

NEW! Storage Spaces Design Consideration Guide and Software-Defined Storage Design Calculator

 charbelnemnom.com/storage-spaces-design-consideration-guide-and-software-defined-storage-design-calculator

August 1, 2022

Hello folks,

I am happy to share with you that Microsoft just released [Storage Spaces Design Consideration Guide](#) and [Software-Defined Storage Design Calculator](#).

Storage Spaces Design Consideration

The [Software-Defined Storage Design Calculator](#) (SDS) spreadsheet is to design a storage solution that uses the Storage Spaces and Scale-Out File Server functionality based on Windows Server 2012 R2 along with cost-effective servers and shared serial-attached SCSI (SAS) storage enclosures (JBODs).

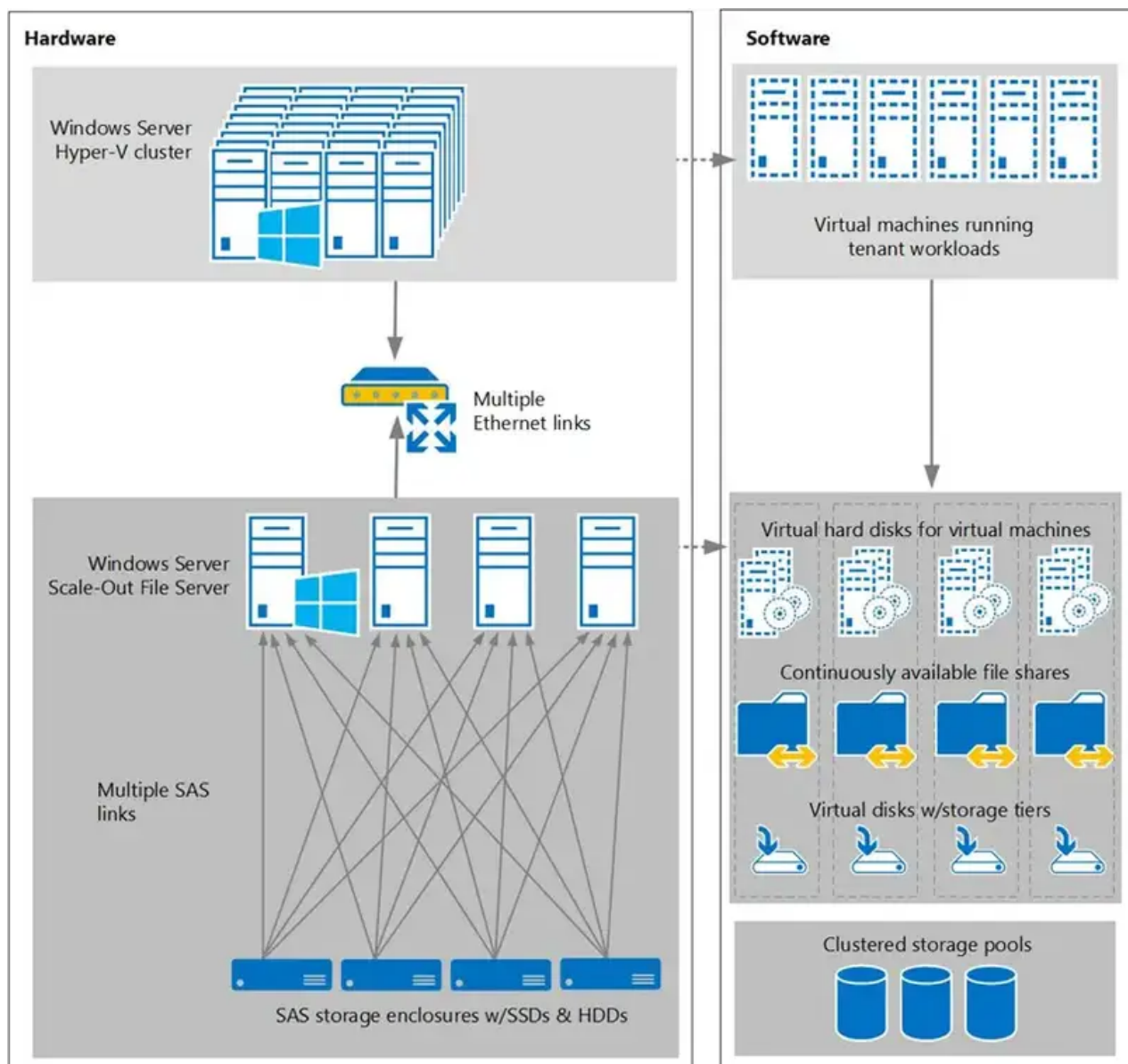


Figure 1 – Software-defined storage architecture using Storage Spaces with shared SAS storage enclosures (Image Credit: Microsoft).

