



PowerShell Conference Europe

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Constantin Hager

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PowerShell Conference Europe

Create a fully automated SQL Server Lab with AutomatedLab

Constantin Hager

Many thanks to our sponsors:





Constantin Hager

- Working at COC for 9 years as Senior Systems Engineer
- Organizer of a PowerShell user group in Germany (PSUG InnSalzach)
- Specializing in Automation and infrastructure design

Agenda

- What is AutomatedLab?
- What is a SQL Server Always On Availability Group?
- The Infrastructure
- What is DSC?
- Optional Lab 1: Imperative Approach
- Optional Lab 2: DSC
- Lab 3: AutomatedLab

What is Automated Lab?



Setup lab and test environments

On Hyper-V or Azure

With Windows or Linux VMs

Can be installed through the PS Gallery or an MSI

products include DC, CA, SQL Server, SCCM, Fail Over Clustering and more

Documentation can be found at <https://automatedlab.org>

Prerequisites

Windows PowerShell 5.1 or PowerShell 7

OS language where AutomatedLab is installed has to be en-US

The OS ISOs and other install files for programs like SQL Server

A CPU with virtualization support

Deploy a single machine



```
New-LabDefinition -Name Win11 -DefaultVirtualizationEngine HyperV  
Add-LabMachineDefinition -Name Client1 -Memory 1GB -OperatingSystem 'Windows 11 Enterprise'  
Install-Lab
```

What is a SQL Server Always On Availability Group?

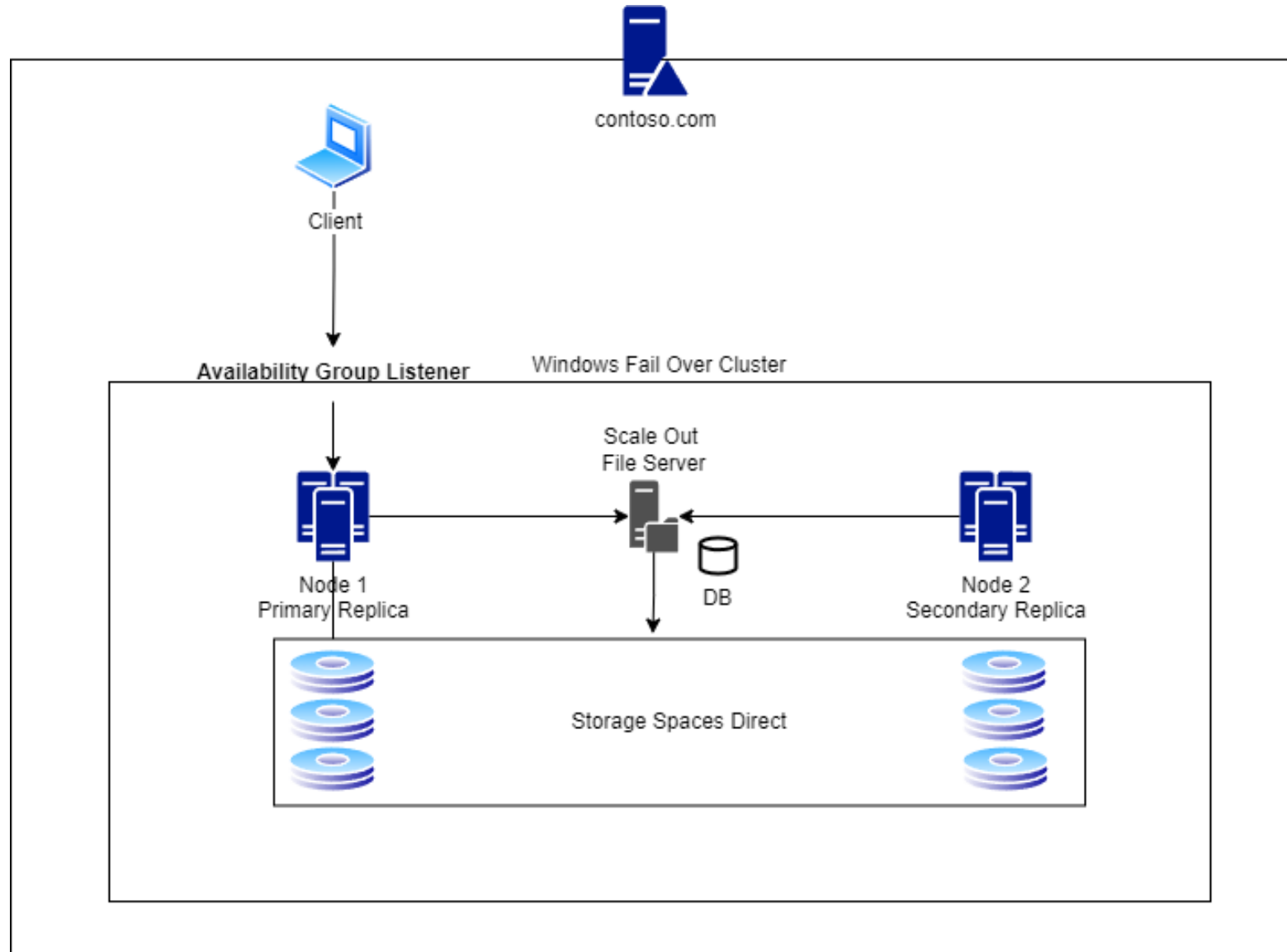
An Always On availability group is a high availability and disaster recovery solution for SQL Server databases.

It allows you to create a group of databases that can fail over as a single unit, with one primary database and up to eight secondary replicas.

Building blocks

- At least 2 separate SQL Server Enterprise Edition instances (primary and secondary replica)
- A Windows Fail Over Cluster
- Storage Spaces Direct
- Scale Out File Server
- Availability Group Listener

The Infrastructure



What is DSC?

- Desired State Configuration
- A platform for configuring your infrastructure with Configuration as code
- Ensures that your system remain in the desired state over time
- Declarative approach. The logic is inside of DSC Resources. You just use the resources to reach the desired state.

Sample DSC configuration

```
Configuration HelloWorld {  
    Node 'localhost' {  
        # The File resource ensures the state of files.  
        File HelloWorld {  
            DestinationPath = "C:\Temp\HelloWorld.txt"  
            Ensure = "Present"  
            Contents = "Hello World from DSC!"  
        }  
    }  
}
```

Lab 1: Imperative approach



Lab 2: DSC



Lab 3: Automated Lab



Q&A

15 minutes

