REFERENCE ARCHITECTURE: EMC BACKUP FOR MICROSOFT CLOUD

Data Protection for Microsoft Exchange Server, Microsoft SQL Server, Microsoft SharePoint Server

Integration with Microsoft Windows Azure Pack, Microsoft System Center, and EMC Data Protection Suite

EMC Solutions

Abstract

This reference architecture guide describes a solution that delivers automated backup and recovery services for business-critical Microsoft applications and platforms in a private cloud environment by using EMC® Data Protection Suite™ software.

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Executive summary

Business case

Today's complex computing and business application environments accelerate enterprise customers' investment in the cloud. Enterprises and businesses have needs that include high availability, protection, flexibility, efficient use of resources, and reduction of capital and operational costs for their IT infrastructure.

The benefits of private and hybrid clouds are well documented. Virtualization and high availability using failover clustering maximizes uptime, workload placement, and recovery from local or regional disasters. By running business-critical applications and data platforms such as Microsoft SQL Server, Microsoft SharePoint and Microsoft Exchange in a validated Microsoft private cloud environment, organizations ensure reliability and maximum utilization of their virtual infrastructure, while assuring application service levels with lower costs.

Solution overview

The solution described in this guide enables IT organizations to deliver backup as a service (BaaS) for Microsoft applications with EMC® Data Protection Suite™ software. Data Protection Suite provides enterprise-wide protection for files, applications, and databases in both physical and virtual environments. With deduplication and traditional storage support, Data Protection Suite ensures long-term reliable backup retention as well as unified search capabilities. Comprehensive monitoring, analysis, reporting, and license management are also available. Data Protection Suite reduces the total cost of ownership by providing simplified configuration, management, and operational flexibility in the backup strategy for your business applications.

This solution empowers your organization to respond faster to business opportunities by incorporating cloud architecture into the Microsoft application design. Future-proof your business by moving Microsoft applications to a highly available, secure cloud configuration.

Document purpose

This reference architecture guide provides a design and architecture for a private cloud using a Microsoft System Center Management platform for automation to deliver BaaS on a cloud platform based on Microsoft Windows Server Hyper-V.

We show how to protect Microsoft applications such as Exchange, SQL Server, and SharePoint in a cloud environment that uses Data Protection Suite software for cloud solutions using Microsoft technologies.

Audience

This document is intended for executives, managers, architects, cloud administrators, backup administrators, and technical administrators of IT environments who want a solution that enables a well-run cloud. Technical readers need to be familiar with the Microsoft System Center, Microsoft Windows Azure Pack (WAP), Microsoft Hyper-V, and EMC NetWorker® software, and have a basic familiarity with storage, compute, and network technologies.

Business and end-user readers of this document need to be familiar with general IT and cloud technologies, and have an understanding of the relationship between their business, IT, and the requirements driving multiple business unit collaboration.
Solution architecture

To help cloud tenants enable backup services for applications such as Exchange, SQL Server, and SharePoint with minimal system administrator intervention, this solution shows how to integrate these EMC and Microsoft technologies:

- Hyper-V for Windows Server 2012 R2
- Windows Server Failover Clustering (WSFC)
- Microsoft System Center 2012 R2
- Windows Azure Pack
- EMC NetWorker 9
- EMC NetWorker Module for Microsoft
- EMC Data Domain® storage

**Note:** For details about the solution infrastructure, see Microsoft Cloud Reference Architecture: Foundation and Microsoft Cloud Reference Architecture: Microsoft Applications.

Figure 1 shows the architecture of this solution.
Solution architecture

Figure 1. Solution architecture
Key components

Introduction

This section describes the key components of this solution. *Microsoft Cloud Reference Architecture: Foundation* and *Microsoft Cloud Reference Architecture: Microsoft Applications* provide detailed information.

Cloud infrastructure and management

**Microsoft Windows Azure Pack**

Windows Azure Pack (WAP) is available to Microsoft customers at no additional cost. It is provided as a collection of services that are similar to Microsoft Azure that are installed in enterprise and service provider data centers. Running on top of Microsoft Windows Server and System Center, WAP delivers the power of Azure into your data center, enabling you to offer a rich, self-service, multitenant cloud with experiences and services similar to Azure.

