection of ESXi hosts and associated virtual machines with shared resources and a shared management interface. Before you can obtain the benefits of cluster-level resource management you must create a cluster and enable DRS.

### DRS cluster admission controls

- When vm has requested to turn on, the cluster first makes sure that there are adequate resources avail.
- DRS performs initial requests so that vms are balanced among cluster, but could become out-of-balance.
  - DRS generates migration recommendations and can automatically do migrates if you so choose.
    - If cluster or vms are manual or partially automated, DRS will generate a recommendation to migrate
    - if fully automated, it will auto migrate.

### Cluster requirements

- shared storage
  - shared vmfs volumes
- processor compatibility requirements
  - EVC ensures that all hosts in a cluster present the same CPU feature set to virtual machines, even if the actual CPUs on the hosts differ.

### DRS Migration threshold

More info here

### Practical Example

- View cluster automation controls by :
  - edit cluster settings -> default automation

### DRS cluster options

Load balancing: The distribution and usage of CPU and memory resources for all hosts and virtual machines in the cluster are continuously monitored. DRS compares these metrics to an ideal resource utilization given the attributes of the cluster’s resource pools and virtual machines, the current demand, and the imbalance target. It then performs (or recommends) virtual machine migrations accordingly.

### DRS cluster options

Power management: DRS compares cluster- and host-level capacity to the demands of the cluster’s virtual machines, including recent historical demand. It places (or recommends placing) hosts in standby power mode if sufficient excess capacity is found or powering on hosts if capacity is needed. Depending on the resulting host power state recommendations, virtual machines might need to be migrated to and from the hosts as well.
Managing Power Resources

The vSphere Distributed Power Management (DPM) feature allows a DRS cluster to reduce its power consumption by powering hosts on and off based on cluster resource utilization.

Affinity rules for hosts/vms

- Manage->settings under cluster
  - VM/HOST Groups (create them)
  - VM/HOST Rules (create them)
- See VM overrides to override cluster defaults