This spreadsheet combines prescriptive design workflow and computation with deployment and configuration best practices, empowering users to design a resilient and high-performance software-defined storage solution. The spreadsheet leverages preconfigured solution templates (including small, medium, and large-scale deployments) which can then be adjusted to match specific solution requirements and available hardware available from a Storage Spaces solution vendor.

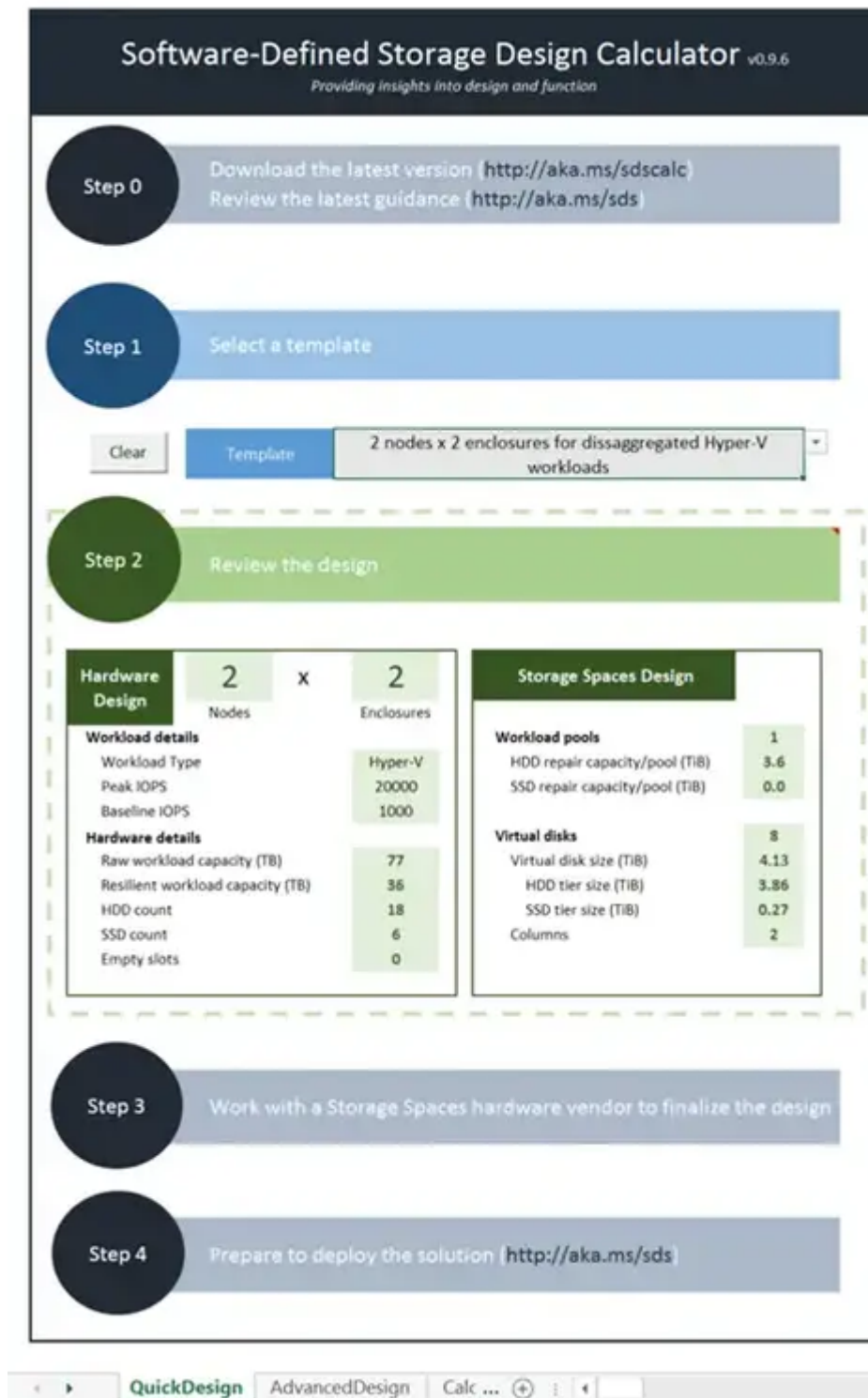


Figure 2 – The QuickDesign sheet of the spreadsheet (Image Credit: Microsoft).

