STO2063BU - Architecting Site Recovery Manager to Meet Your Recovery Goals

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Terminology
RPO - Last viable restore point
RTO - How long it will take before all functionality is recovered
You should break these down to an application, or a service tier level

*Protection Groups and Recovery Plans
What is a Protection Group?
Group of VMS that will be recovered together
- Application
- Department
- System Type
- ?
Different depending on replication type
A VM can only belong to one Protection Group

How do protection groups fit into Recovery Plans?
[1431105945_thumb.png] image via https://blogs.vmware.com/vsphere/2015/05/srm-protection-group-design.html

vSphere Replication Protection Groups
- group VMs as desired into Protection Groups
- what storage they are located on doesn't matter

Array Based Protection Groups
If you want your protection groups to align to your applications - you'll need to shuffle storage around

Policy Driven Protection
- new style Protection Group leveraging storage profiles
- high level of automation compared to traditional protection groups
- policy based approach reduces OpEx
- simpler integration of VM provisioning, migration, and decommissioning

Introduced in SRM 6.1

How Should You Organise Your Protection Groups?
More Protection Groups
- Higher RTO
- Easier testing
- Only what is needed
- More granular and complex
Fewer Protection Groups
- Lower RTO
- Less granular, complex and flexible

This varies by customer and will be dictated by the appropriate combination of

complexity and flexibility

*Topologies
SRM Supports Multiple DR Topologies
Active-Passive Failover
- dedicated resources for recovery
Active-Active Failover
- run low priority apps on recovery infrastructure
Bi-directional Failover
- Production applications at both sites
- Each site acts as the recovery site for the other
Multi-site
- Many-to-one failover
- Useful for Remote Office / Branch Office

Enhanced Topology Support
[SRM-Shared-Protection-Recovery.png]

Enhanced Topology Support 2
[SRM-Shared-Recovery-Central-VC.png]

Enhanced Topology Support 3
[SRM-3-site-config.png]

Images via https://blogs.vmware.com/virtualblocks/2016/07/28/srm-multisite/

10 SRM pairs per vCenter
A VM can only be protected once

SRM & Stretched Storage
[SRM_stretched_storage.png] - image via https://blogs.vmware.com/virtualblocks/
2015/09/01/srm-6-1-whats-new/
Supported as of SRM 6.1

SRM and vSAN Stretched Cluster
[vsan-vr-srm.png] - image via https://blogs.vmware.com/virtualblocks/2015/08/31/
whats-new-vmware-virtual-san-6-1/
Failover to the third site (not the 2 sites comprising the cluster)

Enhanced Linked Mode
https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.install.doc/
GUID-91EF7282-C45A-4E48-ADB0-5A4230A91FF2.html
Makes it easier to manage your environment. Introduced in vSphere 6.0.

*Impacts to RTO
Decision Time
How long does it take to decide to failover?

IP Customisation
Workflow without customisation

- Power on VM and wait for VMtools heartbeats
Workflow with IP customisation
- Power on VM with network disconnected
- Customise IP utilising VMtools
- Power off VM
- Power on VM and wait for VMtools heartbeats
Alternatives
- Stretched Layer 2
- Move VLAN / Subnet

It's going to take some time to do when you failover a guest

Priorities and Dependencies
Priorities Only

Organisation for lower RTO
- fewer/larger NFS datastore / LUNs
- fewer protection groups
- don't replicate VM swap files
- fewer recovery plans

VM Configuration
- VMware Tools installed in all VMs
- suspend VMS on Recovery vs PowerOff VMs
- array-based replication vs vSphere Replication

Recovery Site Sizing
- vCenter sizing - it works harder than you think
- Number of hosts - more is better
- Enable DRS - why wouldn't you?
- Different recovery plans target different clusters

*Recommendations
Be Clear with the business
What is/are their
- RPOs?
- RTOs?
- Cost of downtime?
- Application priorities?
- Units of failover?
- Externalities?
Do you have Executive buy-in?

Risk with Infrequent DR Plan Testing
- Parallel and cutover tests provide the best verification, but are very resource intensive and time consuming
- cutover tests are disruptive, may take days to complete and leaves the business at risk

Frequent DR Testing Reduces Risk

- increased confidence that the plan will work
- recovery can be tested at anytime without impact to production

Test Network
Use VLAN or isolated network for test environment
- default "auto" setting does not allow VM communication between hosts
Different PortGroup can be specified in SRM for test vs actual run
- specified in Network Mapping and / or Recovery Plan

Test Network - Multiple Options
Two Options
- Disconnect NSX Uplink (this can be easily scripted)
- Use NSX to create duplicate "Test" networks

RTO = dollars

*Demos

https://storagehub.vmware.com/#!/site-recovery-manager-3/srm-6-5-technical-overview