

Microsoft Azure Administrator: Monitor and Troubleshoot Virtual Networking

INSPECTING AZURE VIRTUAL NETWORK TRAFFIC



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Overview



Understand this course















Use Network Watcher

Use Network Performance Monitor

Troubleshoot VNet connectivity



Exercise Files



What do you want to learn?

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Troubleshooting with Microsoft Azure Network Watcher

by Tim Warner

Microsoft now gives you packet-level access to your Windows Server and Linux virtual machines (VMs) running in Azure. You'll learn how to use Network Watcher to troubleshoot network security groups (NSGs), perform packet captures, and much more.

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Learning Check

Recommended

These exercise files are intended to provide you with the assets you need to create a video-based hands-on experience. With the exercise files, you can follow along with the author and re-create the same solution on your computer. We find this to be even more effective than written lab exercises.

[Download exercise files](#)

Course author

**Tim Warner**

Timothy Warner is a Microsoft Most Valuable Professional (MVP) in Cloud and Datacenter Management who is based in Nashville, TN.

Course info

Level	Intermediate
Rating	★★★★★
My rating	★★★★★
Duration	2h 12m
Released	31 Oct 2017

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Exercise Files

The screenshot displays a Windows desktop environment with three overlapping windows:

- File Explorer (Left):** Shows the 'Downloads' folder. A list of folders is visible, with '02' selected. The status bar at the bottom indicates '0 / 5 object(s) selected'.
- Text Editor (Center):** A Notepad window titled 'microsoft-azure-ad-privileged-identity-management-configuring-m4-links.txt'. It contains a list of 22 numbered items, each consisting of a title and a URL. The status bar at the bottom shows 'Spaces: 4 UTF-8 CRLF Plain Text'.
- File Download Window (Right):** A small window showing a file named '02\demos\' with a size of 1,298 bytes and a package size of 359 bytes.

The text editor content is as follows:

```
1 Module 4: Organize and Perform Azure AD PIM Access Reviews
2
3 Microsoft Azure
4 https://azure.microsoft.com/en-us/
5
6 Azure Documentation
7 https://docs.microsoft.com/en-us/azure/
8
9 Azure AD Privileged Identity Management (PIM) documentation | Microsoft Docs
10 https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/
11
12 Identity Governance - Azure Active Directory | Microsoft Docs
13 https://docs.microsoft.com/en-us/azure/active-directory/governance/identity-governance-overview
14
15 Create an access review of Azure resource roles in PIM - Azure Active Directory | Microsoft Docs
16 https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/pim-resource-roles-start-access-review
17
18 Review access to Azure AD roles in PIM - Azure Active Directory | Microsoft Docs
19 https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/pim-how-to-perform-security-review
20
21 View audit history for Azure AD roles in PIM - Azure Active Directory | Microsoft Docs
22 https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/pim-how-to-use-audit-log
```



Understand this Course



Microsoft Azure Administrator

Exam AZ-104: Microsoft Azure Administrator – Skills Measured

Objective Domain

Configure and manage virtual networking (30-35%)

Functional Group

Monitor and troubleshoot virtual networking

Objective

- monitor on-premises connectivity
- use Network Performance Monitor
- use Network Watcher
- troubleshoot external networking
- troubleshoot virtual network connectivity

Skills



Network Watcher



Network Watcher



Monitoring toolset for Azure virtual networks

Analyze VNet topologies

Diagnose and solve

- VNet traffic filtering problems
- Network routing problems
- VPN/gateway connectivity problems