**Microsoft Windows Server 2012 R2 Hyper-V**

Windows Server 2012 R2 offers new capabilities for Hyper-V with additional features and industry-leading scalability for host processors and memory, helping your organization to improve server utilization and reduce costs.

The solution implements the Hyper-V cluster feature with Cluster Shared Volumes (CSVs) so that all components and services running on it remain available when one

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### Hardware resources

Table 1 lists additional hardware resources that this solution uses.

As shown in Figure 1, each physical server requires an additional dedicated network adapter for backup. *Microsoft Cloud Reference Architecture: Foundation* provides more information about server and networking requirements.

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMC Data Domain</td>
<td>4200, DDOS 5.7</td>
<td>Data-reduction storage system</td>
</tr>
</tbody>
</table>

### Software resources

Table 2 lists additional software resources that this solution uses.

*Microsoft Cloud Reference Architecture: Foundation* and *Microsoft Cloud Reference Architecture: Microsoft Applications* provide more information about software resources.

<table>
<thead>
<tr>
<th>Software</th>
<th>Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMC NetWorker</td>
<td>9.0</td>
<td>Backup software</td>
</tr>
<tr>
<td>EMC NetWorker Module for Microsoft</td>
<td>9.0</td>
<td>Backup Module for Exchange, SQL Server, and SharePoint</td>
</tr>
</tbody>
</table>

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*Reference Architecture: EMC Backup for Microsoft Cloud*  
*Data Protection for Microsoft Exchange Server, Microsoft SQL Server, Microsoft SharePoint Server*  
*Reference Architecture Guide*
of the modes shuts down. Tenant virtual machines are also allocated on CSVs, which are used for the tenant to achieve availability.

**Microsoft System Center 2012 R2**

**Virtual Machine Manager**

System Center Virtual Machine Manager (SCVMM) manages the virtualized data centers. It enables you to configure and manage your virtualization host, storage, and networking resources to deploy virtual machines and services to your cloud.

**Operations Manager**

System Center Operations Manager (SCOM) provides you with infrastructure monitoring. It is flexible and cost-effective, and:

- Helps ensure the predictable performance and availability of certain applications
- Offers comprehensive monitoring for your private, public, or hybrid cloud

With EMC support, storage system monitoring is also available.

**Service Management Automation**

Service Management Automation (SMA) is an IT process automation solution for WAP for Windows Server. It enables you to automate the creation, monitoring, and deployment of resources in your WAP environment. SMA provides PowerShell workflows for automating tasks. SMA is highly scalable and flexible and helps you transform the data center as needed.

**Service Provider Foundation**

Service Provider Foundation (SPF) exposes an extensible web service that interacts with SCVMM. SPF enables service providers to design and implement multitenant self-service portals.

**Microsoft SQL Server 2012 and 2014**

Microsoft SQL Server is a database management and analysis system for e-commerce, line-of-business, and data warehousing solutions. SQL Server is widely used to store, retrieve, and manage application data. SQL Server is used with a range of applications, each of which might have different requirements for performance, sizing, availability, recoverability, manageability, and so on. For this reason, you need to understand the application requirements fully and plan accordingly when deploying SQL Server.

**Microsoft SharePoint 2013**

Microsoft SharePoint Server 2013 provides a business-collaboration platform for enterprise and commercial organizations. SharePoint enables organizations to share content and information through websites, blogs, wikis, and document libraries and to manage this content and information collectively from start to finish.
Microsoft Exchange 2013

Microsoft Exchange Server 2013 is an enterprise email and communication system that allows businesses and customers to collaborate and share information. EMC enhances Exchange Server 2013 with a broad range of storage platforms, software, and services.

EMC NetWorker 9

EMC NetWorker 9 delivers an industry-leading backup and recovery solution to protect the enterprise against data loss. NetWorker is cross-platform, client/server software for network storage management that delivers automated backup and recovery operations in the cloud environment. NetWorker Management Console (NMC) offers a web-based, graphical interface to manage all NetWorker clients and servers, storage media, and policy-based workflow for data protection.

EMC NetWorker Module for Microsoft

EMC NetWorker Module for Microsoft (NMM) provides a backup and restore interface between NetWorker server and Microsoft server applications, including Microsoft SQL Server, SharePoint, Exchange, and Hyper-V servers. NMM uses Microsoft Volume Shadow Copy Service (VSS) technology to create point-in-time snapshot data. NMM enables backup to storage media while Microsoft applications are online and in use, and supports multiple granular-level backup and recovery for Microsoft applications from disk or tape.

