Sílect Microsoft opslogix Opsloger

MP UNIVERSITY

WEDNESDAY JUNE 8



Designing SCOM for Disasters

Clustering, AlwaysOn, Datacenter Failover Do I need these?

In this session we will cover different SCOM designs for high availability, disaster recovery, and business continuity for multiple datacenters.



Terminology

High Availability

• The ability of a system to operate continuously without failing for a designated period of time.

Disaster Recovery

• The method of regaining access and functionality to IT infrastructure after an event, such as hardware failure, natural disaster, cyber attack.

Business Continuity

• The level of readiness to maintain critical functions after an emergency or disruption. Disaster recovery is one aspect of Business Continuity.



Design basics

File share for SCOM

- Highly available/Replicated
- SCOM Software
- Updates
- Tools
- Scripts
- Sealed Management Packs
- Recovery Documentation
- License Keys
- Management Pack sealing key
- Unsealed MP Backups

scom (\\server1\software) (Y:) → SCOM →

Name	Date modified	Туре
Documentation	6/7/2022 9:22 PM	File folder
Install Media	6/7/2022 9:21 PM	File folder
License Keys	6/7/2022 9:22 PM	File folder
Management Packs	6/7/2022 9:21 PM	File folder
MP Seal Key	6/7/2022 9:22 PM	File folder
Scripts	6/7/2022 9:21 PM	File folder
Tools	6/7/2022 9:22 PM	File folder
	6/7/2022 9:21 PM	File folder
Update Rollups	6/7/2022 9:21 PM	File folder

> scom (\\s	server1∖software) (Y:) → M	anagement Packs >	SQL Server ⇒	DB Engine
Name	Date modified	Туре	Size	
7.0.15.0	5/14/2019 6:37 AM	File folder		
7.0.20.0	2/13/2020 4:51 PM	File folder		
7.0.24.0	10/8/2020 3:59 PM	File folder		
7.0.32.0	7/14/2021 6:11 AM	File folder		
7.0.34.0	1/5/2022 9:43 AM	File folder		
7.0.36.0	5/27/2022 7:42 AM	File folder		

Design basics

Don't overdesign

- Your SLA should guide the design
- TCO should direct your decisions
- Think about supportability
- HA, BC come at a cost
- Do not deploy the shiny new toy
- Do not deploy more servers than needed
- Do not oversize/undersize servers
- Do NOT deploy management servers across slow links
- Databases must have ultra low latency to Management Servers
- ~2000 Windows Agents per MS

	Ops Mgr DB DW	
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Examples:

SCOM Infrastructure:

- Using multiple management servers
- Using multiple Gateway Servers
- Assigning Agent and Gateway Failover
- Resource Pools

SQL Infrastructure

- AlwaysOn
- Clustering



Cheap HA: Multiple MS, GW, Pools Expensive HA: AlwaysOn, Clustering

When do I need to consider HA?

• If your SLA does not allow for scheduled downtime for the SCOM service offering during monthly patching, HA for SQL will be required.



Ok, I choose AlwaysOn. What are my options?

Enterprise Edition

- No restrictions on AG's and DB's.
- Multiple replicas

Standard Edition

- Basic Availability Groups
- One DB per AG.
- Multiple AG's per instance.
- Two replicas



SQL Server Always-on

AlwaysOn?

- Synchronous Replication with Automatic Failover
- Very low latency
- Clustering for fail over
- Single Listener Name



SQL Server Always-on

Downsides?

- Always Down?
- Databases MUST be in FULL Recovery Model
- Transaction log backup becomes critical
- Log disk size
- Expense
 - Enterprise Edition
 - Double the Compute and storage



SQL Server Always-on

Disaster Recovery

The method of regaining access and functionality to IT infrastructure after an event, such as hardware failure, natural disaster, cyber attack.

DOCUMENT the plan, with detailed steps.

TEST your ability to recover each component

Disaster Recovery

Backups

- SQL databases
 - Most Critical
- VM snapshots
 - Speed and ease of recovery of a management server
- Unsealed MP Backup
 - Quick recovery from a mistake
- Sealed MP's on a share
 - Rebuilds



The level of readiness to maintain critical functions after an emergency or disruption.