Network Watcher Toolset

Topology

View VNet layout

Download as SVG image

Connection monitor

Track connection reachability

Measure latency and topology changes

IP flow verify

5-tuple connectivity check from Azure VM

Next hop

Verify routing paths

Effective security rules

Analyze NSG rules

VPN troubleshoot

Deep logging of Azure VPN Gateway

Packet capture

Gather Ethernet frames and analyze with MMA or Wireshark

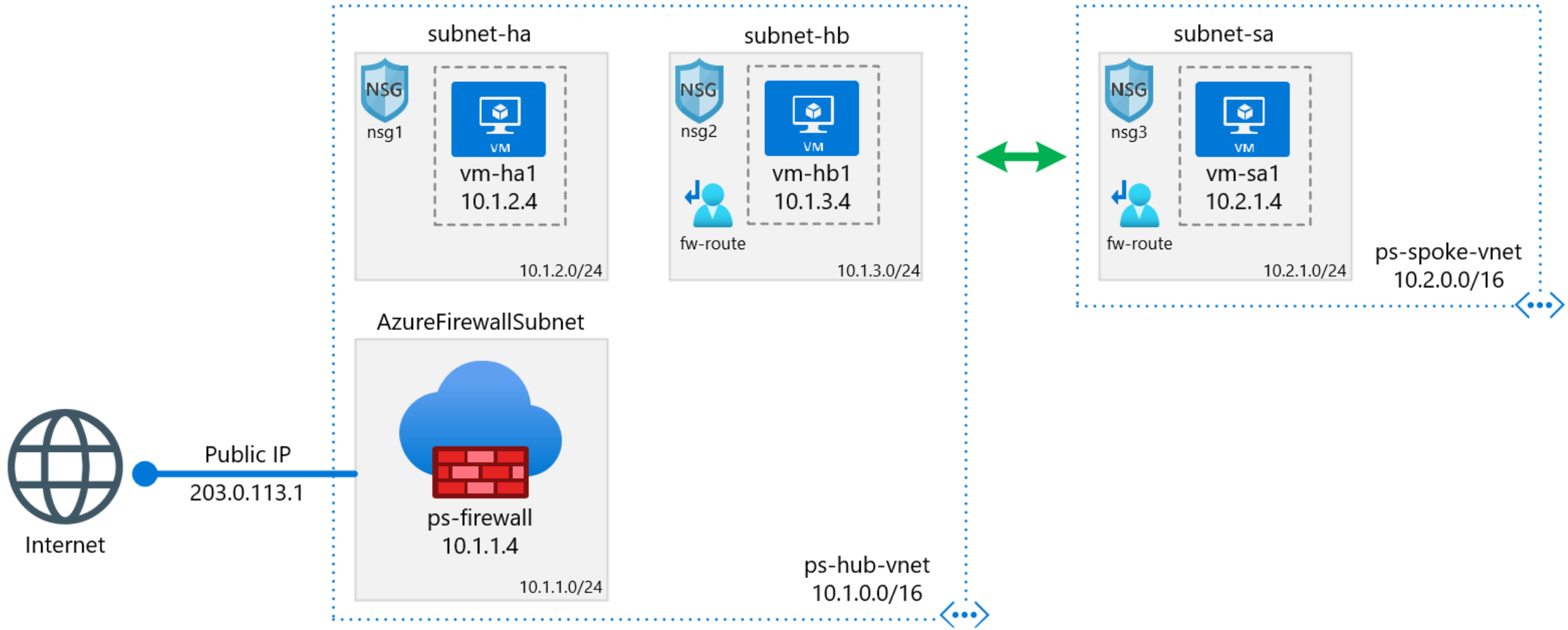
Connection troubleshoot

Check direct TCP connection with any endpoint

More comprehensive analysis than IP flow verify



Lab Topology



Demo



1

Network Watcher extension

Tour the main tools



Network Performance Monitor



Network Performance Monitor



One of several Azure management solutions

Dependent on an Azure Log Analytics workspace

- Sometimes called "Azure Monitor Logs"