EMC Data Domain

EMC Data Domain systems provide a protection storage platform for backup and archive data that reduce the amount of disk storage that you need to retain and protect data. This solution uses a Data Domain system as a backup device that is configured through the NMM as a NetWorker Media Pool.

Solution features

This solution shows how you can deliver backup services for these applications to your cloud tenants:

- SharePoint
- Exchange
- SQL Server

The backup service in this solution enables private cloud tenants to select a backup operation for their application server during the virtual-machine deployment process in the self-service portal. The application and backup agent are installed in the virtual machine template. When the virtual machine is deployed, the cloud administrator can enable the backup from the self-service portal. Figure 2 provides an overview of this service.
Before configuring the application BaaS, we consider the following:

- Backup service level
- Virtual machine template
- Backup service runbook

**Backup service level**

The backup service levels in this solution represent the levels of protection that different virtual machines and applications require. The backup service levels are only relevant to backup and are not related to or influenced by the storage service levels that the virtual machines use.

**Backup policies in NetWorker**

A backup policy in NetWorker lets you design a data protection solution for the environment at the data level instead of at the host level. With a backup policy, each client in the environment is a backup object and not simply a host.

Backup policies enable you to back up and manage data in a variety of environments, as well as to perform system maintenance tasks on the NetWorker server. The *EMC NetWorker Module for Microsoft Administration Guide* provides a full description of backup policies.
The NetWorker administrator uses NMC to create backup policies. As you add application servers to the NetWorker server, the WAP runbook automatically adds them to the Bronze-Application policy, as shown in Figure 3.

**Figure 3. NetWorker backup policy in NMC**

For this solution, we use backup policies so that the NetWorker client installation runbook can categorize an application (SQL Server, Exchange, or SharePoint). Because the application conforms to an existing backup policy, you do not need to specify backup options in the runbook. Policies enable the administrator to configure backup options for a specific group of application servers. The *EMC NetWorker Module for Microsoft Administration Guide* provides a detailed description of the backup options available in NetWorker. These options include:

- **Period** – Daily/weekly/monthly
- **Type of backup** – Full/incremental/differential
- **NetWorker backup pool**
- **Retention period**

All application backups are associated with a backup policy, which is a set of backup parameters that are required to back up the application.

**Backup to Data Domain**

A Data Domain device is added as a backup device through NMC as a media pool repository so that the applications can be backed up and restored. Selecting a backup policy with Data Domain as the destination pool saves storage space by
using the data deduplication function. Figure 4 shows the configuration for this device.

![Image of Data Domain device properties]

**Figure 4. Data Domain device properties**

After configuring the necessary settings in NetWorker, we can configure the backup service from the cloud. The following sections explain how cloud administrators can configure backup services and how tenants can subscribe to the backup services. Before you consider the backup service for each application, refer to *Microsoft Cloud Reference Architecture: Microsoft Applications* to configure the application as a service. The following sections only cover additional configuration information for backup service.

**Virtual machine template**

In *Microsoft Cloud Reference Architecture: Microsoft Applications*, a virtual machine template is used to deploy Microsoft applications. After the Microsoft applications were installed, the NetWorker client and NMM were installed to provide backup service for the Microsoft applications. This solution enables an automated NetWorker client and NMM installation. The *EMC NetWorker Module for Microsoft Installation Guide* provides more information about the silent installation commands.
Figure 5 shows two post-installation commands in the virtual machine template settings for the SharePoint virtual machine template.

**Figure 5. Post-installation commands for NetWorker client and NMM**

The **Virtual Machine configuration** screen also provides a detailed description of the backup policy for this template. The description helps tenants to choose the correct virtual machines template. Figure 6 shows the template description in WAP during a tenant virtual machine deployment.
Backup service runbook

To enable the backup service for tenants, the NetWorker client and NMM are automatically installed on the application servers during virtual machine self-service deployment. However the application servers do not belong to a NetWorker protection group or have any applied backup policy.

The NetWorker command line allows the administrator to run commands instead of using a management GUI. To enable backup services from the cloud, we developed a runbook in the WAP SMA module. The cloud administrator can log in to the WAP Service Management Portal and run the runbook that adds clients to a NetWorker protection group. The *EMC NetWorker Command Reference Guide* provides more information about the NetWorker command line.

