

BRYANT WATKINS

CYSE 608 | Dr. Gladden

AD Sites, Suites, and Powershell Research

3/18/26

Prompt: “How does subnetting in a Windows Server environment affect IP management and network segmentation? What are the benefits of using PowerShell for domain management tasks in Windows Server 2019?”

Subnetting affect on IP management and network segmentation

Subnetting plays a significant role in influencing internet protocol management and network segmentation. Subnetting is the process of dividing a network up into separate networks (subnetworks) for the purposes of improved security, traffic control, and overall network performance. The smaller subnetworks created have their internet protocol address derived directly from the host portions of an initial address. Subnetting has numerous benefits for the purposes of both networking and cybersecurity administration.

The main role for subnetting in internet protocol management and network segmentation is the dividing up of the network. Dividing the network is the entire essence of network segmentation. Network segmentation allows for the isolation of traffic, which is an enormous security feature that any cybersecurity professional should seek in an administrative organizational role. The divided network created by a combination of subnetting and network segmentation provides for much easier network management as well, as for example, any troubleshooting or traffic tracing can be pinpointed to a specific subnetwork.

Internet protocol address management is also a process that is made much easier with the implementation of subnetting. Subnetting makes address allocation a more efficient process, as moving individual subnetworks is a much easier process than attempting to move entire network blocks. The process of subnetting also makes an organization’s scalability more efficient, as

individual addresses can be created or altered with relative ease. Overall, subnetting is an incredibly powerful and effective technique to improve the network segmentation and internet protocol address management of an organization.

Benefits of using PowerShell for domain management tasks in Windows Server 2019

The main benefits of using PowerShell for domain management tasks in Windows Server 2019 are the ability to automate tasks and improve overall efficiency. Powershell allows cybersecurity administrators to create automated tasks, freeing up time for administrators to complete other critical tasks with ease of mind knowing desired tasks are also being completed in the background. The potential for human error is also greatly reduced, as manual human input and configuration is increasingly limited with the use of Powershell. The efficiency of completing bulk tasks is also greatly improved; multiple tasks can be completed with incredible efficiency and thus eliminating the need for time-consuming individual task management. Efficiency is major component of any well-run and successful organization

Consistency is another incredible benefit to using Powershell for domain management tasks in Windows Server 2019. Powershell completes tasks in a very consistent manner, which eliminates the chance for configurations to take place in an uneven or varied manner. Consistency is golden for any cybersecurity administrative tasks and overall organizational management. The ability to customize tasks specifically tailored to your organization is also extremely beneficial, as organizations can have vastly different needs. The ability to customize tasks in Powershell eliminates the chance of inefficient techniques that are cookie-cutter in nature and fail to account for the specified needs of an organization. All these benefits illustrate the importance for cybersecurity administrators to obtain extensive knowledge and experience in

the use of Powershell. Powershell is an amazing asset that should be a part of any arsenal of tools utilized by cybersecurity professionals and organizations worldwide.

WORK CITED

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"Subnetting Definition – Glossary | Nordvpn." NordVPN, nordvpn.com/cybersecurity/glossary/subnetting/. Accessed 18 Mar. 2026.