Visibility into Azure and/or local networks





NPM Toolset

Performance Monitor

Monitor packet loss and latency

Hybrid cloud aware

No need for SNMP

Service Connectivity Monitor

Monitor any TCP endpoint

APIs, SaaS, PaaS applications

Office 365

Azure SQL Database

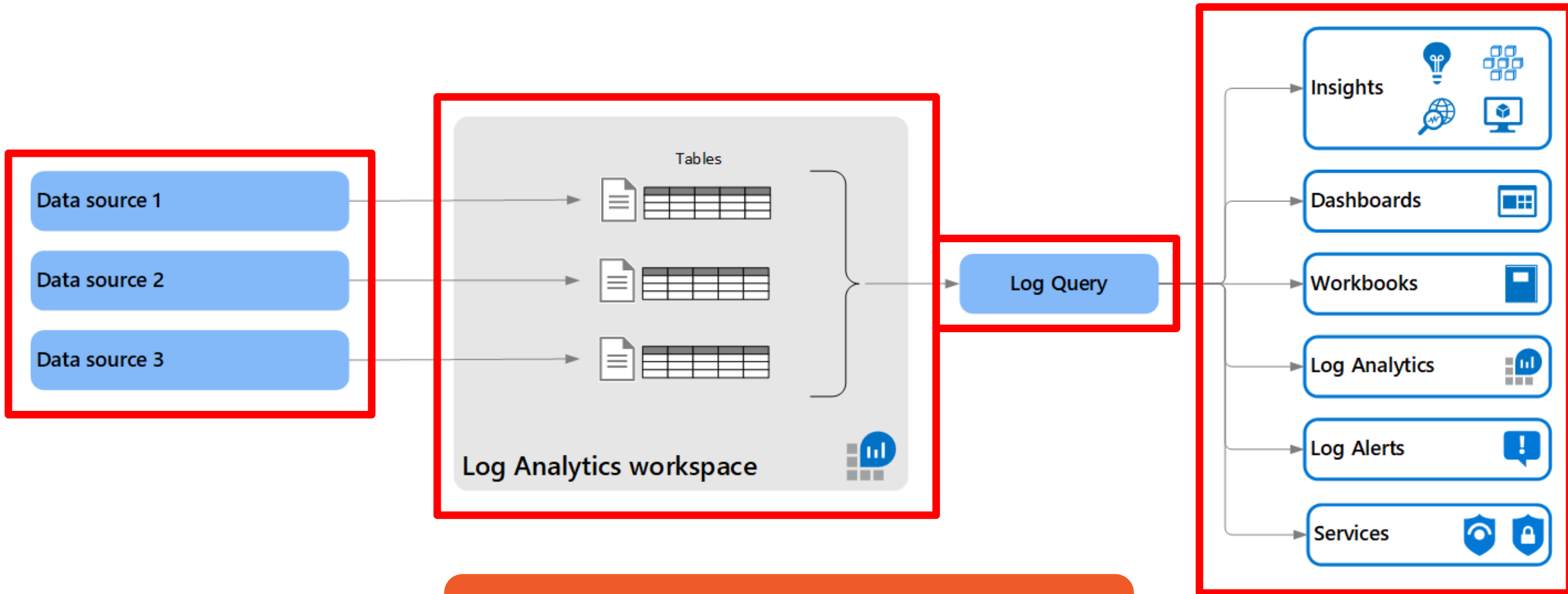
ExpressRoute Monitor

Bandwidth utilization

Network topology discovery



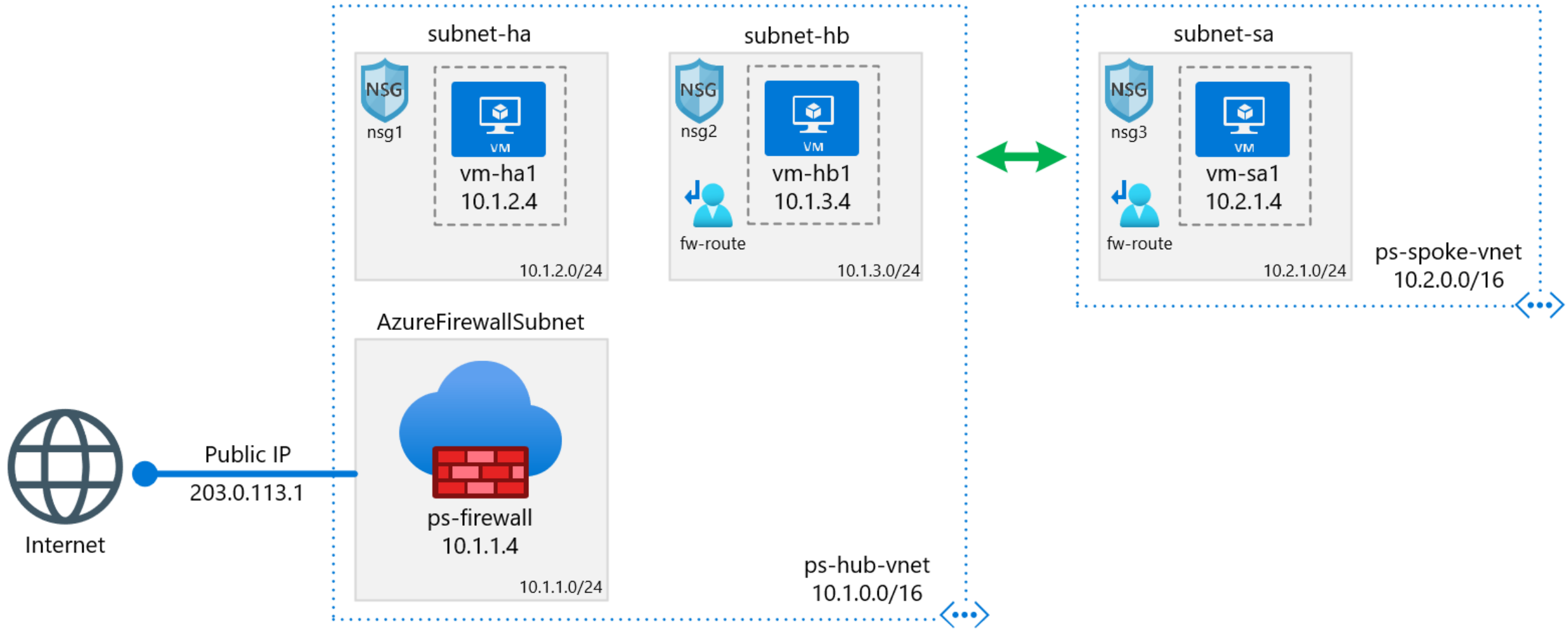
Azure Log Analytics



Management solutions integrate with Log Analytics



Lab Topology



Demo



2

Create workspace

View other management solutions

Install and configure NPM

- Focus on Azure and M365



Summary



Given we'll probably never visit an Azure datacenter, it's great how much network visibility we can gain

- Latency
- Packet capture

Management solutions are a great entry point into log search

- Kusto Query Language (KQL)

Next module: Inspecting Azure Hybrid Cloud Network Traffic