**Note:** The NetWorker client software must be installed on the SMA server.
Figure 7 shows the runbook workflow.

**Figure 7. SMA runbook workflow for NetWorker**

The Appendix on 28 includes a sample runbook that adds a SharePoint server into the NetWorker protection group.

**Microsoft SharePoint 2013**

**Prerequisites**

For a SharePoint backup to be fully functional, ensure that the following configuration for SharePoint and its SQL Server has been completed before you install the NetWorker client:

- SharePoint Services Writer is registered.
- The required permissions are granted to the proper accounts. See *EMC NetWorker Module for Microsoft for SQL and SharePoint VSS User Guide* for information about how to configure permissions.

In this solution, we included the prerequisite settings in a post-configuration script as well as the SharePoint post-configuration script.

Figure 8 shows the post-configuration scripts setting in the virtual machine template. The highlighted entry is a post-configuration script for SharePoint.
Solution features

**EMC NetWorker Module for Microsoft for SQL and SharePoint VSS User Guide** provides a detailed prerequisites checklist.

After the SharePoint server has been successfully deployed with the NetWorker client and NMM installed, the cloud administrator can add the NetWorker client and NMM to the NetWorker server console.

Log in to SharePoint server to verify that both the NetWorker client and NMM are installed correctly, as shown Figure 9.
**SharePoint backup as a service in WAP**

When SharePoint server is deployed, the cloud administrator can add the server into the NetWorker protection group to start the scheduled backup. To enable this feature in WAP, we developed a runbook to perform the operation.

Figure 10 shows the runbook parameter input window. When you provide the application type and client name, the runbook adds the client to the protection group.

![Runbook parameter input window](image)

**Note:** Figure 10 shows an example of a runbook. Customers can define the parameters, based on their requirements, for SharePoint, Exchange, and SQL Server runbooks.

**SharePoint on-demand backup**

When you add the SharePoint server into the NetWorker protection group as a client in the WAP Service Management Portal, the backup job is scheduled. However, to schedule an immediate on-demand backup manually for SharePoint, log in to NMC and select **Start Individual Client**, as shown in Figure 11.
Solution features

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Figure 11. On-demand backup for SharePoint in NMC

Microsoft Exchange 2013

Prerequisites

Microsoft Cloud Reference Architecture: Microsoft Applications describes changes to the virtual machine template that allow you to back up the Exchange Server 2013 application. A new virtual machine template in System Center Virtual Machine Manager (SCVMM) works with Exchange virtual machine templates other than those for NetWorker, as shown in Figure 12.

Figure 12. Exchange templates with Exchange Server roles and NetWorker in SCVMM
The NetWorker client, the NetWorker client extension, and the NMM installations are now part of the virtual machine template.

For the NetWorker client to operate correctly, you must add several service accounts to the servers' local administrators group. The *EMC NetWorker Module for Microsoft Administration Guide* lists these accounts.

After you install Exchange Server 2013, install the relevant Exchange Server role and then add the NetWorker components to allow NMM to detect that Exchange is present. You can then install the relevant Exchange backup options. These options are installed as additional commands that are part of the RunOnce section of the OS Configuration within the SCVMM virtual machine template, as shown in Figure 13.

![Figure 13. OS Configuration with RunOnce commands](image)

*Exchange backup as a service in WAP*

After installing the Exchange and the NetWorker components successfully, update the virtual machine into the WAP plan through the WAP Service Management Portal.
Solution features

After the cloud administrator configures the service, you can then log in to the WAP Tenant portal to subscribe and deploy the virtual machine.

After successful deployment of the virtual machine, add the virtual machine as a client in NMC. Usually, backup administrators perform this procedure manually. However, to automate this procedure, we have created an SMA runbook that the WAP cloud administrator can run through the WAP Service Management Portal, as shown in Figure 10. Figure 14 displays the output.

Figure 14. Exchange server NetWorker client runbook
When the runbook has completed, the virtual machine is available in NMC in the correct NetWorker protection group, which in this case is the Bronze-Application, as shown in Figure 15.

**Figure 15. NetWorker client installation confirmation**

**Exchange Server on-demand backup in NMC**

To back up the Exchange application manually, use NMC. Right-click the client and select **Start Individual Client** from the available options, as shown in Figure 16.