Software-Defined Storage Design Calculator v0.9.6
Providing insights into design and function

Step 0

Download the latest version (<http://aka.ms/sdscalculator>)
Review the latest guidance (<http://aka.ms/sds>)

Step 1

Determine storage requirements

Step 1.1: Select a template

Clear

Template
2 nodes x 2 enclosures for disaggregated Hyper-V workloads

Step 1.2: Customize the solution

Task 1: Describe the workload

| | | |
|----------------|----------------------|---------|
| Workload | Role | Hyper-V |
| Performance | Peak IOPS | 20,000 |
| | Baseline IOPS | 1,000 |
| | Active data (GB) | 400 |
| Data size | Current size (TB) | 10 |
| | Yearly growth | 5% |
| | Storage life (years) | 3 |
| Backup reserve | Design size (TB) | 12 |
| | HDD capacity | 0% |
| | SSD capacity | 0% |

Task 2: Select a storage architecture

| | |
|----------------------------------|---------------|
| Architecture | Disaggregated |
| Storage model | Shared SAS |
| Storage tiers | Enabled |
| Minimum Required Software | |
| Windows Server 2012 R2 + Updates | |

Task 3: Design for resiliency

| | | |
|--------------|---------------------|--------------|
| Cluster | Node count | 2 |
| | MPIO | No |
| Pool | Workload pools | 1 |
| | SSDs to repair | 0 |
| | HDDs to repair | 1 |
| Virtual disk | Layout | 2-Way Mirror |
| | Enclosure awareness | No |
| | Virtual disks/node | 4 |

Task 4: Select storage hardware

| | | |
|------------|----------------|-----|
| Enclosures | Disk slots | 12 |
| | Fill all slots | Yes |
| Disks | HDD size (TB) | 4 |
| | SSD size (GB) | 800 |
| | SSD/HDD ratio | 25% |

Step 2

Review the design and adjust as necessary

Hardware Design

| | | |
|----------------------------------|---|------------|
| 2 | x | 2 |
| Nodes | | Enclosures |
| Raw workload capacity (TB) | | 77 |
| Raw backup capacity (TB) | | 0 |
| Raw total capacity (TB) | | 77 |
| Resilient workload capacity (TB) | | 36 |
| HDD count | | 18 |
| SSD count | | 6 |
| Empty slots | | 0 |

Storage Spaces Design

| | |
|--------------------------------|------|
| Workload pools | 1 |
| HDDs/pool/enclosure | 9 |
| SSDs/pool/enclosure | 3 |
| HDD repair capacity/pool (TiB) | 3.6 |
| SSD repair capacity/pool (TiB) | 0.0 |
| Virtual disks | 8 |
| Virtual disk size (TiB) | 4.13 |
| HDD tier size (TiB) | 3.86 |
| SSD tier size (TiB) | 0.27 |
| Columns | 2 |
| Write-back cache (GiB) | 1 |

Step 3

Work with a Storage Spaces hardware vendor to finalize the design

Step 4

Prepare to deploy the solution (<http://aka.ms/sds>)

Key Settings

| | | |
|--------|---------------------------------|--------------|
| Node | Windows Updates | Monthly |
| | Storage Spaces registry changes | Applied |
| | File-Delete Notification (TRIM) | Disabled |
| | MPIO policy (Global) | Least Blocks |
| | MPIO policy (SSDs) | Round Robin |
| Pool | Physical disk caches | Disabled |
| | RetireMissingPhysicalDisks | Always |
| Volume | UseLargeFRS | TRUE |

QuickDesign

AdvancedDesign

Calculations

SupportingTables

Constants

Figure 3 – The AdvancedDesign sheet of the spreadsheet (Image Credit: Microsoft).

For detailed information about the Storage Spaces design best practices this spreadsheet uses, see the Software-Defined Storage Design Considerations Guide.

And for background info about Storage Spaces, see the Storage Spaces Overview.

Enjoy!

Cheers,
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