Multi-Datacenter scenario

"If a plane crashed into your Primary Data Center, how do you run the business?"



Multiple Management Groups

"Stretched" Management Group

VM/Storage replication

Multiple Management Groups

- Easy to support
- Agent load
- Configuration drift, MP sync
- 3rd party costs
- Lowest Potential for downtime
- Most expensive



"Stretched" Management Group

- Single MG.
- AlwaysOn replicas for SQL
- Management Servers in EACH datacenter
- MUST account for LATENCY
 - No more than 20ms in small environments
 - No more than 5-10ms in large environments
 - Resource Pools require manual intervention
- Complex recovery, no support for Reporting
- Scalable DR (can be HA or reduced footprint)
- Most common to fail
- Medium Cost



VM/ Storage replication

- Same machines booting up in a DR datacenter
- Hybrid SQL can use AlwaysOn with asynchronous replication
- No configuration for agents.
- DNS TTL should be short
- Easiest and simplest recovery, lowest cost



- <1000 Windows agents
- Limited Linux/UNIX/Network
- Allowed outage during monthly patching
- MS has HA
- No requirement for Business Continuity
- SQL Standard Edition



- <1000 Windows agents
- 100 or more Linux/UNIX/Network
- Allowed outage during monthly patching
- MS has HA
- No requirement for Business Continuity
- SQL Standard Edition



- <3000 Windows agents
- Limited Linux/UNIX
- Allowed outage during monthly patching
- MS has HA
- No requirement for Business Continuity
- SQL Standard Edition



- <3000 Windows agents
- 100 or more Linux/UNIX/Network
- Allowed outage during monthly patching
- MS has HA
- No requirement for Business Continuity
- SQL Standard Edition



- <3000 Windows agents
- 100 or more Linux/UNIX/Network
- Outages are NOT allowed during monthly patching
- MS and SQL have HA
- No requirement for Business Continuity
- SQL Standard Edition or Enterprise Edition



- <3000 Windows agents
- 100 or more Linux/UNIX/Network
- Outages are NOT allowed during monthly patching
- MS and SQL have HA
- Business Continuity is Required
- SQL Enterprise Edition required for more than 2 replicas







- Set up your highly available file share to be best prepared
- Don't overdesign, think TCO and supportability
- Keep All Management Servers in the same Datacenter with the SQL Servers
- Don't deploy HA if not required
- HA and BC come with a price tag
- DR is critical to everyone
- Choose the right Business Continuity solution for your SLA and capabilities
- Network Latency is critical



- <u>https://kevinholman.com/</u>
- Operations Manager Planning Guide | Microsoft Docs
- <u>SCOM Sizing Helper Spreadsheet</u>
- <u>Availability groups: a high-availability and disaster-recovery solution SQL</u> <u>Server Always On | Microsoft Docs</u>

Fragments



Authoring Management Packs – the fast and easy way, using Visual Studio???



Microsoft*



Authoring Management Packs – the fast and easy way, using Visual Studio???

Management Pack authoring the REALLY fast and easy way, using Silect MP Author



What's available NOW?

>112 fragments!

- Discoveries
 - Reg Key / Reg Value
 - PowerShell Script
 - VBScript
 - Unix Apps
 - WMI query
- Views
 - Folder + Alert + State + Perf
 - Folder + Alert + State

• Monitors

- Performance
- Perf then Script
- Registry (Exists or Content match)
- Services***
- SNMP
- UNIX Shell Commands
- Script (PowerShell and VBScript)

- Rules
 - Event Log Alerts
 - Event Log Repeated
 - Event Log Correlated
 - SNMP Traps
 - Text logs
 - Timed Scripts PowerShell
 - Collect Performance
- Groups
 - Application instances
 - Windows Computers
 - Windows Computers + Watchers
 - AD, SQL query, Posh based Groups
 - Tasks

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- Run a command (Agent)
- PowerShell Script (Agent)
- VBScript (Agent)
- Console Task

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