**Figure 16. Exchange server backup in NMC**

The NMC **Monitoring** tab displays progress during the backup procedure. It then shows the procedure as complete, as shown in Figure 17.
Solution features

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Microsoft SQL Server 2012/2014

SQL Server BaaS enables cloud administrators and tenants to perform database backup easily in a Microsoft private cloud environment. SQL Server self-service backup uses NetWorker and Data Domain systems, which are designed with advanced inline data deduplication technology for reliable disk-based backup. NetWorker and Data Domain eliminate the transmission of redundant backup data to the remote backup site for the enterprise to meet backup requirements efficiently.

Prerequisites

NMM for SQL Server enables the SQL-aware backup software capability for the storage subsystem. It uses the VSS Writer SqlServerWriter for SQL Server backup.

The RunOnce script for the SQL Server virtual machine automatically installs the NetWorker client and then the NMM client on the SQL Server virtual machine.

SQL Server backup as a service in WAP

Register the SQL Server virtual machine as an NMC client and apply the NetWorker protection policy to the SQL Server virtual machine by running a WAP runbook for the virtual machine.

Figure 18 shows the runbook in the WAP Service Management Portal that adds the SQL Server virtual machine as a client in NMC.
Solution features

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Figure 18. SQL-Add-NetWorkerClient runbook in the WAP Service Management Portal

When the WAP runbook adds the SQL Server virtual machine into the NMC protection group as a client, it enables the scheduled backup. Figure 19 shows NMC with the SQL Server virtual machine registered as a NetWorker client after you run the WAP runbook.

Figure 19. SQL Server virtual machine registered as a NetWorker client in NMC

**SQL Server on-demand backup**

The tenant uses the NetWorker client utility for SQL Server from the SQL virtual machine to connect to one of the active NetWorker backup servers in the network.

The tenant selects **SQL databases** as a target for the backup operation.

Tenants can use the NetWorker client utility for SQL Server to start a backup for specific databases in the SQL Server virtual machine. Figure 20 shows an example of a SQL Server database that is selected for backup.
This solution also includes the application restore service. However, this service does not use the self-service portal to perform the restore operation. Normally, the application owner chooses restore scenarios that are based on the business requirements. The cloud administrator does not perform the restore operation due to the lack of application knowledge.

We use NMM to provide the application restore service in this solution. To prevent an unauthorized restore operation, only the application administrator can perform the restore operation.

**EMC NetWorker Module for Microsoft**

NMM enables the application-aware recovery capability from the storage subsystem. NMM enables you to restore point-in-time snapshot data from the backup media for Microsoft applications, including Microsoft SQL Server, SharePoint, Exchange Server, and Hyper-V virtual machines.

Figure 21 shows the NMM 9.0 architecture. NMM uses Volume Shadow Copy Service (VSS) technology to coordinate backup and recovery operations. NMM deploys specific VSS writer software for each Microsoft application that understands how the application works to ensure the data integrity for Microsoft applications. NMM 9.0 uses the VSS Common Requestor to send commands to the VSS framework to execute related operations and workflows.
These high-level steps describe the recovery procedure for the Microsoft applications:

1. You identify a corrupted, deleted, or rewritten file or database.
2. You start the restore operation from NMC or the NetWorker client utility for SQL Server to initiate a recovery request to replicate the data.
3. Data Domain transmits the missing portion of data.
4. NetWorker completes the recovery operation.

**Note:** The recovery procedures for each of the Microsoft applications are slightly different.

Figure 22 shows the recovery operation that uses the NetWorker client utility for SQL Server.

![Recovery operation using the NetWorker client utility for SQL Server](image1)

**Figure 22.** Recovery operation using the NetWorker client utility for SQL Server

Figure 23 shows the SharePoint recovery operation in NMC.

![SharePoint recovery operation using NMC](image2)

**Figure 23.** SharePoint recovery operation using NMC

An Exchange recovery can serve many different purposes. The smallest unit of granularity of a backup consists of an Exchange database, log files, and checkpoint files. You can use those backups to recover entire servers, individual databases, or mailbox items. When you back up an Exchange environment with NMM, these recovery options are available for stand-alone and high-availability environments:

- Recover to the original location on the original Exchange server
- Recover to the Exchange Server recovery database on the original Exchange server
- Recover to an Exchange Server recovery database on a different Exchange server
- Recover at the message level using the Exchange Granular Level Recovery (GLR) option
To restore or recover a database from an Exchange backup, use the NMM server restore utility. This utility is installed as part of the NMM and can be run from the client, as shown in Figure 24.

**Figure 24. NetWorker Module for Microsoft Exchange server restore utility**

### Conclusion

This solution enables customers to provide enterprise-class application BaaS for Microsoft cloud infrastructures. Empowered by EMC data protection in the cloud infrastructure, this Microsoft private cloud solution provides these key features:

- **Self-service data protection**: Tenants can use the self-service portal to provision the Microsoft application server with backup software installed by deploying selected virtual machine templates. Administrators can use the self-service portal to enable the backup policy for newly deployed application servers.

- **Automated backup operations**: The integration of the PowerShell runbook and the NetWorker command line provides automation for backup operations.

### References

The following documentation on [EMC.com](http://EMC.com) or [EMC Online Support](http://EMC Online Support) provides additional relevant information about the solution. Access depends on your login credentials. If you do not have access to a document, contact your EMC representative.

- [Microsoft Cloud Reference Architecture: Foundation](http://Microsoft Cloud Reference Architecture: Foundation)
References

- Microsoft Cloud Reference Architecture: Microsoft Applications
- EMC NetWorker Module for Microsoft Release Notes
- EMC NetWorker Module for Microsoft Administration Guide
- EMC NetWorker Module for Microsoft Installation Guide
- EMC NetWorker Module for Microsoft for SQL and SharePoint VSS User Guide
- EMC NetWorker Module for Microsoft for SQL VDI User Guide
- EMC NetWorker Module for Microsoft for Exchange Server VSS User Guide
- EMC NetWorker Module for Microsoft for Hyper-V VSS User Guide
- EMC NetWorker Module for Microsoft for Windows Bare Metal Recovery Solution User Guide
- EMC NetWorker Performing Backup and Recovery of SharePoint Server by using NetWorker Module for Microsoft SQL VDI Solution Technical Notes
- EMC NetWorker Module for Microsoft: Performing Exchange Server Granular Recovery (GLR) by using NetWorker Module for Microsoft with Ontrack PowerControls Technical Notes
- EMC NetWorker SharePoint BLOB Backup and Recovery by using NetWorker Module for Microsoft and Metalogix StoragePoint Technical Notes
- EMC NetWorker Command Reference Guide
- EMC Data Domain Operating System Administration Guide
- The EMC NetWorker 9 Documentation Portfolio
This appendix provides an example of a System Center Orchestrator runbook that adds a SharePoint server client and enables an application backup policy.

Runbook example

workflow Add-NetworkerClient
{
    param (
        [Parameter(Mandatory=$true)]
        [string] $ClientName,
        [Parameter(Mandatory=$true)]
        [string] $AppType
    )

    try
    {
        $Time = Get-Date
        echo "The script execution started at $Time"
        $NetworkerServer = Get-AutomationVariable -Name 'NetworkerServer'
        $Credential = Get-AutomationPSCredential - Name 'BackupAdminCredential'
        $domain = $Credential.GetNetworkCredential().Domain
        $username = $Credential.GetNetworkCredential().UserName
        $password = $Credential.GetNetworkCredential().Password
        inlinescript
        {
            $B=$Using:AppType
            switch ($B.toupper())
            {
                "SHAREPOINT" {$B = "Bronze-Application"}
            }
            echo $B
            $CurrentPath = Get-Location
            #Change directory for executing nsradmin
            cd "C:\Program Files\EMC NetWorker\nsr\bin"
```powershell
    echo "create type:nsr
    client:name:$using:ClientName;protection
    group list:$B;backup type:SharePoint Server;save
    set:"APPLICATIONS:\Microsoft Office SharePoint Services";remote
    user:$using:domain\$using:username;password:$using:password;backup command:nsrnmmsv"
    | nsradmin -s $using:NetworkerServer -i -
    echo "Created networker client with policy successfully"
    cd $CurrentPath.Path
}
catch
{
    $ErrorMessage = $_.Exception.Message
}
finally
{
    $Time = Get-Date
    echo "The script execution has completed at $Time"
}
```